



# Internet Access in U.S. Public Schools and Classrooms: 1994-2003



E.D. TAB

U.S. Department of Education  
Institute of Education Sciences  
NCES 2005-015





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# **Internet Access in U.S. Public Schools and Classrooms: 1994-2003**

**E.D. TAB**

**February 2005**

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**Suggested Citation**

Parsad, B., and Jones, J. (2005). *Internet Access in U.S. Public Schools and Classrooms: 1994–2003* (NCES 2005–015). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

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# Acknowledgments

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The authors wish to thank the many individuals who contributed to the development of the survey and this report. The survey was requested by the Office of Educational Technology. Bernard Greene was the NCES Project Officer.

Westat's Project Director was Laurie Lewis, and the survey managers were Jennifer Jones and Basmat Parsad. Debbie Alexander directed the data collection efforts, assisted by Ratna Basavaraju and Anjali Pandit. Alla Belenky was the programmer, Carol Litman was the editor, and Sylvie Warren was responsible for formatting the report.

The NCES staff who reviewed the report and provided valuable suggestions include Shelley Burns, William Hussar, Edith McArthur, Jeffrey Owings, and Marilyn Seastrom. Reviewers outside of NCES were Janet Boysen, Scott Dorfman, Robin Gurley, Lawrence Lanahan, and Michael Planty of the Education Statistics Services Institute, American Institutes for Research; and Helen Soule of the Office of Postsecondary Education, U.S. Department of Education. This report was also reviewed by Duc-Le To of the Institute of Education Sciences.

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# Summary

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## Background

The National Center for Education Statistics (NCES) has employed its Fast Response Survey System (FRSS)<sup>1</sup> to track access to information technology in schools and classrooms since 1994. Each year, NCES has conducted a new nationally representative survey of public schools to gauge the progress made in computer and Internet availability, based on measures such as student-to-computer ratio and the percentage of schools and classrooms with Internet connections. As computers and the Internet became increasingly available in schools, the FRSS surveys were modified to address new and continuing issues, such as the use of new types of Internet connections to enhance connectivity. Recent FRSS surveys on Internet access have been expanded to address other emerging issues. The 2002 survey, for instance, included items on the use of technologies or procedures to prevent student access to inappropriate material on the Internet, the availability of computers outside of regular school hours, and the availability of teacher professional development on technology use in the classroom.

This report presents key findings from the 2003 FRSS survey on Internet access in U.S. public schools and selected comparisons with data from previous FRSS Internet surveys. The 2003 survey, designed to update data on all of the questions asked in 2002, covered the following topics:

- school connectivity, including school and classroom access to the Internet, types of connections, and computer hardware, software, and Internet support;
- student access to computers and the Internet, including student-to-computer ratio, computer availability outside of regular school hours, the provision of hand-held computers, and laptop computers available for loan;
- school websites;
- technologies and procedures to prevent student access to inappropriate material on the Internet; and
- teacher professional development on how to integrate the use of the Internet into the curriculum.

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<sup>1</sup> FRSS is designed to administer short, focused, issue-oriented surveys that place minimal burden on respondents and have a quick turnaround from data collection to reporting.

Questionnaires for the survey “Internet Access in U.S. Public Schools, Fall 2003” were mailed to a representative sample of 1,207 public schools in the 50 states and the District of Columbia. The sample was selected from the 2001–02 NCES Common Core of Data (CCD) Public Elementary/Secondary School Universe File, the most current available at the time of selection. Over 95,000 schools are contained in the 2001–02 CCD Public Elementary/Secondary School Universe File. The sampling frame includes 83,842 regular elementary and secondary/combined schools. The estimated number of schools in the survey universe decreased to an estimated 82,232 because some of the schools were determined to be ineligible for the FRSS survey during data collection. Data have been weighted to yield national estimates. The unweighted response rate was 91 percent, and the weighted response rate was 92 percent. Detailed information about the survey methodology is provided in appendix A, and the questionnaire can be found in appendix B. The primary focus of this report is to present national estimates for selected topics in 2003 and statistically significant findings over time. In addition, selected survey findings are presented by the following school characteristics:

- instructional level (elementary, secondary);
- school size (enrollment of less than 300, 300 to 999, 1,000 or more);
- locale (city, urban fringe, town, rural);
- percent minority enrollment (less than 6 percent, 6 to 20 percent, 21 to 49 percent, 50 percent or more); and
- percent of students eligible for free or reduced-price lunch (less than 35 percent, 35 to 49 percent, 50 to 74 percent, 75 percent or more), which is used as a measure of poverty concentration at the school. For the remainder of this report, we will refer to the percent of free or reduced-priced lunch as poverty concentration.

In general, comparisons by these school characteristics are presented only where significant differences were detected and follow meaningful patterns. It is important to note that many of the school characteristics may also be related to each other. For example, enrollment size and instructional level of schools are related, with secondary schools typically being larger than elementary schools. Similarly, poverty concentration and minority enrollment are related, with schools with a higher minority enrollment also more likely to have a higher concentration of poverty. Other relationships may exist between the school characteristics used for analysis. However, this E.D. TAB report focuses on bivariate relationships between school characteristics and the data gathered in the survey, rather than more complex analyses, to provide descriptive information about Internet access in public schools.<sup>2</sup>

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<sup>2</sup> E.D. TAB reports focus on the presentation of selected descriptive data in tabular format. The analyses did not control for interrelationships between the school characteristics.

All specific statements of comparison made in this report have been tested for statistical significance through trend analysis tests and *t*-tests adjusted for multiple comparisons using the Bonferroni adjustment,<sup>3</sup> and are significant at the 95 percent confidence level or better. However, only selected findings are presented for each topic in the report. Throughout this report, differences that may appear large (particularly those by school characteristics) may not be statistically significant. This is due in part to the relatively large standard errors surrounding the estimates and the use of the Bonferroni adjustment to control for multiple comparisons. A detailed description of the statistical tests supporting the survey findings can be found in appendix A.

## **Selected Findings**

The findings are organized to address the following issues: school connectivity, student access to computers and the Internet, school websites, technologies and procedures to prevent student access to inappropriate material on the Internet, and teacher professional development on how to integrate the use of the Internet into the curriculum.

### **School Connectivity**

The FRSS surveys on Internet access collected information on several key measures of school connectivity. Schools were asked whether they had access to the Internet. Schools with Internet access were also asked about the number of instructional rooms that had at least one computer with Internet access, the types of Internet connections used, and the staff position of the person primarily responsible for computer hardware, software, and Internet support at the school. Information on the number of instructional rooms with Internet access was combined with information on the total number of instructional rooms in the school to calculate the percentage of instructional rooms with Internet access.<sup>4</sup>

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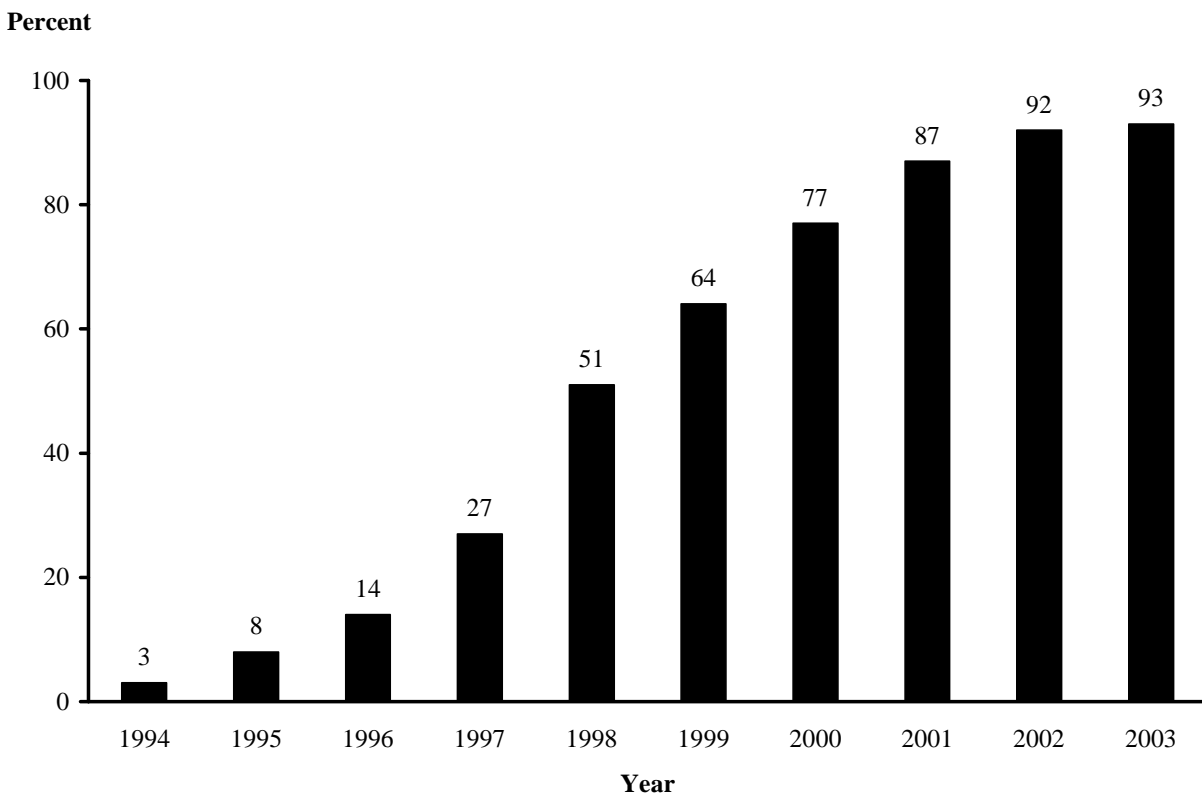
<sup>3</sup> The Bonferroni adjustment was also used for previous FRSS Internet reports. The Bonferroni adjustment is appropriate to test for statistical significance when the analyses are mainly exploratory (as in this report) because it results in a more conservative critical value for judging statistical significance.

<sup>4</sup> Instructional rooms include classrooms, computer and other labs, library/media centers, and any other rooms used for instructional purposes.

## School and Instructional Room Access

- In fall 2003, nearly 100 percent of public schools in the United States had access to the Internet,<sup>5</sup> compared with 35 percent in 1994 (table 1). In 2003, no differences in school Internet access were observed by any school characteristics, which is consistent with data reported previously. There have been virtually no differences in school access to the Internet by school characteristics since 1999 (Kleiner and Lewis 2003).
- Public schools have made consistent progress in expanding Internet access in instructional rooms. In 2003, 93 percent of public school instructional rooms had Internet access, compared with 3 percent in 1994 (figure 1 and table 2). Across school characteristics, the proportion of instructional rooms with Internet access ranged from 90 to 97 percent.

**Figure 1. Percent of public school instructional rooms with Internet access: 1994–2003**



NOTE: Percentages are based on all public schools. Information on the number of instructional rooms with Internet access was combined with information on the total number of instructional rooms in the school to calculate the percentage of instructional rooms with Internet access. All of the estimates in this report were recalculated from raw data files using the same computational algorithms. Consequently, some estimates presented here may differ trivially (i.e., 1 percent) from results published prior to 2001. See table 2 for detailed data.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K–12," FRSS 51, 1994; "Survey on Advanced Telecommunications in U.S. Public Schools, K–12," FRSS 57, 1995; "Advanced Telecommunications in U.S. Public Schools, Fall 1996," FRSS 61, 1996; "Internet Access in U.S. Public Schools, Fall 1997," FRSS 64, 1997; "Internet Access in U.S. Public Schools, Fall 1998," FRSS 69, 1998; "Internet Access in U.S. Public Schools, Fall 1999," FRSS 75, 1999; "Internet Access in U.S. Public Schools, Fall 2000," FRSS 79, 2000; "Internet Access in U.S. Public Schools, Fall 2001," FRSS 82, 2001; "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

<sup>5</sup> This estimate was rounded to 100 percent.

## Type of Connection

The types of Internet connections used by public schools and the speed at which computers are connected to the Internet have changed over the years. In 1996, dial-up Internet connections (a type of narrowband connection) were used by about three-fourths (74 percent) of public schools having Internet access (Heaviside, Riggins, and Farris 1997). In 2001, 5 percent of public schools used dial-up connections, while the majority of public schools (55 percent) reported using T1/DS1 lines (a type of broadband connection), a continuous and much faster type of Internet connection than dial-up (Kleiner and Farris 2002). Because of the increasing complexity of detailed information on types of connections, the 2002 and 2003 surveys directly asked whether schools used broadband and narrowband connections.<sup>6</sup> Schools also reported whether they used wireless connections to the Internet, the types of wireless connections used, and the number of instructional rooms with wireless connections.

- In 2003, 95 percent of public schools with Internet access used broadband connections to access the Internet (table 3). In 2001 and 2000, 85 percent and 80 percent of the schools, respectively, were using broadband connections.
- In 2003, as in previous years (Kleiner and Lewis 2003), the likelihood of using broadband connections increased with school size, from 90 percent for small schools to nearly 100 percent for large schools<sup>7</sup> (table 3). In addition, rural schools were less likely than both town and urban fringe schools to have Internet access using this type of connection (90 percent compared with 98 and 97 percent, respectively).
- Thirty-two percent of public schools with Internet access used wireless connections in 2003, an increase from 23 percent in 2002 (table 4).<sup>8</sup> In 2003, the proportion of public schools with wireless Internet connections increased with school size but decreased as poverty concentration (percent of students eligible for free or reduced-price lunch) increased. For example, 36 percent of schools with the lowest poverty concentration had wireless connections, compared with 25 percent of schools with the highest poverty concentration. In addition, secondary schools were more likely than elementary schools to use wireless Internet connections (42 percent compared with 29 percent).
- Of the schools using wireless Internet connections in 2003, 92 percent indicated that they used broadband wireless Internet connections (table 4). Across all school characteristics, the percentage of public schools with wireless connections using broadband wireless Internet connections ranged from 88 percent to 96 percent.

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<sup>6</sup> In 2000 and 2001, respondents were instructed to circle as many types of connections as there were in the school. The 2002 and 2003 questionnaires directly asked whether the schools used broadband and narrowband connections. These percentages include schools using only broadband connections, as well as schools using both broadband and narrowband connections. They do not include schools using narrowband connections exclusively. Broadband connections include T3/DS3, fractional T3, T1/DS1, fractional T1, and cable modem connections. In 2001, 2002, and 2003, they also included DSL connections, which had not been an option on the 2000 questionnaire.

<sup>7</sup> This estimate was rounded to 100 percent.

<sup>8</sup> A school could use both wireless and wired Internet connections. Wireless Internet connections can be broadband or narrowband.

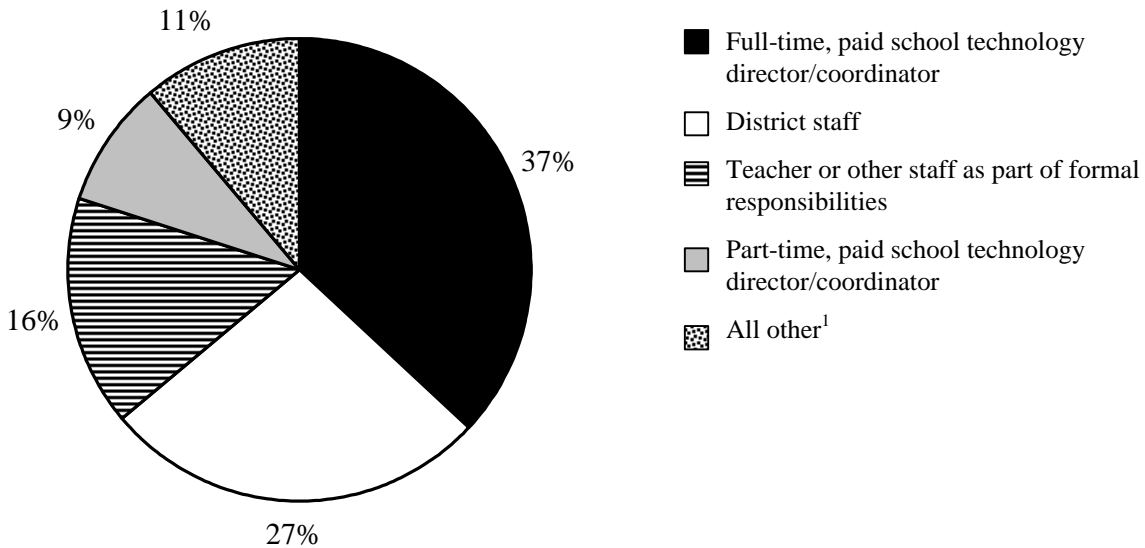


- In 2003, 11 percent of all public school instructional rooms had wireless Internet connections (table 5). This represents a decrease from the previous year, when 15 percent of public school instructional rooms had wireless Internet connections.

### Computer Hardware, Software, and Internet Support

- The staff position of the person with primary responsibility for computer hardware, software, and Internet support varied across schools (table 6 and figure 2). Thirty-seven percent of schools indicated that it was a full-time, paid school technology director or coordinator; 27 percent, district staff; 16 percent, a teacher or other staff as part of formal responsibilities; 9 percent, a part-time, paid school technology director or coordinator; 3 percent, a consultant or outside contractor; 3 percent, a teacher or other staff as volunteers; and 5 percent, some other position.
- Differences were observed by locale and instructional level (table 6). For example, a higher percentage of secondary schools than elementary schools reported that a full-time, paid technology director or coordinator was the person primarily responsible for computer hardware, software, and Internet support at the school (44 percent compared with 35 percent).

**Figure 2. Percentage distribution of the staff position of those who were primarily responsible for computer hardware, software, and Internet support at the school: 2003**



<sup>1</sup>This category includes consultant/outside contractor, teacher or other staff as volunteers, and other.

NOTE: Percentages are based on the public schools with Internet access (nearly 100 percent). Detail may not sum to totals because of rounding and not reporting where there are too few cases for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

## **Student Access to Computers and the Internet**

The FRSS surveys on Internet access obtained information on various measures of student access to computers and the Internet. Schools reported the number of instructional computers with Internet access; this information was then combined with enrollment data to compute the ratio of students to instructional computers with Internet access. Schools were also asked about student access to the Internet outside of regular school hours, the provision of hand-held computers to students and teachers, and laptop computer loans to students.

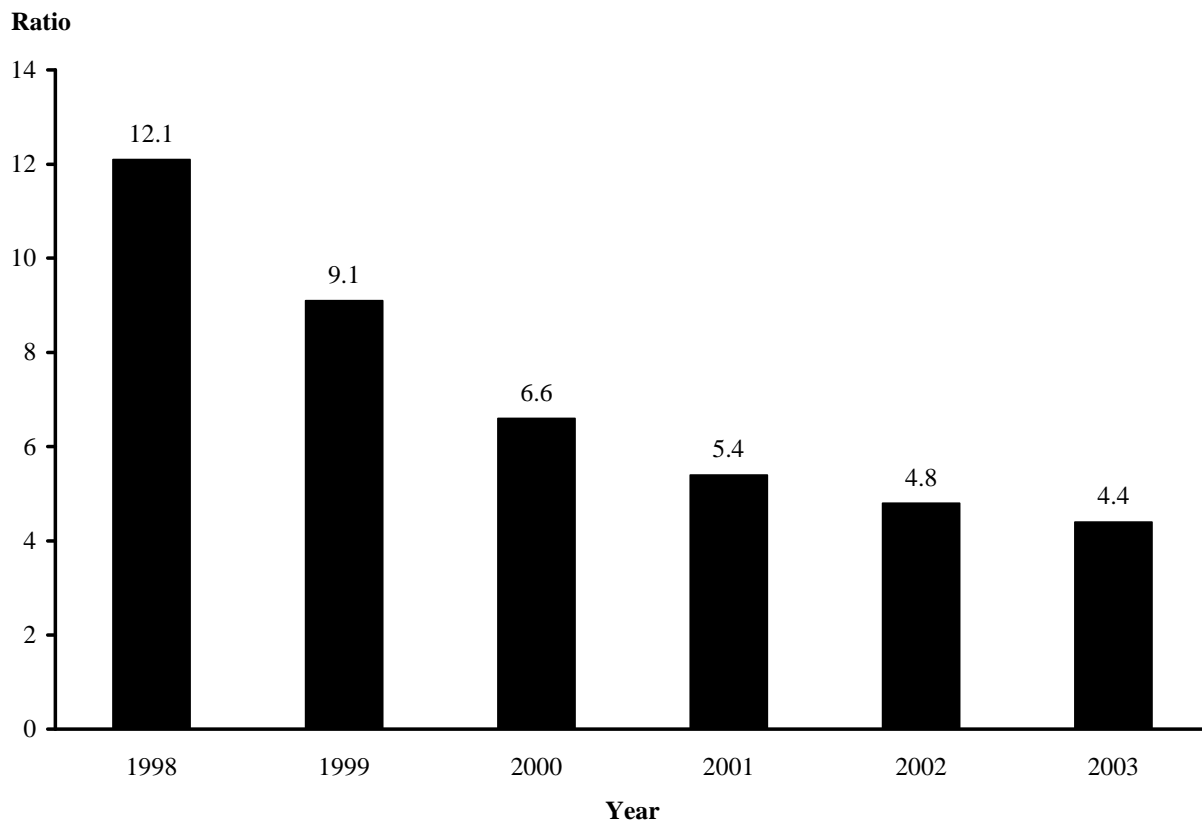
### **Students Per Instructional Computer With Internet Access**

- The ratio of students to instructional computers with Internet access was computed by dividing the total number of students in all public schools by the total number of instructional computers with Internet access in all public schools (including schools with no Internet access).<sup>9</sup> In 2003, the ratio of students to instructional computers with Internet access in public schools was 4.4 to 1, a decrease from the 12.1 to 1 ratio in 1998, when it was first measured (figure 3 and table 7).
- The ratio of students to instructional computers differed by all school characteristics in 2003 (table 7). For example, the ratio of students to instructional computers with Internet access was higher in schools with the highest poverty concentration (percent of students eligible for free or reduced-price lunch) than in schools with the lowest poverty concentration (5.1 to 1 compared with 4.2 to 1).

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<sup>9</sup> This is one method of calculating students per computer. Another method involves calculating the number of students in each school divided by the number of instructional computers with Internet access in each school and then taking the mean of this ratio across all schools. When “students per computer” was first calculated for this NCES series in 1998, a decision was made to use the first method; this method continues to be used for comparison purposes. A couple of factors influenced the choice of that particular method. There was (and continues to be) considerable skewness in the distribution of students per computer per school. In addition, in 1998, 11 percent of public schools had no instructional computers with Internet access.

**Figure 3. Ratio of public school students to instructional computers with Internet access: 1998–2003**



NOTE: The ratio of students to instructional computers with Internet access was computed by dividing the total number of students in all public schools by the total number of instructional computers with Internet access in all public schools (including schools with no Internet access). All of the estimates in this report were recalculated from raw data files using the same computational algorithms. Consequently, some estimates presented here may differ trivially (i.e., 1 percent) from results published prior to 2001. See table 7 for detailed data.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 1998," FRSS 69, 1998; "Internet Access in U.S. Public Schools, Fall 1999," FRSS 75, 1999; "Internet Access in U.S. Public Schools, Fall 2000," FRSS 79, 2000; "Internet Access in U.S. Public Schools, Fall 2001," FRSS 82, 2001; "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

### **Availability of Computers With Internet Access Outside of Regular School Hours**

Past research indicates that 5- to 17-year-olds whose families were in poverty were less likely to use the Internet at home than 5- to 17-year-olds whose families were not in poverty in 2001 (47 percent compared with 82 percent) (DeBell and Chapman 2003). Making the Internet accessible in schools outside of regular school hours allows students who do not have access to the Internet at home to use this resource for school-related activities such as homework. The FRSS surveys on Internet access asked whether schools made instructional computers with Internet access available to students outside of regular school hours, when the computers were made available, and the number of computers made available.

- In 2003, 48 percent of public schools with Internet access reported that they made computers with access to the Internet available to students outside of regular school hours (table 8). Differences by school characteristics were observed for instructional level and school size. Secondary schools were more likely to make the Internet available to students outside of regular school hours than were elementary schools (69 percent compared with 41 percent). The likelihood of Internet availability outside of regular school hours increased with school size, from 39 percent for small schools to 74 percent for large schools.
- Among schools providing computers with Internet access to students outside of regular school hours in 2003, 98 percent made them available after school, 71 percent before school, and 9 percent on weekends (table 8). The proportion of public schools allowing Internet access to students after school increased from 95 percent in 2001 to 98 percent in 2003.
- The proportion of public schools allowing students to access the Internet before school was lower in schools with the highest minority enrollment (60 percent) than in schools with the two lowest categories of minority enrollment (80 percent each) (table 8). A similar pattern occurred by school poverty concentration (percent of students eligible for free or reduced-price lunch). Fifty-four percent of schools with the highest poverty concentration had computers with Internet access available to students before school, compared with 82 percent and 80 percent of schools with the two lowest categories of poverty concentration.
- In all public schools, the ratio of students to computers with Internet access available outside of regular school hours was 22 to 1 in 2003. This was a decrease from the 26 to 1 ratio in 2001, when it was first measured (table 9).<sup>10</sup> Among public schools that allow students to access the Internet outside of regular school hours, the ratio of students to computers with Internet access available outside of regular school hours was 12 to 1 in 2003, a decrease from 15 to 1 in 2001.
- Among public schools that allow students to access the Internet outside of regular school hours in 2003, the ratio of students to computers with Internet access available outside of regular school hours differed by school size, locale, and percent minority enrollment (table 9). For example, schools with the highest percent minority enrollment had more students per computer available outside of regular schools (14 students per computer) than did schools with the lowest percent minority enrollment (10 students per computer).

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<sup>10</sup> The ratio of students to computers with Internet access available outside of regular school hours was computed by dividing the total number of students in all public schools by the total number of computers with Internet access available outside of regular school hours in all public schools (including schools with no Internet access and schools that did not make computers with Internet access available to students outside of regular school hours).

## Provision of Hand-Held Computers

- In 2003, 10 percent of public schools provided hand-held computers to students or teachers for instructional purposes, an increase from 7 percent in the previous year (table 10).<sup>11</sup>
- Among schools providing hand-held computers to students or teachers for instructional purposes in 2003, the median number of hand-held computers provided per school was 10 (i.e., half of the schools reported a lower number than 10 and the other half reported a higher number) (not shown in tables).<sup>12</sup>
- In 2003, the proportion of schools that provided hand-held computers to students or teachers for instructional purposes increased with school size from 5 percent for small schools to 21 percent for large schools (table 10). Furthermore, secondary schools were more likely than elementary schools (14 percent compared with 9 percent) to provide hand-held computers to students or teachers for instructional purposes.

## Laptop Computer Loans

Public schools reported whether they lent laptop computers to students, the number of laptops available for loan, and the maximum length of time for which they could be borrowed. Schools that did not lend laptop computers to students were asked about their future plans for such loans; for example, in 2003 schools were asked whether they planned to lend laptop computers to students in the 2004–05 school year.

- In 2003, 8 percent of public schools lent laptop computers to students (table 11). In those schools, the median number of laptop computers available for loan was 5 (not shown in tables).<sup>13</sup>
- Fifty-seven percent of schools lending laptop computers reported that students could borrow them for less than 1 week, 17 percent reported that students could borrow them for a period of 1 week to less than 1 month, 15 percent reported lending laptops for the entire school year, and 8 percent reported lending laptops for some other maximum length of time (table 12).

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<sup>11</sup>Hand-held computers are computers, or personal digital assistants, small enough to be held in one hand. Examples are Palm Pilots or Pocket PCs.

<sup>12</sup>On average, 24 hand-held computers per school were provided to students or teachers in schools that supplied such computers in 2003 (not shown in tables). The average number of hand-held computers would decrease to 22 if the data for one school in the sample were taken out of the calculation because the school reported a much higher number of hand-held computers than any of the other schools in the sample. The number of hand-held computers at that school was verified with the respondent.

<sup>13</sup>This represents a ratio of 1 laptop computer per 27 students (not shown in tables). The ratio of students per laptop computer would increase to 31 to 1 if one school in the sample were taken out of the calculation because the school reported a much higher number of laptop computers than any of the other schools in the sample. The number of laptop computers at that school was verified with the respondent.

- Of the 92 percent of schools without laptop computers available for loan to students in 2003 (calculated from table 11), 6 percent were planning to make laptops available for students to borrow during the 2004–05 school year (table 13).

## School Websites

Because nearly 100 percent of public schools were connected to the Internet in 2003,<sup>14</sup> schools generally had the capability to make information available to parents and students directly via e-mail or through a website. Beginning in 2001, the FRSS surveys on Internet access asked whether the schools had a website or a web page (e.g., a web page on the district’s website) and how often it was updated.<sup>15</sup> In 2002 and 2003, schools also reported the status of the person who was primarily responsible for the school’s website support.<sup>16</sup>

- Nationwide, 88 percent of public schools with access to the Internet had a website in 2003 (table 14). This is an increase from 2001, when 75 percent of public schools reported having a website.
- The proportion of schools with a website in 2003 differed by instructional level, school size, minority enrollment, and poverty concentration (percent of students eligible for free or reduced-price lunch) (table 14). For example, the likelihood of having a website was lower in schools with the highest minority enrollment of 50 percent or more (80 percent) than in schools with 6 to 20 percent or 21 to 49 percent minority enrollment (94 and 90 percent, respectively). In addition, the likelihood of having a website decreased as the poverty concentration increased, from 96 percent of schools with the lowest poverty concentration to 72 percent of schools with the highest poverty concentration.
- Of the schools with a website in 2003, 73 percent reported that their website was updated at least monthly (table 15).<sup>17</sup> Among the 27 percent of schools updating their website less often than monthly, differences were detected by instructional level, locale, minority enrollment, and poverty concentration. For example, schools with the highest minority enrollments were more likely than schools with lower minority enrollment to update their website less than monthly (45 percent compared with 18 to 25 percent). In addition, the likelihood of updating the website less than monthly increased with poverty concentration, from 18 percent of schools with the lowest poverty concentration to 44 percent of schools with the highest poverty concentration.

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<sup>14</sup>This estimate was rounded to 100 percent.

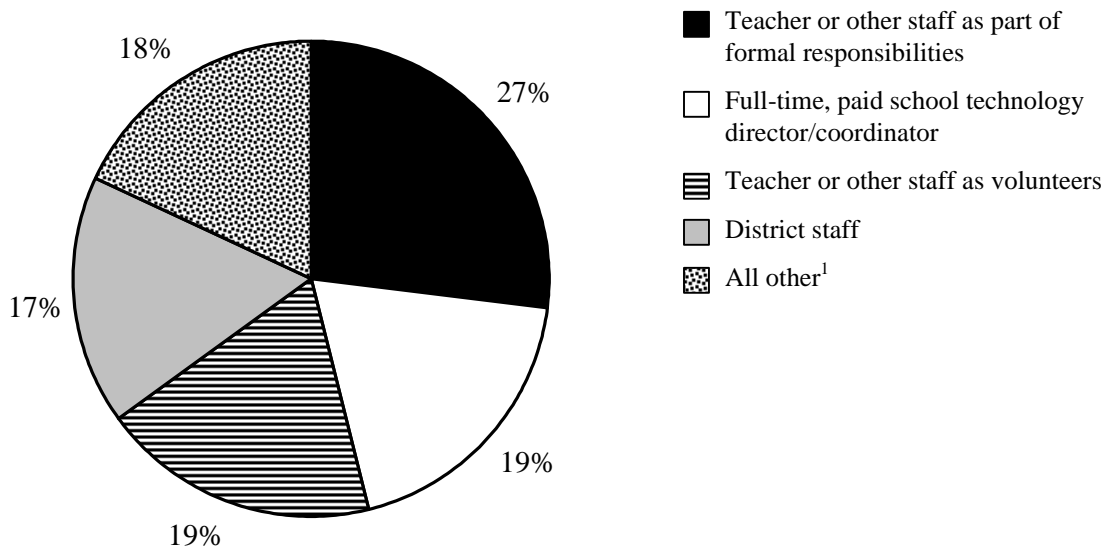
<sup>15</sup>For brevity, “website or web page” is referred to as “website” in the remainder of the report.

<sup>16</sup>In 2001, the questionnaire asked about the school’s “website.” In 2002, the wording was changed to “website or web page.”

<sup>17</sup>This estimate is derived from the percentage of public schools updating their website monthly, weekly, or daily. Although estimates for the details are shown in table 15, the total in the text is based on the raw data, and because of rounding it differs slightly from the estimate that would be obtained by adding details directly from the table.

- Among schools with a website in 2003, 27 percent reported that a teacher or other staff member was primarily responsible for the school’s website support as part of his or her formal responsibilities (table 16 and figure 4). Schools were less likely to report that primary responsibility was assigned to a full-time, paid school technology director or coordinator (19 percent); a teacher or other staff as volunteers (19 percent); district staff (17 percent); a part-time, paid school technology director or coordinator (5 percent); students (2 percent); or a consultant or an outside contractor (3 percent). Some other person was cited by 8 percent of the schools.

**Figure 4. Percentage distribution of types of staff and students who were primarily responsible for the school’s website or web page support: 2003**



<sup>1</sup>This category includes part-time, paid school technology director/coordinator, students, consultant/outside contractor, and other.  
 NOTE: Percentages are based on 88 percent of public schools (99.8 percent with Internet access times 88 percent with a website or web page).  
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, “Internet Access in U.S. Public Schools, Fall 2003,” FRSS 86, 2003.

## Technologies and Procedures to Prevent Student Access to Inappropriate Material on the Internet

Given the diversity of the information carried on the Internet, student access to inappropriate material is a major concern of many parents and teachers. Moreover, under the Children’s Internet Protection Act (CIPA), no school may receive E-rate<sup>18</sup> discounts unless it certifies that it is enforcing a

<sup>18</sup>The Education rate (E-rate) program was established in 1996 to make telecommunications services, Internet access, and internal connections available to schools and libraries at discounted rates based upon the income level of the students in their community and whether their location is urban or rural.

policy of Internet safety that includes the use of filtering or blocking technology.<sup>19</sup> Beginning in 2001, the FRSS surveys on Internet access asked whether public schools used any technologies or procedures to prevent student access to inappropriate material on the Internet, the types of technologies or procedures used, and whether such technologies were used on all computers with Internet access used by students. The 2002 and 2003 surveys also asked about the methods used to disseminate information about the technologies or procedures to students and parents.

- In 2003, almost all public schools with Internet access (97 percent) used various technologies or procedures to control student access to inappropriate material on the Internet (table 17). Across all school characteristics, between 96 and 100 percent<sup>20</sup> of schools reported using these technologies or procedures. In addition, 99 percent of these schools used at least one of these technologies or procedures on all Internet-connected computers used by students.
- Among schools using technologies or procedures to prevent student access to inappropriate material on the Internet in 2003, 96 percent used blocking or filtering software (table 18). Ninety-three percent of schools reported that teachers or other staff members monitored student Internet access, 83 percent had a written contract that parents have to sign, 76 percent had a contract that students have to sign, 57 percent used monitoring software, 45 percent had honor codes, and 39 percent allowed access only to their intranet.<sup>21</sup> Most of the schools (97 percent) used more than one procedure or technology as part of their Internet use policy (not shown in tables).
- Ninety-five percent of public schools using technologies or procedures to prevent student access to inappropriate material on the Internet indicated that they disseminated the information about these technologies or other procedures via their school policies or rules distributed to students and parents (table 19). Sixty-six percent did so with a special notice to parents, 58 percent used their newsletters to disseminate this information, 31 percent posted a message on the school website or web page, 25 percent had a notice on a bulletin board at the school, 17 percent had a pop-up message at computer or Internet log on, and 5 percent used a method other than the ones listed above.

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<sup>19</sup>More information about CIPA (Public Law 106-554) can be found at the website of the Schools and Libraries Division, Universal Service Administrative Company (<http://www.sl.universalservice.org/reference/CIPA.asp>). The law is effective for funding year 4 (July 1, 2001, to June 30, 2002) and for all future years. Schools and libraries receiving only telecommunications services are excluded from the requirements of CIPA.

<sup>20</sup>This estimate was rounded to 100 percent for some school characteristics.

<sup>21</sup>An intranet is a controlled computer network similar to the Internet but accessible only to those who have permission to use it. For example, school administrators can restrict student access to only their school's intranet, which may include information from the Internet chosen by school officials, rather than full Internet access. See appendix A for definitions of technologies and procedures.



## **Teacher Professional Development on How to Integrate the Use of the Internet Into the Curriculum**

Past research indicates that approximately one-half of public school teachers in 1999 reported that they used computers or the Internet for instruction during class time and/or that they assigned their students work that involves research using the Internet. One-third of teachers reported feeling well or very well prepared to use computers and the Internet for instruction (Smerdon et al. 2000). The 2002 and 2003 surveys on Internet access asked whether public schools or their districts provided teacher professional development in the 12 months prior to the surveys on how to integrate the use of the Internet into the curriculum, and the percentage of teachers who attended such professional development.

- In 2003, nationwide, 82 percent of public schools with Internet access indicated that their school or school district had offered professional development to teachers in their school on how to integrate the use of the Internet into the curriculum in the 12 months prior to the fall survey (table 20).
- Thirty-eight percent of the schools that offered professional development in 2003 had 1 to 25 percent of their teachers attending such professional development in the 12 months preceding the survey (table 20). Eighteen percent of the schools had 26 to 50 percent of their teachers, 13 percent of the schools had 51 to 75 percent of their teachers, and 30 percent of the schools had 76 percent or more of their teachers attending professional development on how to integrate the use of the Internet into the curriculum in the 12 months preceding the survey. Another 1 percent of schools reported not having any teachers attending such professional development during this time frame.

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## **Tables of Estimates and Standard Errors**

**Table 1. Percent of public schools with Internet access, by school characteristics: 1994–2003**

School characteristic	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
All public schools.....	35	50	65	78	89	95	98	99	99	100 <sup>2</sup>
Instructional level <sup>1</sup>										
Elementary.....	30	46	61	75	88	94	97	99	99	100 <sup>2</sup>
Secondary.....	49	65	77	89	94	98	100 <sup>2</sup>	100 <sup>2</sup>	100 <sup>2</sup>	100
School size										
Less than 300.....	30	39	57	75	87	96	96	99	96	100
300 to 999.....	35	52	66	78	89	94	98	99	100 <sup>2</sup>	100 <sup>2</sup>
1,000 or more.....	58	69	80	89	95	96	99	100	100	100
Locale										
City.....	40	47	64	74	92	93	96	97	99	100
Urban fringe.....	38	59	75	78	85	96	98	99	100	100 <sup>2</sup>
Town.....	29	47	61	84	90	94	98	100	98	100
Rural.....	35	48	60	79	92	96	99	100 <sup>2</sup>	98	100
Percent minority enrollment <sup>3</sup>										
Less than 6 percent.....	38	52	65	84	91	95	98	99	97	100
6 to 20 percent.....	38	58	72	87	93	97	100	100	100	100
21 to 49 percent.....	38	55	65	73	91	96	98	100	99	99
50 percent or more.....	27	39	56	63	82	92	96	98	99	100
Percent of students eligible for free or reduced-price lunch <sup>4</sup>										
Less than 35 percent.....	39	60	74	86	92	95	99	99	98	100
35 to 49 percent.....	35	48	59	81	93	98	99	100	100	100
50 to 74 percent.....	32	41	53	71	88	96	97	99	100	100
75 percent or more.....	18	31	53	62	79	89	94	97	99	99

<sup>1</sup>Data for combined schools are included in the totals and in analyses by other school characteristics but are not shown separately.

<sup>2</sup>Estimate is rounded to 100 percent for presentation in table.

<sup>3</sup>Percent minority enrollment was not available for some schools. In 1994, this information was missing for 100 schools. In subsequent years, the missing information ranged from 0 schools to 46 schools. In 2003, this information was missing for 28 schools. The weighted response rate was 97.5 percent.

<sup>4</sup>Percent of students eligible for free or reduced-price lunch was not available for some schools. In the 1994 survey, free and reduced-price lunch data came from the Common Core of Data (CCD) only and were missing for 430 schools (percentages presented in this table are based on cases for which data were available). In reports prior to 1998, free and reduced-price lunch data were not reported for 1994. In 1998, a decision was made to include the data for 1994 for comparison purposes. In subsequent years, free and reduced-price lunch information was obtained on the questionnaire, supplemented, if necessary, with CCD data. Missing data ranged from 0 schools (2002 and 2003) to 10 schools (1999).

NOTE: All of the estimates in this report were recalculated from raw data files using the same computational algorithms. Consequently, some estimates presented here may differ trivially (i.e., 1 percent) from results published prior to 2001. For estimates that are 100 percent, the event defined could have been reported by fewer schools had a different sample been drawn.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K–12," FRSS 51, 1994; "Survey on Advanced Telecommunications in U.S. Public Schools, K–12," FRSS 57, 1995; "Advanced Telecommunications in U.S. Public Schools, Fall 1996," FRSS 61, 1996; "Internet Access in U.S. Public Schools, Fall 1997," FRSS 64, 1997; "Internet Access in U.S. Public Schools, Fall 1998," FRSS 69, 1998; "Internet Access in U.S. Public Schools, Fall 1999," FRSS 75, 1999; "Internet Access in U.S. Public Schools, Fall 2000," FRSS 79, 2000; "Internet Access in U.S. Public Schools, Fall 2001," FRSS 82, 2001; "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

**Table 1-A. Standard errors of the percent of public schools with Internet access, by school characteristics: 1994–2003**

School characteristic	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
All public schools.....	1.5	1.8	1.8	1.5	1.3	0.8	0.5	0.3	0.5	0.2
Instructional level										
Elementary.....	1.9	2.4	2.1	2.0	1.6	1.0	0.7	0.4	0.6	0.2
Secondary.....	2.4	2.7	1.8	1.7	2.1	0.8	0.2	0.2	0.5	†
School size										
Less than 300.....	3.4	3.9	4.4	3.8	3.4	1.5	1.7	1.0	1.7	†
300 to 999.....	2.0	2.2	2.0	2.0	1.4	1.0	0.5	0.4	0.2	0.2
1,000 or more.....	3.0	4.1	3.4	2.5	2.4	1.7	0.6	†	†	†
Locale										
City.....	3.1	4.3	4.5	3.8	2.1	1.5	1.1	1.4	0.7	†
Urban fringe.....	2.9	3.8	3.3	2.8	2.8	1.2	1.2	0.5	†	0.5
Town.....	2.3	3.7	4.0	4.6	3.2	2.5	1.2	†	2.2	†
Rural.....	2.7	3.8	3.3	3.2	3.4	1.4	0.9	0.1	1.0	†
Percent minority enrollment										
Less than 6 percent.....	2.4	3.2	3.4	2.7	2.9	1.5	1.2	0.9	1.6	†
6 to 20 percent.....	3.3	4.7	3.0	2.7	2.5	1.2	†	†	†	†
21 to 49 percent.....	3.2	4.1	3.2	4.1	2.5	1.8	1.2	†	0.7	0.7
50 percent or more.....	2.9	3.8	4.6	4.7	2.9	1.9	1.2	0.9	0.5	†
Percent of students eligible for free or reduced-price lunch										
Less than 35 percent.....	2.3	2.4	2.2	1.8	2.0	1.1	0.7	0.6	1.0	†
35 to 49 percent.....	4.6	3.9	4.8	3.9	2.2	0.9	0.7	†	†	†
50 to 74 percent.....	5.0	4.6	5.1	4.0	3.0	1.7	1.3	0.5	†	†
75 percent or more.....	4.6	4.4	5.4	5.3	3.7	3.1	1.7	1.1	0.9	0.8

†Not applicable; estimate of standard error is not derived because it is based on an estimate of 100 percent.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, “Survey on Advanced Telecommunications in U.S. Public Schools, K–12,” FRSS 51, 1994; “Survey on Advanced Telecommunications in U.S. Public Schools, K–12,” FRSS 57, 1995; “Advanced Telecommunications in U.S. Public Schools, Fall 1996,” FRSS 61, 1996; “Internet Access in U.S. Public Schools, Fall 1997,” FRSS 64, 1997; “Internet Access in U.S. Public Schools, Fall 1998,” FRSS 69, 1998; “Internet Access in U.S. Public Schools, Fall 1999,” FRSS 75, 1999; “Internet Access in U.S. Public Schools, Fall 2000,” FRSS 79, 2000; “Internet Access in U.S. Public Schools, Fall 2001,” FRSS 82, 2001; “Internet Access in U.S. Public Schools, Fall 2002,” FRSS 83, 2002; and “Internet Access in U.S. Public Schools, Fall 2003,” FRSS 86, 2003.

**Table 2. Percent of public school instructional rooms with Internet access, by school characteristics: 1994–2003**

School characteristic	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
All public schools.....	3	8	14	27	51	64	77	87	92	93
Instructional level <sup>1</sup>										
Elementary.....	3	8	13	24	51	62	76	86	92	93
Secondary.....	4	8	16	32	52	67	79	88	91	94
School size										
Less than 300.....	3	9	15	27	54	71	83	87	91	93
300 to 999.....	3	8	13	28	53	64	78	87	93	93
1,000 or more.....	3	4	16	25	45	58	70	86	89	94
Locale										
City.....	4	6	12	20	47	52	66	82	88	90
Urban fringe.....	4	8	16	29	50	67	78	87	92	94
Town.....	3	8	14	34	55	72	87	91	96	97
Rural.....	3	8	14	30	57	71	85	89	93	94
Percent minority enrollment <sup>2</sup>										
Less than 6 percent.....	4	9	18	37	57	74	85	88	93	93
6 to 20 percent.....	4	10	18	35	59	78	83	90	94	95
21 to 49 percent.....	4	9	12	22	52	64	79	89	91	95
50 percent or more.....	2	3	5	13	37	43	64	81	89	92
Percent of students eligible for free or reduced-price lunch <sup>3</sup>										
Less than 35 percent.....	3	10	17	33	57	73	82	90	93	95
35 to 49 percent.....	2	6	12	33	60	69	81	89	90	93
50 to 74 percent.....	4	6	11	20	41	61	77	87	91	94
75 percent or more.....	2	3	5	14	38	38	60	79	89	90

<sup>1</sup>Data for combined schools are included in the totals and in analyses by other school characteristics but are not shown separately.

<sup>2</sup>Percent minority enrollment was not available for some schools. In 1994, this information was missing for 100 schools. In subsequent years, the missing information ranged from 0 schools to 46 schools. In 2003, this information was missing for 28 schools. The weighted response rate was 97.5 percent.

<sup>3</sup>Percent of students eligible for free or reduced-price lunch was not available for some schools. In the 1994 survey, free and reduced-price lunch data came from the Common Core of Data (CCD) only and were missing for 430 schools. In reports prior to 1998, free and reduced-price lunch data were not reported for 1994. In 1998, a decision was made to include the data for 1994 for comparison purposes. In subsequent years, free and reduced-price lunch information was obtained on the questionnaire, supplemented, if necessary, with CCD data. Missing data ranged from 0 schools (2002 and 2003) to 10 schools (1999).

NOTE: Percentages are based on all public schools. Information on the number of instructional rooms with Internet access was combined with information on the total number of instructional rooms in the school to calculate the percentage of instructional rooms with Internet access. All of the estimates in this report were recalculated from raw data files using the same computational algorithms. Consequently, some estimates presented here may differ trivially (i.e., 1 percent) from results published prior to 2001.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, “Survey on Advanced Telecommunications in U.S. Public Schools, K–12,” FRSS 51, 1994; “Survey on Advanced Telecommunications in U.S. Public Schools, K–12,” FRSS 57, 1995; “Advanced Telecommunications in U.S. Public Schools, Fall 1996,” FRSS 61, 1996; “Internet Access in U.S. Public Schools, Fall 1997,” FRSS 64, 1997; “Internet Access in U.S. Public Schools, Fall 1998,” FRSS 69, 1998; “Internet Access in U.S. Public Schools, Fall 1999,” FRSS 75, 1999; “Internet Access in U.S. Public Schools, Fall 2000,” FRSS 79, 2000; “Internet Access in U.S. Public Schools, Fall 2001,” FRSS 82, 2001; “Internet Access in U.S. Public Schools, Fall 2002,” FRSS 83, 2002; and “Internet Access in U.S. Public Schools, Fall 2003,” FRSS 86, 2003.

**Table 2-A. Standard errors of the percent of public school instructional rooms with Internet access, by school characteristics: 1994–2003**

School characteristic	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
All public schools.....	0.3	0.7	1.0	1.6	1.8	1.6	1.1	0.9	0.6	0.5
Instructional level										
Elementary.....	0.4	1.0	1.5	1.9	2.3	1.8	1.5	1.1	0.8	0.7
Secondary.....	0.6	1.0	1.5	1.9	2.1	2.6	1.6	1.2	1.0	0.9
School size										
Less than 300.....	0.7	1.6	2.9	4.3	3.7	3.2	2.8	2.1	1.9	1.6
300 to 999.....	0.5	1.0	1.2	2.0	2.2	1.9	1.5	1.1	0.7	0.7
1,000 or more.....	0.6	1.0	2.1	2.4	3.9	3.0	2.2	1.7	1.7	1.1
Locale										
City.....	0.8	1.3	1.6	2.2	3.2	2.6	2.2	2.1	1.6	1.0
Urban fringe.....	0.8	1.4	2.2	2.9	2.9	2.5	2.0	1.3	0.9	0.9
Town.....	0.6	2.0	1.9	3.9	4.0	3.4	2.6	2.2	1.1	0.9
Rural.....	0.4	1.5	2.2	3.6	3.6	3.0	1.7	1.3	1.0	1.2
Percent minority enrollment										
Less than 6 percent.....	0.7	1.4	2.4	3.5	2.7	2.3	1.9	1.5	1.4	1.9
6 to 20 percent.....	0.8	1.5	1.7	3.0	3.3	3.1	2.1	1.6	1.0	0.7
21 to 49 percent.....	1.0	2.1	2.5	2.8	3.7	3.1	2.3	2.0	1.2	1.1
50 percent or more.....	0.3	1.0	1.8	1.8	3.2	2.8	2.4	2.0	1.4	1.1
Percent of students eligible for free or reduced-price lunch										
Less than 35 percent.....	0.5	1.2	1.6	2.0	2.4	2.3	1.5	1.2	0.8	1.0
35 to 49 percent.....	0.4	1.4	2.2	4.3	5.1	3.4	2.9	2.2	2.1	1.4
50 to 74 percent.....	1.8	1.9	2.8	3.7	3.9	3.1	2.8	2.4	1.4	1.1
75 percent or more.....	0.9	1.0	1.8	2.4	4.3	4.4	3.3	2.4	1.9	1.5

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K–12," FRSS 51, 1994; "Survey on Advanced Telecommunications in U.S. Public Schools, K–12," FRSS 57, 1995; "Advanced Telecommunications in U.S. Public Schools, Fall 1996," FRSS 61, 1996; "Internet Access in U.S. Public Schools, Fall 1997," FRSS 64, 1997; "Internet Access in U.S. Public Schools, Fall 1998," FRSS 69, 1998; "Internet Access in U.S. Public Schools, Fall 1999," FRSS 75, 1999; "Internet Access in U.S. Public Schools, Fall 2000," FRSS 79, 2000; "Internet Access in U.S. Public Schools, Fall 2001," FRSS 82, 2001; "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.



**Table 3. Percent of public schools with Internet access using broadband connections, by school characteristics: 2000–2003**

School characteristic	2000 <sup>1</sup>	2001 <sup>1</sup>	2002 <sup>2</sup>	2003 <sup>2</sup>
All public schools.....	80	85	94	95
Instructional level <sup>3</sup>				
Elementary.....	77	83	93	94
Secondary.....	89	94	98	97
School size				
Less than 300.....	67	72	90	90
300 to 999.....	83	89	94	96
1,000 or more.....	90	96	100	100 <sup>4</sup>
Locale				
City.....	80	88	97	97
Urban fringe.....	85	88	92	97
Town.....	79	83	97	98
Rural.....	75	82	91	90
Percent minority enrollment <sup>5</sup>				
Less than 6 percent.....	76	81	92	90
6 to 20 percent.....	82	85	91	96
21 to 49 percent.....	84	85	96	98
50 percent or more.....	81	93	95	97
Percent of students eligible for free or reduced-price lunch <sup>6</sup>				
Less than 35 percent.....	81	84	93	95
35 to 49 percent.....	82	86	96	96
50 to 74 percent.....	79	84	93	96
75 percent or more.....	75	90	95	93

<sup>1</sup>Respondents were instructed to circle as many types of connections as there were in the school. The data were then combined to show the percentage of schools using broadband connections. Percentages include schools using only broadband connections, as well as schools using both broadband and narrowband connections. They do not include schools using narrowband connections exclusively. Broadband connections include T3/DS3, fractional T3, T1/DS1, fractional T1, and cable modem connections. In 2001, they also included DSL connections, which had not been on the 2000 questionnaire.

<sup>2</sup>The 2002 and 2003 questionnaires directly asked whether the schools used broadband and narrowband connections. Broadband connections include T3/DS3, fractional T3, T1/DS1, fractional T1, cable modem, and DSL connections.

<sup>3</sup>Data for combined schools are included in the totals and in analyses by other school characteristics but are not shown separately.

<sup>4</sup>Estimate is rounded to 100 percent for presentation in table.

<sup>5</sup>Percent minority enrollment was not available for 9 schools in 2000, 31 schools in 2001, and 15 schools in 2002. In 2003, this information was missing for 28 schools. The weighted response rate was 97.5 percent.

<sup>6</sup>Percent of students eligible for free or reduced-price lunch was not available for two schools in 2000 and 2001. This information was available for all schools in 2002 and 2003.

NOTE: Percentages are based on the percent of public schools with Internet access: 98 percent in 2000, 99 percent in 2001 and 2002, and 99.8 percent in 2003. For estimates that are 100 percent, the event defined could have been reported by fewer schools had a different sample been drawn.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, “Internet Access in U.S. Public Schools, Fall 2000,” FRSS 79, 2000; “Internet Access in U.S. Public Schools, Fall 2001,” FRSS 82, 2001; “Internet Access in U.S. Public Schools, Fall 2002,” FRSS 83, 2002; and “Internet Access in U.S. Public Schools, Fall 2003,” FRSS 86, 2003.

**Table 3-A. Standard errors of the percent of public schools with Internet access using broadband connections, by school characteristics: 2000–2003**

School characteristic	2000	2001	2002	2003
All public schools.....	1.5	1.6	1.0	0.8
Instructional level				
Elementary.....	1.9	2.0	1.2	1.1
Secondary.....	2.0	1.2	0.9	1.0
School size				
Less than 300.....	4.4	4.3	2.6	2.7
300 to 999.....	1.8	1.4	1.2	0.9
1,000 or more.....	2.4	1.4	†	0.3
Locale				
City.....	3.0	2.4	1.1	1.5
Urban fringe.....	2.6	2.1	1.9	0.9
Town.....	4.9	4.6	1.8	1.0
Rural.....	3.5	3.0	2.0	2.2
Percent minority enrollment				
Less than 6 percent.....	3.2	3.6	2.4	2.4
6 to 20 percent.....	2.9	3.0	2.3	1.9
21 to 49 percent.....	2.6	2.7	1.5	1.0
50 percent or more.....	2.6	1.8	1.5	1.2
Percent of students eligible for free or reduced-price lunch				
Less than 35 percent.....	2.3	2.6	1.7	1.4
35 to 49 percent.....	4.0	2.8	2.0	2.1
50 to 74 percent.....	3.8	3.8	2.0	1.7
75 percent or more.....	3.6	2.7	1.7	2.2

†Not applicable; estimate of standard error is not derived because it is based on an estimate of 100 percent.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, “Internet Access in U.S. Public Schools, Fall 2000,” FRSS 79, 2000; “Internet Access in U.S. Public Schools, Fall 2001,” FRSS 82, 2001; “Internet Access in U.S. Public Schools, Fall 2002,” FRSS 83, 2002; and “Internet Access in U.S. Public Schools, Fall 2003,” FRSS 86, 2003.

**Table 4. Percent of public schools using any type of wireless Internet connection, and of those schools, percent using broadband wireless Internet connection, by school characteristics: 2002 and 2003**

School characteristic	Use any type of wireless Internet connection <sup>1</sup>		Use broadband wireless Internet connection in schools with wireless Internet connection <sup>2</sup>	
	2002	2003	2002	2003
All public schools.....	23	32	88	92
Instructional level <sup>3</sup>				
Elementary.....	20	29	87	93
Secondary.....	33	42	91	89
School size				
Less than 300.....	17	28	‡	92
300 to 999.....	23	30	91	92
1,000 or more.....	37	51	95	92
Locale				
City.....	25	32	100	96
Urban fringe.....	23	35	93	90
Town.....	23	37	82	91
Rural.....	22	26	76	90
Percent minority enrollment <sup>4</sup>				
Less than 6 percent.....	21	31	84	90
6 to 20 percent.....	23	36	82	88
21 to 49 percent.....	25	35	96	92
50 percent or more.....	23	28	92	95
Percent of students eligible for free or reduced-price lunch				
Less than 35 percent.....	24	36	87	92
35 to 49 percent.....	25	33	88	88
50 to 74 percent.....	23	28	87	92
75 percent or more.....	20	25	93	96

‡Reporting standards not met.

<sup>1</sup>Percentages are based on the 99 percent of public schools with Internet access in 2002, and 99.8 percent in 2003. Percentages include schools using wireless Internet connections (both broadband and narrowband) only as well as schools using both wireless and wired connections.

<sup>2</sup>Percentages are based on 23 percent of public schools (99 percent with Internet access times 23 percent using wireless Internet connections) in 2002, and on 32 percent of public schools (99.8 percent with Internet access times 32 percent using wireless Internet connections) in 2003.

<sup>3</sup>Data for combined schools are included in the totals and in analyses by other school characteristics but are not shown separately.

<sup>4</sup>Percent minority enrollment was not available for 15 schools in 2002 and 28 schools in 2003. The weighted response rate was 98.6 percent in 2002 and 97.5 percent in 2003.

NOTE: For estimates that are 100 percent, the event defined could have been reported by fewer schools had a different sample been drawn.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

**Table 4-A. Standard errors of the percent of public schools using any type of wireless Internet connection, and of those schools, standard errors of the percent using broadband wireless Internet connection, by school characteristics: 2002 and 2003**

School characteristic	Use any type of wireless Internet connection		Use broadband wireless Internet connection in schools with wireless Internet connection	
	2002	2003	2002	2003
All public schools.....	1.5	1.7	2.9	2.0
<b>Instructional level</b>				
Elementary.....	1.7	2.0	4.3	2.6
Secondary.....	1.9	2.3	2.6	2.7
<b>School size</b>				
Less than 300.....	3.5	4.1	‡	5.3
300 to 999.....	1.8	2.0	2.4	2.4
1,000 or more.....	3.4	3.3	1.9	3.1
<b>Locale</b>				
City.....	2.8	3.3	†	2.8
Urban fringe.....	2.3	2.7	3.1	3.2
Town.....	3.6	5.8	9.7	4.4
Rural.....	3.1	3.2	6.8	4.6
<b>Percent minority enrollment</b>				
Less than 6 percent.....	2.6	3.5	6.8	3.6
6 to 20 percent.....	3.2	3.5	6.3	5.1
21 to 49 percent.....	3.6	3.4	2.6	3.5
50 percent or more.....	2.3	2.9	3.8	1.9
<b>Percent of students eligible for free or reduced-price lunch</b>				
Less than 35 percent.....	2.7	2.7	5.3	3.3
35 to 49 percent.....	4.4	3.7	5.3	4.6
50 to 74 percent.....	2.8	3.6	5.0	3.3
75 percent or more.....	3.0	3.1	4.9	2.5

†Not applicable; estimate of standard error is not derived because it is based on an estimate of 100 percent.

‡Reporting standards not met.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

**Table 5. Percent of public school instructional rooms with wireless Internet connections, by school characteristics: 2002 and 2003**

School characteristic	2002	2003
All public schools.....	15	11
Instructional level <sup>1</sup>		
Elementary.....	13	11
Secondary.....	19	11
School size		
Less than 300.....	12	15
300 to 999.....	14	10
1,000 or more.....	19	11
Locale		
City.....	14	9
Urban fringe.....	16	12
Town.....	14	11
Rural.....	15	12
Percent minority enrollment <sup>2</sup>		
Less than 6 percent.....	14	14
6 to 20 percent.....	13	12
21 to 49 percent.....	15	10
50 percent or more.....	16	9
Percent of students eligible for free or reduced-price lunch		
Less than 35 percent.....	15	13
35 to 49 percent.....	15	12
50 to 74 percent.....	17	9
75 percent or more.....	11	9

<sup>1</sup>Data for combined schools are included in the totals and in analyses by other school characteristics but are not shown separately.

<sup>2</sup>Percent minority enrollment was not available for 15 schools in 2002 and 28 schools in 2003. The weighted response rate was 98.6 percent in 2002 and 97.5 percent in 2003.

NOTE: Percentages are based on all public schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

**Table 5-A. Standard errors of the percent of public school instructional rooms with wireless Internet connections, by school characteristics: 2002 and 2003**

School characteristic	2002	2003
All public schools.....	1.1	1.1
Instructional level		
Elementary.....	1.3	1.5
Secondary.....	1.6	1.2
School size		
Less than 300.....	2.8	3.7
300 to 999.....	1.4	1.3
1,000 or more.....	2.6	1.8
Locale		
City.....	2.0	1.7
Urban fringe.....	2.0	1.7
Town.....	2.7	3.1
Rural.....	2.2	1.9
Percent minority enrollment		
Less than 6 percent.....	2.2	2.8
6 to 20 percent.....	2.1	2.2
21 to 49 percent.....	3.1	1.9
50 percent or more.....	1.9	1.6
Percent of students eligible for free or reduced-price lunch		
Less than 35 percent.....	1.6	1.7
35 to 49 percent.....	3.1	2.8
50 to 74 percent.....	2.5	2.0
75 percent or more.....	2.1	2.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

**Table 6. Percentage distribution of the staff position of those who were primarily responsible for computer hardware, software, and Internet support at the school, by school characteristics: 2002 and 2003**

School characteristic	Full-time, paid school technology director/coordinator		District staff		Teacher or other staff as part of formal responsibilities		Part-time, paid school technology director/coordinator		Consultant/outside contractor		Teacher or other staff as volunteers		Other <sup>1</sup>	
	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003
All public schools.....	38	37	26	27	18	16	11	9	3	3	3	3	1	5
Instructional level <sup>2</sup>														
Elementary.....	35	35	28	29	18	17	12	8	2	3	4	3	1	5
Secondary.....	47	44	22	19	16	13	9	10	3	5	2	3	‡	6
School size														
Less than 300.....	29	37	21	22	20	17	19	12	5	8	5	2	‡	3
300 to 999.....	39	35	29	29	17	16	9	8	2	2	3	4	1	5
1,000 or more.....	48	43	26	24	18	15	5	5	‡	1	2	3	‡	8
Locale														
City.....	26	29	31	27	26	22	8	7	3	‡	5	9	‡	5
Urban fringe.....	40	31	28	33	17	17	9	9	3!	2	2	2	2	6
Town.....	40	52	30	25	14	13	11	3	3!	‡	‡	2!	‡	3!
Rural.....	42	41	20	20	15	13	17	12	2!	7	5	2	‡	5
Percent minority enrollment <sup>3</sup>														
Less than 6 percent.....	49	46	17	15	12	16	15	14	3	6	3	‡	‡	2
6 to 20 percent.....	34	33	30	35	12	16	15	4	3!	4	3	2!	2!	7
21 to 49 percent.....	32	34	28	34	25	12	10	8	‡	2!	3	3	‡	7
50 percent or more.....	33	34	30	26	25	18	6	8	3	2	4	7	‡	5
Percent of students eligible for free or reduced-price lunch														
Less than 35 percent.....	42	39	23	26	14	14	14	10	3	4	2	2	1!	6
35 to 49 percent.....	37	37	29	28	18	15	9	10	‡	3	5	3!	‡	4
50 to 74 percent.....	33	36	32	29	18	16	13	6	1!	6	2	4	‡	3
75 percent or more.....	33	31	25	25	28	22	6	8	3	1!	5	6	#	6

#Rounds to zero.

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

‡Reporting standards not met.

<sup>1</sup>Respondents could provide their own response.

<sup>2</sup>Data for combined schools are included in the totals and in analyses by other school characteristics but are not shown separately.

<sup>3</sup>Percent minority enrollment was not available for 15 schools in 2002 and 28 schools in 2003. The weighted response rate was 98.6 percent in 2002 and 97.5 percent in 2003.

NOTE: Percentages are based on the 99 percent of public schools with Internet access in 2002 and 99.8 percent in 2003. Detail may not sum to totals because of rounding and not reporting where there are too few cases for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

**Table 6-A. Standard errors of the percentage distribution of the staff position of those who were primarily responsible for computer hardware, software, and Internet support at the school, by school characteristics: 2002 and 2003**

School characteristic	Full-time, paid school technology director/coordinator		District staff		Teacher or other staff as part of formal responsibilities		Part-time, paid school technology director/coordinator		Consultant/outside contractor		Teacher or other staff as volunteers		Other	
	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003
All public schools.....	1.6	1.6	1.4	1.6	1.3	1.4	1.1	1.0	0.7	0.8	0.6	0.6	0.3	0.7
Instructional level														
Elementary.....	1.8	2.2	1.7	2.2	1.8	1.7	1.5	1.3	0.9	0.9	0.8	0.7	0.4	0.9
Secondary.....	3.3	2.4	2.2	1.8	1.9	1.8	1.7	1.8	1.2	1.3	0.7	1.2	‡	0.9
School size														
Less than 300.....	3.6	3.9	3.9	4.0	2.9	3.2	3.5	2.6	2.1	2.3	1.8	0.9	‡	1.8
300 to 999.....	2.0	1.9	1.7	1.8	1.6	1.7	1.2	1.4	0.6	0.6	0.7	0.8	0.4	1.0
1,000 or more.....	3.5	3.5	3.0	2.7	2.8	2.5	1.7	1.3	‡	0.6	0.6	1.6	‡	1.7
Locale														
City.....	3.0	3.8	3.6	3.2	3.4	3.1	2.1	1.7	1.1	‡	2.0	2.1	‡	1.4
Urban fringe.....	3.3	3.2	2.6	3.0	2.6	2.4	2.0	1.7	1.8	1.0	0.7	0.7	0.7	1.4
Town.....	4.7	4.4	3.9	4.2	4.4	3.5	2.5	1.4	1.9	‡	‡	1.2	‡	1.9
Rural.....	3.2	3.3	2.6	3.3	2.0	2.4	2.6	2.0	1.1	2.1	1.3	0.8	‡	1.4
Percent minority enrollment														
Less than 6 percent.....	3.6	3.6	3.0	2.7	2.6	3.1	2.9	2.9	1.5	2.1	1.5	‡	‡	0.7
6 to 20 percent.....	3.5	3.7	3.8	4.1	2.5	3.0	2.7	1.4	1.7	1.5	1.5	1.0	0.9	2.1
21 to 49 percent.....	4.1	3.5	3.5	3.9	3.2	2.5	2.3	2.3	‡	1.4	1.2	1.2	‡	1.9
50 percent or more.....	2.7	3.3	3.2	2.8	2.9	2.3	1.2	1.9	1.0	0.7	1.1	1.4	‡	1.3
Percent of students eligible for free or reduced-price lunch														
Less than 35 percent.....	2.8	2.9	2.1	2.8	2.1	2.1	2.3	1.7	1.5	1.2	1.0	0.8	0.5	1.3
35 to 49 percent.....	4.5	5.3	4.0	4.6	3.0	3.0	3.2	2.9	‡	1.3	2.1	1.3	‡	1.8
50 to 74 percent.....	3.7	3.5	3.7	3.5	2.8	2.6	2.4	1.5	0.6	2.1	1.0	1.3	‡	1.2
75 percent or more.....	3.6	3.5	3.4	3.1	4.0	3.9	1.9	2.0	1.3	0.6	2.0	1.6	†	1.7

†Not applicable; estimate of standard error is not derived because it is based on an estimate of 0 percent.

‡Reporting standards not met.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.



**Table 7. Ratio of public school students to instructional computers with Internet access, by school characteristics: 1998–2003**

School characteristic	1998	1999	2000	2001	2002	2003
All public schools.....	12.1	9.1	6.6	5.4	4.8	4.4
Instructional level <sup>1</sup>						
Elementary.....	13.6	10.6	7.8	6.1	5.2	4.9
Secondary.....	9.9	7.0	5.2	4.3	4.1	3.8
School size						
Less than 300.....	9.1	5.7	3.9	4.1	3.1	3.2
300 to 999.....	12.3	9.4	7.0	5.6	5.0	4.7
1,000 or more.....	13.0	10.0	7.2	5.4	5.1	4.3
Locale						
City.....	14.1	11.4	8.2	5.9	5.5	5.0
Urban fringe.....	12.4	9.1	6.6	5.7	4.9	4.6
Town.....	12.2	8.2	6.2	5.0	4.4	4.1
Rural.....	8.6	6.6	5.0	4.6	4.0	3.8
Percent minority enrollment <sup>2</sup>						
Less than 6 percent.....	10.1	7.0	5.7	4.7	4.0	4.1
6 to 20 percent.....	10.4	7.8	5.9	4.9	4.6	4.1
21 to 49 percent.....	12.1	9.5	7.2	5.5	5.2	4.1
50 percent or more.....	17.2	13.3	8.1	6.4	5.1	5.1
Percent of students eligible for free or reduced-price lunch <sup>3</sup>						
Less than 35 percent.....	10.6	7.6	6.0	4.9	4.6	4.2
35 to 49 percent.....	10.9	9.0	6.3	5.2	4.5	4.4
50 to 74 percent.....	15.8	10.0	7.2	5.6	4.7	4.4
75 percent or more.....	16.8	16.8	9.1	6.8	5.5	5.1

<sup>1</sup>Data for combined schools are included in the totals and in analyses by other school characteristics but are not shown separately.

<sup>2</sup>Percent minority enrollment was not available for some schools. Over the years, the missing information ranged from 0 schools (1999) to 31 schools (2001). In 2003, this information was missing for 28 schools. The weighted response rate was 97.5 percent.

<sup>3</sup>Percent of students eligible for free or reduced-price lunch was not available for some schools. Over the years, the missing information ranged from 0 schools (2002 and 2003) to 10 schools (1999).

NOTE: The ratio of students to instructional computers with Internet access was computed by dividing the total number of students in all public schools by the total number of instructional computers with Internet access in all public schools (including schools with no Internet access). All of the estimates in this report were recalculated from raw data files using the same computational algorithms. Consequently, some estimates presented here may differ trivially (i.e., 1 percent) from results published prior to 2001.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 1998," FRSS 69, 1998; "Internet Access in U.S. Public Schools, Fall 1999," FRSS 75, 1999; "Internet Access in U.S. Public Schools, Fall 2000," FRSS 79, 2000; "Internet Access in U.S. Public Schools, Fall 2001," FRSS 82, 2001; "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

**Table 7-A. Standard errors of the ratio of public school students to instructional computers with Internet access, by school characteristics: 1998–2003**

School characteristic	1998	1999	2000	2001	2002	2003
All public schools.....	0.6	0.3	0.1	0.1	0.1	0.1
Instructional level						
Elementary.....	0.9	0.4	0.2	0.2	0.2	0.2
Secondary.....	0.4	0.3	0.2	0.1	0.1	0.1
School size						
Less than 300.....	0.7	0.4	0.3	0.3	0.2	0.2
300 to 999.....	0.7	0.4	0.2	0.1	0.2	0.1
1,000 or more.....	1.0	0.6	0.3	0.2	0.2	0.2
Locale						
City.....	1.2	0.8	0.4	0.2	0.2	0.2
Urban fringe.....	0.9	0.4	0.2	0.2	0.2	0.2
Town.....	1.2	0.6	0.3	0.3	0.4	0.2
Rural.....	0.8	0.4	0.3	0.1	0.2	0.2
Percent minority enrollment						
Less than 6 percent.....	0.6	0.3	0.2	0.2	0.2	0.2
6 to 20 percent.....	1.1	0.5	0.2	0.2	0.2	0.2
21 to 49 percent.....	1.1	0.7	0.3	0.2	0.2	0.2
50 percent or more.....	1.7	1.1	0.4	0.2	0.2	0.2
Percent of students eligible for free or reduced-price lunch						
Less than 35 percent.....	0.6	0.3	0.2	0.2	0.1	0.1
35 to 49 percent.....	1.2	0.4	0.4	0.2	0.3	0.3
50 to 74 percent.....	1.4	0.8	0.4	0.3	0.2	0.2
75 percent or more.....	2.5	2.2	0.7	0.3	0.3	0.2

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 1998," FRSS 69, 1998; "Internet Access in U.S. Public Schools, Fall 1999," FRSS 75, 1999; "Internet Access in U.S. Public Schools, Fall 2000," FRSS 79, 2000; "Internet Access in U.S. Public Schools, Fall 2001," FRSS 82, 2001; "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

**Table 8. Percent of public schools allowing students to access the Internet outside of regular school hours, by school characteristics: 2001–03**

School characteristic	Internet available to students outside of regular school hours <sup>1</sup>			Time of availability <sup>2</sup>								
				After school			Before school			On weekends		
	2001	2002	2003	2001	2002	2003	2001	2002	2003	2001	2002	2003
All public schools.....	51	53	48	95	96	98	74	74	71	6	6	9
Instructional level <sup>3</sup>												
Elementary.....	42	47	41	94	95	98	69	69	64	4	6	9
Secondary.....	78	73	69	97	98	98	85	83	87	8	8	9
School size												
Less than 300.....	47	49	39	91	93	97	79	79	76	9	7	11
300 to 999.....	47	50	47	96	96	99	71	69	65	4	5	7
1,000 or more.....	82	79	74	98	98	96	82	84	88	7	8	12
Locale												
City.....	49	55	52	96	99	98	64	62	57	4	9	15
Urban fringe.....	45	51	51	94	97	99	78	76	74	4	6	6
Town.....	52	50	40	97	98	98	78	76	74	3	7	6!
Rural.....	58	54	46	95	92	97	76	79	79	8	4!	8
Percent minority enrollment <sup>4</sup>												
Less than 6 percent.....	50	52	45	95	95	99	84	78	80	6	6	9
6 to 20 percent.....	45	50	50	97	96	96	74	80	80	9	2	4
21 to 49 percent.....	52	54	46	95	96	97	74	77	72	2!	6	7
50 percent or more.....	56	54	51	96	97	99	66	62	60	6	10	14
Percent of students eligible for free or reduced-price lunch <sup>5</sup>												
Less than 35 percent.....	52	52	47	98	96	98	79	82	80	6	6	9
35 to 49 percent.....	50	54	48	94	95	99	77	75	82	4	5!	4
50 to 74 percent.....	50	50	46	91	97	97	73	71	64	8	5	5!
75 percent or more.....	49	56	53	95	95	99	61	57	54	3	10	17

<sup>1</sup>Interpret data with caution; the coefficient of variation is greater than 50 percent.

<sup>1</sup>Percentages are based on the 99 percent of public schools with Internet access in 2001 and 2002, and 99.8 percent in 2003.

<sup>2</sup>Percentages are based on 50 percent of public schools (99 percent with Internet access times 51 percent allowing students to access the Internet outside of regular school hours) in 2001, on 52 percent of public schools (99 percent with Internet access times 53 percent allowing students access to the Internet outside of regular school hours) in 2002, and on 48 percent of public schools (99.8 percent with Internet access times 48 percent allowing students access to the Internet outside of regular school hours) in 2003.

<sup>3</sup>Data for combined schools are included in the totals and in analyses by other school characteristics but are not shown separately.

<sup>4</sup>Percent minority enrollment was not available for 31 schools in 2001 and 15 schools in 2002. In 2003, this information was missing for 28 schools. The weighted response rate was 97.5 percent.

<sup>5</sup>Percent of students eligible for free or reduced-price lunch was not available for two schools in 2001.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2001," FRSS 82, 2001; "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

**Table 8-A. Standard errors of the percent of public schools allowing students to access the Internet outside of regular school hours, by school characteristics: 2001–03**

School characteristic	Internet available to students outside of regular school hours			Time of availability								
				After school			Before school			On weekends		
	2001	2002	2003	2001	2002	2003	2001	2002	2003	2001	2002	2003
All public schools.....	1.8	1.8	1.8	1.1	1.1	0.8	2.1	1.8	2.4	1.1	1.0	1.5
<b>Instructional level</b>												
Elementary.....	2.4	2.2	2.3	1.6	1.7	1.1	3.2	2.6	3.4	1.4	1.4	2.0
Secondary.....	2.1	2.1	2.3	1.0	0.9	0.8	2.2	2.4	1.8	1.5	1.3	1.7
<b>School size</b>												
Less than 300.....	4.2	4.7	3.8	3.4	3.2	2.7	5.9	5.2	6.2	3.6	3.0	4.1
300 to 999.....	2.3	1.9	2.2	1.4	1.2	0.6	2.8	2.7	3.1	1.0	1.1	1.3
1,000 or more.....	2.9	2.7	3.3	1.4	1.4	2.0	2.7	2.8	2.2	1.7	2.1	2.8
<b>Locale</b>												
City.....	4.0	3.7	4.0	2.7	1.3	1.4	4.1	4.8	5.4	1.5	2.5	3.5
Urban fringe.....	2.7	2.9	3.4	2.1	1.5	0.6	3.1	3.8	3.5	1.5	1.8	1.7
Town.....	5.5	4.7	5.2	2.5	2.3	1.8	5.6	4.7	8.2	1.4	3.4	3.4
Rural.....	3.4	3.6	3.3	1.8	3.0	2.0	3.8	3.5	3.9	2.3	1.9	3.4
<b>Percent minority enrollment</b>												
Less than 6 percent.....	4.0	4.4	3.8	2.2	2.2	0.6	3.6	3.9	4.2	2.2	2.4	3.9
6 to 20 percent.....	3.7	3.8	3.4	2.1	2.5	2.6	5.3	3.2	3.9	3.5	1.0	1.5
21 to 49 percent.....	4.2	4.1	4.3	2.5	2.6	1.8	6.0	4.1	5.9	1.2	2.2	3.1
50 percent or more.....	3.4	3.3	3.8	1.7	1.6	0.8	3.9	3.9	3.8	1.4	2.4	3.0
<b>Percent of students eligible for free or reduced-price lunch</b>												
Less than 35 percent.....	2.3	2.6	2.9	1.3	2.2	1.1	3.4	3.2	2.7	1.7	1.5	2.5
35 to 49 percent.....	4.3	4.4	5.2	2.5	3.0	0.6	5.5	5.1	4.8	1.9	3.1	1.8
50 to 74 percent.....	4.0	4.6	4.4	3.3	1.5	2.8	4.7	4.1	5.7	3.2	1.9	2.3
75 percent or more.....	4.7	4.1	4.0	2.9	2.6	0.9	5.6	4.5	4.7	1.5	2.8	4.5

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2001," FRSS 82, 2001; "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

**Table 9. Ratio of students to computers with Internet access available outside of regular school hours in all public schools, and in public schools that allow students to access the Internet outside of regular school hours, by school characteristics: 2001–03**

School characteristic	All public schools			Public schools that allow students to access the Internet outside of regular school hours <sup>1</sup>		
	2001	2002	2003	2001	2002	2003
All public schools.....	25.6	22.0	21.6	15.0	13.1	12.2
Instructional level <sup>2</sup>						
Elementary.....	30.4	23.1	24.8	14.0	11.5	11.6
Secondary.....	20.2	20.2	17.9	16.8	16.1	13.7
School size						
Less than 300.....	14.4	12.3	14.4	7.0	5.8	5.3
300 to 999.....	27.8	23.9	24.4	13.5	12.2	12.3
1,000 or more.....	26.4	23.4	19.4	22.2	18.9	14.7
Locale						
City.....	28.1	24.8	24.1	16.8	15.4	14.3
Urban fringe.....	30.4	25.6	22.4	17.3	15.5	13.6
Town.....	22.9	18.1	26.6	12.9	10.6	12.4
Rural.....	19.0	17.2	16.6	11.7	9.3	8.4
Percent minority enrollment <sup>3</sup>						
Less than 6 percent.....	21.5	15.8	19.6	11.7	9.1	9.6
6 to 20 percent.....	26.3	21.4	19.9	14.2	12.4	12.1
21 to 49 percent.....	28.1	26.5	20.9	17.0	15.9	11.6
50 percent or more.....	26.1	25.4	23.7	16.4	15.4	14.1
Percent of students eligible for free or reduced-price lunch <sup>4</sup>						
Less than 35 percent.....	24.9	23.5	21.3	15.6	14.2	12.5
35 to 49 percent.....	26.6	15.5	19.9	14.8	9.5	10.7
50 to 74 percent.....	23.5	26.2	22.9	13.3	15.0	12.2
75 percent or more.....	28.9	22.1	22.8	15.4	12.7	12.9

<sup>1</sup>Percentages are based on 50 percent of public schools (99 percent with Internet access times 51 percent allowing students to access the Internet outside of regular school hours) in 2001, on 52 percent of public schools (99 percent with Internet access times 53 percent allowing students access to the Internet outside of regular school hours) in 2002, and on 48 percent of public schools (99.8 percent with Internet access times 48 percent allowing students access to the Internet outside of regular school hours) in 2003.

<sup>2</sup>Data for combined schools are included in the totals and in analyses by other school characteristics but are not shown separately.

<sup>3</sup>Percent minority enrollment was not available for 31 schools in 2001 and 15 schools in 2002. In 2003, this information was missing for 28 schools. The weighted response rate was 97.5 percent.

<sup>4</sup>Percent of students eligible for free or reduced-price lunch was not available for two schools in 2001.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System “Internet Access in U.S. Public Schools, Fall 2001,” FRSS 82, 2001; “Internet Access in U.S. Public Schools, Fall 2002,” FRSS 83, 2002; and “Internet Access in U.S. Public Schools, Fall 2003,” FRSS 86, 2003.

**Table 9-A. Standard errors of the ratio of students to computers with Internet access available outside of regular school hours in all public schools, and in public schools that allow students to access the Internet outside of regular school hours, by school characteristics: 2001–03**

School characteristic	All public schools			Public schools that allow students to access the Internet outside of regular school hours		
	2001	2002	2003	2001	2002	2003
All public schools.....	1.5	1.6	1.4	0.8	0.8	0.7
<b>Instructional level</b>						
Elementary.....	2.8	2.4	2.6	1.2	1.1	1.0
Secondary.....	1.2	1.2	1.3	1.0	0.9	0.9
<b>School size</b>						
Less than 300.....	2.2	2.5	2.7	0.9	0.9	0.9
300 to 999.....	2.2	2.3	2.0	1.0	1.1	0.8
1,000 or more.....	2.8	2.8	2.6	2.2	2.0	1.8
<b>Locale</b>						
City.....	5.0	3.2	2.8	2.8	1.7	1.4
Urban fringe.....	2.7	2.4	2.3	1.3	1.4	1.3
Town.....	2.8	7.3	4.6	1.2	4.5	2.1
Rural.....	1.8	2.0	2.1	0.9	1.0	1.1
<b>Percent minority enrollment</b>						
Less than 6 percent.....	2.3	3.5	3.1	1.0	1.7	1.3
6 to 20 percent.....	3.2	2.6	2.3	1.4	1.2	1.4
21 to 49 percent.....	4.2	3.2	3.3	2.2	1.6	1.6
50 percent or more.....	3.4	3.4	2.1	2.2	1.7	1.2
<b>Percent of students eligible for free or reduced-price lunch</b>						
Less than 35 percent.....	1.9	2.2	2.0	1.1	1.0	1.1
35 to 49 percent.....	3.9	4.4	3.4	1.7	2.8	1.7
50 to 74 percent.....	3.5	2.7	3.4	1.8	1.3	1.6
75 percent or more.....	4.9	4.1	2.4	2.5	2.0	1.1

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System “Internet Access in U.S. Public Schools, Fall 2001,” FRSS 82, 2001; “Internet Access in U.S. Public Schools, Fall 2002,” FRSS 83, 2002; and “Internet Access in U.S. Public Schools, Fall 2003,” FRSS 86, 2003.

**Table 10. Percent of public schools providing hand-held computers to students or teachers for instructional purposes, by school characteristics: 2002 and 2003**

School characteristic	2002	2003
All public schools.....	7	10
Instructional level <sup>1</sup>		
Elementary.....	6	9
Secondary.....	10	14
School size		
Less than 300.....	8	5
300 to 999.....	6	11
1,000 or more.....	12	21
Locale		
City.....	5	11
Urban fringe.....	6	9
Town.....	6	10
Rural.....	10	10
Percent minority enrollment <sup>2</sup>		
Less than 6 percent.....	9	9
6 to 20 percent.....	7	10
21 to 49 percent.....	5	10
50 percent or more.....	7	12
Percent of students eligible for free or reduced-price lunch		
Less than 35 percent.....	9	10
35 to 49 percent.....	5	10
50 to 74 percent.....	7	9
75 percent or more.....	5	11

<sup>1</sup>Data for combined schools are included in the totals and in analyses by other school characteristics but are not shown separately.

<sup>2</sup>Percent minority enrollment was not available for 15 schools in 2002 and 28 schools in 2003. The weighted response rate was 98.6 percent in 2002 and 97.5 percent in 2003.

NOTE: Percentages are based on all public schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

**Table 10-A. Standard errors of the percent of public schools providing hand-held computers to students or teachers for instructional purposes, by school characteristics: 2002 and 2003**

School characteristic	2002	2003
All public schools.....	0.8	1.2
Instructional level		
Elementary.....	1.1	1.4
Secondary.....	1.5	1.6
School size		
Less than 300.....	2.4	1.9
300 to 999.....	1.0	1.5
1,000 or more.....	2.4	3.3
Locale		
City.....	1.5	2.2
Urban fringe.....	1.3	1.7
Town.....	1.8	2.9
Rural.....	2.1	1.9
Percent minority enrollment		
Less than 6 percent.....	2.2	2.0
6 to 20 percent.....	1.5	1.7
21 to 49 percent.....	1.4	2.7
50 percent or more.....	1.7	2.6
Percent of students eligible for free or reduced-price lunch		
Less than 35 percent.....	1.4	1.4
35 to 49 percent.....	2.0	3.0
50 to 74 percent.....	1.9	2.3
75 percent or more.....	1.9	2.4

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.



**Table 11. Percent of public schools lending laptop computers to students, by school characteristics: 2001–03**

School characteristic	2001	2002	2003
All public schools.....	10	8	8
Instructional level <sup>1</sup>			
Elementary.....	7	5	5
Secondary.....	18	18	19
School size			
Less than 300.....	15	9	14
300 to 999.....	7	7	6
1,000 or more.....	13	11	10
Locale			
City.....	6	6	5
Urban fringe.....	7	6	7
Town.....	13	11	9
Rural.....	14	11	12
Percent minority enrollment <sup>2</sup>			
Less than 6 percent.....	11	12	11
6 to 20 percent.....	9	8	8
21 to 49 percent.....	10	7	9
50 percent or more.....	9	5	6
Percent of students eligible for free or reduced-price lunch <sup>3</sup>			
Less than 35 percent.....	10	10	9
35 to 49 percent.....	9	10	9
50 to 74 percent.....	10	7	9
75 percent or more.....	10	3	7

<sup>1</sup>Data for combined schools are included in the totals and in analyses by other school characteristics but are not shown separately.

<sup>2</sup>Percent minority enrollment was not available for 31 schools in 2001 and 15 schools in 2002. In 2003, this information was missing for 28 schools. The weighted response rate was 97.5 percent.

<sup>3</sup>Percent of students eligible for free or reduced-price lunch was not available for two schools in 2001.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, “Internet Access in U.S. Public Schools, Fall 2001,” FRSS 82, 2001; “Internet Access in U.S. Public Schools, Fall 2002,” FRSS 83, 2002; and “Internet Access in U.S. Public Schools, Fall 2003,” FRSS 86, 2003.

**Table 11-A. Standard errors of the percent of public schools lending laptop computers to students, by school characteristics: 2001–03**

School characteristic	2001	2002	2003
All public schools.....	1.0	1.0	1.0
<b>Instructional level</b>			
Elementary.....	1.1	1.0	1.1
Secondary.....	1.9	2.1	2.2
<b>School size</b>			
Less than 300.....	3.2	2.1	2.7
300 to 999.....	1.1	1.0	0.9
1,000 or more.....	1.9	2.3	1.5
<b>Locale</b>			
City.....	1.3	1.7	1.3
Urban fringe.....	1.4	1.5	1.5
Town.....	3.1	2.9	2.4
Rural.....	2.2	1.8	2.1
<b>Percent minority enrollment</b>			
Less than 6 percent.....	2.1	2.3	2.0
6 to 20 percent.....	2.4	1.6	2.1
21 to 49 percent.....	2.7	1.7	2.1
50 percent or more.....	1.8	1.1	1.7
<b>Percent of students eligible for free or reduced-price lunch</b>			
Less than 35 percent.....	1.4	1.7	1.5
35 to 49 percent.....	2.6	2.5	2.5
50 to 74 percent.....	2.7	1.8	2.3
75 percent or more.....	2.5	1.0	2.4

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, “Internet Access in U.S. Public Schools, Fall 2001,” FRSS 82, 2001; “Internet Access in U.S. Public Schools, Fall 2002,” FRSS 83, 2002; and “Internet Access in U.S. Public Schools, Fall 2003,” FRSS 86, 2003.

**Table 12. Percent of public schools lending laptop computers to students for various maximum lengths of time: 2002 and 2003**

Maximum length of time of loan	2002	2003
Less than 1 week .....	59	57
1 week to less than 1 month.....	19	17
1 month to less than 3 months .....	‡	2!
3 months to less than 6 months .....	‡	‡
6 months to less than the entire school year.....	‡	#
The entire school year .....	16	15
Other <sup>1</sup> .....	2!	8

#Rounds to zero.

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

‡Reporting standards not met.

<sup>1</sup>For example, more than 1 school year.

NOTE: Percentages are based on the 8 percent of public schools lending laptop computers to students in 2002 and in 2003. Detail may not sum to totals because of rounding and not reporting where there are too few cases for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

**Table 12-A. Standard errors of the percent of public schools lending laptop computers to students for various maximum lengths of time: 2002 and 2003**

Maximum length of time of loan	2002	2003
Less than 1 week .....	4.4	4.7
1 week to less than 1 month.....	3.7	4.1
1 month to less than 3 months .....	‡	1.3
3 months to less than 6 months .....	‡	‡
6 months to less than the entire school year.....	‡	†
The entire school year .....	3.4	3.4
Other .....	1.2	2.6

†Not applicable; estimate of standard error is not derived because it is based on an estimate of 0 percent.

‡Reporting standards not met.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

**Table 13. Percent of public schools without laptop computers available for loan in the current school year planning to make laptop computers available for students to borrow during the next school year: 2002 and 2003**

School characteristic	2002	2003
All public schools .....	7	6
Instructional level <sup>1</sup>		
Elementary .....	7	5
Secondary .....	8	6
School size		
Less than 300 .....	12	6
300 to 999 .....	6	5
1,000 or more .....	6	6
Locale		
City .....	5	5
Urban fringe .....	6	5
Town .....	6	6
Rural .....	11	7
Percent minority enrollment <sup>2</sup>		
Less than 6 percent .....	12	5
6 to 20 percent .....	5	7
21 to 49 percent .....	4	3
50 percent or more .....	7	7
Percent of students eligible for free or reduced-price lunch		
Less than 35 percent .....	6	3
35 to 49 percent .....	9	7
50 to 74 percent .....	6	7
75 percent or more .....	10	8

<sup>1</sup>Data for combined schools are included in the totals and in analyses by other school characteristics but are not shown separately.

<sup>2</sup>Percent minority enrollment was not available for 15 schools in 2002 and 28 schools in 2003. The weighted response rate was 98.6 percent in 2002 and 97.5 percent in 2003.

NOTE: Percentages are based on the 92 percent of public schools without laptops available for loan in 2002 and 2003.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

**Table 13-A. Standard errors of the percent of public schools without laptop computers available for loan in the current school year planning to make laptop computers available for students to borrow during the next school year: 2002 and 2003**

School characteristic	2002	2003
All public schools .....	1.1	0.9
Instructional level		
Elementary .....	1.3	1.1
Secondary .....	1.6	1.4
School size		
Less than 300 .....	3.0	2.2
300 to 999 .....	1.0	1.0
1,000 or more .....	1.7	1.7
Locale		
City .....	1.5	1.7
Urban fringe .....	1.6	1.3
Town .....	2.4	2.9
Rural .....	2.4	1.7
Percent minority enrollment		
Less than 6 percent .....	3.2	1.6
6 to 20 percent .....	2.1	2.6
21 to 49 percent .....	1.7	1.4
50 percent or more .....	1.6	1.5
Percent of students eligible for free or reduced-price lunch		
Less than 35 percent .....	1.8	0.9
35 to 49 percent .....	3.4	2.6
50 to 74 percent .....	1.9	2.7
75 percent or more .....	2.7	1.9

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

**Table 14. Percent of public schools with a website or a web page, by school characteristics: 2001–03**

School characteristic	2001	2002	2003
All public schools.....	75	86	88
Instructional level <sup>1</sup>			
Elementary.....	73	85	87
Secondary.....	83	93	94
School size			
Less than 300.....	63	84	80
300 to 999.....	78	86	91
1,000 or more.....	87	94	92
Locale			
City.....	73	76	82
Urban fringe.....	79	91	92
Town.....	80	84	86
Rural.....	70	91	89
Percent minority enrollment <sup>2</sup>			
Less than 6 percent.....	78	92	90
6 to 20 percent.....	80	87	94
21 to 49 percent.....	78	91	90
50 percent or more.....	65	76	80
Percent of students eligible for free or reduced-price lunch <sup>3</sup>			
Less than 35 percent.....	83	94	96
35 to 49 percent.....	77	89	90
50 to 74 percent.....	71	86	85
75 percent or more.....	59	66	72

<sup>1</sup>Data for combined schools are included in the totals and in analyses by other school characteristics but are not shown separately.

<sup>2</sup>Percent minority enrollment was not available for 31 schools in 2001 and 15 schools in 2002. In 2003, this information was missing for 28 schools. The weighted response rate was 97.5 percent.

<sup>3</sup>Percent of students eligible for free or reduced-price lunch was not available for two schools in 2001.

NOTE: Percentages are based on the 99 percent of public schools with Internet access in 2001 and 2002, and 99.8 percent in 2003. In 2001, the questionnaire asked about the school's "website." Beginning in 2002, the wording was changed to "website or web page."

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2001," FRSS 82, 2001; "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

**Table 14-A. Standard errors of the percent of public schools with a website or a web page, by school characteristics: 2001–03**

School characteristic	2001	2002	2003
All public schools.....	1.6	1.1	1.5
Instructional level			
Elementary.....	1.9	1.4	1.8
Secondary.....	2.1	1.6	1.1
School size			
Less than 300.....	4.6	2.9	3.8
300 to 999.....	1.5	1.3	1.3
1,000 or more.....	2.5	1.7	2.0
Locale			
City.....	3.2	2.8	2.5
Urban fringe.....	2.2	1.6	1.6
Town.....	4.3	3.9	3.7
Rural.....	3.3	2.1	2.8
Percent minority enrollment			
Less than 6 percent.....	3.3	2.0	2.7
6 to 20 percent.....	3.2	2.8	2.3
21 to 49 percent.....	3.8	2.2	2.7
50 percent or more.....	3.0	2.5	2.5
Percent of students eligible for free or reduced-price lunch			
Less than 35 percent.....	2.4	1.3	1.6
35 to 49 percent.....	4.0	3.6	2.9
50 to 74 percent.....	4.3	2.2	3.0
75 percent or more.....	3.8	3.3	3.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, “Internet Access in U.S. Public Schools, Fall 2001,” FRSS 82, 2001; “Internet Access in U.S. Public Schools, Fall 2002,” FRSS 83, 2002; and “Internet Access in U.S. Public Schools, Fall 2003,” FRSS 86, 2003.



**Table 15. Percentage distribution of public schools updating their website or web page daily, weekly, monthly, or less than monthly, by school characteristics: 2001–03**

School characteristic	Daily			Weekly			Monthly			Less than monthly		
	2001	2002	2003	2001	2002	2003	2001	2002	2003	2001	2002	2003
All public schools.....	8	12	13	23	30	33	31	27	26	37	32	27
Instructional level <sup>1</sup>												
Elementary.....	5	9	10	20	27	33	35	29	27	40	35	30
Secondary.....	18	21	22	34	38	36	22	20	23	26	22	18
School size												
Less than 300.....	6	15	11	14	23	35	32	22	29	47	40	25
300 to 999.....	7	8	11	25	32	32	33	29	27	36	31	30
1,000 or more.....	21	24	24	33	30	37	22	25	19	24	21	20
Locale												
City.....	8	11	9	18	25	26	35	20	27	39	43	39
Urban fringe.....	7	9	14	24	34	34	31	28	25	38	29	27
Town.....	10	12	13	29	34	34	21	23	29	40	31	24
Rural.....	9	15	14	25	26	38	34	30	26	32	28	22
Percent minority enrollment <sup>2</sup>												
Less than 6 percent.....	12	13	20	30	35	35	25	25	26	33	26	19
6 to 20 percent.....	7	14	16	25	36	39	35	28	27	34	22	18
21 to 49 percent.....	10	13	9	20	29	42	36	28	24	34	30	25
50 percent or more.....	5	6	8	16	18	21	32	26	26	47	49	45
Percent of students eligible for free or reduced-price lunch <sup>3</sup>												
Less than 35 percent.....	11	14	19	29	37	42	32	27	22	28	22	18
35 to 49 percent.....	7	14	8	23	29	38	29	27	32	42	31	23
50 to 74 percent.....	7	10	10	21	24	26	31	25	26	41	41	38
75 percent or more.....	4!	5	6	10	16	16	32	27	33	54	51	44

<sup>1</sup>Interpret data with caution; the coefficient of variation is greater than 50 percent.

<sup>1</sup>Data for combined schools are included in the totals and in analyses by other school characteristics but are not shown separately.

<sup>2</sup>Percent minority enrollment was not available for 31 schools in 2001 and 15 schools in 2002. In 2003, this information was missing for 28 schools. The weighted response rate was 97.5 percent.

<sup>3</sup>Percent of students eligible for free or reduced-price lunch was not available for two schools in 2001.

NOTE: Percentages are based on 74 percent of public schools (99 percent with Internet access times 75 percent with a website or web page) in 2001, on 85 percent of public schools (99 percent with Internet access times 86 percent with a website or web page) in 2002, and on 88 percent of public schools (99.8 percent with Internet access times 88 percent with a website or web page) in 2003. In 2001, the questionnaire asked about the school's "website." Beginning in 2002, the wording was changed to "website or web page." Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2001," FRSS 82, 2001; "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

**Table 15-A. Standard errors of the percentage distribution of public schools updating their website or web page daily, weekly, monthly, or less than monthly, by school characteristics: 2001–03**

School characteristic	Daily			Weekly			Monthly			Less than monthly		
	2001	2002	2003	2001	2002	2003	2001	2002	2003	2001	2002	2003
All public schools.....	1.0	1.2	1.2	1.7	1.8	1.7	2.1	1.5	1.6	2.0	2.0	2.0
Instructional level												
Elementary.....	1.2	1.4	1.5	2.1	2.3	2.1	2.5	2.1	2.0	2.5	2.4	2.4
Secondary.....	1.9	2.1	2.0	2.5	2.2	2.4	2.5	1.8	2.2	2.4	2.4	2.2
School size												
Less than 300.....	2.1	3.5	3.0	3.7	4.3	5.1	5.5	3.7	4.8	5.9	4.6	4.8
300 to 999.....	1.2	1.4	1.4	2.0	2.1	2.1	2.3	1.8	1.9	2.1	2.1	2.2
1,000 or more.....	3.1	3.4	2.4	3.5	3.2	3.6	3.1	2.7	2.8	3.4	3.0	3.4
Locale												
City.....	1.9	2.5	1.9	2.6	3.2	3.4	3.5	3.4	3.6	4.1	4.1	3.5
Urban fringe.....	1.6	1.5	2.1	2.9	2.8	3.7	3.1	2.5	3.3	3.9	2.9	3.3
Town.....	3.4	3.7	2.9	3.8	4.9	5.3	4.8	5.1	5.3	5.9	5.7	4.7
Rural.....	1.7	2.3	2.3	3.5	3.3	3.7	4.4	3.1	3.1	4.0	3.3	3.8
Percent minority enrollment												
Less than 6 percent.....	2.3	2.5	3.3	4.1	4.2	3.4	4.3	3.8	3.5	4.9	3.7	4.1
6 to 20 percent.....	1.8	2.6	2.9	3.3	3.5	3.3	3.7	3.6	3.2	4.3	3.4	2.7
21 to 49 percent.....	2.4	2.9	1.5	2.7	4.1	3.7	3.8	3.8	3.8	4.2	3.6	3.6
50 percent or more.....	1.5	1.5	1.7	2.7	2.2	3.0	4.0	3.5	3.1	3.8	3.7	3.2
Percent of students eligible for free or reduced-price lunch												
Less than 35 percent.....	1.5	1.9	2.3	2.7	2.7	2.8	3.1	2.4	2.3	3.0	2.8	2.9
35 to 49 percent.....	1.9	3.6	1.8	3.9	4.7	4.1	4.7	4.0	4.5	4.8	4.7	3.6
50 to 74 percent.....	2.3	1.9	2.7	2.9	3.2	3.5	4.8	3.3	4.0	4.2	3.7	4.2
75 percent or more.....	1.9	2.0	1.9	2.9	3.2	2.9	5.3	4.7	4.5	5.1	5.7	4.5

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2001," FRSS 82, 2001; and "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

**Table 16. Percentage distribution of types of staff or students who were primarily responsible for the school's website or web page support, by school characteristics: 2002 and 2003**

School characteristic	Teacher or other staff as part of formal responsibilities		Full-time, paid school technology director/coordinator		Teacher or other staff as volunteers		District staff		Part-time, paid school technology director/coordinator		Other <sup>1</sup>		Students		Consultant/outside contractor	
	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003
All public schools.....	29	27	22	19	18	19	18	17	5	5	4	8	2	2	2	3
Instructional level <sup>2</sup>																
Elementary.....	28	25	21	19	18	21	20	18	5	5	5	9	1	1	2	3
Secondary.....	35	34	23	19	17	13	13	14	5	5	1!	6	4	6	2	3
School size																
Less than 300.....	26	21	18	19	23	15	17	24	8	7	5	6	2!	3	‡	6
300 to 999.....	29	28	23	18	16	20	19	15	5	4	5	9	2	2	2	3
1,000 or more.....	39	32	23	20	19	22	11	12	3	4	2!	6	2	2	2	3
Locale																
City.....	32	30	19	16	20	24	16	16	5	4	4	7	3	2	2!	2
Urban fringe.....	31	25	18	16	15	19	19	19	4	5	8	11	‡	2	3	4
Town.....	26	31	28	20	22	18	19	14	2!	5!	#	5	‡	2	‡	4!
Rural.....	28	26	22	23	19	16	16	17	8	5	2	7	4	3	2	4
Percent minority enrollment <sup>3</sup>																
Less than 6 percent.....	25	22	24	20	17	17	20	14	7	7	‡	8	3	4	3!	6
6 to 20 percent.....	28	35	20	18	21	18	17	16	6	4	4	7	3	2!	1!	1
21 to 49 percent.....	36	27	19	17	19	21	13	15	6	3	4	11	1!	2!	1!	4
50 percent or more.....	29	23	22	19	16	20	21	22	1	5	7	8	1!	1!	2!	2
Percent of students eligible for free or reduced-price lunch																
Less than 35 percent.....	30	28	22	18	16	17	16	14	6	7	6	10	1	2	3	4
35 to 49 percent.....	27	30	21	18	22	21	16	15	8	2!	‡	5	4	5	‡	4!
50 to 74 percent.....	29	23	19	15	20	20	20	27	4	4	4	9	2	‡	1!	2!
75 percent or more.....	29	27	27	25	17	19	20	15	1!	4	3!	5	‡	2!	3!	3

#Rounds to zero.

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

‡Reporting standards not met.

<sup>1</sup>Respondents could provide their own response.

<sup>2</sup>Data for combined schools are included in the totals and in analyses by other school characteristics but are not shown separately.

<sup>3</sup>Percent minority enrollment was not available for 15 schools in 2002 and 28 schools in 2003. The weighted response rate was 98.6 percent in 2002 and 97.5 percent in 2003.

NOTE: Percentages are based on 85 percent of public schools (99 percent with Internet access times 86 percent with a website or web page) in 2002, and on 88 percent of public schools (99.8 percent with Internet access times 88 percent with a website or web page) in 2003. Detail may not sum to totals because of rounding and not reporting where there are too few cases for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

**Table 16-A. Standard errors of the percentage distribution of types of staff or students who were primarily responsible for the school’s website or web page support, by school characteristics: 2002 and 2003**

School characteristic	Teacher or other staff as part of formal responsibilities		Full-time, paid school technology director/coordinator		Teacher or other staff as volunteers		District staff		Part-time, paid school technology director/coordinator		Other		Students		Consultant/outside contractor	
	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003
All public schools.....	1.8	1.5	1.8	1.3	1.5	1.3	1.3	1.3	0.9	0.8	0.9	1.2	0.5	0.5	0.6	0.8
Instructional level																
Elementary.....	2.4	1.8	2.1	1.8	1.8	1.9	1.7	1.7	1.2	1.0	1.2	1.6	0.6	0.4	0.8	1.0
Secondary.....	2.3	2.8	2.6	1.9	1.9	1.7	1.7	2.0	1.1	1.0	0.6	1.2	1.1	1.3	0.7	1.1
School size																
Less than 300.....	4.2	4.1	3.6	3.6	3.8	3.2	3.7	3.7	2.7	2.6	2.1	2.6	1.3	1.1	‡	2.4
300 to 999.....	2.1	1.8	1.9	1.7	1.9	1.7	1.7	1.8	1.0	0.9	0.9	1.5	0.6	0.6	0.8	0.8
1,000 or more.....	3.2	3.0	2.9	2.7	3.0	2.8	2.2	2.0	1.2	1.2	1.2	1.7	0.9	0.7	0.7	1.1
Locale																
City.....	4.1	3.3	2.6	3.0	2.8	3.4	2.9	3.0	1.8	1.3	2.0	2.1	1.2	0.7	1.4	0.8
Urban fringe.....	2.7	2.2	2.7	2.4	2.1	2.6	2.1	2.8	1.4	1.5	2.1	2.1	‡	0.8	1.3	1.4
Town.....	3.8	5.8	5.4	3.9	5.3	4.8	4.6	3.4	1.3	2.8	†	2.0	‡	1.3	‡	2.7
Rural.....	3.4	3.0	3.1	2.9	3.0	2.7	2.6	3.0	2.1	1.5	0.8	1.6	1.2	0.9	0.7	1.7
Percent minority enrollment																
Less than 6 percent.....	3.2	3.1	4.0	2.8	2.9	3.0	3.7	3.0	2.3	2.1	‡	2.1	1.2	1.2	1.3	2.6
6 to 20 percent.....	3.6	4.0	3.3	3.0	3.5	2.7	3.5	3.6	2.0	1.7	2.0	1.7	1.1	0.8	0.8	0.7
21 to 49 percent.....	4.2	3.7	3.2	2.5	2.9	3.3	2.7	2.8	2.0	1.5	1.9	2.8	0.7	1.2	1.0	1.8
50 percent or more.....	3.0	3.1	2.5	3.0	2.3	2.5	3.2	2.9	0.5	1.3	2.4	2.2	0.7	0.6	1.2	0.8
Percent of students eligible for free or reduced-price lunch																
Less than 35 percent.....	2.4	2.3	2.8	2.0	2.2	2.0	2.4	2.3	1.5	1.6	1.6	2.0	0.6	0.8	1.0	1.3
35 to 49 percent.....	4.1	4.0	3.6	3.9	4.0	3.5	3.4	3.7	3.2	1.2	‡	2.1	2.2	1.3	‡	2.2
50 to 74 percent.....	3.5	3.3	3.0	3.1	3.1	3.2	3.0	4.0	1.8	1.3	1.7	2.6	1.0	‡	0.6	1.2
75 percent or more.....	4.9	3.8	4.4	3.6	3.4	3.2	4.0	3.3	0.7	1.7	1.6	2.0	‡	0.9	2.0	1.3

†Not applicable; estimate of standard error is not derived because it is based on an estimate of 0 percent.

‡Reporting standards not met.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, “Internet Access in U.S. Public Schools, Fall 2002,” FRSS 83, 2002; and “Internet Access in U.S. Public Schools, Fall 2003,” FRSS 86, 2003.

**Table 17. Percent of public schools using technologies or procedures to prevent student access to inappropriate material on the Internet, and of those schools, percent using these measures on all computers with Internet access used by students, by school characteristics: 2001–03**

School characteristic	Use technologies/procedures to prevent student access to inappropriate material on the Internet <sup>1</sup>			Use these measures on all computers with Internet access used by students <sup>2</sup>		
	2001	2002	2003	2001	2002	2003
All public schools.....	96	99	97	98	99	99
Instructional level <sup>3</sup>						
Elementary.....	96	99	97	98	99	99
Secondary.....	97	100 <sup>4</sup>	99	98	99	99
School size						
Less than 300.....	94	99	96	96	100 <sup>4</sup>	100 <sup>4</sup>
300 to 999.....	97	100 <sup>4</sup>	98	99	99	99
1,000 or more.....	98	99	98	98	99	99
Locale						
City.....	93	99	98	98	99	99
Urban fringe.....	98	99	98	98	98	99
Town.....	96	100	100	100 <sup>4</sup>	99	99
Rural.....	97	100 <sup>4</sup>	96	98	100 <sup>4</sup>	99
Percent minority enrollment <sup>5</sup>						
Less than 6 percent.....	96	99	97	97	100 <sup>4</sup>	99
6 to 20 percent.....	98	99	98	100 <sup>4</sup>	100 <sup>4</sup>	99
21 to 49 percent.....	97	100	97	99	98	100 <sup>4</sup>
50 percent or more.....	95	99	99	98	98	99
Percent of students eligible for free or reduced-price lunch <sup>6</sup>						
Less than 35 percent.....	99	100 <sup>4</sup>	98	99	99	99
35 to 49 percent.....	93	100 <sup>4</sup>	98	97	100 <sup>4</sup>	99
50 to 74 percent.....	98	99	97	97	98	99
75 percent or more.....	92	98	96	98	99	99

<sup>1</sup>Percentages are based on the 99 percent of public schools with Internet access in 2001 and 2002, and 99.8 percent in 2003.

<sup>2</sup>Percentages are based on 95 percent of public schools (99 percent with Internet access times 96 percent of public schools using technologies or procedures to prevent student access to inappropriate material on the Internet) in 2001, on 98 percent of public schools (99 percent with Internet access times 99 percent using technologies or procedures to prevent student access to inappropriate material on the Internet) in 2002, and on 97 percent of public schools (99.8 percent with Internet access times 97 percent using technologies or procedures to prevent student access to inappropriate material on the Internet) in 2003.

<sup>3</sup>Data for combined schools are included in the totals and in analyses by other school characteristics but are not shown separately.

<sup>4</sup>Estimate is rounded to 100 percent for presentation in table.

<sup>5</sup>Percent minority enrollment was not available for 31 schools in 2001 and for 15 schools in 2002. In 2003, this information was missing for 28 schools. The weighted response rate was 97.5 percent.

<sup>6</sup>Percent of students eligible for free or reduced-price lunch was not available for two schools in 2001.

NOTE: For estimates that are 100 percent, the event defined could have been reported by fewer schools had a different sample been drawn.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2001," FRSS 82, 2001; "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

**Table 17-A. Standard errors of the percent of public schools using technologies or procedures to prevent student access to inappropriate material on the Internet, and of those schools, standard errors of the percent using these measures on all computers with Internet access used by students, by school characteristics: 2001–03**

School characteristic	Use technologies/procedures to prevent student access to inappropriate material on the Internet			Use these measures on all computers with Internet access used by students		
	2001	2002	2003	2001	2002	2003
All public schools.....	0.6	0.3	0.7	0.5	0.3	0.2
Instructional level						
Elementary.....	0.7	0.4	0.9	0.7	0.4	0.2
Secondary.....	0.9	0.2	0.6	0.6	0.5	0.5
School size						
Less than 300.....	2.1	0.9	1.8	1.8	0.4	0.4
300 to 999.....	0.6	0.3	0.7	0.4	0.5	0.3
1,000 or more.....	0.9	0.8	1.0	0.7	0.4	0.7
Locale						
City.....	1.5	0.5	1.2	0.8	0.7	0.5
Urban fringe.....	1.0	0.6	0.8	1.0	0.9	0.4
Town.....	2.4	†	†	0.3	0.6	0.9
Rural.....	1.1	0.5	1.9	1.1	0.3	0.4
Percent minority enrollment						
Less than 6 percent.....	1.6	0.7	1.9	1.6	0.4	0.4
6 to 20 percent.....	1.4	0.6	1.3	0.3	0.1	0.5
21 to 49 percent.....	1.5	†	1.3	0.7	1.1	0.3
50 percent or more.....	1.1	0.5	0.8	0.9	0.7	0.6
Percent of students eligible for free or reduced-price lunch						
Less than 35 percent.....	0.7	0.3	0.9	0.6	0.5	0.3
35 to 49 percent.....	2.4	0.2	1.0	1.8	0.3	0.3
50 to 74 percent.....	1.1	0.7	1.4	1.5	0.8	0.7
75 percent or more.....	1.8	1.1	2.1	1.0	0.8	0.7

†Not applicable; estimate of standard error is not derived because it is based on an estimate of 100 percent.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2001," FRSS 82, 2001; "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

**Table 18. Percent of public schools with Internet access using various technologies or procedures to prevent student access to inappropriate material on the Internet, by school characteristics: 2001–03**

School characteristic	Monitoring by teachers or other staff			Blocking/ filtering software			Written contract that parents have to sign		
	2001	2002	2003	2001	2002	2003	2001	2002	2003
All public schools.....	91	91	93	87	96	96	80	82	83
Instructional level <sup>1</sup>									
Elementary.....	90	91	93	85	95	96	78	82	82
Secondary.....	93	92	92	93	98	98	87	82	84
School size									
Less than 300.....	88	90	92	81	97	96	73	82	85
300 to 999.....	92	91	93	88	95	97	82	82	82
1,000 or more.....	93	95	93	93	99	96	86	81	82
Locale									
City.....	90	88	92	83	91	96	78	78	78
Urban fringe.....	91	92	93	88	96	96	80	79	85
Town.....	84	93	94	87	99	98	79	84	86
Rural.....	95	91	92	87	98	97	82	87	83
Percent minority enrollment <sup>2</sup>									
Less than 6 percent.....	92	92	93	86	96	97	82	83	84
6 to 20 percent.....	93	92	96	86	96	99	80	82	85
21 to 49 percent.....	91	94	95	86	96	97	79	83	82
50 percent or more.....	88	87	89	87	95	93	78	80	80
Percent of students eligible for free or reduced-price lunch									
Less than 35 percent.....	92	95	94	87	95	96	82	82	84
35 to 49 percent.....	94	89	95	86	98	98	83	86	82
50 to 74 percent.....	90	90	94	86	97	97	81	83	84
75 percent or more.....	87	86	89	86	95	95	73	76	80

See notes at end of table.

**Table 18. Percent of public schools with Internet access using various technologies or procedures to prevent student access to inappropriate material on the Internet, by school characteristics: 2001–03—Continued**

School characteristic	Written contract that students have to sign			Monitoring software			Honor code for students			Intranet		
	2001	2002	2003	2001	2002	2003	2001	2002	2003	2001	2002	2003
All public schools.....	75	77	76	46	52	57	44	41	45	26	32	39
Instructional level <sup>1</sup>												
Elementary.....	72	74	72	43	51	56	44	41	45	24	34	40
Secondary.....	87	84	87	52	57	60	45	43	46	33	28	34
School size												
Less than 300.....	69	78	81	42	51	56	38	40	43	17	19	26
300 to 999.....	76	75	73	47	52	56	46	42	46	29	37	43
1,000 or more.....	84	81	82	48	59	62	46	43	48	32	33	44
Locale												
City.....	72	74	70	49	45	51	51	38	47	29	38	39
Urban fringe.....	76	69	75	44	53	58	43	44	43	29	37	47
Town.....	76	85	84	37	65	62	39	40	36	19	24	35
Rural.....	78	83	78	49	51	57	42	42	50	24	26	32
Percent minority enrollment <sup>2</sup>												
Less than 6 percent.....	77	81	79	47	51	57	41	39	46	21	20	35
6 to 20 percent.....	75	73	79	44	57	64	45	41	50	30	37	41
21 to 49 percent.....	77	77	72	46	53	55	46	50	42	29	41	44
50 percent or more.....	72	75	74	45	48	54	44	39	43	27	35	38
Percent of students eligible for free or reduced-price lunch <sup>3</sup>												
Less than 35 percent.....	77	75	74	45	54	63	48	44	45	29	34	43
35 to 49 percent.....	78	80	83	40	47	55	38	42	40	23	28	39
50 to 74 percent.....	79	81	75	51	53	49	40	40	47	22	30	33
75 percent or more.....	64	71	72	46	52	56	45	37	48	28	35	38

<sup>1</sup>Data for combined schools are included in the totals and in analyses by other school characteristics but are not shown separately.

<sup>2</sup>Percent minority enrollment was not available for 31 schools in 2001 and 15 schools in 2002. In 2003, this information was missing for 28 schools. The weighted response rate was 97.5 percent.

<sup>3</sup>Percent of students eligible for free or reduced-price lunch was not available for two schools in 2001.

NOTE: Percentages are based on 95 percent of public schools (99 percent with Internet access times 96 percent using technologies or procedures to prevent student access to inappropriate material on the Internet) in 2001, on 98 percent of public schools (99 percent with Internet access times 99 percent using technologies or procedures to prevent student access to inappropriate material on the Internet) in 2002, and on 97 percent of public schools (99.8 percent with Internet access times 97 percent using technologies or procedures to prevent student access to inappropriate material on the Internet) in 2003.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2001," FRSS 82, 2001; "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.



**Table 18-A. Standard errors of the percent of public schools with Internet access using various technologies or procedures to prevent student access to inappropriate material on the Internet, by school characteristics: 2001–03**

School characteristic	Monitoring by teachers or other staff			Blocking/ filtering software			Written contract that parents have to sign		
	2001	2002	2003	2001	2002	2003	2001	2002	2003
All public schools.....	1.1	1.2	0.8	1.4	0.7	0.7	1.4	1.3	1.4
Instructional level									
Elementary.....	1.4	1.5	1.1	1.8	0.9	0.9	1.8	1.7	1.6
Secondary.....	1.3	1.4	1.2	1.4	0.6	0.8	1.7	1.8	1.6
School size									
Less than 300.....	3.2	2.9	2.2	3.7	1.8	1.8	4.0	3.6	2.8
300 to 999.....	1.2	1.2	1.0	1.5	0.8	0.8	1.7	1.5	1.6
1,000 or more.....	1.5	1.7	1.7	1.9	0.5	1.4	2.5	3.1	3.1
Locale									
City.....	2.6	2.2	1.6	3.3	2.6	1.5	3.1	3.0	2.8
Urban fringe.....	1.9	1.7	1.5	2.4	1.2	1.4	3.0	2.6	2.5
Town.....	4.4	2.1	2.6	3.6	0.6	1.0	4.4	3.7	3.8
Rural.....	1.8	2.2	1.9	3.0	1.0	1.4	2.7	2.4	2.7
Percent minority enrollment									
Less than 6 percent.....	2.2	2.7	2.0	2.6	1.7	1.5	3.1	3.1	2.9
6 to 20 percent.....	2.1	1.9	1.6	2.8	1.3	0.7	3.1	2.5	2.9
21 to 49 percent.....	2.5	2.0	1.4	3.2	1.8	1.7	4.0	3.4	3.8
50 percent or more.....	2.2	2.0	1.9	2.4	1.3	1.7	2.6	2.5	2.3
Percent of students eligible for free or reduced-price lunch									
Less than 35 percent.....	1.7	1.3	1.3	2.2	1.4	1.3	2.3	2.0	1.9
35 to 49 percent.....	2.4	2.9	2.4	2.9	1.3	0.9	3.7	3.7	3.6
50 to 74 percent.....	2.6	2.3	1.7	3.1	1.6	1.4	3.6	3.2	2.8
75 percent or more.....	2.9	3.0	2.4	2.9	1.7	0.6	3.9	3.0	2.7

See notes at end of table.

**Table 18-A. Standard errors of the percent of public schools with Internet access using various technologies or procedures to prevent student access to inappropriate material on the Internet, by school characteristics: 2001–03—Continued**

School characteristic	Written contract that students have to sign			Monitoring software			Honor code for students			Intranet		
	2001	2002	2003	2001	2002	2003	2001	2002	2003	2001	2002	2003
All public schools.....	1.4	1.5	1.6	1.9	1.8	1.7	1.8	1.8	2.0	1.6	1.9	1.5
Instructional level												
Elementary.....	1.7	1.9	2.0	2.4	2.0	2.1	2.3	2.1	2.4	1.9	2.4	2.0
Secondary.....	1.6	1.8	1.4	2.6	2.7	2.2	2.6	2.8	2.6	2.9	1.6	2.3
School size												
Less than 300.....	4.0	3.9	3.6	4.4	4.8	4.7	4.2	4.6	4.9	3.7	3.6	4.0
300 to 999.....	1.7	1.7	2.0	2.2	2.0	2.0	2.0	1.8	2.1	1.9	2.1	1.9
1,000 or more.....	2.7	2.9	2.9	3.4	3.5	3.2	3.3	3.7	3.3	3.3	3.4	3.3
Locale												
City.....	3.1	2.7	2.7	3.9	3.7	4.6	3.8	2.9	3.8	3.2	4.3	3.9
Urban fringe.....	2.7	3.0	3.1	3.2	3.1	3.0	3.3	3.0	3.3	3.0	2.8	3.1
Town.....	4.7	3.3	4.3	5.1	4.4	4.8	5.0	5.1	5.8	4.0	4.5	4.6
Rural.....	3.0	2.9	2.8	3.3	3.6	3.8	3.5	3.6	3.9	2.8	3.4	3.0
Percent minority enrollment												
Less than 6 percent.....	3.5	3.1	3.3	3.8	3.9	3.7	3.7	4.2	4.2	3.6	3.3	3.3
6 to 20 percent.....	3.5	3.0	3.3	4.0	3.2	4.0	3.5	3.7	4.1	3.0	3.3	3.8
21 to 49 percent.....	4.1	3.1	3.5	4.5	3.7	4.0	3.9	3.7	4.1	3.6	3.9	3.6
50 percent or more.....	2.9	2.8	2.7	3.4	3.0	3.6	4.0	2.8	3.4	3.2	2.9	2.8
Percent of students eligible for free or reduced-price lunch												
Less than 35 percent.....	2.4	2.4	2.5	2.9	2.7	2.5	2.8	2.9	3.2	2.9	2.8	3.3
35 to 49 percent.....	4.0	4.3	3.4	4.2	4.5	4.6	3.9	4.4	4.6	3.5	3.8	3.9
50 to 74 percent.....	3.9	3.3	3.9	4.3	3.7	4.1	4.1	3.5	4.8	3.4	3.3	3.2
75 percent or more.....	4.5	3.5	3.4	3.9	3.4	4.2	4.5	3.6	4.1	4.1	3.4	3.4

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2001," FRSS 82, 2001; "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

**Table 19. Percent of public schools with Internet access using various methods to disseminate information to students and parents about the technologies or other procedures used to prevent student access to inappropriate material on the Internet at the school, by school characteristics: 2002 and 2003**

School characteristic	Part of school policy/rules distributed to students and parents		Special notice to parents		Newsletters		Posted message on the school website or web page		Notice on bulletin board at school		Pop-up message at computer or Internet log on		Other <sup>1</sup>	
	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003
All public schools.....	90	95	64	66	57	58	32	31	24	25	15	17	5	5
Instructional level <sup>2</sup>														
Elementary.....	89	95	65	67	58	57	32	30	23	22	13	17	5	5
Secondary.....	93	98	60	63	57	62	32	36	30	33	19	20	8	6
School size														
Less than 300.....	91	96	64	69	59	58	24	23	26	25	8	14	8	5
300 to 999.....	90	95	65	65	57	57	33	32	22	23	17	17	4	5
1,000 or more.....	93	98	64	66	59	64	39	46	28	33	19	26	7	8
Locale														
City.....	87	89	68	63	56	58	29	24	25	22	16	18	8	7
Urban fringe.....	87	97	60	71	59	62	38	35	24	24	16	17	4	6
Town.....	91	97	65	58	58	53	32	36	26	24	11	22	3!	6
Rural.....	95	97	66	68	56	56	27	31	23	28	14	15	6	3
Percent minority enrollment <sup>3</sup>														
Less than 6 percent.....	91	97	59	70	62	62	31	33	26	25	11	18	3	3
6 to 20 percent.....	94	96	68	68	58	60	33	39	21	27	14	19	7	7
21 to 49 percent.....	91	98	65	65	58	62	32	28	23	23	12	16	7	5
50 percent or more.....	85	91	66	64	53	52	29	27	25	24	21	17	5	6
Percent of students eligible for free or reduced-price lunch														
Less than 35 percent.....	91	96	64	69	61	65	36	36	24	24	14	19	6	6
35 to 49 percent.....	90	98	63	60	61	52	32	27	21	23	9	20	6	4
50 to 74 percent.....	93	97	69	69	52	58	29	31	24	24	14	14	3	4
75 percent or more.....	85	89	60	64	52	49	24	26	28	28	23	15	6	7

<sup>1</sup>Interpret data with caution; the coefficient of variation is greater than 50 percent.

<sup>2</sup>Respondents could provide their own response.

<sup>3</sup>Data for combined schools are included in the totals and in analyses by other school characteristics but are not shown separately.

<sup>4</sup>Percent minority enrollment was not available for 15 schools in 2002 and 28 schools in 2003. The weighted response rate was 98.6 percent in 2002 and 97.5 percent in 2003.

NOTE: Percentages are based on 98 percent of public schools (99 percent with Internet access times 99 percent using technologies or procedures to prevent student access to inappropriate material on the Internet), and on 97 percent of public schools (99.8 percent with Internet access times 97 percent using technologies or procedures to prevent student access to inappropriate material on the Internet) in 2003.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

**Table 19-A. Standard errors of the percent of public schools with Internet access using various methods to disseminate information to students and parents about the technologies or other procedures used to prevent student access to inappropriate material on the Internet at the school, by school characteristics: 2002 and 2003**

School characteristic	Part of school policy/rules distributed to students and parents		Special notice to parents		Newsletters		Posted message on the school website or web page		Notice on bulletin board at school		Pop-up message at computer or Internet log on		Other	
	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003
All public schools.....	1.3	0.8	1.9	1.8	2.1	1.8	1.7	1.7	1.8	1.3	1.3	1.4	0.8	0.7
Instructional level														
Elementary.....	1.6	1.0	2.2	2.3	2.5	2.3	2.3	2.1	2.1	1.6	1.6	1.6	1.0	0.9
Secondary.....	1.8	0.7	2.7	2.2	2.4	2.8	2.0	2.3	2.4	2.5	1.7	1.9	1.4	1.2
School size														
Less than 300.....	3.0	1.6	5.0	3.9	4.0	4.1	4.2	3.9	4.3	3.5	2.4	3.0	2.2	1.8
300 to 999.....	1.6	1.0	1.9	2.1	2.2	2.3	1.7	2.2	1.9	1.4	1.5	1.7	0.9	0.9
1,000 or more.....	2.0	0.8	3.1	3.0	3.4	3.4	3.9	3.5	3.2	3.2	2.7	3.2	1.9	1.8
Locale														
City.....	2.5	2.3	3.2	3.5	4.0	3.2	3.3	3.1	3.1	2.4	2.8	2.9	1.8	1.6
Urban fringe.....	2.2	1.0	2.8	3.3	3.5	3.5	3.0	3.3	3.2	2.7	1.9	1.8	1.3	1.4
Town.....	3.4	1.9	4.6	5.4	5.0	5.2	5.6	5.1	4.7	3.9	2.5	4.5	1.8	2.2
Rural.....	1.2	1.2	3.5	3.2	3.4	3.2	3.4	3.3	2.7	3.1	2.4	2.2	1.7	1.1
Percent minority enrollment														
Less than 6 percent.....	2.6	1.4	4.3	2.9	4.1	3.8	3.7	4.0	3.1	4.1	2.7	2.6	1.2	1.0
6 to 20 percent.....	1.8	1.5	3.5	4.0	4.0	3.9	3.6	4.0	3.1	3.7	2.2	3.1	2.1	2.1
21 to 49 percent.....	2.4	1.3	3.7	3.6	4.3	3.6	3.6	3.9	3.7	2.7	2.5	2.6	1.9	1.7
50 percent or more.....	2.5	2.0	2.8	3.3	3.0	3.4	2.6	2.7	2.7	2.1	2.5	2.5	1.2	1.3
Percent of students eligible for free or reduced-price lunch														
Less than 35 percent.....	1.7	1.3	3.1	2.8	3.4	3.0	2.5	3.1	2.7	2.8	1.8	2.1	1.5	1.3
35 to 49 percent.....	3.8	0.9	4.7	4.9	4.7	5.0	3.9	3.5	3.8	3.9	2.8	3.8	2.3	1.9
50 to 74 percent.....	1.9	1.1	3.7	3.8	4.3	4.1	3.3	3.2	3.1	2.8	2.5	2.4	1.1	1.3
75 percent or more.....	3.4	2.8	3.2	3.9	3.4	3.2	2.8	2.9	3.0	3.0	3.0	2.8	1.7	1.9

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

**Table 20. Professional development for use of the Internet in the classroom in public schools, by availability, participation, and selected school characteristics: 2002 and 2003**

School characteristic	School or district has offered professional development <sup>1</sup>		Percentage distribution of teachers who have attended professional development <sup>2</sup>									
			0 percent		1 to 25 percent		26 to 50 percent		51 to 75 percent		76 to 100 percent	
	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003
All public schools.....	87	82	1	1	42	38	17	18	11	13	30	30
Instructional level <sup>3</sup>												
Elementary.....	87	80	1	2	43	39	15	17	10	13	31	30
Secondary.....	86	86	#	1!	42	38	20	20	12	13	26	28
School size												
Less than 300.....	82	76	#	3!	29	31	14	22	9	11	47	33
300 to 999.....	88	82	1	1!	45	41	17	17	11	12	25	29
1,000 or more.....	93	91	‡	#	51	41	19	14	8	19	21	25
Locale												
City.....	90	84	1!	2!	53	42	14	18	7	11	25	27
Urban fringe.....	90	82	‡	‡	40	39	18	15	11	15	30	31
Town.....	82	78	‡	‡	36	34	21	20	14	11	28	33
Rural.....	84	80	‡	‡	38	37	15	20	12	12	34	29
Percent minority enrollment <sup>4</sup>												
Less than 6 percent.....	86	80	‡	3!	30	31	16	21	13	12	40	33
6 to 20 percent.....	85	82	‡	‡	43	44	18	17	12	11	26	26
21 to 49 percent.....	88	81	‡	#	46	41	17	18	9	16	27	25
50 percent or more.....	89	83	2!	2!	49	39	16	15	7	12	27	32
Percent of students eligible for free or reduced-price lunch												
Less than 35 percent.....	90	82	‡	1!	43	38	15	19	12	13	29	29
35 to 49 percent.....	82	77	‡	‡	30	37	20	18	14	11	34	34
50 to 74 percent.....	85	82	‡	‡	42	37	21	17	7	14	30	30
75 percent or more.....	88	84	‡	‡	51	43	11	17	9	13	27	26

#Rounds to zero.

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

‡Reporting standards not met.

<sup>1</sup>Percentages are based on the 99 percent of public schools with Internet access in 2002, and 99.8 percent in 2003.

<sup>2</sup>Percentages are based on 86 percent of public schools (99 percent with Internet access times 87 percent reporting that they or their district offered professional development to teachers in the school on how to integrate the Internet into the curriculum in the past 12 months) in 2002, and on 82 percent of public schools (99.8 percent with Internet access times 82 percent reporting that they or their district offered professional development to teachers in the school on how to integrate the Internet into the curriculum in the past 12 months) in 2003.

<sup>3</sup>Data for combined schools are included in the totals and in analyses by other school characteristics but are not shown separately.

<sup>4</sup>Percent minority enrollment was not available for 15 schools in 2002 and 28 schools in 2003. The weighted response rate was 98.6 percent in 2002 and 97.5 percent in 2003.

NOTE: Detail may not sum to totals because of rounding and not reporting where there are too few cases for a reliable estimate.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

**Table 20-A. Standard errors for professional development for use of the Internet in the classroom in public schools, by availability, participation, and selected school characteristics: 2002 and 2003**

School characteristic	School or district has offered professional development		Percentage distribution of teachers who have attended professional development									
			0 percent		1 to 25 percent		26 to 50 percent		51 to 75 percent		76 to 100 percent	
	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003
All public schools.....	1.4	1.3	0.4	0.6	1.5	2.2	1.4	1.7	1.1	1.2	1.7	2.0
Instructional level												
Elementary.....	1.6	1.5	0.5	0.7	1.9	2.8	1.8	2.2	1.5	1.7	2.2	2.6
Secondary.....	1.9	1.7	†	0.7	2.1	2.5	2.1	2.4	1.7	1.5	1.8	2.6
School size												
Less than 300.....	4.3	4.0	†	1.9	4.1	4.8	3.8	4.5	2.7	3.2	4.3	4.4
300 to 999.....	1.2	1.8	0.6	0.5	1.7	2.8	1.7	1.9	1.5	1.5	1.8	2.2
1,000 or more.....	2.1	2.1	‡	†	3.3	3.6	3.1	2.7	1.6	2.8	2.5	3.1
Locale												
City.....	2.2	2.7	0.9	1.3	3.6	3.6	2.8	3.0	1.4	2.7	3.4	3.4
Urban fringe.....	1.9	2.5	‡	‡	3.4	3.4	2.4	2.5	2.0	2.5	3.0	3.7
Town.....	3.8	4.6	‡	‡	4.5	5.5	4.8	4.2	4.5	2.7	6.1	5.0
Rural.....	2.8	2.7	‡	‡	4.0	4.1	2.5	2.8	2.5	2.5	4.0	3.7
Percent minority enrollment												
Less than 6 percent.....	2.8	3.8	‡	1.5	4.0	3.7	3.2	3.5	2.9	2.3	4.6	4.6
6 to 20 percent.....	2.6	3.4	‡	‡	3.5	4.8	2.7	3.3	2.6	2.7	3.1	4.1
21 to 49 percent.....	3.2	3.4	‡	†	4.8	3.6	3.0	2.9	2.5	2.9	3.3	3.7
50 percent or more.....	2.0	2.5	0.8	1.0	3.8	3.4	2.5	2.7	1.3	1.9	3.3	3.4
Percent of students eligible for free or reduced-price lunch												
Less than 35 percent.....	1.8	2.1	‡	0.8	3.0	3.3	2.3	2.4	1.9	2.1	2.8	3.6
35 to 49 percent.....	4.2	3.8	‡	‡	4.9	4.1	4.2	3.8	3.7	3.0	5.7	4.5
50 to 74 percent.....	2.5	3.4	‡	‡	3.8	5.0	3.2	3.4	2.0	3.1	4.4	3.8
75 percent or more.....	2.4	2.8	‡	‡	3.9	3.7	2.4	3.5	2.3	2.5	3.8	3.7

†Not applicable; estimate of standard error is not derived because it is based on an estimate of 0 percent.

‡Reporting standards not met.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2002," FRSS 83, 2002; and "Internet Access in U.S. Public Schools in Fall 2003," FRSS 86, 2003.

**Table 21. Estimates and standard errors for data in figures and data not shown in tables: 2003**

Item	Estimate	Standard error
<b>Figure 2. Percentage distribution of the staff position of those who were primarily responsible for computer hardware, software, and Internet support at the school: 2003<sup>1</sup></b>		
Full-time, paid school technology director/coordinator .....	37	1.6
District staff .....	27	1.6
Teacher or other staff as part of formal responsibilities.....	16	1.4
Part-time, paid school technology directory/coordinator.....	9	1.0
Other <sup>2</sup> .....	11	1.1
<b>Figure 4. Percentage distribution of types of staff and students who were primarily responsible for the school's website or web page support: 2003<sup>3</sup></b>		
Teacher or other staff as part of formal responsibilities.....	27	1.5
Full-time, paid school technology director/coordinator .....	19	1.3
Teacher or other staff as volunteers.....	19	1.3
District staff .....	17	1.3
Other <sup>4</sup> .....	18	1.8
<b>Section: Students and Computer Access</b>		
Subsection: Provision of Hand-Held Computers <sup>5</sup>		
Median number of hand-held computers provided .....	10	1.5
Average number of hand-held computers provided <sup>6</sup> .....	24	4.1
Subsection: Laptop Computer Loans		
Median number of laptop computers available for loan <sup>7</sup> .....	5	0.3
Ratio of students per laptop computer <sup>7,8</sup> .....	27	8.8
Percent of schools without laptop computers available for loan in 2003 .....	92	1.0
<b>Section: School Websites</b>		
Of the schools with a website or web page, percent reporting that the website or web page was updated at least monthly <sup>3</sup> .....	73	2.0
<b>Section: Technologies and Procedures to Prevent Student Access to Inappropriate Material on the Internet</b>		
Percent of schools using more than one procedure or technology <sup>9</sup> .....	97	0.6

<sup>1</sup>Estimate is based on the percent of public schools with Internet access (nearly 100 percent).

<sup>2</sup>This category includes consultant/outside contractor, teacher, or other staff as volunteers, and other.

<sup>3</sup>Estimate is based on the 88 percent of public schools having a website or web page in 2003.

<sup>4</sup>This category includes part-time, paid school technology director/coordinator, students, consultant/outside contractor, and other.

<sup>5</sup>Estimate is based on the 10 percent of public schools providing hand-held computers to students or teachers for instructional purposes in 2003.

<sup>6</sup>On average, 24 hand-held computers per school were provided to students or teachers in schools that supplied such computers in 2003 (not shown in tables). The average number of hand-held computers would decrease to 22 if the data for one school in the sample were taken out of the calculation because the school reported a number of hand-held computers much higher than any of the other schools in the sample. The number of hand-held computers at that school was verified with the respondent.

<sup>7</sup>Estimate is based on the 8 percent of public schools lending laptop computers to students in 2003.

<sup>8</sup>The ratio of students per laptop computer would increase to 31 to 1 if one school in the sample were taken out of the calculation because the school reported a number of laptop computers much higher than any of the other schools in the sample. The number of laptop computers at that school was verified with the respondent.

<sup>9</sup>Estimate is based on the 97 percent of public schools using various technologies or procedures to control student access to inappropriate material on the Internet.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

**Appendix A**  
**Technical Notes**



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# Technical Notes

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The Fast Response Survey System (FRSS) was established in 1975 by the National Center for Education Statistics (NCES), U.S. Department of Education. FRSS is designed to collect small amounts of issue-oriented data with minimal burden on respondents and with a quick turnaround from data collection to reporting.

## Sample Selection

The sample of elementary and secondary schools for the “Internet Access in U.S. Public Schools, Fall 2003” was selected from the 2001–02 NCES Common Core of Data (CCD) Public Elementary/Secondary School Universe File, the most up-to-date file available at the time the sample was drawn. Over 95,000 schools are contained in the 2001–02 CCD Public Elementary/Secondary School Universe File. For this survey, regular elementary and secondary/combined schools were selected. Special education, vocational education, and alternative schools were excluded from the sampling frame, along with schools with a highest grade below first grade and those outside the 50 states and the District of Columbia. With these exclusions, the final sampling frame consisted of about 84,000 schools, of which about 63,000 were classified as elementary schools and about 21,000 as secondary/combined schools.<sup>1</sup>

A sample of 1,207 schools was selected from the public school frame. To select the sample, the frame of schools was stratified by instructional level (elementary, secondary/combined schools), enrollment size (less than 300 students, 300 to 499, 500 to 999, 1,000 to 1,499, 1,500 or more), and percentage of students eligible for free or reduced-price lunch (less than 35 percent, 35 to 49 percent, 50 to 74 percent, 75 percent or more). Schools in the highest poverty category (schools with 75 percent or more students eligible for free or reduced-price lunch) were oversampled to permit analyses for that category.

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<sup>1</sup> During data collection, a number of sampled schools were found to be outside the scope of the survey, usually because they were closed or merged. This reduced the number of schools in the sampling frame to an estimated 82,036.

## **Respondents and Response Rates**

The three-page survey instrument was designed by Westat and NCES to address all of the issues examined in the 2002 survey on Internet access. These issues included access to the Internet in instructional rooms, the types of Internet connections used, student access to the Internet outside of regular school hours, laptop loans, hand-held computers for students and teachers, school websites, teacher professional development on how to integrate the use of the Internet into the curriculum, and technologies and procedures used to prevent student access to inappropriate material on the Internet.

Questionnaires and cover letters were mailed to the principals of the 1,207 sampled schools in early October 2003. The letter introduced the study and requested that the questionnaire be completed by the technology coordinator or person most knowledgeable about Internet access at the school. Respondents were offered the option of completing the survey via the Web or by mail. Telephone follow-up for survey nonresponse and data clarification was initiated in October 2003, and data collection was completed in February 2004. Fourteen schools were outside the scope of the survey, and 1,081 schools completed the survey. Thus, the final response rate was 91 percent (1,081 of 1,193 eligible schools). The weighted response rate was 92 percent.

## **Imputation for Item Nonresponse**

The weighted item nonresponse for questionnaire items was less than 1 percent. The nonresponse rate for a particular item was calculated using the number of responses as the numerator and the estimated number of eligible cases that should have responded to the item as the denominator. Although item nonresponse for key items was very low, missing data were imputed for the 20 items listed in table A-1. No imputation was done for school characteristic variables (e.g., percent minority enrollment) that were created from CCD data. The missing items included both numerical data such as counts of instructional rooms and computers, as well as categorical data such as the provision of hand-held computers to students and teachers. 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 was identified. The matching characteristics included level, enrollment size class, type of locale, and total number of computers in the school. Once a donor was found, it was used to derive 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., the proportion of instructional rooms with

**Table A-1. Number of cases with imputed data in the study sample, and number of cases with imputed data the sample represents, by questionnaire items: 2003**

Questionnaire item	Respondent sample (unweighted)	National estimate (weighted)
6. Number of instructional computers with Internet access .....	1	35
8a. Use of broadband Internet connections.....	2	150
8b. Use of narrowband Internet connections.....	2	150
9. Number of instructional rooms with Internet access.....	2	138
12. Number of instructional rooms with wireless Internet connections .....	3	412
15. Use of technologies or procedures to prevent student access to inappropriate material on the Internet.....	3	141
16a. Use of notice on bulletin board at school to disseminate information to students and parents about the technologies or procedures used to prevent student access to inappropriate material on the Internet .....	2	49
16b. Use of newsletters to disseminate information to students and parents about the technologies or procedures used to prevent student access to inappropriate material on the Internet .....	3	133
16c. Use of special notice to parents to disseminate information to students and parents about the technologies or procedures used to prevent student access to inappropriate material on the Internet.....	3	133
16d. Use of school policy/rules distributed to students and parents to disseminate information to students and parents about the technologies or procedures used to prevent student access to inappropriate material on the Internet .....	2	154
16e. Use of pop-up message on the school website or web page to disseminate information to students and parents about the technologies or procedures used to prevent student access to inappropriate material on the Internet .....	3	95
16f. Use of posted message at the computer or Internet log on to disseminate information to students and parents about the technologies or procedures used to prevent student access to inappropriate material on the Internet.....	3	95
16g. Use of some other method to disseminate information to students and parents about the technologies or procedures used to prevent student access to inappropriate material on the Internet.....	4	180
19. Number of computers with Internet access available outside of regular school hours .....	1	85
21. Frequency of website/web page update .....	2	336
24. Percentage of teachers who attended professional development on how to integrate the use of the Internet into the curriculum .....	4	338
26. Number of school laptop computers lent to students .....	1	35
27. Longest time for which a student may borrow a laptop .....	1	35
29. Plans to make laptops available for students to borrow during the 2004–05 school year.....	1	66
30. Provision of hand-held computers to students or teachers for instructional purposes .....	2	112

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, “Internet Access in U.S. Public Schools, Fall 2003,” FRSS 86, 2003.

Internet access) was calculated for the donor school, and this ratio was applied to available data (e.g., reported number of instructional rooms) for the recipient school to obtain the corresponding imputed value. All missing items for a given school were imputed from the same donor.

## Sampling and Nonsampling Errors

The survey responses were weighted to produce national estimates (table A-2). The weights were designed to adjust for the variable probabilities of selection and differential nonresponse. The findings in this report are based on the sample selected and, consequently, are subject to sampling variability. The standard error is the measure of the variability of estimates due to sampling. It indicates the variability of a sample estimate that would be obtained from all possible samples of a given design and size. Standard errors are used as a measure of the precision expected from a particular sample. If all possible samples were surveyed under similar conditions, intervals of 1.96 standard errors below to 1.96 standard errors above a particular statistic would include the true population parameter being estimated in about 95 percent of the samples. This is a 95 percent confidence interval. For example, the estimated percentage of instructional rooms with Internet access in 2003 is 93 percent, and the estimated standard error is 0.5 percent. The 95 percent confidence interval for the statistic extends from  $93 - (0.5 \text{ times } 1.96)$  to  $93 + (0.5 \text{ times } 1.96)$ , or from 92 to 94 percent. The coefficient of variation (“c.v.,” also referred to as the “relative standard error”) expresses the standard error as a percentage of the quantity being estimated. The c.v. of an estimate ( $y$ ) is defined as  $\text{c.v.} = (\text{s.e.}/y) \times 100$ . Throughout this report, for any coefficient of variation higher than 50 percent, the data are flagged with the note that they should be interpreted with caution, as the value of the estimate may be unstable.

Because the data from this survey were collected using a complex sampling design, the sampling errors of the estimates from this survey (e.g., estimates of proportions) are typically larger than would be expected based on 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. WesVar is a stand-alone Windows application that computes sampling errors from complex samples for a wide variety of statistics (totals, percents, ratios, log-odds ratios, general functions of estimates in tables, linear regression parameters, and logistic regression parameters).

**Table A-2. 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: 2003**

School characteristic	Respondent sample (unweighted)		National estimate (weighted)	
	Number	Percent	Number	Percent
All public schools.....	1,081	100	82,232	100
Instructional level				
Elementary .....	550	51	62,298	76
Secondary.....	492	46	17,889	22
School size				
Less than 300.....	159	15	21,623	26
300 to 999.....	641	59	51,952	63
1,000 or more .....	281	26	8,657	11
Locale				
City.....	278	26	18,803	23
Urban fringe .....	366	34	26,485	32
Town .....	142	13	10,597	13
Rural.....	295	27	26,347	32
Percent minority enrollment				
Less than 6 percent.....	235	22	21,143	26
6 to 20 percent .....	236	22	17,766	22
21 to 49 percent .....	238	22	17,270	22
50 percent or more.....	344	32	24,032	30
Percent of students eligible for free or reduced-price lunch				
Less than 35 percent .....	457	42	32,501	40
35 to 49 percent .....	188	17	14,869	18
50 to 74 percent .....	213	20	18,577	23
75 percent or more.....	223	21	16,285	20

NOTE: Percent minority enrollment was not available for 28 schools. Thirty-nine schools were combined schools and therefore are missing in the instructional level counts used here, but those cases were included in the totals and in analyses by other school characteristics. Detail may not sum to totals because of rounding or missing data.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Internet Access in U.S. Public Schools, Fall 2003," FRSS 86, 2003.

The test statistics used in the analysis were calculated using the jackknife variances and thus appropriately reflect the complex nature of the sample design. In particular, Bonferroni adjustments were made to control for multiple comparisons where appropriate. For example, for an "experiment-wise" comparison involving  $g$  pairwise comparisons, each difference was tested at the  $0.05/g$  significance level to control for the fact that  $g$  differences were simultaneously tested. The Bonferroni adjustment was also used for previous FRSS Internet reports. The Bonferroni adjustment is appropriate to test for statistical significance when the analyses are mainly exploratory (as in this report) because it results in a more conservative critical value for judging statistical significance. This means that comparisons that would have been significant with a critical value of 1.96 may not be significant with the more conservative

critical value. For example, the critical value for comparisons between any two of the four categories of poverty concentration is 2.64 rather than 1.96.

When comparing percentage or ratio estimates across a family of three or more ordered categories (e.g., categories defined by percent minority enrollment), regression analyses were used to test for trends rather than a series of paired comparisons. For proportions, the analyses involved fitting models in WesVar with the ordered categories as the independent variable and the (dichotomous) outcome of interest (e.g., whether or not the school made computers with Internet access available before school) as the dependent variable. For testing the overall significance, an analysis of variance (ANOVA) model was fitted by treating the categories of the independent variables as nominal categories. For the trend test, a simple linear regression model was used with the categories of the independent variable as an ordinal quantitative variable. In both cases, tests of significance were performed using an adjusted Wald *F*-test. The test is applicable to data collected through complex sample surveys and is analogous to *F*-tests in standard regression analysis. For estimated ratios, similar tests of overall significance and linear trends were performed using procedures analogous to those described by Skinner, Holt, and Smith.<sup>2</sup> A test was considered significant if the *p*-value associated with the statistic was less than 0.05.

The survey estimates are also subject to nonsampling errors that can arise because of nonobservation (nonresponse or noncoverage) errors, errors of reporting, and errors made in collection of the data. These errors can sometimes bias the data. Nonsampling errors may include such problems as the difference in the respondents' interpretation of the meaning of the question; memory effects; misrecording of responses; incorrect editing, coding, or data entry; differences related to the particular time the survey was conducted; or errors in data preparation. While general sampling theory can be used in part to determine how to estimate the sampling variability of a statistic, nonsampling errors are not easy to measure and, for measurement purposes, usually require that an experiment be conducted as part of the data collection procedures or that data external to the study be used. To minimize the potential for nonsampling errors, the questionnaire on Internet access in public schools was pretested in 1994, and again each time it was substantially modified. The questionnaire was last pretested for the fall 2001 survey, since a few new topics were introduced in the survey. The pretesting was done with public school technology coordinators and other knowledgeable respondents like those who would complete the survey. During the design of the survey, an effort was made to check for consistency of interpretation of questions and to eliminate ambiguous items. The questionnaire and instructions were intensively reviewed by NCES.

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<sup>2</sup>Skinner, C.J., Holt, D., and Smith, T.M.F. (1989). *Analysis of Complex Surveys*. Chichester, England: John Wiley & Sons.

Manual and machine editing of the questionnaire responses were conducted to check the data for accuracy and consistency. Cases with missing or inconsistent items were recontacted by telephone to resolve problems. Data were keyed with 100 percent verification.

## Definitions of Terms Used in the Questionnaire

### Types of Internet connections

**T3/DS3**—Dedicated digital transmission of data and voice at the speed of 45 MB per second; composed of 672 channels.

**Fractional T3**—One or more channels of a T3/DS3 line. Used for data and voice transmission at the speed of less than 45 MB per second.

**T1/DS1**—Dedicated digital transmission of data and voice at the speed of 1.5 MB per second; composed of 24 channels.

**Fractional T1**—One or more channels of a T1/DS1 line. Used for data and voice transmission at the speed of less than 1.5 MB per second.

**Cable modem**—Dedicated transmission of data through cable TV wires at a speed of up to 2 MB per second.

**DSL (Digital Subscriber Line)**—Refers collectively to ADSL, SDSL, HDSL, and VDSL. DSLs have a dedicated digital transmission speed of up to 32 MB per second.

**ISDN (Integrated Services Digital Network)**—Sends voice and data over digital telephone lines or normal telephone wires at the speed of up to 128 KB per second.

**56 KB**—Dedicated digital transmission of data at the speed of 56 KB per second.

**Dial-up connection**—Data transmission through a normal telephone line upon command, at the maximum speed of 56 KB per second (for example, AOL or Earthlink).

### Types of technologies to prevent student access to inappropriate material on the Internet

**Blocking software**—Uses a list of websites that are considered inappropriate and prevents access to those sites.

**Filtering software**—Blocks access to sites containing keywords, alone or in context with other keywords.

**Monitoring software**—Records e-mails, instant messages, chats, and the websites visited.

**Intranet**—Controlled computer network similar to the Internet, but accessible only to those who have permission to use it. Intranet system managers can limit user access to Internet material.



## Definitions of Analysis Variables

**Instructional level**—Schools were classified according to their grade span in the 2001–02 Common Core of Data (CCD) Public Elementary/Secondary School Universe File. Data for combined schools are included in the totals and in analyses by other school characteristics, but are not shown separately. Thus, data are reported for the following categories:

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

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

**School size**—This variable indicates the total enrollment of students based on data from the 2001–02 CCD Public Elementary/Secondary School Universe File. For sampling purposes, schools were grouped into five enrollment size classes—less than 300 students, 300 to 499, 500 to 999, 1,000 to 1,499, 1,500 or more. Use of the more detailed size categories ensures greater diversity of schools in the sample with respect to size, and permits a more nearly optimal allocation of the sample for estimating school-level characteristics that are correlated with enrollment. Because of the relatively small sample size and large standard errors associated with small cell sizes, the following three combined categories were used for analysis purposes:

**Less than 300 students**

**300 to 999 students**

**1,000 or more students**

**Locale**—This variable indicates the type of community in which the school is located, as defined in the 2001–02 CCD Public Elementary/Secondary School Universe File (which uses definitions based on U.S. Census Bureau classifications). The variable was based on the eight-category locale variable from CCD and collapsed into the following four categories for this report.

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

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

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

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

**Percent minority enrollment**—This variable indicates the percent of students enrolled in the school whose race or ethnicity is classified as one of the following: American Indian or Alaskan Native; Asian or Pacific Islander; Black, non-Hispanic; or Hispanic, based on data in the 2001–02 CCD Public Elementary/Secondary School Universe File. The categories are:

**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 variable was based on responses to question 32 on the survey questionnaire; if it was missing from the questionnaire (1.7 percent of all cases), it was obtained from the 2001–02 CCD Public Elementary/Secondary School Universe File. This item served as a measurement of the concentration of poverty at the school. The categories are:

**Less than 35 percent**

**35 to 49 percent**

**50 to 74 percent**

**75 percent or more**

**Geographic region**—This variable was obtained from the 2001–02 CCD Public Elementary/Secondary School Universe File. It classifies schools into one of the following four regions used by the Bureau of Economic Analysis of the U.S. Department of Commerce, the National Assessment of Educational Progress, and the National Education Association.

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

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

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

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

It is important to note that many of the school characteristics used for independent analysis may also be related to each other. For example, school size and locale are related, with city schools typically being larger than rural schools. Similarly, poverty concentration and minority enrollment are related, with schools with a higher minority enrollment also more likely to have a higher concentration of poverty. Other relationships between analysis variables may exist. However, this E.D. TAB report focuses on bivariate relationships between the analysis variables and questionnaire variables rather than more complex analyses.

For more information about the survey, contact Bernard Greene, 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: [Bernard.Greene@ed.gov](mailto:Bernard.Greene@ed.gov); telephone: (202) 502-7348.

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**Appendix B**  
**Questionnaire**

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

**INTERNET ACCESS IN U.S. PUBLIC SCHOOLS, FALL 2003**  
FAST RESPONSE SURVEY SYSTEM

O.M.B. APPROVED  
NO.: 1850-0733

This survey is authorized by law (P.L. 103-382). While you are not required to respond, your cooperation is needed to make the results of this survey comprehensive, accurate, and timely.

LABEL

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

Name of person completing form: \_\_\_\_\_ Telephone: \_\_\_\_\_

Title/position: \_\_\_\_\_

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

E-mail: \_\_\_\_\_

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

PLEASE RETURN COMPLETED FORM TO:

WESTAT  
Attention: 7166.34 - Parsad  
1650 Research Boulevard  
Rockville, Maryland 20850

IF YOU HAVE ANY QUESTIONS, CONTACT:

Basmat Parsad  
800-937-8281, ext. 8222  
Fax: 800-254-0984  
E-mail: basmatparsad@westat.com

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information is 1850-0733. The time required to complete this information collection is estimated to average 20 minutes per response, including the time to review instructions, search existing data resources, gather the data needed, and complete and review the information collected. If you have any comments concerning the accuracy of the time estimate(s) or suggestions for improving this form, please write to: U.S. Department of Education, Washington, D.C. 20202-4651. If you have comments or concerns regarding the status of your individual submission of this form, write directly to: National Center for Education Statistics, 1990 K Street, N.W., Washington, D.C. 20006

FRSS Form No. 86, 09/2003

1. What is the total number of **instructional rooms** in your school? (Include all rooms used for any instructional purposes: classrooms, computer labs and other labs, library/media centers, art rooms, rooms used for vocational or special education, etc.) \_\_\_\_\_ instructional rooms
2. How many **computers** are there in your school? (Do **not** include laptop computers available for loan. Count **all** other computers, including those used by administrators, teachers, and students. If none, please enter "0" and skip to question 25.) \_\_\_\_\_ computers
3. How many of the **computers** indicated in question 2 are used for **instructional** purposes? (Do **not** include computers used only for administrative purposes. If none, please enter "0.") \_\_\_\_\_ instructional computers
4. Does your school have access to the Internet?  
 Yes ..... 1 (Continue with question 5.)      No ..... 2 (Skip to question 25.)
5. How many **computers** in your school currently have **Internet** access? (Do **not** include laptop computers available for loan. Include all other instructional and noninstructional computers. This number should not exceed the number reported in question 2. If none, please enter "0" and skip to question 25.) \_\_\_\_\_ computers
6. How many of the **computers** with **Internet** access indicated in question 5 are used for **instructional** purposes? (This number should not exceed the number reported in question 5. If none, please enter "0.") \_\_\_\_\_ instructional computers
7. Who is **primarily** responsible for computer hardware/software and Internet support at your school? (Circle only one.)
 

Full-time, paid school technology director/coordinator.....	1
Part-time, paid school technology director/coordinator.....	2
District staff.....	3
Consultant/outside contractor.....	4
Teacher or other staff as part of formal responsibilities.....	5
Teacher or other staff as volunteers.....	6
Other (specify) _____	7
8. What type(s) of connection does your school use when connecting to the Internet? (See **definition box** below. Circle one on each line.)
 

	Yes	No
a. Broadband connection (e.g., T3/DS3, fractional T3, T1/DS1, fractional T1, cable modem, and/or DSL) .....	1	2
b. Narrowband connection (e.g., ISDN, 56KB, and/or dial-up connection).....	1	2

**Definitions for question 8**

**T3/DS3** – dedicated digital transmission of data and voice at the speed of 45 MB per second; composed of 672 channels.

**Fractional T3** – one or more channels of a T3/DS3 line; used for data and voice transmission at the speed of less than 45 MB per second.

**T1/DS1** – dedicated digital transmission of data and voice at the speed of 1.5 MB per second; composed of 24 channels.

**Fractional T1** – one or more channels of a T1/DS1 line; used for data and voice transmission at the speed of less than 1.5 MB per second.

**Cable modem** – dedicated transmission of data through cable TV wires at a speed of up to 2 MB per second.

**DSL (Digital Subscriber Line)** – refers collectively to ADSL, SDSL, HDSL, and VDSL. DSLs have a dedicated digital transmission speed of up to 32 MB per second.

**ISDN (Integrated Services Digital Network)** – sends voice and data over digital telephone lines or normal telephone wires at the speed of up to 128 KB per second.

**56 KB** – dedicated digital transmission of data at the speed of 56 KB per second.

**Dial-up connection** – data transmission through a normal telephone line upon command, at the maximum speed of 56 KB per second (for example, AOL or Earthlink).

9. How many **instructional rooms** have a computer with **Internet** access? (This number should not exceed the number reported in question 1. If none, please enter "0.") \_\_\_\_\_ instructional rooms
10. Does your school use wireless connections when connecting to the Internet?  
 Yes ..... 1 (Continue with question 11.)      No ..... 2 (Skip to question 13.)

11. What type(s) of wireless connections does your school use when connecting to the Internet?
- |                                | Yes | No |
|--------------------------------|-----|----|
| a. Broadband connections.....  | 1   | 2  |
| b. Narrowband connections..... | 1   | 2  |
12. How many **instructional rooms** use **wireless connections** when connecting to the Internet? *(This number should not exceed the number reported in question 1. If none, please enter "0.")* \_\_\_\_\_ instructional rooms
13. Does your school use any **technology** or other **procedure** to prevent student access to inappropriate material on the Internet?
- Yes ..... 1 *(Continue with question 14.)*      No ..... 2 *(Skip to question 17.)*
14. What **technologies** or **procedures** does your school use to prevent student access to inappropriate material on the Internet? *(See definition box below. Circle one on each line.)*
- |  | Yes | No |
|--|-----|----|
| a. Blocking/filtering software.....                  | 1   | 2  |
| b. Monitoring software .....                         | 1   | 2  |
| c. Intranet .....                                    | 1   | 2  |
| d. Monitoring by teachers or other staff.....        | 1   | 2  |
| e. Written contract that parents have to sign.....   | 1   | 2  |
| f. Written contract that students have to sign ..... | 1   | 2  |
| g. Honor code for students .....                     | 1   | 2  |
| h. Other <i>(specify)</i> _____                      | 1   | 2  |

**Definitions for question 14**

**Blocking software** – uses a list of Websites that are considered inappropriate and prevents access to those sites.

**Filtering software** – blocks access to sites containing keywords, alone or in context with other keywords.

**Monitoring software** – records e-mails, instant messages, chats, and Websites visited.

**Intranet** – controlled computer network similar to the Internet, but accessible only to those who have permission to use it. Intranet system managers can limit user access to Internet material.

15. Does your school use these technologies or other procedures to prevent student access from inappropriate material on **all** computers with **Internet** access used by students?
- Yes ..... 1      No ..... 2
16. What method(s) does your school use to disseminate information to students and parents about the technologies or other procedures used to prevent student access to inappropriate material on the Internet at your school? *(Circle one on each line.)*
- |  | Yes | No |
|--|-----|----|
| a. Notice on bulletin board at school .....                              | 1   | 2  |
| b. Newsletters.....  | 1   | 2  |
| c. Special notice to parents .....                                       | 1   | 2  |
| d. Part of school policy/rules distributed to students and parents ..... | 1   | 2  |
| e. Pop-up message at computer or Internet log on.....                    | 1   | 2  |
| f. Posted message on the school Website or Web page .....                | 1   | 2  |
| g. Other <i>(specify)</i> _____  | 1   | 2  |
17. Does your school allow students access to its instructional computers with Internet access **outside of regular school hours**? *(Do not include laptop computers available for loan.)*
- Yes ..... 1 *(Continue with question 18.)*      No ..... 2 *(Skip to question 20.)*
18. When are instructional computers with Internet access available to students **outside of regular school hours**? *(Circle one on each line.)*
- |                        | Yes | No |
|------------------------|-----|----|
| a. Before school ..... | 1   | 2  |
| b. After school.....   | 1   | 2  |
| c. On weekends .....   | 1   | 2  |
19. How many instructional computers with Internet access are regularly available to students **outside of regular school hours**? *(Do not include laptop computers available for loan.)* \_\_\_\_\_ computers



20. Does your school have a Website or a Web page (e.g., on the district's Website)?  
 Yes ..... 1 (*Continue with question 21.*) No ..... 2 (*Skip to question 23.*)
21. How often is the Website/Web page updated? (*Circle only one.*)  
 Daily..... 1  
 Weekly..... 2  
 Monthly..... 3  
 Less than monthly ..... 4
22. Who is **primarily** responsible for your school's Website/Web page support? (*Circle only one.*)  
 Full-time, paid school technology director/coordinator..... 1  
 Part-time, paid school technology director/coordinator ..... 2  
 District staff..... 3  
 Consultant/outside contractor..... 4  
 Teacher or other staff as part of formal responsibilities ..... 5  
 Teacher or other staff as volunteers..... 6  
 Students ..... 7  
 Other (*specify*) ..... 8
23. In the past 12 months, has your school or district offered professional development for teachers in your school on how to integrate the use of the Internet into the curriculum?  
 Yes ..... 1 (*Continue with question 24.*) No ..... 2 (*Skip to question 25.*)
24. In the past 12 months, what percentage of teachers in your school attended professional development on how to integrate the use of the Internet into the curriculum? (*Circle only one.*)  
 0 percent..... 1  
 1 to 25 percent..... 2  
 26 to 50 percent..... 3  
 51 to 75 percent..... 4  
 76 to 100 percent ..... 5
25. Does your school lend laptop computers to students?  
 Yes ..... 1 (*Continue with question 26.*) No ..... 2 (*Skip to question 29.*)
26. How many laptops are available for students to borrow? \_\_\_\_\_ laptops
27. What is the longest time for which a student may borrow a laptop? (*Circle only one.*)  
 Less than 1 week ..... 1  
 1 week to less than 1 month..... 2  
 1 month to less than 3 months ..... 3  
 3 months to less than 6 months ..... 4  
 6 months to less than the entire school year..... 5  
 The entire school year..... 6  
 Other (*specify*) ..... 7
28. Does your school plan to increase the number of laptop computers available for students to borrow during the 2004–05 school year?  
 Yes ..... 1 (*Skip to question 30.*) No ..... 2 (*Skip to question 30.*)
29. Does your school plan to make laptops available for students to borrow during the 2004–05 school year?  
 Yes ..... 1 No ..... 2
30. Does your school provide any **hand-held** computers to students or teachers for **instructional** purposes? (*Examples of hand-held computers are personal digital assistants such as Palm Pilots or Pocket PCs. Include all hand-held computers provided for instructional purposes, including those available for loan. Do **not** include laptop computers.*)  
 Yes ..... 1 (*Continue with question 31.*) No ..... 2 (*Skip to question 32.*)
31. How many **hand-held** computers are provided to teachers and students for **instructional** purposes? (*Include all hand-held computers provided for instructional purposes, including those available for loan.*) \_\_\_\_\_
32. What percent of the students in your school are eligible for the federally funded free or reduced-price lunch program? \_\_\_\_\_%

U.S. Department of Education  
ED Pubs  
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