



EDITORIAL NOTE

National Center for Education Statistics

The National Center for Education Statistics (NCES) fulfills a congressional mandate to collect and report “statistics and information showing the condition and progress of education in the United States and other nations in order to promote and accelerate the improvement of American education.”

EDUCATION STATISTICS QUARTERLY

Purpose and goals

At NCES, we are convinced that good data lead to good decisions about education. The *Education Statistics Quarterly* is part of an overall effort to make reliable data more accessible. Goals include providing a quick way to

- identify information of interest;
- review key facts, figures, and summary information; and
- obtain references to detailed data and analyses.

Content

The *Quarterly* gives a comprehensive overview of work done across all parts of NCES. Each issue includes short publications, summaries, and descriptions that cover all NCES publications and data products released during a 3-month period. To further stimulate ideas and discussion, each issue also incorporates

- a message from NCES on an important and timely subject in education statistics; and
- a featured topic of enduring importance with invited commentary.

A complete annual index of NCES publications appears in the fourth issue of each volume. Publications in the *Quarterly* have been technically reviewed for content and statistical accuracy.

General note about the data and interpretations

Many NCES publications present data that are based on representative samples and thus are subject to sampling variability. In these cases, tests for statistical significance take both the study design and the number of comparisons into account. NCES publications only discuss differences that are significant at the 95 percent confidence level or higher. Because of variations in study design, differences of roughly the same magnitude can be statistically significant in some cases but not in others. In addition, results from surveys are subject to

nonsampling errors. In the design, conduct, and data processing of NCES surveys, efforts are made to minimize the effects of nonsampling errors, such as item nonresponse, measurement error, data processing error, and other systematic error.

For complete technical details about data and methodology, including sample sizes, response rates, and other indicators of survey quality, we encourage readers to examine the detailed reports referenced in each article.

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- U.S. Department of Education, National Center for Education Statistics* ... 9
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NOTE FROM NCES

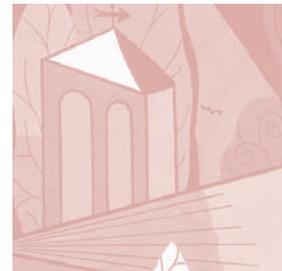
Mark Schneider, Commissioner

Helping You Find the Education Data You Need

We want to inform all our readers that this is the last issue of the *Education Statistics Quarterly*. Launched in the spring of 1999, the *Quarterly* was designed to be a comprehensive source of regularly issued summaries of all NCES publications and data products under one cover. While we will no longer publish the *Quarterly*, the National Center for Education Statistics (NCES) remains committed to disseminating data to the broadest possible audience to meet the ever-increasing demand for information on the status of education in the United States and other countries. As the primary federal entity for collecting and analyzing education data, NCES has many activities under way to reach education data users.

The first place for readers to turn is the newly redesigned NCES website at <http://nces.ed.gov>. Users can access nearly 2,000 publications on all aspects of education, including prekindergarten through postsecondary education, vocational and adult education, libraries, national assessments, and information on U.S. student performance in an international context from the results of international surveys. These publications and related data products are contained in an online catalog with customized search capabilities. In addition, the website provides a variety of online data tools so that users can build their own tables using raw data from NCES surveys. The website also provides searchable databases to find the location of and information on numerous education institutions, including public school districts, public and private schools, and libraries. The popular College Opportunities On-Line (COOL) tool has information on 7,000 colleges, universities, and technical institutions in the United States. In addition, the National Assessment of Educational Progress (NAEP) has a new and flexible data tool, the NAEP Data Explorer, that allows the user to create statistical tables based on NAEP student performance results and factors that may be related to student learning. NCES has efforts under way to move more of its databases to the Data Analysis System (DAS) so that users will have increased access to our data for their own research needs.

Another place to find out about NCES data collections and products is the featured publication in this issue, *Programs and Plans*. This publication provides a comprehensive and user-friendly overview of all NCES statistical programs and plans for



future work. This new edition contains an index to help readers find information on popular topics such as parents, teachers, public schools, assessments, dropouts, and student aid.

In closing, we want to thank you for your readership and urge you to continue to turn to NCES for your education data needs. To keep current, please sign up on the NCES website for News Flash to start receiving e-mail alerts about new products in areas of interest to you. A special thanks goes to the various members of the editorial board throughout the *Quarterly's* history, to the managing editor, other contributing staff, and expert commentators.

FEATURED TOPIC: NCES PROGRAMS AND PLANS

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NCES Programs and Plans Programs and Plans of the National Center for Education Statistics, 2005 Edition

U.S. Department of Education, National Center for Education Statistics

This article was originally published as the introduction to the publication of the same name.

The Work of the National Center for Education Statistics

The National Center for Education Statistics (NCES), within the U.S. Department of Education's Institute of Education Sciences, collects statistics on the condition of education in the United States; analyzes and reports the meaning and significance of these statistics; and assists states, local education agencies, and postsecondary institutions in improving their statistical systems. NCES supports a wide range of activities, providing policy-relevant data on issues as diverse as enrollment trends, access of minorities to postsecondary education, the academic achievement of students, comparisons of the U.S. education system with education systems in

other countries, and the association between education and employment and economic productivity.

NCES's program goals include the following:

- maintaining and analyzing major cross-sectional databases:
 - *at the elementary/secondary level*—the Common Core of Data (CCD), the Schools and Staffing Survey (SASS), and the Private School Universe Survey (PSS); and
 - *at the postsecondary level*—the Integrated Postsecondary Education Data System (IPEDS), the National Postsecondary Student Aid

Study (NPSAS), the National Study of Postsecondary Faculty (NSOPF), and the Survey of Earned Doctorates (SED);

- conducting a National Household Education Surveys Program (NHES) covering various education topics such as early childhood and adult education, program participation, education-related home activities, and parental involvement in education;
- supporting surveys on topics related to school crime and safety: the School Crime Supplement (SCS) to the National Crime Victimization Survey (NCVS) and the School Survey on Crime and Safety (SSOCS);
- conducting surveys and analyzing data from the Longitudinal Studies Program that address a variety of important education issues (from early learning through postsecondary school), including differences in early cognitive development, school readiness, student achievement, effects of financial aid on access to postsecondary education, youth employment, high school dropouts, discipline and order in schools, and the quality of education in public and private schools:
 - at the early childhood level—the Early Childhood Longitudinal Study (ECLS), with birth and kindergarten cohorts (the latter of which plans to follow children into high school);
 - at the secondary school level—the Education Longitudinal Study of 2002 (ELS:2002) (10th-grade cohort) as well as the earlier National Longitudinal Study of the High School Class of 1972 (NLS:72) (12th-grade cohort), High School and Beyond Longitudinal Study (HS&B) (10th- and 12th-grade cohorts), and National Education Longitudinal Study of 1988 (NELS:88) (8th-grade cohort); and
 - at the postsecondary level—the Beginning Postsecondary Students Longitudinal Study (BPS) and the Baccalaureate and Beyond Longitudinal Study (B&B), which follow students attending or completing postsecondary institutions;
- conducting the National Assessment of Educational Progress (NAEP), which regularly assesses academic achievement at the national level in a number of subjects, including reading, mathematics, writing, science, civics, history, and geography. The reading and mathematics components of NAEP are administered every 2 years in grades 4, 8, and 12 at the national and state levels;

- participating in international surveys of educational achievement and programs to develop cross-national education data and indicators, such as the Trends in International Mathematics and Science Study (TIMSS), Program for International Student Assessment (PISA), and Progress in International Reading Literacy Study (PIRLS);
- administering targeted surveys that supplement ongoing data collections through the Fast Response Survey System (FRSS) and the Postsecondary Education Quick Information System (PEQIS), which rapidly provide data on current policy issues;
- collecting and reporting information on libraries through the Public Libraries Survey (PLS), the Academic Libraries Survey (ALS), the School Library Media Centers Survey, and the State Library Agencies Survey (StLA);
- analyzing and reporting data on vocational education; and
- synthesizing information from various surveys for the following annual NCES publications: *Digest of Education Statistics*, *The Condition of Education*, and *Projections of Education Statistics*.

Programs and Plans of the National Center for Education Statistics is a comprehensive summary of the work done across NCES to achieve these program goals. In the full publication, NCES center-wide programs and services are described in chapter 2, and the various statistical programs in the following chapters. Each chapter that covers a statistical program contains a brief introduction and provides information on data uses, individual studies, publications and data files, NCES contacts, future activities, and data collection schedules.

What Kinds of Data Does NCES Collect?

NCES collects statistical data on all levels of education from preprimary education through graduate study, including adult education. NCES surveys address a full range of education issues including student access, participation, and progress; achievement and attainment of students; organization and management of education institutions; curriculum, climate, and diversity of education institutions; and financial and human resources of institutions, as well as economic and other outcomes of education. The surveys engage a broad spectrum of people and institutions involved in education. See figure 1 for the names and acronyms of the major NCES surveys, as well as those of the international surveys in which NCES participates.

Figure 1. NCES survey names and acronyms

ALL: Adult Literacy and Lifeskills
ALS: Academic Libraries Survey
B&B: Baccalaureate and Beyond Longitudinal Study
BPS: Beginning Postsecondary Students Longitudinal Study
CCD: Common Core of Data
CivEd: Civic Education Study
CPS: Current Population Survey (U.S. Census Bureau survey used in NCES studies)
ECLS-B: Early Childhood Longitudinal Study-Birth Cohort of 2001
ECLS-K: Early Childhood Longitudinal Study-Kindergarten Class of 1998–99
ELS:2002: Education Longitudinal Study of 2002
FRSS: Fast Response Survey System
HS&B: High School and Beyond Longitudinal Study
HSTS: NAEP High School Transcript Study
IALS: International Adult Literacy Survey
IPEDS: Integrated Postsecondary Education Data System
NAAL: National Assessment of Adult Literacy
NAEP: National Assessment of Educational Progress
NELS:88: National Education Longitudinal Study of 1988
NHES: National Household Education Surveys Program
NLS:72: National Longitudinal Study of the High School Class of 1972
NPSAS: National Postsecondary Student Aid Study
NSOPF: National Study of Postsecondary Faculty
PEQIS: Postsecondary Education Quick Information System
PIRLS: Progress in International Reading Literacy Study
PISA: Program for International Student Assessment
PLS: Public Libraries Survey
PSS: Private School Universe Survey
SASS: Schools and Staffing Survey
SCS/NCVS: School Crime Supplement to the National Crime Victimization Survey (NCES and the Bureau of Justice Statistics)
SDDB: School District Data Book
SED: Survey of Earned Doctorates
SSOCS: School Survey on Crime and Safety
StLA: State Library Agencies Survey
TFS: Teacher Follow-up Survey
TIMSS: Trends in International Mathematics and Science Study (formerly known as the Third International Mathematics and Science Study)
TIMSS-R: Third International Mathematics and Science Study-Repeat (now referenced as TIMSS 1999)

The following topics illustrate the scope of NCES data collection and analysis activities:

- Adults are asked about their participation in adult education and other learning activities.
- Children's cognitive skills are directly measured.
- Students are asked about their participation in school activities.
- Parents are surveyed about their participation in their children's education.
- Teachers are asked to report information about their classes.
- School administrators are asked to report information about their schools.
- Principals are asked about crimes occurring in their schools.
- Student dropout rates and achievement are measured.
- Staffing ratios of public schools are compiled.
- Comprehensive finance data are collected.
- Postsecondary education student participation rates in financial aid programs are gathered.
- Institutions indicate program offerings.
- Libraries report information on usage.

Which Surveys Cover Specific Education Levels and Topics?

NCES provides data and tabulations at various reporting levels: that is, on individual institutions, school districts, states, and the nation. Whether particular data are available at one or more than one of these reporting levels is based on a variety of factors, including survey design and confidentiality of data.

The data reporting level required for a particular use can be an important determinant in the selection of the most appropriate survey database. For example, those who are interested in national-level public school enrollments have a variety of possible sources of information, while those needing enrollments for specific schools have fewer sources. Some sample surveys, such as NHES, are limited to national-level estimates because of the design of the survey. Data from other surveys, such as the CCD, are published as state-level summaries and district tabulations for large districts. In addition, CCD data files contain school- and school district-level records. Detailed data for individual schools, school districts, and colleges generally are made available only through electronic products because of the size of the data files. Table 1 presents the survey sources of NCES data by topic, by education level (elementary/secondary, postsecondary, and lifelong learning), and by reporting level (from institutional to national).

Who Uses NCES Statistics—and for What Purposes?

Education statistics are used for a variety of purposes, from research to policy formation. Congress uses data to study education issues, to plan federal education programs, to apportion federal funds among the states, and to serve the needs of constituents. Federal agencies (such as the U.S. Departments of Defense, Labor, and Commerce, and the National Science Foundation) are concerned with the supply of trained manpower coming out of schools and colleges, and also with the subjects that are being taught. State and local officials confront problems of staffing and financing public education. They use NCES statistics in all aspects of policy development and program administration. Education organizations and professional associations use the data for planning, policy development, and research. The news media (such as national television networks, national news magazines, and many of the nation's leading daily newspapers) frequently use NCES statistics to inform

the public about such matters as student achievement, school expenditures per student, and international comparisons. Business organizations use trend data on enrollments and expenditures to forecast the demand for their products. The general public uses education statistics to become more knowledgeable and to make informed decisions about current education issues.

How to Access NCES Data

To meet the demand for statistical information, NCES issues nearly 100 products each year in print and electronic form. These products include statistical reports, directories, data files, and handbooks of standard terminology. All NCES products are available on the NCES website (<http://nces.ed.gov>). Many of these products are also available through ED Pubs (<http://www.edpubs.org>), the publications and products ordering system for the U.S. Department of Education.

While many NCES publications report the findings of specific surveys, three publications cover the field of education statistics from a wide perspective: the *Digest of Education Statistics* (<http://nces.ed.gov/programs/digest>), *Projections of Education Statistics* (<http://nces.ed.gov/programs/projections>), and *The Condition of Education* (<http://nces.ed.gov/programs/coe>).*

Additionally, easy-to-use web tools for locating schools and colleges, carrying out peer comparisons of school district finances, and creating tables are available on the NCES website.

The U.S. Department of Education's National Library of Education (<http://www.ed.gov/NLE>) provides a central location within the federal government for information about education; collecting and archiving resources on national education issues as well as on federal policy, research, evaluation, and statistics; and maintaining a collection of agency documents, including NCES publications.

The Library provides information services on matters related to education to the general public through its toll-free telephone number (1-800-424-1616) and e-mail service (library@ed.gov), as well as through cooperative arrangements with the Library of Congress's online reference service (www.loc.gov/rr/askalib/ask-digital.html) and the Education Resources Information Center (ERIC) (<http://www.eric.ed.gov>). The Library responds to more than 15,000 inquiries annually,

*Descriptions of these publications appear in chapter 10 of the complete *Programs and Plans*.

Table 1. Survey sources of NCES data, by reporting level, education level, and topic

Topic	Reporting level			
	School/institution	School district	State	National
Elementary/secondary				
Students	CCD, PSS, ECLS-K	CCD, SDDB	CCD, SDDB	CCD, NLS:72, HS&B, NELS:88, ELS:2002, PSS, TIMSS 2003, TIMSS-R, NAEP, ECLS-K, ECLS-B, FRSS, SDDB, NHES, HSTS, SCS/NCVS, PIRLS, CPS, PISA, CivEd
Teachers/staff	CCD, PSS	CCD	CCD, NAEP, SASS, PSS	CCD, SASS, NAEP, PSS, HS&B, NELS:88, ELS:2002, ECLS-K, ECLS-B, TIMSS 2003, TIMSS-R, FRSS, B&B
Public schools	CCD	CCD	CCD, SASS	NAEP, TIMSS 2003, TIMSS-R, FRSS, CCD, SASS, HS&B, NELS:88, ELS:2002, ECLS-K, ECLS-B, SSOCS
Public agency finances		CCD	CCD	CCD
School libraries			SASS	SASS, ELS:2002
Assessment			NAEP	NAEP, NLS:72, HS&B, NELS:88, TIMSS 2003, TIMSS-R, PIRLS, ECLS-K, ECLS-B, PISA, CivEd
Private schools	PSS		PSS	PSS, SASS, FRSS, NELS:88, ELS:2002, ECLS-K, ECLS-B, HS&B, NLS:72
Parents				NELS:88, HS&B, ELS:2002, ECLS-K, ECLS-B
Postsecondary				
Students	IPEDS		IPEDS	NPSAS, IPEDS, BPS, B&B, NLS:72, HS&B, NELS:88, ELS:2002, NHES, CPS, PEQIS
Faculty/staff	IPEDS		IPEDS	IPEDS, NSOPF, PEQIS
Institutions	IPEDS		IPEDS	IPEDS, PEQIS, NPSAS
Finances	IPEDS		IPEDS	IPEDS
Student aid	IPEDS		IPEDS	IPEDS, NPSAS, BPS, B&B
Completions	IPEDS		IPEDS	IPEDS, BPS, B&B, NLS:72, HS&B, NELS:88, ELS:2002, SED, CPS
Lifelong learning				
Adult education				NHES, NAAL, IALS, B&B, CPS, NELS:88, ELS:2002, HS&B, NLS:72
Libraries	ALS	ALS	ALS, PLS, StLA	ALS, PLS, StLA, NHES, FRSS
Households		SDDB	SDDB	SDDB, NHES, NELS:88, ELS:2002, NAAL, IALS, HS&B, CPS

NOTE: See figure 1 for definitions of survey acronyms.

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EARLY CHILDHOOD EDUCATION

Regional Differences in Kindergartners' Early Education Experiences <i>Emily Rosenthal, Amy Rathbun, and Jerry West</i>	15
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Early Education Experiences Regional Differences in Kindergartners' Early Education Experiences

—Emily Rosenthal, Amy Rathbun, and Jerry West

This article was originally published as a Statistics in Brief report. The sample survey data are from the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K). Technical notes and standard error tables from the original report have been omitted.

Introduction

There is a growing trend toward public funding (i.e., state) for prekindergarten classes (Hinkle 2000). In 1991–92, some 24 states reported funding prekindergarten initiatives. This number increased to 42 states in 1998–99 (Hinkle 2000). During the 2000–01 school year, approximately one-third of all public elementary schools in the United States offered prekindergarten classes (Smith et al. 2003). In addition, over time, more states have begun to offer full-day kindergarten programs (Galley 2002). For example, in 1995, 10 states required that full-day kindergarten be offered. As of 2002, 14 states required full-day programs to be offered (Potts, Blank, and Williams 2002). In a review of state

policies regarding full-day kindergarten, Galley (2002) found that 25 states and the District of Columbia provide funds for full-day kindergarten programs in the districts that mandate or voluntarily offer it. Enrollment in full-day kindergarten programs has also increased. Between 1977 and 2001, the percent of children ages 4–6 enrolled in full-day kindergarten programs increased from 27 to 60 percent (Wirt et al. 2004). A recent report found that public school children's likelihood of attending full-day kindergarten varied by the region in which their school was located (Walston and West 2004). Furthermore, the report indicated that full-day kindergartners, on average, made greater gains in both their reading and mathematics achievement

scores from fall to spring, compared to those in half-day classes. Based on these findings, this report looks more closely at regional differences in kindergartners' early education experiences.

Recent findings from the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), the Fast Response Survey System's (FRSS) "Survey of Classes That Serve Children Prior to Kindergarten in Public Schools: 2000–2001," and the Current Population Survey (CPS), October Supplement: 2001, provide new regional information on the early learning experiences of young children in the United States. For instance, the FRSS found that public schools in the Southeast were more likely to offer prekindergarten programs than public schools in the Northeast, Central, or West regions (Smith et al. 2003). In addition, public schools in the South during the 1998–99 school year were more likely to offer full-day kindergarten than schools in other regions of the country (Walston and West 2004). In the CPS, in 2001, children ages 4–6 enrolled in kindergarten in the South were more likely to attend full-day kindergarten (78 percent) than children in the Northeast, Midwest, and West (60, 53, and 43 percent, respectively) (Wirt et al. 2004).

This Statistics in Brief report takes a closer look at two of kindergartners' early education experiences, preschool and kindergarten, in each of four regions of the United States (i.e., Northeast, South, Midwest, and West). This report defines early education experiences as participation in preschool, the number of hours spent in preschool, and the type of kindergarten program (i.e., full-day versus half-day). Preschool experience was based on parental report and defined as kindergartners' participation in either a child care center, preschool, nursery school, prekindergarten or Head Start program the year prior to kindergarten. The purpose of this report is to describe, rather than explain, kindergartners' patterns of participation in preschool and kindergarten programs, and characteristics of the programs and the kindergartners who attend them, in an attempt to provide a regional picture of kindergartners' early learning experiences. This report expands on the findings from the earlier reports (Smith et al. 2003; Walston and West 2004; Wirt et al. 2004) by including kindergartners' participation in all types of center-based care arrangements the year before kindergarten, rather than focusing only on public school prekindergarten programs, and also looks more closely at regional participation in preschool and kindergarten for kindergartners with different individual, family, and school characteristics.

This report attempts to answer two questions about kindergartners' early education experiences within and across four regions¹ of the United States:

- What are the regional differences in kindergartners' preschool experiences (e.g., center-based care or Head Start the year before kindergarten entry) in the United States?
- Are there regional differences in kindergartners' participation in full-day versus half-day kindergarten programs in the United States?

The ECLS-K selected a nationally representative sample of kindergartners in the fall of 1998 and has followed these children through the spring of fifth grade. The study collects information directly from children and their families, teachers, and schools. The findings in this report come from the ECLS-K fall and spring kindergarten data collections and are organized into three sections. First, this report compares percentage distributions of kindergartners within each region across the four regions of the United States. Second, it compares the percent of kindergartners within each region who attended preschool and the number of hours they spent in preschool each week. Finally, it presents comparisons of the percentage of kindergartners who attended full-day kindergarten across regions. Regional comparisons are made overall and in relation to selected characteristics of children (i.e., sex, age at kindergarten entry, race/ethnicity), their families (i.e., mother's education, mother's employment status, household poverty status), and their schools (i.e., urbanicity, type).

Comparisons in the text are tested for statistical significance to ensure that the differences are larger than might be expected due to sampling variation. All differences described are significant at the .05 level. Due to the large sample size, many differences (no matter how substantively minor) are statistically significant. In this report, "substantive differences" are defined as percentage differences of 5 points or greater for preschool and full-day kindergarten participation, and as mean score differences of one-fifth of a standard deviation (i.e., 3 hours) or more in terms of weekly hours of preschool.

¹Regions used for the ECLS-K are the same as those used by the U.S. Bureau of the Census. The following is a list of states that are included in each region:

- *Northeast*: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont;
- *Midwest*: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin;
- *South*: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia; and
- *West*: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming.

Findings

Patterns in kindergartners' child, family, and school characteristics across regions

As shown in table 1, certain child and family characteristics of kindergartners vary by region. For example, the ages of children at the start of kindergarten differ. Among kindergartners in each region, the percentage of young kindergartners turning 5 during the first 4 months of the academic year (i.e., September through December 1993) was higher in the Northeast and West than in the Midwest and the South. This pattern is consistent with the kindergarten entry-age policies of states that make up these regions. Many states in the Northeast and West have policies on kindergarten entry age that allow children to start kindergarten if they turn 5 by December or January. In contrast, the majority of states in the Midwest and South have policies that require children to be at least 5 years of age by mid-September to start kindergarten (Education Commission of the States 2003).

The percent of kindergartners within each region who were Hispanic was largest among kindergartners in the West. About 40 percent of kindergartners in the West were Hispanic, compared with 14 percent in the Northeast, 9 percent in the Midwest, and 15 percent in the South. On the other hand, relatively more kindergartners in the South were Black than in any other region. About 27 percent of kindergartners in the South were Black, compared with 12 percent in the Northeast, 11 percent in the Midwest, and 6 percent in the West.

Among the kindergartners in each region, higher percentages of kindergartners in the South and West than those in the Northeast and Midwest were from families with incomes below the federal poverty threshold. In 1998, the federal poverty threshold for a family of four was \$16,655.

Kindergartners in the South and West were less likely than those in the Northeast or Midwest to have mothers with a bachelor's degree or higher. Also, kindergartners in the South and West were more likely than those in the other regions to have mothers who completed less than high school.

Kindergartners in the Midwest and South were more likely to have mothers who worked full time (i.e., 35 hours or more per week) than those in the Northeast or West. In contrast, kindergartners in the West were more likely than kindergartners in the Midwest or the South to have a mother who was not in the labor force.

Kindergartners in the West were more likely to have attended schools in central cities than kindergartners in the Northeast or the Midwest. About 47 percent of kindergartners in the West attended schools in central cities, compared with 33 percent in the Northeast and 32 percent in the Midwest. In contrast, kindergartners in the Midwest were more likely to have attended schools in rural areas than kindergartners in the West or the Northeast.

The majority of kindergartners attended public school kindergarten programs rather than private school, regardless of region. However, kindergartners in the South were more likely to attend a public school for kindergarten than kindergartners in any of the other regions.

Patterns in kindergartners' preschool experience across regions

Overall, 68 percent of kindergartners attended preschool the year before entering kindergarten. As shown in table 2, kindergartners' preschool experiences² the year before kindergarten differed by region. Kindergartners in the West were less likely to have attended preschool than kindergartners in any of the other regions. Sixty-two percent of kindergartners in the West attended preschool the year before kindergarten, compared with 71 percent in the Northeast, 72 percent in the Midwest, and 69 percent in the South. Of the kindergartners who attended preschool, those in the South spent more hours per week in their preschool programs, on average, than kindergartners in any of the other regions (figure 1).

Patterns in kindergartners' preschool experiences across regions, by child, family, and school characteristics

Preschool attendance. Regional differences are also evident when examining the data within groups of kindergartners differing on various child, family, and school characteristics; these regional differences generally follow the pattern of regional differences found for the full sample of kindergartners (table 2). For example, Black kindergartners in the West were more likely to attend preschool than Black kindergartners in the South or the Northeast. About 83 percent of Black kindergartners in the West attended preschool, compared with 70 percent in the Northeast and 76 percent in the South. In addition, Asian kindergartners in the Midwest were more likely to have attended preschool than their peers in the West.

²Preschool experience was based on parental report and defined as children's participation in either a child care center, preschool, nursery school, prekindergarten, or Head Start program the year prior to kindergarten.

Table 1. Percentage distribution of fall 1998 kindergartners, by region and selected child, family, and school characteristics: School year 1998–99

Characteristic	Total	Northeast	Midwest	South	West
Total	100	100	100	100	100
Child's sex					
Male	51	52	50	52	51
Female	49	48	50	48	49
Child's age at kindergarten entry (fall 1998)					
Age 4: Born Sept.–Dec. 1993	9	14	4	5	15
Age 5: Born May–Aug. 1993	31	33	29	31	32
Age 5: Born Jan.–Apr. 1993	31	29	32	31	31
Age 5: Born Sept.–Dec. 1992	24	19	26	28	19
Age 6: Born Jan.–Aug. 1992	6	4	10	5	4
Child's race/ethnicity					
White, non-Hispanic	57	68	69	54	41
Black, non-Hispanic	16	12	11	27	6
Hispanic	19	14	9	15	40
Asian	3	3	2	1	6
Other	5	3	8	3	7
Federal poverty level ¹					
At or above poverty threshold	78	84	83	74	76
Below poverty threshold	22	16	17	26	24
Mother's education ²					
Less than high school	15	9	10	17	21
High school diploma or equivalent	31	30	29	35	28
Some college, including vocational/technical	32	32	37	29	32
Bachelor's degree or higher	22	29	24	19	18
Mother's employment ²					
35 hours or more per week	45	40	47	49	42
Less than 35 hours per week	21	26	23	18	21
Looking for work	4	4	4	5	4
Not in the labor force	29	29	26	28	33
School urbanicity					
Central city	38	33	32	39	47
Urban fringe and large town	42	53	40	39	38
Small town and rural	21	14	27	22	16
Kindergarten school type					
Public	85	80	82	90	85
Private	15	20	18	10	15

¹Poverty is a function of household size and household income. Based on 1998 Census information, a household of four with a total income below \$16,655 was considered to be below the federal poverty level.

²Households in which there was no mother were not included in these estimates.

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

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), Base-Year Public-Use Data File, fall 1998 and spring 1999.

Table 2. Percent of fall 1998 kindergartners who attended preschool the year before kindergarten and mean hours per week in preschool, by region and selected child, family, and school characteristics: School year 1998–99

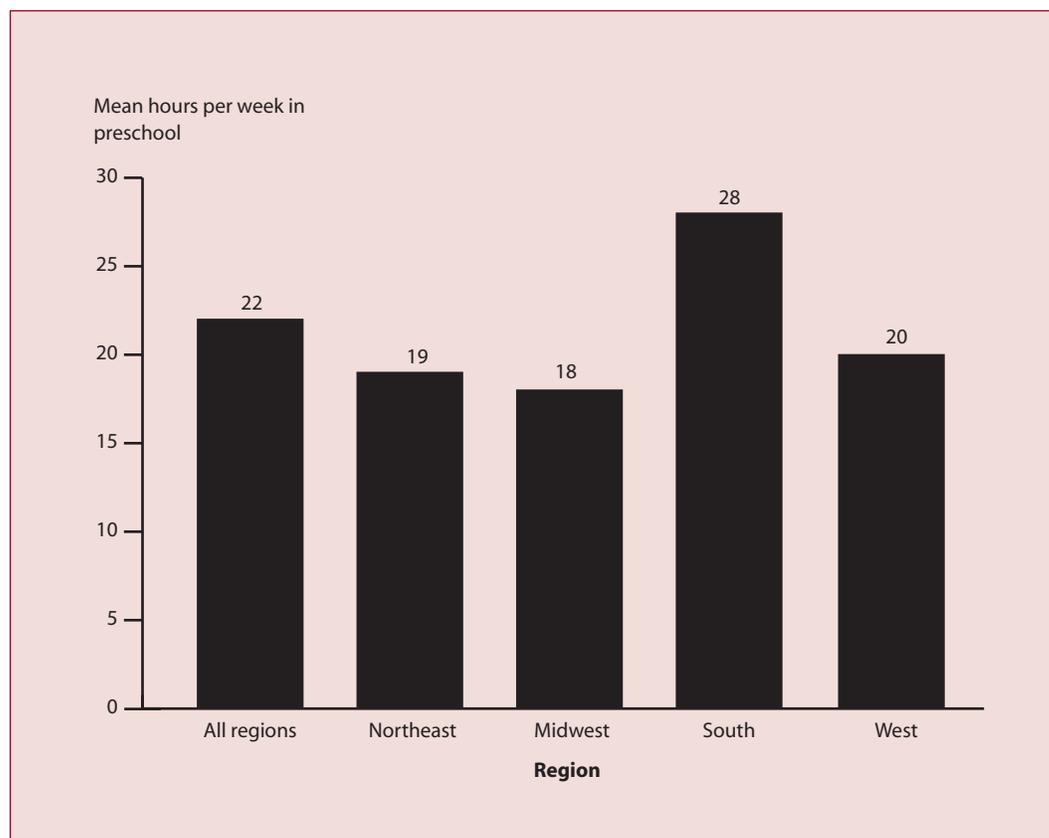
Characteristic	Percent attending preschool the year before kindergarten					Mean hours per week in preschool				
	Total	Northeast	Midwest	South	West	Total	Northeast	Midwest	South	West
Total	68	71	72	69	62	22	19	18	28	20
Child's sex										
Male	68	70	72	69	61	23	19	18	28	21
Female	69	71	73	69	63	22	20	18	28	20
Child's age at kindergarten entry (fall 1998)										
Age 4: Born Sept.–Dec. 1993	64	68	70	71	56	23	21	20	27	22
Age 5: Born May–Aug. 1993	69	71	74	69	62	23	20	18	28	21
Age 5: Born Jan.–Apr. 1993	70	73	71	71	63	22	19	18	28	20
Age 5: Born Sept.–Dec. 1992	69	70	73	69	64	23	17	19	29	19
Age 6: Born Jan.–Aug. 1992	65	65	72	60	59	20	18	17	26	16
Child's race/ethnicity										
White, non-Hispanic	71	74	74	69	68	20	17	17	25	19
Black, non-Hispanic	76	70	77	76	83	31	28	26	33	28
Hispanic	55	59	59	56	53	22	24	17	28	20
Asian	66	65	74	68	61	23	22	19	27	23
Other	65	66	72	70	54	23	20	22	29	23
Federal poverty level ¹										
At or above poverty threshold	70	73	74	70	64	22	19	18	27	20
Below poverty threshold	62	59	67	66	53	26	23	22	30	20
Mother's education ²										
Less than high school	51	49	53	55	46	23	22	17	28	18
High school diploma or equivalent	64	65	68	65	57	23	19	18	29	20
Some college, including vocational/technical	72	73	74	74	66	22	20	18	29	21
Bachelor's degree or higher	82	82	84	82	79	21	18	18	25	20
Mother's employment ²										
35 hours or more per week	72	72	73	74	65	27	24	23	32	25
Less than 35 hours per week	72	76	78	70	66	18	15	14	24	17
Looking for work	62	68	59	63	56	24	22	19	31	18
Not in the labor force	61	65	68	60	55	17	15	13	23	15
School urbanicity										
Central city	67	65	69	70	63	24	23	21	29	21
Urban fringe and large town	71	75	76	71	63	21	18	17	27	20
Small town and rural	65	66	71	65	55	21	16	17	27	18
Kindergarten school type										
Public	66	68	70	68	58	22	19	18	29	19
Private	81	80	82	81	82	22	22	19	25	24
Kindergarten program type										
Full day	70	71	74	70	64	26	22	20	29	23
Half day	67	70	71	66	61	18	17	17	21	19

¹Poverty is a function of household size and household income. Based on 1998 Census information, a household of four with a total income below \$16,655 was considered to be below the federal poverty level.

²Households in which there was no mother were not included in these estimates.

NOTE: Preschool experience is based on parental report and defined as participation in a center-based early care or education program or participation in Head Start the year before kindergarten. SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), Base-Year Public-Use Data File, fall 1998 and spring 1999.

Figure 1. Kindergartners' mean hours per week in preschool in the year prior to kindergarten, by region: School year 1998–99



NOTE: Preschool experience is based on parental report and defined as participation in a center-based early care or education program or participation in Head Start the year before kindergarten.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), Base-Year Public-Use Data File, fall 1998.

Kindergartners in the Midwest whose mothers were not in the labor force were more likely to have attended preschool than kindergartners in the South or West. In addition, kindergartners in the West whose mothers were not in the labor force were the least likely of all of the regions to have attended preschool. Kindergartners in the West whose mothers worked full time were also less likely to have attended preschool than kindergartners in any of the other regions.

In terms of kindergarten school urbanicity, kindergartners from central cities in the Midwest were more likely to have attended preschool than those from central cities in the West. Kindergartners from rural areas in the Midwest were also more likely to have attended preschool than those from rural areas in the West. Also, central city kindergartners from the South were more likely to have attended preschool than central city kindergartners in the West.

Kindergartners who attended public school kindergartens in the West were less likely to have attended preschool than kindergartners who attended public school kindergartens in the other regions.

Mean hours per week kindergartners spent in preschool.

On average, kindergartners in the South spent more hours per week in preschool the year before kindergarten than kindergartners in any of the other regions (figure 1). This pattern of regional differences found for the full sample of kindergartners is also evident when examining data within groups of kindergartners differing on various child, family, and school characteristics (table 2).

For example, the youngest kindergartners (age 4: born September through December 1993) in the South spent more hours in preschool than the youngest kindergartners in any

of the other regions. Also, Black kindergartners in the South attended preschool for more hours on average than Black kindergartners in any of the other regions. Furthermore, Hispanic kindergartners in the South and Northeast spent more hours in preschool than those in the West or the Midwest (28 and 24 hours vs. 20 and 17 hours, respectively).

Kindergartners whose families were below the poverty threshold followed the same pattern as most of the other groups (i.e., kindergartners in the South spent relatively more hours per week in preschool than kindergartners in any of the other regions).

Kindergartners whose mothers did not complete high school spent more hours, on average, in preschool in the Northeast and the South than in the West or the Midwest. Comparatively, kindergartners whose mothers completed a bachelor's degree or higher followed the same pattern as most other groups mentioned previously (i.e., Southern kindergartners spent relatively more hours per week in preschool than kindergartners in any of the other regions). Also, on average, kindergartners whose mothers were not in the labor force spent more hours weekly in preschool in the South than in any of the other regions.

In addition, the number of hours per week kindergartners spent in preschool varied across regions with respect to their kindergarten school urbanicity. In both central city and rural areas, kindergartners in the South spent relatively more hours per week in preschool the year before kindergarten than kindergartners from any of the other regions.

On average, public school kindergartners in the South who attended preschool the year before kindergarten spent more weekly hours in preschool than public school kindergartners in any of the other regions. For those children who attended private school kindergartens and had attended preschool the year before kindergarten, children in the South and West spent more weekly hours in preschool, on average, than those in the Midwest.

Patterns in kindergartners' kindergarten program type across regions

In the United States, in the fall of 1998, approximately 4 million children attended kindergarten; some attended full-day programs, and some attended half-day programs. In the fall of 1998, some 55 percent of all kindergarten children attended a full-day program (West, Denton, and Germino Hausken 2000). Kindergartners in the South were more likely to attend full-day kindergarten programs than kindergartners in any of the other regions (figure 2). In

contrast, kindergartners in the West were more likely to attend half-day kindergarten programs than kindergartners in any of the other regions.

Participation in full-day kindergarten across regions by child, family, and school characteristics

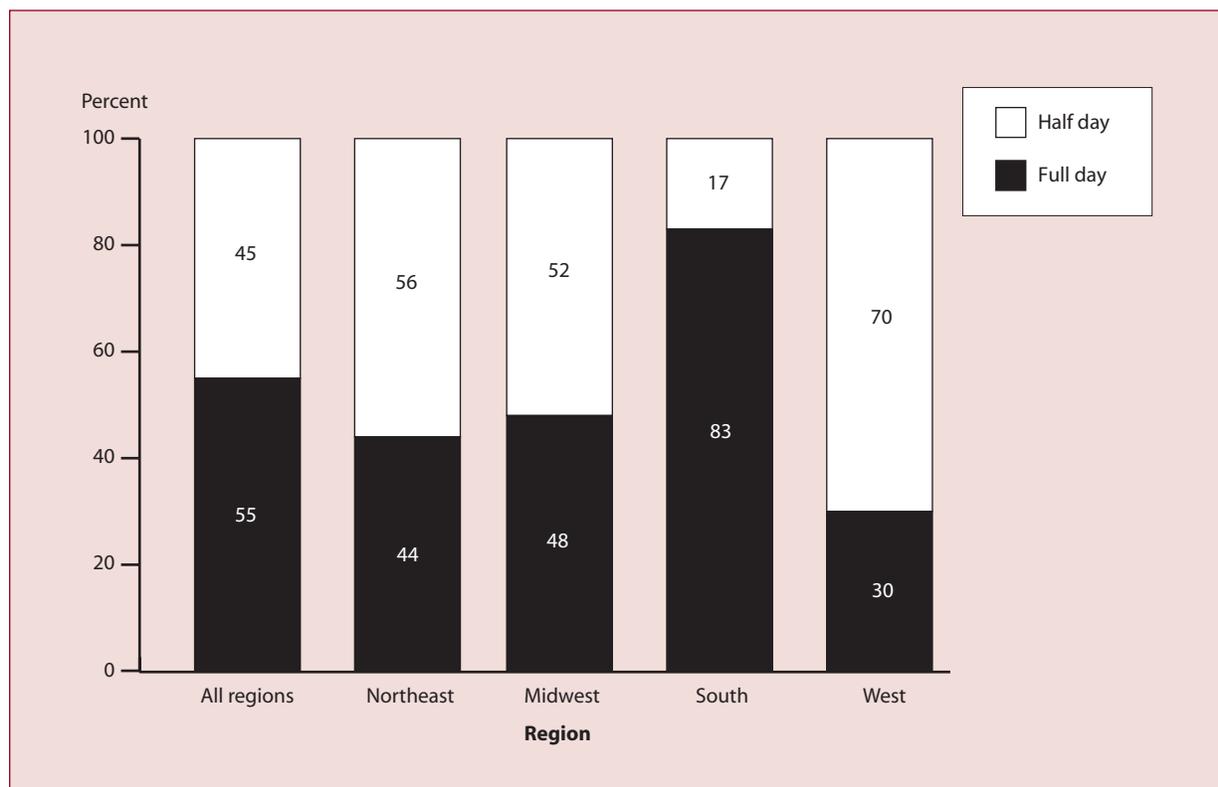
As noted above, kindergartners in the South were more likely to attend full-day kindergarten programs than kindergartners in any other region of the country and kindergartners in the West were least likely to do so (table 3). These overall patterns of regional differences found for the full sample of kindergartners are also evident when examining the data within groups of kindergartners differing on various child, family, and school characteristics (table 3).

When considering children's race/ethnicity, the percentage of Hispanic kindergartners attending full-day programs differed across the regions. For example, Hispanic kindergartners in the West were less likely to attend full-day kindergarten programs than Hispanic kindergartners in any of the other regions. No consistent pattern of differences in full-day program attendance across regions could be determined for Black and "other" kindergartners (e.g., while the percentage of Black kindergartners in the South that attended full-day programs [89 percent] was different from the percentage of Black kindergartners in the Midwest that attended full-day programs [60 percent], it was not measurably different from the percentage of Black kindergartners in the Northeast [79 percent]).

Young kindergartners in the South (age 4: born September through December 1993) were more likely than young kindergartners in other regions to attend full-day kindergarten programs. About 78 percent of young kindergartners in the South attended full-day kindergarten, compared with 55 percent in the Northeast, 33 percent in the Midwest, and 24 percent in the West.

Kindergartners whose families were below the poverty threshold were more likely to attend full-day kindergarten programs if they lived in the South than if they lived in any of the other regions. In contrast, poor kindergartners in the West were the least likely of any region to attend a full-day program.

Kindergartners whose mothers had not completed high school were more likely to be enrolled in full-day programs if they attended school in the South than if they attended school in any of the other regions. In contrast, these kindergartners in the West were the least likely to have attended full-day programs. Consistent with this pattern,

Figure 2. Percentage distribution of kindergartners enrolled in full-day and half-day programs, by region: School year 1998–99

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), Base-Year Public-Use Data File, fall 1998.

kindergartners whose mothers were employed full time and kindergartners whose mothers were not in the labor force were most likely to be enrolled in full-day programs if they lived in the South and least likely to be enrolled in full-day programs if they lived in the West.

Kindergartners in central city schools were more likely to attend full-day programs if they lived in the South than if they lived in any of the other regions. Also, central city school kindergartners who lived in the Northeast were more likely to attend full-day programs than those in the Midwest or West. In contrast, kindergartners in rural schools in the Northeast were the least likely of rural school kindergartners of any region to attend a full-day program.

Kindergartners in public schools were most likely to attend full-day programs if they lived in the South, compared with any other region. Also, public school kindergartners who lived in the Midwest were more likely than those in the West to be enrolled in full-day programs. In contrast, kindergartners in private schools were more likely to attend

full-day kindergarten if they lived in the West or Northeast than if they lived in the Midwest.

Summary

Findings from this report indicate that kindergartners' preschool experiences and kindergarten program type vary by the regions in which their schools are located and by the regional characteristics of these kindergartners, their families, and their schools. This report identifies common regional patterns in early childhood experiences and notes exceptions to the general findings.

Overall, 68 percent of kindergartners attended preschool the year before entering kindergarten. However, kindergartners in the West were less likely to have attended preschool than kindergartners in the South, Northeast, or Midwest. These estimates differ from those reported in the FRSS "Survey of Classes That Serve Children Prior to Kindergarten in Public Schools: 2000–2001" because the FRSS only collected information on public school prekindergarten programs (Smith et al. 2003). In contrast to the overall pattern

Table 3. Percent of fall 1998 kindergartners attending full-day programs, by region and selected child, family, and school characteristics: School year 1998–99

Characteristic	Percent attending full-day kindergarten				
	Total	Northeast	Midwest	South	West
Total	55	44	48	83	30
Child's sex					
Male	55	42	47	82	29
Female	56	45	48	83	30
Child's age at kindergarten entry (fall 1998)					
Age 4: Born Sept.–Dec. 1993	46	55	33	78	24
Age 5: Born May–Aug. 1993	53	43	45	81	27
Age 5: Born Jan.–Apr. 1993	55	46	47	82	29
Age 5: Born Sept.–Dec. 1992	60	34	51	84	37
Age 6: Born Jan.–Aug. 1992	62	42	57	89	40
Child's race/ethnicity					
White, non-Hispanic	52	34	44	80	32
Black, non-Hispanic	78	79	60	89	41
Hispanic	46	62	42	84	21
Asian	48	56	49	84	30
Other	61	33	72	71	52
Federal poverty level ¹					
At or above poverty threshold	54	42	45	81	32
Below poverty threshold	61	51	60	86	24
Mother's education ²					
Less than high school	57	52	55	86	21
High school diploma or equivalent	58	42	52	84	27
Some college, including vocational/technical	54	41	48	82	32
Bachelor's degree or higher	53	45	40	77	38
Mother's employment ²					
35 hours or more per week	60	48	52	84	33
Less than 35 hours per week	50	39	44	79	29
Looking for work	61	49	58	85	25
Not in the labor force	51	42	43	82	25
School urbanicity					
Central city	60	67	46	88	31
Urban fringe and large town	47	39	30	83	15
Small town and rural	64	9	76	73	60
School type					
Public	53	36	46	84	22
Private	68	74	56	71	73
Preschool experience ³					
No	53	43	46	81	28
Yes	57	44	49	83	31

¹Poverty is a function of household size and household income. Based on 1998 Census information, a household of four with a total income below \$16,655 was considered to be below the federal poverty level.

²Households in which there was no mother were not included in these estimates.

³Preschool experience is based on parental report and defined as participation in a center-based early care or education program or participation in Head Start the year before kindergarten.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), Base-Year Public-Use Data File, fall 1998 and spring 1999.

described in this report, Black kindergartners in the West were more likely to have attended preschool than Black kindergartners in the South or Northeast.

In general, kindergartners who attended preschool the year before kindergarten spent an average of 22 hours per week in such programs (table 2). Of kindergartners who attended preschool, those in the South spent more hours per week in their preschool programs, on average, than kindergartners in any of the other regions. This pattern was found for Black and Asian kindergartners, kindergartners whose families were below the poverty threshold, and kindergartners whose mothers completed a bachelor's degree or higher.

Consistent with findings from *Full-Day and Half-Day Kindergarten in the United States* (Walston and West 2004), this report found that kindergartners in the South were more likely to attend full-day kindergarten programs than kindergartners in any of the other regions, and kindergartners in the West were the least likely to attend full-day kindergarten programs. In the West, this pattern was consistent for Hispanic kindergartners, young kindergartners (those not yet 5 years old at kindergarten entry), kindergartners whose families were below the poverty threshold, kindergartners whose mothers had completed less than high school, kindergartners whose mothers were employed full time, and kindergartners whose mothers were not in the labor force.

Results from this report indicate that kindergartners' participation in preschool experiences and full-day kindergarten programs differs by the region in which they live. Given this finding, future research on early childhood program participation should consider incorporating region into analyses of the relationships of preschool or kindergarten program attendance with educational outcomes.

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Data source: The NCES Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K).

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To obtain the complete report (NCES 2005-099), visit the NCES Electronic Catalog (<http://nces.ed.gov/pubsearch>).

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High School Sophomores

A Profile of the American High School Sophomore in 2002: Initial Results From the Base Year of the Education Longitudinal Study of 2002

Steven J. Ingels, Laura J. Burns, Stephanie Charleston, Xianglei Chen, and Emily Forrest Cataldi

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the Education Longitudinal Study (ELS).

The data for this report, *A Profile of the American High School Sophomore in 2002*, describe the tested achievement and educational status of a cohort based on a nationally representative probability sample of 15,362 10th-graders in 752 public, Catholic, and other private schools who were studied in the spring term of the 2001–02 school year. The base-year data collection for the Education Longitudinal Study of 2002 (ELS:2002) is the first wave of a new longitudinal study of high school students that continues a series of nationally representative longitudinal studies conducted by the U. S. Department of Education's National Center for Education Statistics (NCES) over recent decades. Future survey waves will follow both students and high school dropouts and will monitor the transition of the cohort to postsecondary education, the labor force, and family formation. Although the base-year study comprised surveys of parents, teachers, school administrators, and library media specialists, as well as the cohort of high school sophomores, to remain concise, this report draws primarily on data from students, the primary unit of analysis for the study. (Parent, teacher, librarian, and school reports provide contextual data for better understanding the student cohort.)

Comparisons drawn in the text of this report have been tested for statistical significance at the .05 level to ensure that the differences are larger than those that might be expected due to sampling variation. Most comparisons are tested with *t* statistics, although analysis of variance has been used to test for linear trends. Because comparisons drawn in the report are delimited and focused through their reliance on findings from prior studies in the data series and the wider research literature, and because a criterion of substantive significance has been imposed as well (see below), the *t* tests have not been adjusted for multiple comparisons. Full details of statistical tests used can be found in appendix A in the full report. As noted above, all findings have also been subjected to a test of substantive significance. For comparisons of means, findings must show a difference of at least a fifth of a standard deviation (that is, an effect size of .20) to be reported. Further information on effect sizes can also be found in appendix A in the full report. For comparisons of proportions, differences noted in the text are at least

5 percentage points.* Exceptions arise with comparisons that directly investigate stated research questions and hypotheses or when not performing basic comparisons would be seen as a critical omission. The text notes when comparisons do not meet statistical and/or substantive significance.

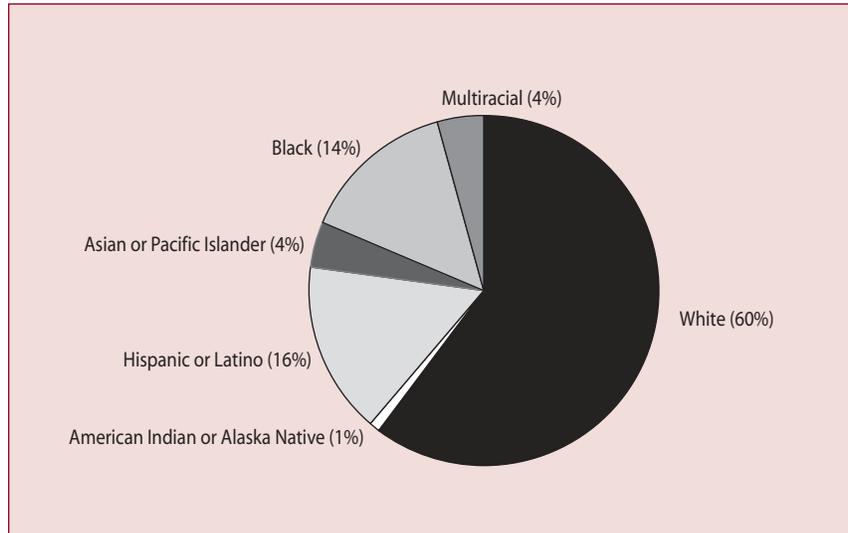
Highlights

Sociodemographic and educational characteristics of the cohort

Various background characteristics and differences are associated with the educational experiences, achievement, and expectations of students as they progress through high school. The following descriptive characteristics of the sophomore class of 2002 are noted:

- The majority of sophomores are Whites (60 percent). Hispanics comprise 16 percent and Blacks 14 percent of the sophomore cohort, Asian and multiracial sophomores each comprise 4 percent, and American Indians comprise 1 percent of the sophomore cohort (figure 1).
- While 16 percent of White sophomores come from the lowest socioeconomic status (SES) quartile group, half of Hispanics and 35 percent of Blacks come from this group.
- Some 57 percent of sophomores live in a family with both their biological parents. Others live in a single-parent household (22 percent), or with their mother or father and a guardian (17 percent). Still others (4 percent) live in a variety of other arrangements.
- Approximately 6 out of 10 sophomores (59 percent) have a mother who continued her education beyond high school. Fifty-six percent have a father who continued his education beyond high school.
- The 2002 sophomore cohort has high ambitions: 72 percent expect to complete a bachelor's degree or higher; indeed, about one-third (36 percent) expect to complete a graduate or professional degree. However,

*The selection of 5 percent as the criterion for substantive difference is based on similar analyses in other NCES reports (e.g., NCES 2004-078). It should be noted that the magnitude of effect that would be regarded as substantively or practically significant (and the categorization of the effect into large, medium, small, or trivial) may vary depending on the types and contexts of relationships and outcomes being measured.

Figure 1. Percentage of high school sophomores, by racial/ethnic group: 2002

NOTE: Detail may not sum to totals because of rounding. All race categories exclude Hispanic.
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002). (Originally published as figure 2 on p. 9 of the complete report from which this article is excerpted.)

only about one-half (51 percent) indicate being enrolled in a college preparatory program.

- There are differences by racial/ethnic group in the likelihood that English is a sophomore's native language. English is the native language of 94 percent of Black and 97 percent of White sophomores. It is the native language of 37 percent of Asian and 48 percent of Hispanic sophomores.
- The overwhelming majority of sophomores (92 percent) attend public schools (4 percent attend Catholic schools and 3 percent attend other private schools) (figure 2).
- Half of sophomores attend suburban schools; 30 percent attend urban schools; and 20 percent attend rural schools. However, nearly half (49 percent) of Black students attend urban schools, compared to 21 percent of Whites.

Sophomores' school experiences

Sophomores reported their perceptions of their school and teachers, school safety, and school rules, as well as the importance they accorded good grades and their reasons for going to school.

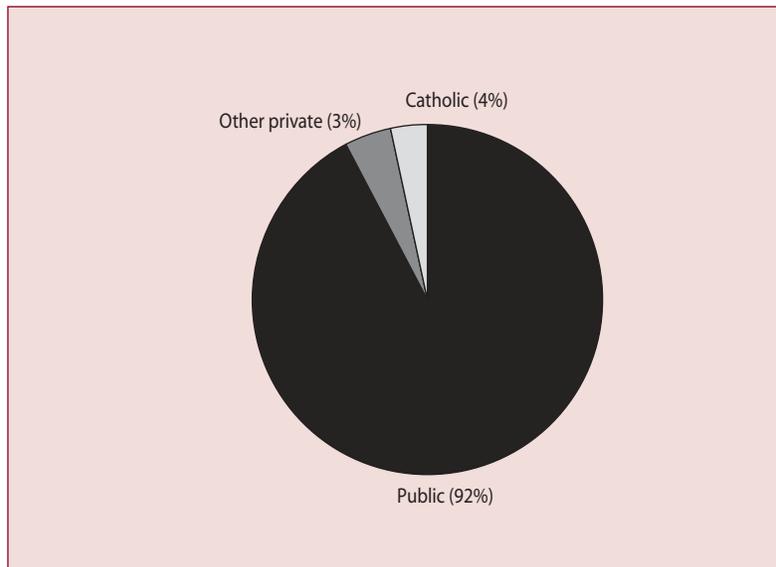
Overall, students had a positive view of their school and teachers (e.g., 81 percent indicated that the quality of teaching was good, and nearly three-quarters [74 percent] reported that their teachers were interested in the students and that students and teachers got along well). The majority (65 percent) reported that they liked school somewhat, and 24 percent liked school a great deal.

Nevertheless, 12 percent of sophomores reported not feeling safe in school (13 percent in public schools, 3 percent in Catholic schools, and 4 percent in other private schools). Nearly two-thirds (66 percent) had experienced some manifestation of school crime or violence during the first term of the school year. One out of four was offered drugs for sale, and 24 percent reported that someone had threatened to hurt them. Students who felt safe at school were more likely to report that rules were clear, fair, and consistently enforced.

Most sophomores (87 percent) indicated that getting good grades was important or very important to them, and 57 percent reported that engagement with interesting and challenging school subjects was one of their motivations for attending school.

However, there were some notable differences between subgroups (including, among others, racial/ethnic groups,

Figure 2. Percentage of high school sophomores attending various types of schools: 2002



NOTE: Detail may not sum to totals because of rounding.
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Education Longitudinal Study of 2002 (ELS:2002). (Originally published as figure 9 on p. 16 of the complete report from which this article is excerpted.)

males versus females, and sophomores in different school sectors) in their responses. Racial/ethnic differences, particularly between Blacks and Hispanics, on the one hand, and Whites, on the other, form a complex pattern. For example:

- Black and Hispanic sophomores were more likely than White sophomores to feel unsafe at school.
- Black sophomores were less likely than White sophomores to report positive impressions about their school and teachers (when asked about school spirit, teaching quality, and teacher-student relationships).
- Blacks (62 percent) and Hispanics (53 percent) were more likely than Whites (47 percent) to affirm getting good grades as something very important to them.
- Blacks and Hispanics more often reported that they went to school because their school subjects were interesting and challenging than did Whites (63 percent for Blacks and 65 percent for Hispanics versus 52 percent for Whites) and that they got satisfaction from their classwork (72 percent for Blacks and 70 percent for Hispanics versus 55 percent for Whites).
- Black and Hispanic sophomores were more likely than their White peers to indicate that they liked school a great deal (29 percent and 30 percent versus 21 percent).
- Blacks and Hispanics were more likely than Whites to report that their teachers expected them to succeed in school (67 percent for Blacks, 64 percent for Hispanics, and 58 percent for Whites).

Subgroup differences by sex include the following:

- Females were more likely than males to report liking school a great deal (26 percent versus 21 percent).
- Males were more likely than females to be the victim of school crimes (73 percent versus 59 percent), and they were also more likely to report involvement in physical fights (21 percent for males versus 8 percent for females) and to have had someone offer to sell them drugs (31 percent versus 19 percent).
- Females more often reported that getting good grades was very important to them (58 percent for females versus 44 percent for males).
- Females were more likely to report that their school subjects were interesting and challenging (59 percent versus 54 percent), and they were more likely to report getting a feeling of satisfaction from doing their classwork (67 percent versus 55 percent).
- Females were also more likely to report that their teachers expected them to succeed (63 percent for females versus 58 percent for males).

Students in Catholic and other private schools generally reported a more positive perception of their school environment than did public school students. For example, public school sophomores were less likely to report good quality teaching, teacher interest in students, or that students and teachers got along well:

- Some 80 percent of public school sophomores reported good quality teaching in their schools, compared to 91 percent of Catholic and 90 percent of other private school sophomores.
- When asked whether teachers were interested in students, 73 percent of public school sophomores agreed, compared to 86 percent of Catholic and 88 percent of other private school sophomores.
- Some 73 percent of public school sophomores indicated that students and teachers got along well with each other in their schools, compared to 86 percent of Catholic and 87 percent of other private school sophomores.

An important line of distinction between private and public schools is reflected in sophomores' views of their school's normative and disciplinary climate, as represented by the clarity, fairness, and enforcement of school rules:

- Some 89 percent of sophomores in other private schools, and 87 percent of sophomores in Catholic schools, reported that everyone knew what the school rules were. This compared to 82 percent in public schools. In addition, 79 percent of Catholic school sophomores maintained that the rules were strictly enforced, compared to 66 percent of public school students.
- Some 65 percent of other private school sophomores believed their school rules were fair, compared to 54 percent of public school students.

Sophomores in private schools were also more likely than public school students to cite sports or other extracurricular participation as a reason for going to school (67 percent of Catholic, 57 percent of other private, and 48 percent of public school students listed playing on a team or belonging to a club as one of their motivations for going to school). This is consistent with the higher rates of extracurricular, particularly sports, participation reported for private school students.

Sophomores' extracurricular and sports participation

Sophomores were asked if they participated in any of various extracurricular activities. These school-sponsored activities were academic clubs, hobby clubs, musical activities

(band, orchestra, choir, or chorus), cheerleading, sports, and vocational education clubs.

Over half (55 percent) of all sophomores participated in sports, including play at the intramural level. Participation in other activities was relatively lower: 8 percent for academic clubs, 13 percent for cheerleading, 10 percent for hobby clubs, 22 percent for musical activities, and 8 percent for vocational education clubs. Some subgroup differences are notable:

- Sports participation varied by school type: 73 percent of Catholic and 74 percent of other private school sophomores participated in sports, compared to 53 percent of public school sophomores.
- Males played sports at a higher rate than females (61 percent versus 49 percent), but females participated in other extracurricular activities at a higher rate than males.
- Participation in most extracurricular activities increased with ascending SES. For example, 6 percent of low-SES-quartile sophomores participated in academic clubs, compared to 13 percent from the high-SES quartile; 45 percent of low-SES-quartile sophomores were athletes, compared to 64 percent of high-SES sophomores; and 16 percent of low-SES sophomores took part in musical activities, compared to 27 percent of high-SES sophomores. The opposite was true for vocational clubs.

Sophomores who spent 9 hours or more per week in extracurricular activities (the highest quartile of the distribution of hours) were compared to the full sample or sophomore norm (averaging over 4 hours of participation per week). High-intensity extracurricular participants were more likely to

- expect to earn a 4-year degree or higher (87 percent versus 72 percent for the 10th-grade norm);
- expect to go directly to college (83 percent compared to 72 percent for all sophomores);
- perform in the highest test quartile (37 percent versus 25 percent for the norm);
- report to have "never cut class" (74 percent versus 68 percent); and
- rate good grades as very important (59 percent versus 51 percent for sophomores as a whole).

Sophomores' time use

Five specific dimensions of time use were measured: extracurricular activities, reading for pleasure, doing

homework, using the computer, and working for pay. For those who worked during the school year, time spent on the job averaged 15 hours per week. Sophomores reported using computers for about 1 hour per day for schoolwork and 2 additional hours daily for nonschool uses. Weekly time budgets for key activities were as follows:

- school-sponsored extracurricular activities (5 hours);
- outside reading (not assigned for class) (3 hours);
- homework (outside of school) (6 hours); and
- working for pay (15 hours).

Several subgroup differences in time use should be noted:

- Asians spent more time on homework outside school (8 hours per week) than Blacks, Whites, or Hispanics (5–6 hours).
- Catholic and other private school students spent more time on out-of-school homework (8 hours) than public school students (6 hours).
- The average number of hours worked per week was negatively related to SES.

Sophomores' tested achievement in reading and mathematics

Reading and mathematics achievement were reported in terms of various levels of skill and content mastery, or proficiency. Overall results, and the content and processes embodied by each proficiency level, are summarized below:

Overall, in *reading*:

- 89 percent of sophomores had mastered the skills of simple reading comprehension (proficiency level 1);
- 46 percent were able to make relatively simple inferences beyond the author's main thought (proficiency level 2); and
- 8 percent could make complex inferences (proficiency level 3).

Overall, in *mathematics*:

- 92 percent of sophomores were able to perform simple arithmetical operations on whole numbers (level 1);
- 67 percent could perform simple operations with decimals, fractions, powers, and roots (level 2);
- 46 percent could perform simple problem solving that involved the understanding of low-level mathematical concepts (level 3);
- 20 percent could understand intermediate-level mathematical concepts and/or demonstrate ability

to formulate multistep solutions to word problems (level 4); and

- 1 percent could solve complex multistep word problems and had mastered material found in advanced mathematics courses (level 5).

Proficiency results were also examined from the perspective of sophomores' sociodemographic characteristics. For example, an important area of interest is the relationship between racial/ethnic group, SES, and achievement:

- Differences in proficiency were seen by SES; higher SES was associated with higher proficiency scores. For example, in mathematics, 8 percent of sophomores in the lowest quartile were proficient at understanding intermediate-level mathematical concepts, while 18 percent of those in the middle quartiles and 39 percent of those in the highest SES quartile were proficient. Some 18 percent of sophomores in the highest SES quartile were proficient at the highest reading level (ability to make complex inferences), compared to 3 percent in the lowest SES quartile.
- Differences in proficiency were observed by racial/ethnic subgroup. For example, in mathematics, Asians were more likely than Blacks to be proficient in the understanding of intermediate-level mathematical concepts (32 percent compared to 5 percent). Some 27 percent of White sophomores had reached this level, compared to 9 percent of Hispanics.
- In reading, Whites and Asians were more likely to be proficient than were Blacks or Hispanics. Some 56 percent of Whites and 47 percent of Asians were proficient at the level of simple inference, compared to 25 percent of Blacks and 28 percent of Hispanics. At the highest reading level (complex inference), 9 percent of Asian and 11 percent of White 10th-graders were proficient, compared to 2 percent of Blacks and 3 percent of Hispanics.
- Differences by racial/ethnic group persist, even when SES is taken into account. Whites were more likely to be proficient at various reading and mathematics levels than their Black or Hispanic peers, within each of the three SES groupings. For example, at the level of simple mathematical problem solving, within the lowest SES group, 12 percent of Blacks, 18 percent of Hispanics, and 36 percent of Whites were proficient. For the middle SES quartiles, the proportions proficient at this level were 19 percent of Blacks, 30 percent of Hispanics, and 54 percent of Whites. In the highest SES quartile, 42 percent of Blacks, 47 percent

of Hispanics, and 76 percent of Whites were proficient in simple problem solving. The same pattern—persistence of racial/ethnic differences within each SES category, with Whites showing higher achievement than Blacks or Hispanics—was also discernible in reading.

A further area of interest is the alignment of sophomores' educational expectations for the future and their high school preparation for their future education. Since transcripts with information about high school coursetaking have not yet been collected for the cohort, the primary source of available information about academic preparation is tested achievement in mathematics and reading. The higher the students' expectations, the higher their test scores. This generalization is true both overall and within racial/ethnic subgroups (specifically, Whites, Blacks, and Hispanics). However, racial/ethnic differences in achievement persist within each main level of educational expectation:

- For example, 32 percent of 10th-graders who expected to obtain a graduate or professional degree had mastered intermediate mathematical concepts. In contrast, 7 percent of those who expected to complete some college but less than a 4-year degree had done so. At the same time, racial differences were apparent even within expectation levels.
- For example, among sophomores who expected to complete at least a 4-year degree, at reading level 2 (simple inference), 31 percent of Blacks, 35 percent of Hispanics, and 65 percent of Whites were proficient. Among sophomores who expected to complete at least a 4-year degree, at level 4 of mathematics (intermediate concepts), 6 percent of Blacks and 12 percent of Hispanics, contrasted to 33 percent of Whites, were proficient.

Differences in achievement of male and female students were also investigated. Some statistically significant differences were detected, showing a female advantage in reading and a male advantage in mathematics (e.g., at reading level 1, 77 percent of Hispanic males and 82 percent of Hispanic females were proficient, and at mathematics level 4, 30 percent of White males and 24 percent of White females were proficient). *However, these differences were not substantively significant.* Neither overall nor within racial/ethnic groups were sex differences large, compared to the differences found by racial/ethnic group and SES.

In addition to subgroup differences by individual sociodemographic characteristics, proficiency in both reading and

mathematics was examined across a number of school characteristics, including school sector. Students from Catholic and other private schools were more likely to be proficient than were students from public schools:

- In *mathematics* at the level of understanding intermediate concepts, 19 percent of public school sophomores were proficient, compared to 32 percent of Catholic and 35 percent of other private school sophomores.
- In *reading*, students in Catholic and other private schools were more likely to be proficient than students in public schools. For example, 68 percent of Catholic and 65 percent of other private school 10th-graders were proficient at level 2 (simple inferences), compared to 45 percent of public school 10th-graders.

Reading and mathematics results were also examined in relation to student engagement. Student engagement behaviors were positively associated with achievement. For example:

- Students who did more math homework were more proficient in simple problem solving (35 percent of those who did no homework, 46 percent of those who did 1–4 hours of math homework per week, and 53 percent of those who did 5 or more hours of math homework per week were proficient at this level).
- Students who cut class frequently were less likely to be proficient than those who never cut class. In reading, at level 2 (simple inference), 28 percent of those who skipped class seven or more times in the first term of the school year were proficient, compared to 51 percent of those who never skipped class.

Sophomores' values and expectations

Values/life goals. Sophomores were asked about the outcomes they value for the future, about their educational expectations, and about their occupational expectations for age 30. Overall, the following proportions of sophomores rated the following life goals as “very important” to them:

- getting a good education (83 percent);
- becoming an expert in field of work (71 percent);
- having lots of money (42 percent);
- having leisure time to enjoy own interests (68 percent);
- finding the right person to marry (76 percent);
- having children (47 percent);
- having strong friendships (83 percent);

- living close to parents and relatives (30 percent); and
- working to correct social/economic inequalities (19 percent).

There were a number of differences by subgroup. For example:

- Female sophomores (88 percent) and Black sophomores (90 percent) were more likely than male sophomores (78 percent) and White sophomores (80 percent) to rate a good education as very important.
- Having lots of money was very important to more low-SES sophomores (47 percent) than high-SES sophomores (36 percent), and it was very important to more Black sophomores (60 percent) than White sophomores (36 percent).
- Having leisure time was more often very important to high-SES sophomores than to low-SES sophomores (74 percent versus 60 percent).
- Becoming an expert in one's field of work was more often very important to Black sophomores (80 percent) than to their White counterparts (68 percent).

Educational expectations. Overall, about 8 percent of the cohort expected to complete only high school or less. Another 10 percent expected to attend college but to obtain less than a 4-year degree. Some 36 percent expected to graduate from a 4-year program, another 20 percent to obtain a master's degree, and 16 percent to obtain a Ph.D., M.D., or other advanced doctoral or professional degree. (Around 10 percent have not yet formed an expectation of their probable highest level of future educational attainment.) Subgroup differences are apparent by sex, racial/ethnic group, SES, and other factors:

- Although expectations increased with ascending SES and test performance, expectations were relatively high for all groups. For example, about three-fifths (58 percent) of those in the lowest SES quartile and nearly half (48 percent) of those in the lowest achievement test quartile expected to, at minimum, graduate from college with a 4-year degree. About one-quarter (24 percent) of those in the lowest SES quartile expected to obtain a graduate or professional degree, as did 18 percent of those in the lowest test quartile.
- Nearly twice as many females as males expected to complete a doctoral or professional degree (20 percent versus 12 percent), whereas twice as many males

as females expected to end their education with a high school diploma or less (11 percent versus 5 percent). A gender gap existed for White, Black, and Hispanic students. Some 41 percent of Black females expected to earn a graduate degree (master's, Ph.D., or other advanced degree), compared to 25 percent of Black males. Some 44 percent of White females expected to earn a graduate degree, compared to 31 percent of White males.

- This gender gap generally existed for White, Black, and Hispanic sophomores regardless of SES level. For example, among sophomores expecting to reach the highest level of educational attainment (graduate or professional degree), for the high-SES group, this expectation was held by 47 percent of White males, compared to 57 percent of White females; by 40 percent of Black males, compared to 68 percent of Black females; and by 33 percent of Hispanic males, compared to 53 percent of Hispanic females.

Occupational expectations. Sophomores were also asked to name the occupation they expected or planned to hold at age 30. Some 34 percent of sophomores indicated that they did not know what job or occupation they expected to have at age 30. A further 45 percent of the cohort indicated that they expected to be in a professional-level job, while 20 percent indicated any of the wide array of nonprofessional occupations. About 1 percent of males and 1 percent of females did not expect to work at age 30. Less than 1 percent of males and of females indicated that they would be full-time homemakers at age 30.

Data source: The NCES Education Longitudinal Study of 2002 (ELS:2002).

For technical information, see the complete report:

Ingels, S.J., Burns, L.J., Charleston, S., Chen, X., and Forrest Cataldi, E. (2005). *A Profile of the American High School Sophomore in 2002: Initial Results From the Base Year of the Education Longitudinal Study of 2002* (NCES 2005-338).

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To obtain the complete report (NCES 2005-338), call the toll-free ED Pubs number (877-433-7827) or visit the NCES Electronic Catalog (<http://nces.ed.gov/pubsearch>).

Adolescent Cigarette Smoking

Adolescent Cigarette Smoking: A Longitudinal Analysis Through Young Adulthood

—David C. Miller

This article was originally published as the Statistics in Brief report of the same name. The sample survey data are from the National Education Longitudinal Study of 1988 (NELS:88). The technical appendix and a table from the original report have been omitted.

Highlights

It is estimated that smoking results in more deaths each year in the United States than alcohol, cocaine, heroin, AIDS, suicide, homicide, motor vehicle accidents, and fires combined (U.S. Department of Health and Human Services 2000). With about 8 out of 10 adult smokers in the United States having tried their first cigarette before age 18 (U.S. Department of Health and Human Services 1994), it is not surprising that there has been considerable concern about adolescent smoking.

This analysis uses data from the National Education Longitudinal Study of 1988 (NELS:88), where the smoking behavior of a nationally representative cohort of 1988 eighth-graders was assessed at various time points over a 12-year period (i.e., from about age 14 to age 26). Data on smoking behavior were collected in 1988, when all study participants were in 8th grade; in 1990, when most were in 10th grade; in 1992, when most were in 12th grade; and in 2000, when most were 8 years removed from high school graduation. Participants in NELS:88 were not asked about their smoking behavior at the third follow-up in 1994. This took place 2 years after high school graduation for most individuals and when many were participating in postsecondary education.

In this report, the incidence of daily smoking at the various time points is shown. In addition, using the information obtained about individuals' smoking behavior over the time period, several specific developmental patterns are identified.

- *Nondaily smokers* included those who reported usually smoking not at all or less than one cigarette per day at each of the applicable survey waves (1988, 1990, 1992, and 2000).
- *Teen smokers* included those who reported usually smoking one or more cigarettes per day at either of the first three survey waves (1988, 1990, or 1992), but not at the last survey wave in 2000. Thus, individuals in this group either quit smoking or reduced their amount of smoking to less than one cigarette per day at the time of the young adult survey.
- *Teen/young adult smokers* included those who reported usually smoking one or more cigarettes per day at either of the first three survey waves (1988, 1990, or 1992) and at the last survey wave in 2000.

- *Late-onset smokers* included those who reported usually smoking one or more cigarettes per day at the last survey wave in 2000, but not at any of the prior survey waves (1988, 1990, and 1992). Thus, this group includes individuals who either began smoking as young adults, or who increased the frequency with which they smoked from less than daily during adolescence to one or more cigarettes each day at the time of the young adult survey.

Using this classification scheme, these developmental patterns were then examined in relation to various descriptive characteristics. The main findings from this analysis include the following:

- More individuals reported smoking at each subsequent survey follow-up (table 1). Six percent at 8th grade, 12 percent at 10th grade, 17 percent at 12th grade, and one-quarter at the young adult years reported usually smoking one or more cigarettes a day.¹ At the 10th grade, there were more new daily smokers than repeat daily smokers; however, the opposite was true at the young adult years.
- Examining individuals' smoking behavior over the time period, about two-thirds were nondaily smokers (68 percent), followed by teen/young adult smokers (15 percent) and then teen smokers (9 percent) and late-onset smokers (8 percent) (table 2). Accordingly, of the 24 percent of individuals who reported smoking as teenagers (i.e., adding together the teen smokers and teen/young adult smokers), almost two-thirds of them (63 percent) also reported smoking as young adults.
- Examining the four developmental patterns with respect to various descriptive characteristics, most of the characteristics that were related to daily smoking in the set of bivariate analyses (table 2) were also significant in a multivariate analysis.² For example, individuals were more likely to be teen/young adult smokers than nondaily smokers if they were older as

¹As previously noted, not all of the 1988 8th-graders were in 10th grade at the first follow-up in 1990 and not all of them were in 12th grade at the second follow-up in 1992 (e.g., some were held back a grade). But for ease of reporting, the 1990 survey wave is referred to throughout this report as the "10th grade" and the 1992 survey wave is referred to as the "12th grade." In addition, respondents at the 2000 survey wave are often referenced as "young adults."

²See table 3 in the full report for the results of the multinomial logistic regression analysis.

eighth-graders (i.e., those about 15 to 16 years old), if they were from a family with a lower socioeconomic status (SES), or if they were from a single-parent or one-parent/one other guardian family rather than a two-parent family. In regard to race/ethnicity, Whites and Native Americans were more likely than Asians, Blacks, and Hispanics to be teen/young adult smokers as opposed to nondaily smokers. With respect to school type, students from public schools and Catholic schools were more likely than those from non-Catholic private schools to be teen/young adult smokers as opposed to nondaily smokers. Consistent with prior research, smoking was also associated with lower academic achievement. Daily teenage smoking (including both groups—teen smokers and teen/young adult smokers) was generally more prevalent among students with lower achievement scores, lower grades, and among those not participating in an academic program in high school.

Introduction

Cigarette smoking is the leading cause of preventable disease and death in the United States, where it is estimated that there are more deaths each year resulting from smoking than from alcohol, cocaine, heroin, AIDS, suicide, homicide, motor vehicle accidents, and fires combined (U.S. Department of Health and Human Services 2000). There are an estimated 440,000 tobacco-related deaths nationwide each year and approximately \$157 billion in annual health-related economic losses due to smoking (Centers for Disease Control and Prevention 2002a). With about 8 out of 10 adult smokers in the United States having tried their first cigarette before age 18 (U.S. Department of Health and Human Services 1994), it is not surprising that there has been considerable concern about adolescent smoking.

This analysis uses data from the National Education Longitudinal Study of 1988 (NELS:88), where the smoking behavior of a nationally representative cohort of 1988 eighth-graders was assessed at various time points over a 12-year period (i.e., from about age 14 to age 26). In this report, the incidence of daily smoking at the various time points is shown. In addition, using the information obtained about individuals' smoking behavior over the time period, several specific developmental patterns are identified and then examined in relation to various descriptive characteristics.

Comparisons made in the text of this report have been tested for statistical significance at the .05 level. Most comparisons are tested with two-tailed *t* tests, although a multivariate

analysis was performed to examine the independent association of several characteristics with smoking.³ Statistical testing was done in an effort to ensure that the differences are larger than those that might be expected due to sampling variation, although for any given comparison there is a 5 percent chance that an observed significant difference may be due to chance.⁴ Not all significant differences, however, are cited in the report. For example, in order to highlight those findings of substantive significance, only group differences of at least 5 percentage points are cited in the text.⁵ Because comparisons made in the report are delimited and focused through their reliance on findings from prior research, and because a criterion of substantive significance has been imposed, the *t* tests carried out in this analysis have not been adjusted for multiple comparisons.

What is known about adolescent smoking?

Since 1991, two national studies, Monitoring the Future (MTF) (Johnston et al. 2004a) and the Youth Risk Behavior Survey (YRBS) (Centers for Disease Control and Prevention 2002b), have tracked the prevalence of cigarette smoking nationally among adolescents at various grade levels.⁶ These trend results show that cigarette smoking among 8th- through 12th-graders increased during much of the 1990s, but has since declined from the peak levels reached around 1996–97. According to recent 2003 data from MTF, 5 percent of 8th-graders, 9 percent of 10th-graders, and 16 percent of 12th-graders were daily smokers (i.e., they reported smoking cigarettes daily during the 30 days preceding the survey). These findings are generally consistent with the 2001 YRBS. Using a slightly different measure, it was found that 14 percent of high school students were current frequent smokers—defined as smoking cigarettes on 20 or more of the 30 days preceding the survey.

A more limited number of longitudinal studies have tracked the frequency of smoking over time. These studies have shown that smoking is typically initiated during the adolescent years, and this behavior often persists or increases

³Full details of statistical tests used can be found in the technical appendix in the full report.

⁴Some differences shown throughout the tables of this report may appear large but not be statistically significant. This is due in part to the relatively large standard errors surrounding some of the estimates (because of a relatively small sample size).

⁵The selection of 5 percentage points as the criterion for a substantive difference when reporting comparisons of proportions is based on similar analyses in other NCEs reports (e.g., Walston and West 2004; Ingels et al. 2005), though it should be noted that the magnitude of effect that would be regarded as being of substantive or practical significance may vary depending on the types and contexts of the relationships and outcomes being measured.

⁶MTF began in 1975, but at first was limited to 12th-graders. In 1991, the study was expanded to include 8th- and 10th-graders.

during this time (Chassin et al. 1990; Chen and Kandel 1995; Schulenberg et al. 1994). Whereas the use of other drugs such as alcohol and marijuana has been found to decline during the young adult years, smoking has been found to remain fairly persistent during this time (Bachman et al. 1997; Chassin et al. 1996; Chen and Kandel 1995).

More recently, some longitudinal research has gone beyond simply identifying general trends in smoking behavior. That is, a few studies have identified multiple developmental patterns in adolescent smoking. For example, studies have distinguished those adolescents who smoke at consistently high levels over time, those who increase their level of smoking or quit, those who initiate smoking only later on in adolescence, etc. (Chassin et al. 1991, 2000; Colder et al. 2001; Orlando et al. 2004; White, Pandina, and Chen 2002). Identifying distinct patterns of smoking and understanding factors related to these patterns have implications for research and intervention, including efforts aimed at smoking prevention.

Studies that have specifically looked at adolescent smoking in relation to various individual or family characteristics have found that Whites are more likely to smoke compared to other racial/ethnic groups (Centers for Disease Control and Prevention 1998, 2002b, 2003; Orlando et al. 2004; Wills and Cleary 1997). In addition, nonsmokers are more likely than consistent smokers to come from intact nuclear families or from families with more highly educated parents (Orlando et al. 2004).

Other research has shown that adolescents who smoke also tend to have weaker ties to parents and school, more school behavior problems, and lower levels of self-esteem, academic achievement, and educational attainment (Bryant et al. 2000; Centers for Disease Control and Prevention 1998; Conrad, Flay, and Hill 1992; Schulenberg et al. 1994; U.S. Department of Health and Human Services 1994; White, Pandina, and Chen 2002). Adolescent smokers are also more likely to drop out of high school (Ellickson et al. 1998; Mensch and Kandel 1988) and more likely to use alcohol and other drugs (Substance Abuse and Mental Health Services Administration 2001; White, Pandina, and Chen 2002). These correlational findings do not imply causal connections between smoking and other family and individual characteristics. However, they do indicate that adolescent smoking is associated with other adolescent behaviors and characteristics that may reflect lower levels of engagement in learning and more alienation from parents and school.

There are, however, various limitations in past studies on adolescent smoking. For example, many studies are cross-sectional and utilize grade-specific samples (e.g., Centers for Disease Control and Prevention 2002b, 2003; Johnston et al. 2004a). Thus, changes in individuals over time cannot be measured, and high school dropouts are excluded. Many longitudinal studies also may exclude high school dropouts (e.g., Chassin et al. 1990, 1996, and 2000; Colder et al. 2001). Furthermore, some longitudinal studies are limited in their time frame, thus not incorporating both the adolescent and young adult years (e.g., Bachman et al. 1997; Colder et al. 2001), whereas others rely on retrospective data (e.g., Chen and Kandel 1995). In addition, some studies have a relatively small sample size (e.g., White, Pandina, and Chen 2002) or have limited racial/ethnic, socioeconomic, and geographic diversity (e.g., Chassin et al. 1990, 1996, and 2000). Also, although a number of studies consider smoking in relation to various individual or family characteristics, these characteristics are often limited in scope due to limitations in the survey methodology (e.g., student self-report, mail-in surveys), and as previously noted, only a limited number of such studies identify multiple developmental patterns of smoking (i.e., Chassin et al. 1991, 2000; Orlando et al. 2004; White, Pandina, and Chen 2002).

Research objectives

To address prior limitations and expand the existing body of research on adolescent smoking, the present analysis uses data from NELS:88, which provides longitudinal data about the critical transitions experienced by members of the eighth-grade class of 1988 in the United States (i.e., those attending traditional public and private schools) as they developed, attended school, embarked on careers, and formed families. There were 10,827 individuals who participated in the base-year survey (1988) and the four subsequent follow-ups—in 1990, 1992, 1994, and, most recently, in 2000.

Major strengths of the present study include its longitudinal design that spans from early adolescence well into young adulthood, and a methodology that can identify distinct developmental patterns of smoking across this time period. These developmental patterns are further examined in relation to individual demographic characteristics, family demographic characteristics, and various education-related characteristics. Another major strength of the present study is that it includes measures that do not rely on student self-report (e.g., family socioeconomic status and student achievement scores) as well as some additional measures that have not been looked at in previous studies on adolescent smoking (e.g., high school program

participation). Furthermore, the study utilizes a large, nationally representative sample. Whereas much of the data on adolescent smoking come from grade-based samples that exclude high school dropouts, NELS:88 included in its follow-ups those who had fallen out of grade sequence (such as through having repeated a grade) and those who had dropped out of high school. This has implications with respect to the generalizability of findings. For example, research has found that the incidence of dropping out varies along such characteristics as socioeconomic status and race/ethnicity (Kaufman, Alt, and Chapman 2001). Thus, the exclusion of high school dropouts can lead to biases in the data by disproportionately eliminating certain population subgroups.

In sum, the three primary aims of this report are to

- identify the incidence of daily smoking at several time points during the adolescent and young adult years, including the prevalence of new daily smokers relative to repeat daily smokers;
- identify several specific developmental patterns of smoking from the information obtained about individuals' smoking behavior over the time period; and
- examine the specific developmental patterns of smoking in relation to various descriptive characteristics.

Smoking as Assessed in NELS:88

In NELS:88, the prevalence of cigarette smoking was assessed at four survey waves—1988, 1990, 1992, and 2000. All respondents were in 8th grade at the initial 1988 survey, and most were in 10th grade as of the 1990 survey, in 12th grade as of the 1992 survey, and about 26 years old as of the 2000 survey—conducted 8 years after most respondents had graduated from high school.⁷ At each of these survey waves, respondents were asked how many cigarettes they usually smoked in a day. For this analysis, those who indicated smoking one or more cigarettes a day were classified as daily smokers. Nondaily smokers included those who reported that they did not smoke or who reported smoking less than one cigarette a day.⁸ Note that participants in NELS:88 were not asked about their smoking behavior at the third follow-up in 1994. This took place 2 years after

⁷As noted, not all individuals in 1990 were in 10th grade and not all in 1992 were in 12th grade (e.g., some were held back a grade). But for ease of reporting, the 1990 survey wave is referred to throughout this report as the “10th grade” and the 1992 survey wave is referred to as the “12th grade.” In addition, respondents at the 2000 survey wave are often referenced as “young adults.”

⁸The response option of “less than one cigarette a day,” however, was not offered at the initial 1988 survey wave.

high school graduation for most individuals and when many were attending postsecondary education.

This Statistics in Brief uses a relatively simplified approach of classifying individuals either as daily smokers or nondaily smokers at the various survey waves rather than, for example, differentiating nonsmokers, occasional smokers, and heavy smokers at each of the four survey waves. While a number of factors went into the decision to use the current approach, there were two main factors. First, distinguishing daily smokers from nondaily smokers is consistent with what has been done in a number of other recent studies on adolescent smoking (e.g., Adalbjarnardottir and Rafnsson 2001; Burt et al. 2000; Johnson, McCaul, and Klein 2002; Windle and Windle 2001; Willoughby, Chalmers, and Busseri 2004). Second, smoking daily is related to a number of unfavorable developmental outcomes and, as such, is characterized as a particularly risky and problematic behavior (Johnson, McCaul, and Klein 2002; U.S. Department of Health and Human Services 1994; Willoughby, Chalmers, and Busseri 2004). Adolescents who, on average, smoke daily or almost daily for several years are at particular risk for health problems and have generally been found to have lower levels of educational attainment, greater use of other drugs, and more psychosocial adjustment problems compared to those who abstain from smoking or who smoke infrequently or quit (Chassin et al. 2000; Orlando et al. 2004).

Prevalence of daily smoking at various time points during adolescence and young adulthood

More individuals reported daily smoking at each subsequent survey follow-up (table 1). Six percent at 8th grade, 12 percent at 10th grade, 17 percent at 12th grade, and one-quarter at the young adult years reported usually smoking one or more cigarettes a day. At each wave of data collection, it was considered whether an individual who reported smoking was a new daily smoker (i.e., did not report daily smoking at a previous survey wave) or a repeat daily smoker (i.e., reported daily smoking at a previous survey wave). Results show that at the 10th grade there were more new daily smokers than repeat daily smokers; however, the opposite was true at the young adult years (the average age being 26). That is, at the 10th grade there were about three times as many new daily smokers as repeat daily smokers (9 vs. 3 percent). However, among the young adults there were about twice as many repeat daily smokers as new daily smokers (13 vs. 7 percent).

Table 1. Percentage distribution of 1988 eighth-graders' cigarette smoking trends, by survey wave: Various years, 1988 to 2000

Survey wave	Nondaily smokers	Daily smokers			
		Total	Repeat ¹	New ²	Other ³
1988 (all in eighth grade)	93.7	6.3	—	—	—
1990 (most in 10th grade)	88.0	12.0	3.1	8.8	0.2
1992 (most in 12th grade) ⁴	83.5	16.5	8.5	6.9	1.1
2000 (most at age 25 or 26)	74.7	25.3	13.1	7.0	5.2

— Not available.

¹Includes those daily smokers who also reported daily smoking at a previous survey wave.

²Includes those daily smokers who did not report daily smoking at any previous survey wave.

³Includes those daily smokers who had missing data at a previous survey wave(s) that precluded them from being classified as "repeat daily smokers" or "new daily smokers."

⁴Item response rate is below 85 percent (i.e., 82 percent), and missing data have not been explicitly accounted for in the data. (See the technical appendix in the full report under Variables Used in Analysis—Smoking for a bias analysis of nonrespondents.)

NOTE: Nondaily smokers include those who reported usually smoking not at all or less than one cigarette per day; daily smokers include those who reported usually smoking one or more cigarettes per day. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), "Base Year, Student Survey, 1988"; "First Follow-up, Student Survey, 1990"; "Second Follow-up, Student Survey, 1992"; and "Fourth Follow-up, Student Survey, 2000."

Developmental patterns of daily smoking and nondaily smoking: A descriptive profile

The prior analysis was meant to provide a snapshot of the prevalence of daily smoking at various time points during the adolescent and young adult years. A second set of analyses was then carried out in which multiple developmental patterns of smoking were identified, which is similar to what has been done in prior studies (Chassin et al. 1991, 2000; Orlando et al. 2004; White, Pandina, and Chen 2002). In this analysis, several distinct developmental patterns were derived from the information obtained about the NELS:88 eighth-grade cohort's smoking behavior over the time period.

- *Nondaily smokers* included those who reported usually smoking not at all or less than one cigarette per day at each of the applicable survey waves (1988, 1990, 1992, and 2000).
- *Teen smokers* included those who reported usually smoking one or more cigarettes per day at either of the first three survey waves (1988, 1990, or 1992), but not at the last survey wave in 2000. Thus, individuals in this group either quit smoking or reduced their amount of smoking to less than one cigarette per day at the time of the young adult survey.
- *Teen/young adult smokers* included those who reported usually smoking one or more cigarettes per day at either of the first three survey waves (1988, 1990, or 1992) and at the last survey wave in 2000.
- *Late-onset smokers* included those who reported usually smoking one or more cigarettes per day at the last survey wave in 2000, but not at any of the prior survey waves (1988, 1990, and 1992). Thus, this

group includes individuals who either began smoking as young adults, or who increased the frequency with which they smoked from less than daily during adolescence to one or more cigarettes each day at the time of the young adult survey.

It is important to bear in mind that reports of daily smoking (or nondaily smoking) at two consecutive time points do not mean that there was continuous daily smoking (or nondaily smoking) over that time period. For example, an individual who reported smoking in 1990 and 2000 would be classified as a teen/young adult smoker; however, this does not mean that the person smoked continuously throughout the 10-year period.

Overall patterns of smoking

Using the information obtained about individuals' smoking behavior over time, 85 percent were classified into one of the four developmental patterns.⁹ Of these, about two-thirds were nondaily smokers (68 percent), followed by teen/young adult smokers (15 percent), and then teen smokers (9 percent) and late-onset smokers (8 percent) (table 2). Adding together the teen smokers and teen/young adult smokers indicates that about one-quarter of individuals (24 percent) reported that they usually smoked cigarettes daily at some point during their teenage years. Of these, almost two-thirds of them (63 percent) also reported smoking daily as young adults (i.e., the 15 percent who are teen/young adult smokers).

⁹The other 15 percent reported daily smoking or nondaily smoking at one or more survey waves, but had missing data at various survey waves that precluded their classification into one of the four categories. Thus, these cases were not included in the main analyses of this report and the results shown in table 2 (and table 3 in the full report). However, a bias analysis of these excluded cases can be found in the technical appendix in the full report under Variables Used in Analysis—Smoking.

Table 2. Percentage distribution of 1988 eighth-graders' cigarette smoking patterns, by selected characteristics: Various years, 1988 to 2000

Characteristic	Nondaily smokers ¹	Teen smokers ²	Teen/young adult smokers ³	Late-onset smokers ⁴
Total	67.6	9.0	15.2	8.2
Sex				
Male	65.0	8.7	16.3	10.0
Female	70.2	9.2	14.1	6.5
Race/ethnicity				
Asian/Pacific Islander	78.8	7.2	5.7	8.3
Black, non-Hispanic	85.1	2.5	5.1	7.3
Hispanic	74.2	11.5	8.2	6.1
Native American/Alaska Native	71.3	4.2	19.3	5.1
White, non-Hispanic	63.8	9.7	17.8	8.7
Age in eighth grade				
13–14 years old (born 1974 or 1975)	71.4	8.2	12.2	8.2
15–16 years old (born 1972 or 1973)	60.2	10.1	21.5	8.3
Socioeconomic status (eighth grade, parent report)				
Low (lowest quartile)	62.2	8.9	22.4	6.5
Middle (middle two quartiles)	65.8	10.2	15.4	8.7
High (highest quartile)	74.3	7.0	10.1	8.5
Family composition (eighth grade, student report)				
Two parents	71.1	8.2	12.4	8.2
One parent and other guardian	56.9	13.5	20.7	8.9
Single parent	64.9	7.3	20.1	7.7
Other ⁵	51.0	11.0	29.0	9.0
Achievement scores, reading and mathematics (eighth grade)				
Low (lowest quartile)	60.3	11.4	21.7	6.5
Middle (middle two quartiles)	64.6	9.8	17.1	8.5
High (highest quartile)	77.1	6.2	7.5	9.2
Student-reported grades (grade 6 until grade 8 current)				
Low (lowest quartile)	48.4	14.1	30.0	7.4
Middle (middle two quartiles)	66.6	9.3	14.8	9.4
High (highest quartile)	81.5	5.3	5.9	7.2
Type of school attended in eighth grade				
Public	66.9	8.9	16.0	8.1
Catholic	70.2	9.0	11.1	9.8
Other private	75.5	10.6	6.2	7.7
After eighth grade, high school program participation				
Academic	74.7	7.2	9.4	8.7
Vocational	49.8	11.9	28.3	10.0
Other	52.3	13.3	27.7	6.7

¹Includes those who reported usually smoking not at all or less than one cigarette per day at each of the applicable survey waves (1988, 1990, 1992, and 2000).

²Includes those who reported usually smoking one or more cigarettes per day at either of the first three survey waves (1988, 1990, or 1992) but not at the last survey wave in 2000. Some may have smoked cigarettes even daily beyond the teenage years and into their early twenties. But for the purpose of this analysis, they are referred to as “teen smokers” for ease of reference and to distinguish them from the “teen/young adult smokers.” Unlike the teen/young adult smokers, the teen smokers did not report daily smoking when in their mid-twenties.

³Includes those who reported usually smoking one or more cigarettes per day at either of the first three survey waves (1988, 1990, or 1992) and at the last survey wave in 2000.

⁴Includes those who reported usually smoking one or more cigarettes per day at the last survey wave in 2000, but not at any of the prior survey waves (1988, 1990, and 1992). Some may have been smoking daily as early as the late teenage years (e.g., sometime after the 12th grade). But for the purpose of this analysis, they are referred to as “late-onset smokers” for ease of reference and to distinguish them from the “teen smokers” and “teen/young adult smokers.”

⁵Includes those who reported living with a relative besides a parent or living with a nonrelative.

NOTE: All respondents were in eighth grade in the 1988 base-year survey wave (modal age of 14). Most respondents were in 10th grade as of the 1990 survey wave, 12th grade as of the 1992 survey wave, and 8 years after regular high school graduation as of the 2000 survey wave (modal ages of 16, 18, and 26, respectively). Percentage distribution shown is for the 85 percent of individuals who were classified into one of the four developmental patterns. The other 15 percent reported daily smoking or nondaily smoking at one or more survey waves but had missing data at various survey waves that precluded their classification into one of the four patterns. (See the technical appendix in the full report under Variables Used in Analysis—Smoking for a discussion about data imputations for some of the patterns and for a bias analysis of excluded cases.) Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988 (NELS:88), “Base Year, Student Survey, 1988”; “Base Year, Parent Survey, 1988”; “Base Year, School Survey, 1988”; “First Follow-up, Student Survey, 1990”; “Second Follow-up, Student Survey, 1992”; “Second Follow-up, Transcript Survey, 1992”; “Third Follow-up, Student Survey, 1994”; and “Fourth Follow-up, Student Survey, 2000.”

In the sections that follow, the patterns of smoking are shown by various descriptive characteristics. (Readers should consult the technical appendix in the full report in the section entitled Variables Used in Analysis for additional information about the variables used for these characteristics.)

Patterns of smoking by individual demographic characteristics

Three individual demographic characteristics were considered in relation to the patterns of smoking: sex, race/ethnicity, and age.

Sex. There were more females who were nondaily smokers compared to males (70 vs. 65 percent). However, no difference was detected in the prevalence of males and females who were teenage smokers overall (i.e., adding together the teen smokers and teen/young adult smokers). This is consistent with other studies over the past decade that have generally not detected sex differences in current smoking among middle school and high school students (Byrnes, Miller, and Schafer 1999; Centers for Disease Control and Prevention 2002b, 2003).

Race/ethnicity. More Asians, Blacks, and Hispanics were nondaily smokers than Whites (79, 85, and 74 percent, respectively, compared to 64 percent). Likewise, fewer Asians, Blacks, and Hispanics were teen/young adult smokers than Whites (6, 5, and 8 percent, respectively, compared to 18 percent). Furthermore, more Blacks were nondaily smokers than Hispanics and Native Americans (71 percent), and fewer Blacks were teen smokers than Hispanics and Whites (3 percent compared to 12 and 10 percent, respectively). About one in five (19 percent) Native Americans was a teen/young adult smoker, a rate higher than that of Asians, Blacks, and Hispanics. A similar overall pattern of racial/ethnic differences in adolescent smoking has been found in other studies over the past decade (Centers for Disease Control and Prevention 1998, 2002b, 2003; Orlando et al. 2004; Wills and Cleary 1997), although some recent studies suggest very little in the way of racial/ethnic differences at the middle school level (Centers for Disease Control and Prevention 2000, 2003). Trend data from Monitoring the Future (MTF) show that racial/ethnic differences among eighth-graders have narrowed over the past several years—largely the result of a decline in smoking among Whites. For example, the rate of daily smoking among White eighth-graders declined from 12 percent in 1995–96 to 5 percent in 2002–03 (Johnston et al. 2004b). Among Hispanic eighth-graders, the rate of daily smoking went from 8 percent to 4 percent during this same time

period, and for Black eighth-graders the rate was between 3 and 4 percent throughout this time period.

Age. There were more nondaily smokers among individuals who were younger as eighth-graders (i.e., those about 13 to 14 years old) than among their older peers (i.e., those about 15 to 16 years old in eighth grade) (71 vs. 60 percent). Likewise, fewer of the younger individuals were teen/young adult smokers compared to the older individuals (12 vs. 21 percent). No differences by age were detected for the teen smokers and late-onset smokers.

Patterns of smoking by family demographic characteristics

In an effort to shed light on the context that smoking occurs in, it is useful to explore family characteristics in relation to these developmental patterns. Two family characteristics assessed in the eighth grade were considered in this analysis: family socioeconomic status and family composition.

Family socioeconomic status (SES). SES was derived from parent-questionnaire data obtained when students were in the eighth grade. Each individual received a composite scale score based on father's education level, mother's education level, father's occupation, mother's occupation, and family income. For this analysis, scores were divided into three levels: low (lowest quartile), middle (middle two quartiles), and high (highest quartile). Results show that there were more nondaily smokers among those at the high SES level than among their peers at the low and middle SES levels (74 percent compared to 62 and 66 percent, respectively). Similarly, there were fewer teen/young adult smokers at each higher SES level (22, 15, and 10 percent for the low-, middle-, and high-SES groups, respectively).

Family composition. More individuals from two-parent families were nondaily smokers than those from the other family compositions shown (71 percent compared to a range from 51 to 65 percent). Similarly, fewer individuals from two-parent families were teen smokers than those from families with one parent and one other guardian (8 vs. 14 percent), and fewer individuals from two-parent families were teen/young adult smokers than those from single-parent families and those from families with one parent and one other guardian (12 percent compared to 20 and 21 percent, respectively). More individuals from single-parent families were nondaily smokers than those from families with one parent and one other guardian (65 vs. 57 percent). Likewise, fewer individuals from single-parent families were teen smokers compared to those from one-parent/one other guardian families (7 vs. 14 percent).

Patterns of smoking by education-related characteristics

As previously noted, prior research has found that lower academic achievement among adolescents is associated with smoking (Bryant et al. 2000; Ellickson et al. 1998; Mensch and Kandel 1988; Schulenberg et al. 1994; White, Pandina, and Chen 2002). This relationship was generally explored in the present analysis by examining two specific achievement characteristics from the eighth grade: achievement scores and average grades.

Achievement scores. In addition to completing a student background questionnaire on their school and life experiences, eighth-graders were administered cognitive tests in reading comprehension, mathematics, science, and history/citizenship/geography. In this analysis, a combined score from the reading comprehension and mathematics tests was used, with the score broken down into three levels: low (lowest quartile), middle (middle two quartiles), and high (highest quartile). Results show that students who performed higher on the assessment were generally less likely to smoke. For example, more high-performing students were nondaily smokers than low- and middle-performing students (77 percent compared to 60 and 65 percent, respectively); likewise, fewer high-performing students were teen smokers compared to their low-performing peers (6 vs. 11 percent). Similarly, there were fewer teen/young adult smokers at each higher level of achievement (22, 17, and 8 percent, respectively, for the low, middle, and high achievement levels).

Average grades. Eighth-graders were asked to describe their school grades from grade 6 up until the time of data collection (i.e., spring of eighth grade) in four subject areas: English, mathematics, science, and social studies. The response categories in these subject areas were converted to a five-point scale (i.e., mostly A's = 4.0, mostly B's = 3.0, mostly C's = 2.0, mostly D's = 1.0, and mostly below D = 0.5), and a quartile distribution of the averaged scores was created. For this analysis, students' grades were classified into three levels: low (lowest quartile), middle (middle two quartiles), and high (highest quartile). Results show that students who reported earning higher grades were generally less likely to smoke. For example, at each higher level of average grades, there were more nondaily smokers (48, 67, and 82 percent, respectively) and fewer teen/young adult smokers (30, 15, and 6 percent, respectively). In addition, fewer middle- and high-performing students were teen smokers than their low-performing peers (9 and 5 percent compared to 14 percent).

Lastly, school contextual factors were explored in relation to the patterns of smoking by considering the type of school

attended in eighth grade (i.e., public, Catholic, and other private schools) and the type of program individuals participated in later in high school (i.e., academic, vocational, or other high school programs).

School type. More students from non-Catholic private schools were nondaily smokers compared to public school students (75 vs. 67 percent), and fewer students from non-Catholic private schools were teen/young adult smokers compared to public school students (6 vs. 16 percent). In addition, fewer Catholic school students were teen/young adult smokers (11 percent) compared to public school students, although this rate was higher than that of their counterparts at non-Catholic private schools.

Program type. In this analysis, program type refers to the most recent program that a student was involved in at his/her last high school. Results show that more individuals from academic high school programs were nondaily smokers than those from vocational or other high school programs (75 percent compared to 50 and 52 percent, respectively). Likewise, there were fewer individuals among those from academic high school programs than among those from vocational or other high school programs who were teen smokers (7 percent compared to 12 and 13 percent, respectively) and teen/young adult smokers (9 percent compared to 28 percent for both vocational and other high school programs).

Results from multivariate analysis

All of the characteristics examined in the series of bivariate analyses discussed above were related to smoking to some extent. However, some of these characteristics may be related to each other. In order, then, to examine the independent association of these characteristics with smoking, a multivariate analysis was conducted. Specifically, a multinomial logistic regression analysis was performed to determine whether each of these characteristics is related to the smoking patterns when controlling for the other characteristics.¹⁰

Results show that most of the characteristics that were related to the smoking patterns at the bivariate level were also significant at the multivariate level.¹¹ In other words, many of these characteristics were independently associated with smoking when accounting for the other individual, family, and education-related characteristics. Across the

¹⁰See the technical appendix in the full report under Statistical Tests—Multivariate Analysis for further discussion about this procedure.

¹¹Table 3 in the full report shows the results of the multinomial logistic regression analysis.

three smoking patterns (i.e., teen smokers, teen/young adult smokers, and late-onset smokers), individuals were more likely to be daily smokers than nondaily smokers if they were White as opposed to Black, if they reported earning lower grades during the middle school years, or if they participated in a vocational high school program as opposed to an academic high school program.

In addition, individuals were more likely to be teen smokers and teen/young adult smokers than nondaily smokers if they were Asian or Hispanic as opposed to Black, if they were older than their eighth-grade peers, if they were from a family with one parent and one other guardian rather than a two-parent family, or if they participated in other (nonvocational) high school programs as opposed to an academic high school program.

There were also several other characteristics that were related to smoking, but only for teen/young adult smoking. That is, individuals were more likely to be teen/young adult smokers than nondaily smokers if they were White or Native American as opposed to Asian, Black, or Hispanic; if they were from a family with a lower SES or from a single-parent family rather than a two-parent family; if they had lower standardized test scores as eighth-graders; or if they attended a public or Catholic school in eighth grade as opposed to a private non-Catholic school.

The only sex difference found in the smoking patterns was that males were more likely than females to be late-onset smokers as opposed to nondaily smokers.

Summary and Conclusion

In a longitudinal analysis that spanned three grade levels—grades 8, 10, and 12—and well into young adulthood, it was found that daily cigarette smoking increased at each subsequent time point. Six percent at 8th grade, 12 percent at 10th grade, 17 percent at 12th grade, and one-quarter at the age of about 26 years reported usually smoking one or more cigarettes a day. These results are generally consistent with the findings from other studies. For example, just as this study found that in 1992 17 percent of individuals—most of whom were in 12th grade—were daily smokers, so too did the national Monitoring the Future (MTF) study find that in 1992 17 percent of 12th-graders were daily smokers (Johnston et al. 2004a).

Results also show that at the 10th grade there were more new daily smokers than repeat daily smokers; however, the opposite was true at the young adult years. That is, at the

10th grade there were about three times as many new daily smokers as repeat daily smokers (9 vs. 3 percent). However, among the young adults there were about twice as many repeat daily smokers as new daily smokers (13 vs. 7 percent).

In a separate analysis that uses the information obtained about individuals' smoking behavior over the time period, several specific developmental patterns were derived. About two-thirds (68 percent) were nondaily smokers, followed by teen/young adult smokers (15 percent) and then teen smokers (9 percent) and late-onset smokers (8 percent). Accordingly, of the 24 percent of individuals who reported smoking as teenagers (i.e., adding together the teen smokers and teen/young adult smokers), almost two-thirds of them (63 percent) also reported smoking as young adults. This, together with the aforementioned findings about the proportion of new daily smokers relative to repeat daily smokers at the various survey waves, suggests that there is a degree of persistence in smoking behavior. These results are also fairly consistent with prior research showing that about half (53 percent) of adult smokers in the United States became regular smokers before age 18 (U.S. Department of Health and Human Services 1994).

Examining the four developmental patterns with respect to various descriptive characteristics, it was found that there were more nondaily smokers among individuals who were younger as eighth-graders (i.e., those about 13 to 14 years old) than among their older peers (i.e., those about 15 to 16 years old in eighth grade) (71 vs. 60 percent). Likewise, fewer of the younger individuals were teen/young adult smokers compared to the older individuals (12 vs. 21 percent), although no difference by age was detected for the late-onset smokers. Together, these findings suggest that the younger individuals did not “catch up” with the older individuals in their incidence of daily smoking as tracked during the survey period. It should also be noted that many of the older individuals are those who have had to repeat a grade. As prior research (e.g., Bryant et al. 2000; Ellickson et al. 1998; Mensch and Kandel 1988; Schulenberg et al. 1994; White, Pandina, and Chen 2002) and the current analysis indicate, adolescent smoking is associated with lower academic achievement. The present set of results indicates that daily teenage smoking (including both groups—teen smokers and teen/young adult smokers) was more prevalent among students with lower achievement scores, with lower grades, and not participating in an academic program in high school. In the current analysis, these relationships—between smoking and age and between smoking and academic achievement—were generally found

even when controlling for each other and for various individual, family, and school characteristics, including race/ethnicity, SES, family composition, and school type.

Results also show that, in addition to age and academic achievement, most of the characteristics that were related to daily smoking in the set of bivariate analyses were also significant in the multivariate analysis. For example, the multivariate analysis indicates that individuals were more likely to be teen/young adult smokers than nondaily smokers if they were from a family with a lower SES or if they were from a single-parent or one-parent/one other guardian family rather than a two-parent family. In regard to race/ethnicity, Whites and Native Americans were more likely than Asians, Blacks, and Hispanics to be teen/young adult smokers as opposed to nondaily smokers. With respect to school type, students from public schools and Catholic schools were more likely than those from non-Catholic private schools to be teen/young adult smokers as opposed to nondaily smokers.

Taken together, the results show that all of the descriptive characteristics were related to smoking at some level as considered in this analysis. However, these relationships—especially those pertaining to school and academic achievement—were most consistently found for the teen/young adult smokers. That is, these relationships were most often found for those individuals who smoked regularly and with some degree of consistency beginning in the adolescent years. By the same token, this pattern of differences was generally not found for the late-onset smokers. To some extent, this reflects the fact that particular subgroups, such as low-SES and low-performing students, tend to start smoking earlier. But another possible explanation is that late-onset smoking is generally not associated with the characteristics examined in this analysis, but rather with a different cluster of characteristics or motivational factors that occur later in life, such as attending college, entering the workforce, or starting a family. For example, other longitudinal research has found that smoking tends to decline following marriage and during pregnancy (Bachman et al. 1997).

Identifying distinct patterns of smoking and understanding factors related to these patterns have implications for research and intervention, including efforts aimed at smoking prevention. However, it is important to caution that no causality can be inferred from the relationships identified in this analysis. Furthermore, even though a multivariate analysis examined the independent association of several characteristics with regular cigarette smoking, this analy-

sis did not consider more complex interdependencies that may exist among these characteristics, such as one variable mediating the relationship between another variable and smoking. In addition, the list of characteristics included in the multivariate analysis was limited. Therefore, it is possible that some of these relationships could be explained by accounting for additional variables—some of which may be contained in the NELS data files and some of which may not be. For example, as previously noted, the relationship between smoking and age was found even when controlling for academic achievement. However, the achievement measures in this analysis focused on the middle school years. Thus, the extent to which academic success earlier on in one's education can account for the relationship between smoking and age is not specifically known. Another variable that, although not measured in NELS, has been looked at in other studies on smoking is risk perception. For example, some research suggests that young people tend to underestimate the health risks associated with smoking and overestimate people's ability to quit smoking (Jamieson and Romer 2001a, 2001b). Furthermore, risk perception has been shown to be associated with smoking (Chassin et al. 2000; Orlando et al. 2004)—especially the decision to stop smoking (Romer and Jamieson 2001).

Future research using NELS and other datasets might further examine these and other characteristics. Using longitudinal data, these characteristics can be examined at multiple time points, linking the time frames of various characteristics with the onset and quitting of smoking. Other analytic strategies might also be employed, such as growth mixture modeling, which has recently been used in other longitudinal studies on smoking (e.g., Colder et al. 2001; Orlando et al. 2004; White, Pandina, and Chen 2002). Additional research may offer further insight, for example, into why some adolescents and young adults seem to quit smoking while others do not, and why some avoid smoking altogether whereas others take up smoking later on.

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Data source: The NCES National Education Longitudinal Study of 1988 (NELS:88).

For technical information, see the complete report:

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To obtain the complete report (NCES 2005-333), visit the NCES Electronic Catalog (<http://nces.ed.gov/pubsearch>).

Public School Internet Access

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

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This article was originally published as the Summary of the E.D. TAB of the same name. The sample survey data are from “Internet Access in U.S. Public Schools, Fall 2003,” conducted through the Fast Response Survey System (FRSS).

The National Center for Education Statistics (NCES) has employed its Fast Response Survey System (FRSS) to track access to information technology in schools and classrooms since 1994. 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. 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 article 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.

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 in the full report, and the questionnaire can be found in appendix B. The primary focus of this article 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 article, 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 article 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.

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,¹ and are significant at the 95 percent confidence level or better. However, only selected findings are presented for each topic in the report. Throughout the 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 in the full report.

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.²

¹The 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.

²Instructional 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,³ compared with 35 percent in 1994. 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). Across school characteristics, the proportion of instructional rooms with internet access ranged from 90 to 97 percent.

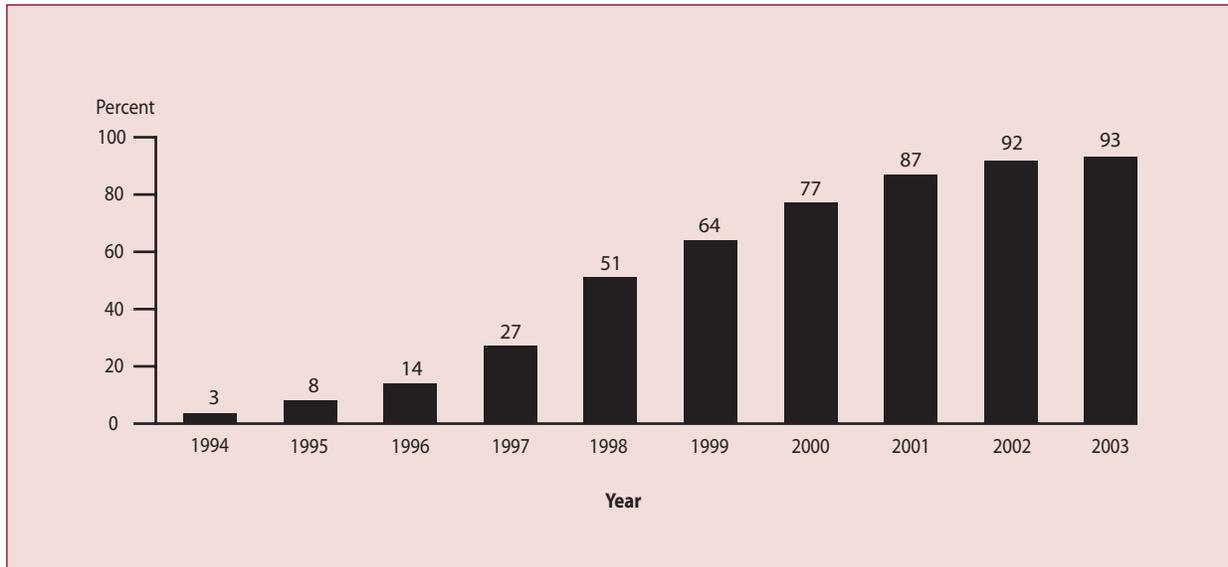
Types of connections

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.⁴ 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. In 2001 and 2000, 85 percent and 80 percent of the schools, respectively, were using broadband connections.

³This estimate was rounded to 100 percent.

⁴In 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.

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.

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.

- 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.⁵ 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 2002.⁶ In 2003, the proportion of public schools with wireless internet connections increased with school size but decreased as poverty concentration 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. Across all school characteristics, the percentage of public schools with wireless connections using broadband wireless internet connections ranged from 88 percent to 96 percent.
- In 2003, 11 percent of all public school instructional rooms had wireless internet connections. 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 (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.

⁵This estimate was rounded to 100 percent.

⁶A school could use both wireless and wired internet connections. Wireless internet connections can be broadband or narrowband.

- Differences were observed by locale and instructional level. 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).

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).⁷ 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).

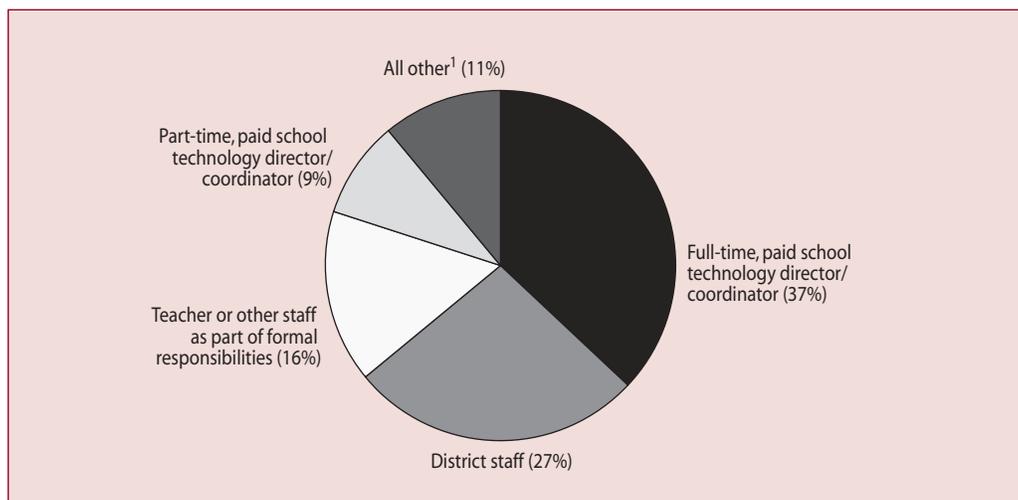
- The ratio of students to instructional computers differed by all school characteristics in 2003. For example, the ratio of students to instructional computers with internet access was higher in schools with the highest poverty concentration than in schools with the lowest poverty concentration (5.1 to 1 compared with 4.2 to 1).

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.

⁷This 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.

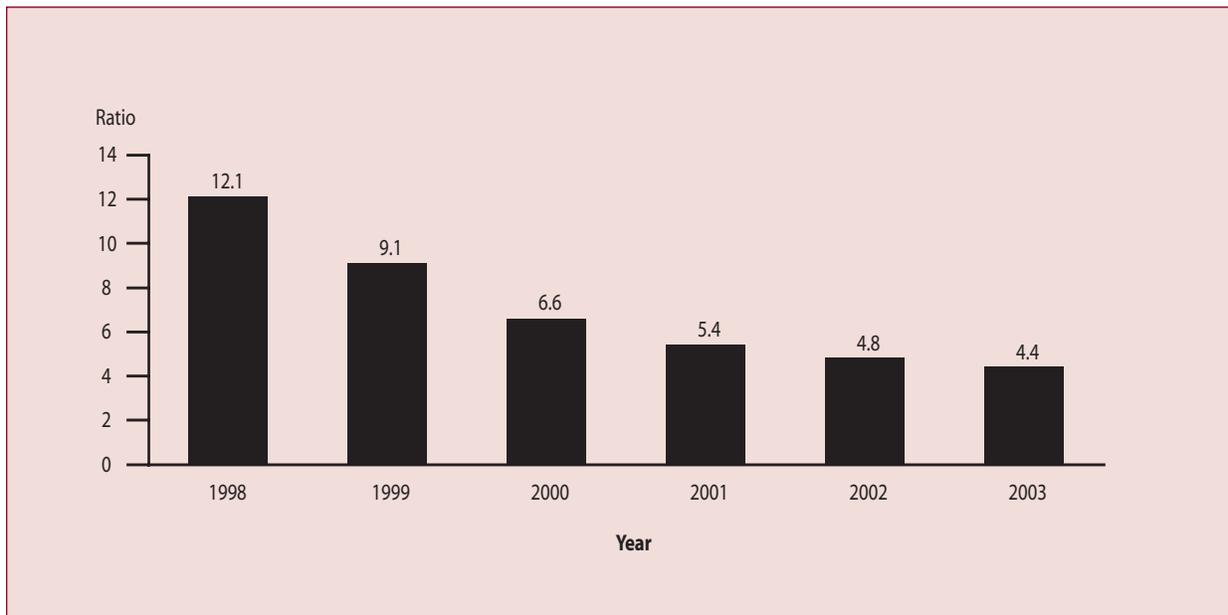
Figure 2. Percentage distribution of the staff position of those who were primarily responsible for computer hardware, software, and internet support at the school: 2003



¹This 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.

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.

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.

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. 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. 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). A similar pattern occurred by school poverty concentration. 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.⁸ Among public schools that allow

⁸The 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).

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. 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).

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.⁹
- 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).¹⁰
- 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. 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,

⁹Hand-held computers are computers, or personal digital assistants, small enough to be held in one hand. Examples are Palm Pilots or Pocket PCs.

¹⁰On average, 24 hand-held computers per school were provided to students or teachers in schools that supplied such computers in 2003. 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.

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. In those schools, the median number of laptop computers available for loan was 5.¹¹
- 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.
- Of the 92 percent of schools without laptop computers available for loan to students in 2003, 6 percent were planning to make laptops available for students to borrow during the 2004–05 school year.

School websites

Because nearly 100 percent of public schools were connected to the Internet in 2003,¹² 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.¹³ In 2002 and 2003, schools also reported the status of the person who was primarily responsible for the school's website support.¹⁴

- Nationwide, 88 percent of public schools with access to the Internet had a website in 2003. 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. 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,

¹¹This represents a ratio of 1 laptop computer per 27 students. 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.

¹²This estimate was rounded to 100 percent.

¹³For brevity, "website or web page" is referred to as "website" in the remainder of the report.

¹⁴In 2001, the questionnaire asked about the school's "website." In 2002, the wording was changed to "website or web page."

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.¹⁵ 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 enrollments 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.
- 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 (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.

Technologies and procedures to prevent student access to inappropriate material on the Internet

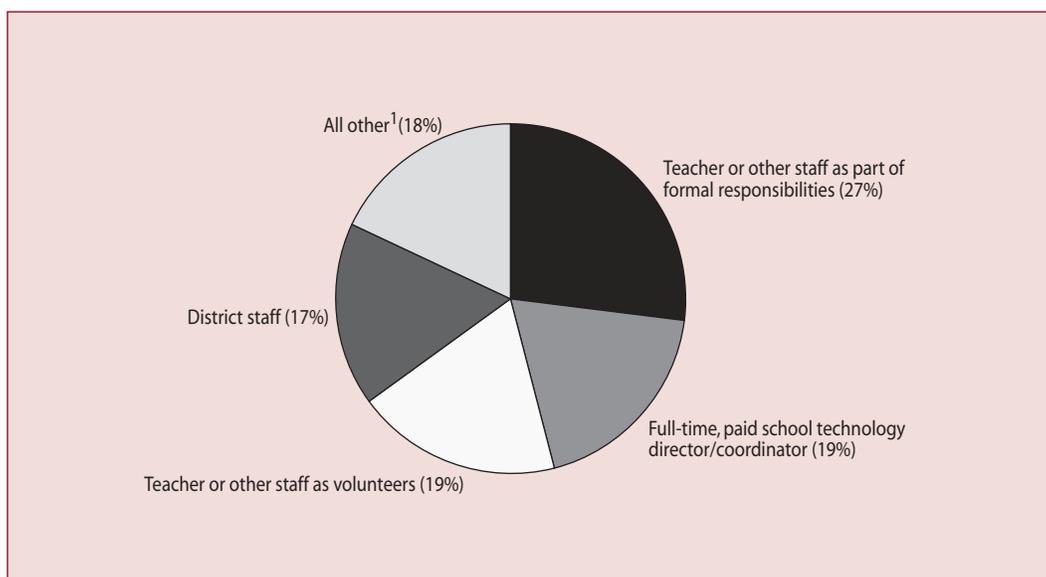
Given the diversity of the information carried on the Internet, student access to inappropriate material is a major concern of many parents and teachers. Moreover, under the Children's Internet Protection Act (CIPA), no school may receive E-rate¹⁶ discounts unless it certifies that it is enforcing a policy of internet safety that includes the use of filtering or blocking technology.¹⁷ Beginning in 2001, the FRSS surveys on internet access asked whether public schools used any technologies or procedures to prevent student access to

¹⁶The 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.

¹⁷More 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.

¹⁵This 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 in the full report, 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.

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



¹This 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 x 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.

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. Across all school characteristics, between 96 and 100 percent¹⁸ 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. 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.¹⁹ Most of the schools (97 percent) used more than one procedure or technology as part of their internet use policy.
- 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. 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.

¹⁸This estimate was rounded to 100 percent for some school characteristics.

¹⁹An 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.

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.
- 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. 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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Data source: The NCES Fast Response Survey System (FRSS), "Internet Access in U.S. Public Schools, Fall 2003," (FRSS 86, 2003).

For technical information, see the complete report:

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Computer and Internet Use

Rates of Computer and Internet Use by Children in Nursery School and Students in Kindergarten Through Twelfth Grade: 2003

—Matthew DeBell

This article was originally published as an Issue Brief. The sample survey data are from the Computer and Internet Use Supplement to the Current Population Survey (CPS), conducted by the U.S. Census Bureau.

The use of computers and the Internet by students has increased rapidly in recent years (U.S. Department of Education 1999; U.S. Department of Commerce 2002). In 2001, computer and internet use was more widespread among school-age children and adolescents than among adults (DeBell and Chapman 2003). The now commonplace use of these technologies follows the installation of computers and internet access in nearly all public schools and in a majority of households with children by 2000 (Kleiner and Lewis 2003; Newburger 2001).

The use of computers and the Internet may improve people's everyday lives and improve their labor market prospects. Because these technologies have the potential to improve access to information, help to get tasks done better or more quickly, and facilitate communication (see National Research Council 1999), computer and internet use rates may be considered indicators of the standard of living. Also, the use of computers helps students gain experience with this technology, so use rates may indicate how well prepared the current generation of students is to enter a workforce where the ability to use a computer is expected (U.S. Department of Education 1999).

This Issue Brief describes the percentages of students in grades 12 or below who used computers or the Internet in 2003. Data for this Issue Brief come from the October 2003 Computer and Internet Use Supplement to the Current Population Survey (CPS). The CPS is a sample survey representative of the civilian noninstitutional population in the United States. The survey is conducted in approximately 56,000 households each month. In October 2003 it collected information regarding 29,075 children enrolled in nursery school through 12th grade.¹ A member of each household who is at least 15 years old provided information about household members. As a result of this data collection method, data regarding computer and internet use by students were not collected directly from students in most

cases, but from another member of the household; this method is a potential source of error. Computer users are identified by questions that ask if the subject uses computers at home, at work, or at school. Internet users are identified by questions that ask if the subject uses the Internet at any location. (For further detail about CPS survey methods, see U.S. Census Bureau 2002.)

As shown in table 1, the majority of students use computers and the Internet.² Overall, 91 percent used computers and 59 percent used the Internet in 2003. The use of these technologies begins at young ages; 67 percent of children in nursery school were computer users, as were 80 percent of those in kindergarten. About one-quarter (23 percent) of children in nursery school used the Internet, and about one-third (32 percent) of kindergarteners did so. By high school, nearly all students (97 percent) used computers, and a majority (80 percent) used the Internet.

Table 1 shows that the use of these technologies varied by several interrelated characteristics.³ Computer and internet use varied by race/ethnicity, disability status, parent educational attainment, household language, poverty status, and family income. Differences by these characteristics have been found in previous analyses (U.S. Department of Commerce 1995; U.S. Department of Commerce 1999; Rathbun and West 2003).

Current differences in computer use among students are smaller than those found among adults in previous analyses (e.g., U.S. Department of Commerce 1999), reflecting the fact that most students now use computers. For example, in 2001, adults with graduate education were four times more likely than adults with less than a high school credential to use computers, and adults living in families making over \$75,000 per year were three times as likely as those in families making less than \$20,000 per year to use computers, reflecting differences of 66 and 58 percentage points, respectively (DeBell and Chapman 2003). In contrast, in 2003

¹The weighted sample represents approximately 58.3 million noninstitutionalized children age 3 and older in nursery school through 12th grade in October 2003. These estimates exclude children in long-term medical care facilities and juvenile detention facilities, as well as those who have dropped out of school. The Current Population Survey defines nursery school as a group or class organized to provide education for children before kindergarten. It includes preschool and prekindergarten. For ease of presentation, the population enrolled in nursery school through the 12th grade is referred to as "students" in this Issue Brief.

²Reported usage may involve the cooperation or assistance of an adult or older child, but that information was not collected.

³All differences cited in this report are significant at the .05 level using Student's *t* statistic. When analyzing data from large samples, many differences (no matter how substantively minor) can be statistically significant. The discussion is limited to differences of at least 5 percentage points.

Table 1. Percentage of children enrolled in grade 12 or below who use computers and the Internet, by child and family/ household characteristics: 2003

Characteristic	Number of students (in thousands)	Percent using computers	Percent using the Internet
Total	58,273	91	59
Child characteristics			
Enrollment level			
Nursery school ¹	4,928	67	23
Kindergarten	3,719	80	32
Grades 1–5	20,043	91	50
Grades 6–8	12,522	95	70
Grades 9–12	17,062	97	80
Sex			
Female	28,269	91	61
Male	30,005	91	58
Race/ethnicity ²			
White, non-Hispanic	35,145	93	67
Hispanic	10,215	85	44
Black, non-Hispanic	8,875	86	47
Asian or Pacific Islander, non-Hispanic	2,293	91	58
American Indian, Aleut, or Eskimo, non-Hispanic	346	86	47
More than one race, non-Hispanic	1,400	92	65
Disability status			
Disabled	646	82	49
Not disabled	47,949	91	61
Family & household characteristics			
Parent educational attainment ³			
Less than high school credential	5,691	82	37
High school credential	13,804	89	54
Some college	16,548	93	63
Bachelor's degree	8,590	92	67
Some graduate education	10,713	95	73
Household language			
Spanish-only	2,840	80	28
Not Spanish-only	55,434	91	61
Poverty status ⁴			
In poverty	10,173	84	40
Not in poverty	39,016	93	66
Family income			
Under \$20,000	8,815	85	41
\$20,000–34,999	9,273	87	50
\$35,000–49,999	7,499	93	62
\$50,000–74,999	9,834	93	66
\$75,000 or more	13,769	95	74

¹Data on "nursery school" enrollment may not reflect enrollment in all kinds of early childhood programs.

²American Indian includes Alaska Native, Black includes African American, Asian or Pacific Islander includes Native Hawaiian, and Hispanic includes Latino.

³Parent educational attainment measures the highest level of education of either of the child's parents.

⁴Poverty status is derived from household size and income. Households with incomes below the poverty threshold for their household size (as defined by the U.S. Census Bureau for 2003) were classified as poor. Some households reported incomes in a range that straddles the poverty threshold; these households were classified as poor. The 2003 poverty threshold for a four-person household was \$18,810.

NOTE: Detail may not sum to total due to rounding or missing data. Population estimates in this table apply to children age 3 and older who are enrolled in nursery school or in grades K–12.

SOURCE: U.S. Census Bureau, Current Population Survey, October 2003.

students with a parent with some graduate education were about 1.2 times more likely to use computers than students whose parents had not completed high school, reflecting a

difference of 13 percentage points (table 1). Students living in families making over \$75,000 per year in 2003 were 1.1 times as likely to use computers as those in families making

less than \$20,000 per year, reflecting a difference of 9 percentage points. Thus, these group differences in student computer use are smaller than differences observed among adults in recent years.

Differences in internet use among students are also smaller than some of the differences recently reported for adults. Adults with graduate education in 2001 were five times more likely than adults with less than a high school credential to use the Internet, and adults with family incomes of \$75,000 or more were 3.4 times more likely than adults with incomes below \$20,000 to use the Internet, reflecting differences of 68 and 58 percentage points, respectively (DeBell and Chapman 2003). In contrast, in 2003 students with a parent with some graduate education were twice as likely as students whose parents had not completed high school to use the Internet, and students from families with incomes of \$75,000 or more were 1.8 times more likely than students from families with incomes below \$20,000 to use the Internet. These reflect differences of 36 and 33 percentage points, respectively.

Although differences among students in both computer and internet use are smaller than differences among adults, rates of internet use are more varied than rates of computer use. The differences in internet use are at least twice as large as those in computer use when making comparisons based on poverty status, household language, race/ethnicity for Blacks and Whites, and the highest and lowest categories of income and parent educational attainment. For family income and parent education, differences in computer use are 9 and 13 percentage points, respectively, while differences in internet use are 33 and 36 points, respectively. Another way of looking at the data is to consider that although most students now use computers, a majority of students with selected characteristics still do not use the Internet. These include students whose family income is under \$20,000, students in poverty, students whose parents have less than a high school credential, Black (non-Hispanic) and Hispanic students, and students in households where Spanish is the only language spoken.

Conclusion

The use of computers and the Internet by students is commonplace and begins early. In upper grade levels, nearly all students use computers and a substantial majority use the Internet. Even before kindergarten, a majority of nursery school children use computers, and 23 percent use the Internet. Differences exist in computer use among students, but differences by characteristics such as income and education are smaller—about 9 percentage points between the highest

and lowest income categories and about 13 percentage points between the highest and lowest categories of parental education—than differences that have been observed among adults. The differences among students are broader for internet use than computer use. Differences between groups by family income and parental education are as large as 33 and 36 percent, respectively, making students from the most advantaged backgrounds about twice as likely to use the Internet as those from the least advantaged backgrounds.

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Data source: U.S. Census Bureau, Current Population Survey (CPS), October 2003.

For more information on the CPS, visit <http://nces.ed.gov/surveys/cps>.

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Distance Education Courses

Distance Education Courses for Public Elementary and Secondary School Students: 2002–03

—J. Carl Setzer and Laurie Lewis

This article was originally published as the Summary of the E.D. TAB of the same name. The sample survey data are from “Distance Education Courses for Public Elementary and Secondary School Students: 2002–03,” conducted through the Fast Response Survey System (FRSS).

Background

Nontraditional methods of instructional delivery at the postsecondary level, such as technology-based distance education course offerings, have been a topic of considerable attention and debate. Research on this topic suggests that distance education course offerings and enrollments have proliferated at postsecondary education institutions within recent years (Lewis, Alexander, and Farris 1997; Lewis et al. 1999; Waits and Lewis 2003). There is also some anecdotal evidence that technology-based education at the elementary and secondary levels enables school districts to expand the range of courses available to their students and may facilitate more flexibility in student schedules and instructional delivery (Wildavsky 2001; Doherty 2002; Kennedy-Manzo 2002; Trotter 2002). To date, however, no nationally representative study has examined technology-based distance education availability, course offerings, and enrollments in the nation’s elementary and secondary schools. To address this gap, the Office of Educational Technology in the U.S. Department of Education requested the “Distance Education Courses for Public Elementary and Secondary School Students” survey to collect and analyze nationally representative data on technology-based distance education in public elementary and secondary school districts. It provides baseline data, gathered for the 2002–03 12-month school year, on the prevalence of technology-based distance education courses across the nation, as well as estimated enrollments of public elementary and secondary school students in these distance education courses. It also identifies the types of technologies most commonly used for delivering distance education courses. The survey also provides information on districts’ reasons for having distance education courses and factors districts report that prevent their expansion of distance education course offerings.

The survey was mailed to public school district superintendents, who were asked to review the questionnaire and determine the person in the district who was best suited to complete it. Suggested respondents were the director of curriculum, the technology coordinator, or the distance education coordinator. Respondents were provided with a definition and description of distance education courses. For this study, distance education courses were defined as credit-granting courses offered to elementary and secondary

school students enrolled in the district in which the teacher and students were in different locations. Distance education courses could originate from the respondent’s district or from other entities, such as a state virtual school or postsecondary institution. These courses could be delivered via audio, video (live or prerecorded), or internet or other computer technologies. Additionally, the distance education courses could include occasional face-to-face interactions between the teacher and the students. Districts were also instructed to include information about distance education Advanced Placement or college-level courses in which students in their district were enrolled. For purposes of this survey, respondents were instructed to exclude information about supplemental course materials, virtual field trips, on-line homework, staff professional development, or courses conducted mainly via written correspondence.

The survey asked whether there were any public elementary or secondary school students in the district enrolled in distance education courses. Respondents were instructed to report only about distance education enrollments of students regularly enrolled in the district and to include all distance education courses in which students in the district were enrolled, regardless of where the courses originated. If the respondents indicated that there were public elementary or secondary school students in the district enrolled in distance education courses, they were asked to report the number of schools in their district with students enrolled in distance education courses by instructional level of the school. Respondents were also asked to report the number of distance education course enrollments in schools in their district by instructional level of the school and curriculum area. Other survey items asked which technologies were used as primary modes of instructional delivery for distance education courses, which entities delivered distance education courses, whether any students accessed online distance education courses (and if so, from which locations), and the district’s reasons for having distance education courses. Finally, respondents were asked whether their district had any plans to expand their distance education courses, and if so, which factors, if any, might be keeping them from expanding those courses.

This survey was conducted by the National Center for Education Statistics (NCES) using the Fast Response Survey

System (FRSS). 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 were mailed in fall 2003 to a representative sample of 2,305 public school districts in the 50 states and District of Columbia. The sample was selected from the 2001–02 NCES Common Core of Data (CCD) “Local Education Agency Universe Survey” file, which was the most current file available at the time of selection. Data have been weighted to yield national estimates. The sampling frame includes 15,218 public school districts—14,229 regular public school districts and 989 “other education agencies” with at least one charter school. The number of districts in the survey universe decreased to an estimated 15,040 because some of the districts were determined to be ineligible for the FRSS survey during data collection. The unweighted response rate was 94 percent and the weighted response rate was 96 percent.

The primary focus of the report is to present national estimates. In addition, selected survey findings are presented by the following district characteristics:

- district enrollment size (less than 2,500, 2,500 to 9,999, 10,000 or more—referred to as small, medium, and large, respectively);
- metropolitan status (urban, suburban, rural);
- region (Northeast, Southeast, Central, West); and
- poverty concentration (less than 10 percent, 10 to 19 percent, 20 percent or more—referred to as low, medium, and high, respectively).

In general, comparisons by these district characteristics are presented only where significant differences were detected and followed meaningful patterns. It is important to note that many of the district characteristics used for independent analysis may also be related to each other. For example, district enrollment size and metropolitan status are related, with urban districts typically being larger than rural districts. Other relationships between these analysis variables may exist. However, the E.D. TAB focuses on the bivariate relationships between district characteristics and the data gathered in the survey, rather than more complex analyses, to provide descriptive information about technology-based distance education.

All specific statements of comparison made in this report have been tested for statistical significance through *t* tests and are significant at the 95 percent confidence level or better. However, only selected findings are presented for each

topic in the report. Throughout the report, differences that may appear large (particularly those by district characteristics) may not be statistically significant. This may be due to relatively large standard errors surrounding the estimates, particularly among subgroups.

Selected Findings

The findings in this report are organized as follows:

- distance education courses for public school students;
- technologies used for delivering distance education courses;
- entities delivering distance education courses;
- reasons for having distance education courses; and
- future expansion of distance education courses.

Distance education courses for public school students

The survey asked whether there were any public elementary or secondary school students in the district enrolled in distance education courses in 2002–03 (12-month school year). Districts with students enrolled in distance education courses were asked to indicate the number of schools with at least one student enrolled in distance education courses and the number of enrollments in distance education courses of students regularly enrolled in the district.

Prevalence of distance education courses in public school districts

- During the 2002–03 12-month school year, about one-third of public school districts (36 percent) had students in the district enrolled in distance education courses. This represents an estimated 5,500 out of a total of 15,040 public school districts.
- A greater proportion of large districts than medium or small districts had students enrolled in distance education courses (50 vs. 32 and 37 percent, respectively). In addition, a greater proportion of districts located in rural areas than in suburban or urban areas indicated that they had students enrolled in distance education courses (46 compared with 28 and 23 percent, respectively).
- A greater proportion of districts located in the Southeast and Central regions had students enrolled in distance education courses than did districts in the Northeast and West (45 and 46 percent compared with 21 and 32 percent). The proportion of districts with students enrolled in distance education courses was lower in the Northeast than in other regions (21 vs. 32 to 46 percent).

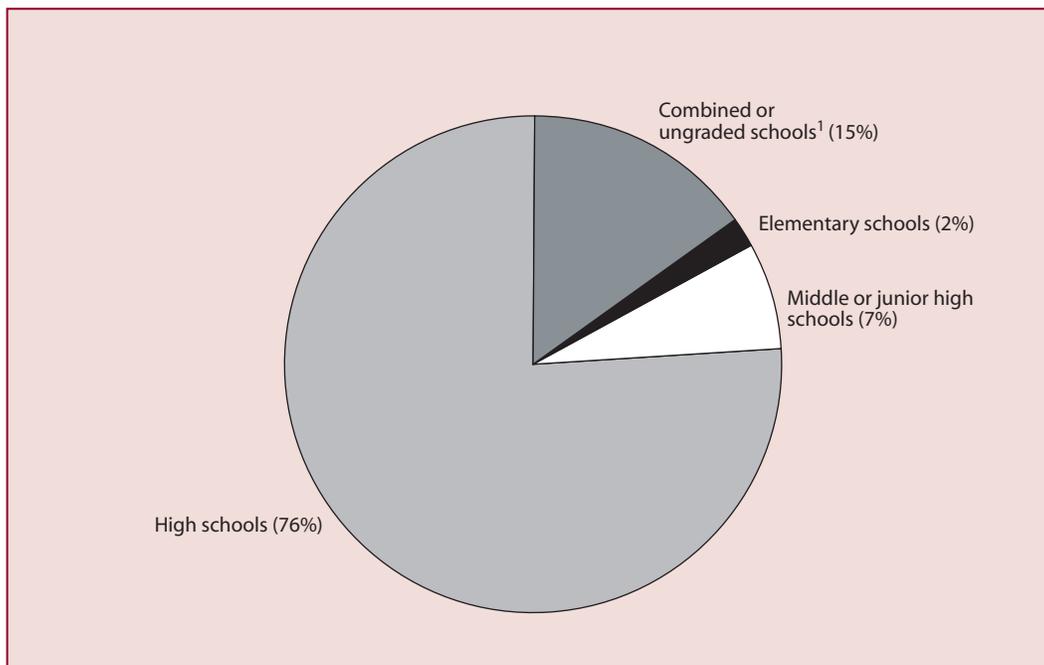
- A smaller proportion of districts with the lowest poverty concentration had students enrolled in distance education courses than did districts with higher concentrations of poverty (33 compared with 42 percent for both districts with medium and high poverty concentration).

Prevalence of distance education courses in public schools

- An estimated 8,200 public schools had students enrolled in distance education courses during the 2002–03 12-month school year. This represents approximately 9 percent of all public schools nationwide.
- Although a greater proportion of large districts than medium or small districts had students enrolled in distance education courses, a greater proportion of schools in small districts had students enrolled in distance education courses than did schools in medium or large districts (15 vs. 6 percent for both medium and large districts). In other words, when small districts do offer distance education, they are more likely to involve a greater proportion of their schools.
- A higher proportion of schools in rural districts than schools in either suburban or urban districts had students enrolled in distance education courses (15 compared to 7 and 5 percent, respectively). In addition, a greater proportion of schools in the Central region had students enrolled in distance education courses than did schools in the Northeast (12 vs. 5 percent).
- The percentage of schools with students enrolled in distance education courses varied substantially by the instructional level of the school. Overall, 38 percent of public high schools offered distance education courses, compared with 20 percent of combined or ungraded schools,¹ 4 percent of middle or junior high schools, and fewer than 1 percent of elementary schools.
- Among all public schools with students enrolled in distance education, 76 percent were high schools, 15 percent were combined or ungraded schools, 7 percent were middle or junior high schools, and 2 percent were elementary schools (figure 1).

¹Combined or ungraded schools are those in which the grades offered in the school span both elementary and secondary grades or that are not divided into grade levels.

Figure 1. Percentage distribution of public schools with students enrolled in distance education courses, by instructional level: 2002–03



¹Combined or ungraded schools are those in which the grades offered in the school span both elementary and secondary grades or that are not divided into grade levels.

NOTE: Percentages are based on unrounded numbers. Percentages are based on the estimated 8,210 schools with students enrolled in distance education courses in 2002–03.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Distance Education Courses for Public Elementary and Secondary School Students: 2002–03," FRSS 84, 2003.

Distance education enrollments by instructional level

- In 2002–03, there were an estimated 328,000 enrollments in distance education courses among students regularly enrolled in public school districts.² If a student was enrolled in multiple courses, districts were instructed to count the student for each course in which he or she was enrolled. Thus, enrollments may include duplicated counts of students.
- Of the total enrollments in distance education courses, 68 percent were in high schools, 29 percent were in combined or ungraded schools, 2 percent were in middle or junior high schools, and 1 percent³ were in elementary schools (figure 2).

Distance education enrollments by curriculum area

- Distance education enrollments in various curricular areas ranged from an estimated 8,200 in general ele-

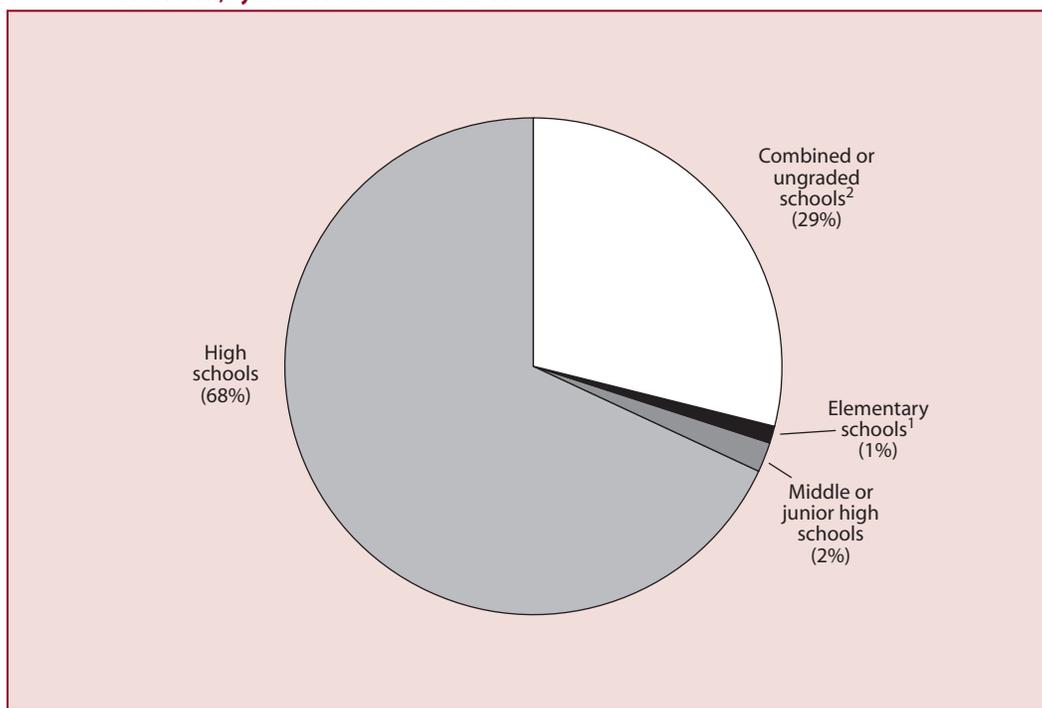
mentary school curriculum and 11,700 in computer science to 74,600 in social studies/social sciences.

- About one-quarter (23 percent) of all enrollments in distance education courses of students regularly enrolled in the districts were in social studies/social sciences, 19 percent were in English/language arts, 15 percent were in mathematics, 12 percent were in natural/physical science, 12 percent were in foreign languages, and 14 percent were in other unspecified curriculum areas. Enrollments in general elementary school curriculum and computer science accounted for the smallest proportions of distance education enrollments (3 and 4 percent, respectively).
- The proportion of students enrolled in foreign language distance education courses was greater for small districts compared to medium or large districts (19 vs. 11 and 6 percent, respectively). Furthermore, the proportion of students enrolled in foreign language distance education courses was greater for rural districts than for suburban or urban districts (22 vs. 10 and 5 percent, respectively).

²To put this number into context, NCES reported 47,222,778 students enrolled in public elementary and secondary schools in fall 2000. It is important to note that distance education enrollments collected in the FRSS survey may include duplicated counts of students (i.e., the number of students enrolled in distance education courses could be smaller than the estimated 328,000 enrollments in distance education courses), while the NCES estimate of 47,222,778 students enrolled in public elementary and secondary schools is an unduplicated count (Snyder and Hoffman 2003, p. 51).

³Interpret data with caution. The coefficient of variation for elementary schools is greater than 50 percent.

Figure 2. Percentage distribution of enrollments in distance education courses of students regularly enrolled in the districts, by instructional level: 2002–03



¹Interpret data with caution. The coefficient of variation for elementary schools is greater than 50 percent.

²Combined or ungraded schools are those in which the grades offered in the school span both elementary and secondary grades or that are not divided into grade levels.

NOTE: Percentages are based on unrounded numbers. Percentages are based on the estimated 327,670 enrollments in distance education courses in 2002–03.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Distance Education Courses for Public Elementary and Secondary School Students: 2002–03," FRSS 84, 2003.

Advanced placement or college-level courses offered through distance education

- Fifty percent of the districts with students enrolled in distance education courses had students enrolled in Advanced Placement or college-level courses offered through distance education in 2002–03. This represents an estimated 2,700 districts.
- There were an estimated 45,300 enrollments in Advanced Placement or college-level courses offered through distance education in 2002–03. This represents 14 percent of the total enrollments in distance education.
- The proportion of all distance education enrollments in Advanced Placement or college-level distance education courses was greater in small districts compared to medium or large districts (24 vs. 10 and 7 percent, respectively).
- The proportion of all distance education enrollments in Advanced Placement or college-level distance education courses was greater in rural districts compared to urban or suburban districts (27 vs. 4 and 11 percent, respectively). Additionally, suburban districts had a higher proportion (11 percent) of all distance education enrollments in Advanced Placement or college-level distance education courses than urban districts (4 percent).

Technologies used for delivering distance education courses

Districts that reported offering distance education courses were asked about the types of technologies used as primary modes of instructional delivery for any distance education courses in which students in the district were enrolled. The technologies included internet courses using synchronous (i.e., simultaneous or “real-time”) computer-based instruction, internet courses using asynchronous (i.e., not simultaneous) computer-based instruction, two-way interactive video, one-way prerecorded video, and other technologies. Districts were also asked about online distance education courses, including where students were accessing distance education courses, and whether the district provided or paid for specific services (i.e., computer, internet service provider, other) for students accessing online distance education courses from home.

Technologies used as primary modes of instructional delivery

- More districts reported two-way interactive video (55 percent) or internet courses using asynchronous computer-based instruction (47 percent) than

internet courses using synchronous computer-based instruction (21 percent), one-way prerecorded video (16 percent), or some other technology (4 percent) as a primary mode of delivery.⁴

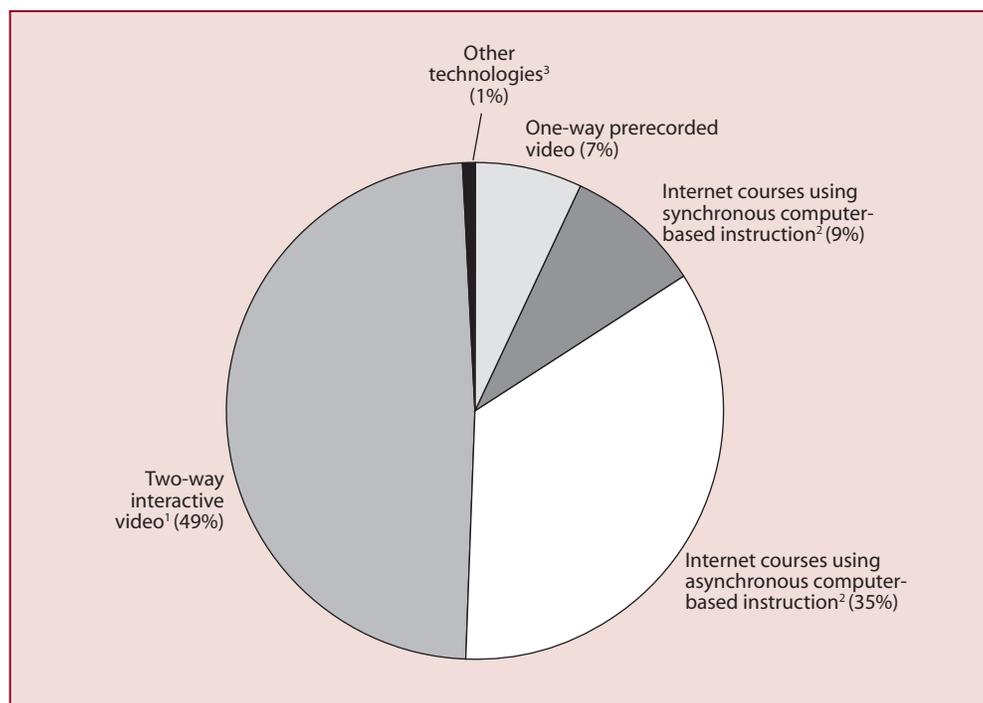
- In small districts, two-way interactive video was the technology most often cited as a primary instructional delivery mode for distance education courses (60 percent vs. 5 to 42 percent for all remaining technologies). However, in both medium and large districts, internet courses using asynchronous computer-based instruction was the technology most often cited as a primary delivery mode (60 percent vs. 3 to 44 percent for all remaining technologies in medium districts; 72 percent vs. 6 to 33 percent for all remaining technologies in large districts).
- In both urban and suburban districts, internet courses using asynchronous computer-based instruction was the technology cited most often as a primary instructional delivery mode for distance education courses (69 percent vs. 3 to 38 percent for all remaining technologies in urban districts; 58 percent vs. 4 to 39 percent for all remaining technologies in suburban districts). However, in rural districts, two-way interactive video was the technology cited most often as a primary delivery mode (64 vs. 5 to 40 percent for all remaining technologies).
- When asked which technology was used to deliver the greatest number of distance education courses, 49 percent of districts selected two-way interactive video, more than any other technology. Thirty-five percent of districts selected internet courses using asynchronous computer-based instruction, 9 percent selected internet courses using synchronous computer-based instruction, 7 percent selected one-way prerecorded video, and 1 percent selected other technologies (figure 3).

Online distance education courses

- Fifty-nine percent of districts with students enrolled in distance education courses had students enrolled in online distance education courses (i.e., courses delivered over the Internet) in 2002–03.
- A greater proportion of large districts than medium or small districts had students enrolled in online distance education courses (80 vs. 71 and 53 percent, respectively). Medium districts also had a greater

⁴Percentages sum to more than 100 because some districts used different types of technology as primary modes of instructional delivery for different distance education courses.

Figure 3. Percentage distribution of districts reporting that various technologies were used for the greatest number of distance education courses in which students in their district were enrolled: 2002–03



¹Two-way interactive video refers to two-way video with two-way audio.

²Asynchronous is not simultaneous, whereas synchronous is defined as simultaneous or "real-time" interaction.

³Other technologies mentioned included teleconferencing, CD-ROM, and other software packages.

NOTE: Percentages are based on unrounded numbers. Percentages are based on the estimated 5,480 districts with students enrolled in distance education courses in 2002–03. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Distance Education Courses for Public Elementary and Secondary School Students: 2002–03," FRSS 84, 2003.

proportion of students enrolled in online distance education courses than small districts (71 vs. 53 percent). In addition, a smaller proportion of rural districts than suburban or urban districts had students enrolled in online distance education courses (51 vs. 71 and 74 percent, respectively).

- Of those districts with students enrolled in online distance education courses, 92 percent had students accessing online courses from school, 60 percent had students accessing online courses from home, and 8 percent had students accessing online courses from some other location.⁵
- A greater proportion of large districts than medium or small districts had students accessing online distance education courses from home (77 vs. 66 and 55 percent, respectively). Furthermore, a greater proportion of medium districts than small districts had students accessing online distance education

courses from home (66 vs. 55 percent). In addition, the proportion of rural districts with students accessing online distance education courses from home was less than the proportion of suburban and urban districts with students accessing online courses from home (53 vs. 67 and 78 percent, respectively). No differences were detected in online access from home by poverty concentration.

- Among districts with students accessing online distance education courses from home, 24 percent provided or paid for a computer for all students and 8 percent did so for some students. Additionally, 27 percent provided or paid for the internet service provider for all students and 7 percent did so for some students. Finally, 6 percent provided or paid for some other item (e.g., software programs, phone service for dial-up internet service) for all students and 2 percent did so for some students.

⁵Percentages sum to more than 100 because students in districts could access online courses from more than one location.

- A greater proportion of small districts than medium or large districts provided or paid for computers for all students (29 vs. 17 and 11 percent, respectively). Similarly, a greater proportion of small districts than medium or large districts provided or paid for an internet service provider for all students (32 vs. 20 and 15 percent, respectively). In addition, the proportion of rural districts that provided or paid for computers for all students was greater than the proportion of suburban or urban districts that provided or paid for computers for all students (33 vs. 16 and 9 percent, respectively).

Entities delivering distance education courses

Districts that reported offering distance education courses were asked which entities delivered distance education courses to students regularly enrolled in their district.

Entities included

- a cyber (i.e., online) charter school in the district;
- other schools in the district;
- their district (i.e., delivered centrally from the district);
- another local school district, or schools in another district, in their state;
- education service agencies within their state (e.g., Board of Cooperative Educational Services [BOCES], Council on Occupational Education [COE], Intermediate Units [IU]), not including the state education agency or local school districts;
- a state virtual school in their state (i.e., state-centralized K–12 courses available through internet- or web-based methods);
- a state virtual school in another state;
- districts or schools in other states (other than state virtual schools);
- a postsecondary institution;
- an independent vendor; and
- other entities.

Districts were also asked whether they delivered distance education courses to students who were not regularly enrolled in their district (e.g., to students from other districts, private school students, or homeschooled students).

Entities delivering courses

- Of those districts with students enrolled in distance education courses in 2002–03, about half (48 percent) had students enrolled in distance education courses delivered by a postsecondary institution.

Thirty-four percent of districts had students enrolled in distance education courses delivered by another local school district, or schools in other districts, within their state. Eighteen percent of districts had students enrolled in distance education courses delivered by education service agencies within their state, 18 percent by a state virtual school within their state, and 18 percent by an independent vendor. Sixteen percent of districts had students enrolled in distance education courses delivered centrally from their own district. Eight percent of districts had students enrolled in distance education courses delivered by other schools in the district (other than cyber charter schools). The proportion of school districts delivering distance education courses through various other entities ranged from 3 to 4 percent.

- A greater proportion of large districts than medium or small districts had students enrolled in distance education courses delivered by other schools in the district (28 vs. 15 and 5 percent, respectively). Medium districts also had a greater proportion of students enrolled in distance education courses delivered by other schools in the district than small districts (15 vs. 5 percent). Additionally, a greater proportion of urban districts than either suburban or rural districts had students enrolled in distance education courses delivered by other schools in the district (25 vs. 9 and 6 percent, respectively).
- A greater proportion of small districts than medium or large districts had students enrolled in distance education courses delivered by another local school district, or schools in other districts, within their state (39 percent vs. 25 and 13 percent, respectively). Furthermore, a greater proportion of medium districts than large districts had students enrolled in distance education courses delivered by another local school district, or schools in other districts, within their state (25 vs. 13 percent). Additionally, there were more rural districts than either suburban or urban districts that had students enrolled in distance education courses delivered by another local school district, or schools in other districts, within their state (40 percent vs. 25 and 20 percent, respectively).
- A smaller proportion of small districts than medium or large districts had students enrolled in distance education courses delivered by a state virtual school in their state (15 vs. 27 percent each, respectively). Additionally, a greater proportion of districts in the Southeast than in other regions had students enrolled

in distance education courses delivered by a state virtual school in their state (43 vs. 6 to 17 percent).

- A greater proportion of small districts than medium or large districts had students enrolled in distance education courses delivered by postsecondary institutions (54 vs. 30 and 33 percent, respectively). In addition, there was a smaller proportion of urban districts than suburban or rural districts that had students enrolled in distance education courses delivered by postsecondary institutions (22 vs. 44 and 53 percent, respectively).
- There was a greater proportion of large districts than small districts with students enrolled in distance education courses delivered by independent vendors (28 vs. 16 percent). Compared to rural districts, both urban and suburban districts had greater proportions of students enrolled in distance education courses delivered by independent vendors (15 vs. 29 and 23 percent, respectively).

Delivery of courses to students not regularly enrolled in the district

- During the 2002–03 12-month school year, about one-fifth (21 percent) of districts that offered distance education delivered courses to students who were not regularly enrolled in the district (e.g., to students from other districts, private school students, or homeschooled students).
- A smaller proportion of districts in the Southeast than in the Northeast or Central regions delivered distance education courses to students not regularly enrolled in the district (13 vs. 29 and 22 percent, respectively).

Reasons for having distance education courses

Districts who reported offering distance education courses were asked how important various reasons were for having distance education courses in the district in 2002–03. Reasons included offering courses not otherwise available at the school, offering Advanced Placement or college-level courses, addressing growing populations and limited space, reducing scheduling conflicts for students, permitting students who failed a course to take it again, meeting the needs of specific groups of students, and generating more district revenues.⁶

- The reason most frequently cited as very important for having distance education courses in the district was offering courses not otherwise available at the school (80 percent). Other reasons frequently cited as very important were meeting the needs of specific groups of students (59 percent) and offering Advanced Placement or college-level courses (50 percent). Reducing scheduling conflicts for students was mentioned as very important by 23 percent of districts. The remaining reasons were listed as very important by 4 to 17 percent of districts.
- Generating more district revenues as well as addressing growing populations and limited space were rated as not important more often than other reasons for having distance education courses (77 and 72 percent, respectively, vs. 9 to 64 percent).
- A greater proportion of small districts than medium or large districts rated offering courses not otherwise available at the school as a somewhat or very important reason for having distance education (93 vs. 86 and 82 percent, respectively). In addition, a greater proportion of rural districts than urban or suburban districts considered this to be a somewhat or very important reason for offering distance education courses (95 vs. 79 and 86 percent, respectively).
- A greater proportion of high-poverty districts than medium- or low-poverty districts rated meeting the needs of specific groups of students as a somewhat or very important reason for having distance education (88 vs. 79 and 80 percent, respectively).
- A greater proportion of small districts than medium or large districts rated offering Advanced Placement or college-level courses as a somewhat or very important reason for having distance education (74 vs. 54 and 59 percent, respectively). In addition, a greater proportion of rural districts than urban or suburban districts cited this as a somewhat or very important reason for having distance education (76 vs. 49 and 59 percent, respectively).
- A greater proportion of large districts than medium or small districts cited reducing scheduling conflicts for students as a somewhat or very important reason for having distance education (70 vs. 52 and 56 percent, respectively).
- A greater proportion of large districts than medium or small districts reported permitting students who failed a course to take it again as a somewhat or very important reason for having distance education (50 vs. 34 and 30 percent, respectively). In addition,

⁶Although respondents were able to specify some other reason for having distance education, the only available options for this response were somewhat important and very important. Therefore, these “other” responses are not discussed further.

a greater proportion of urban districts than suburban or rural districts cited this reason as somewhat or very important for having distance education (47 vs. 33 and 31 percent, respectively).

- A greater proportion of large districts than medium or small districts rated addressing growing populations and limited space as a somewhat or very important reason for having distance education (44 vs. 33 and 21 percent, respectively). Furthermore, a smaller proportion of small districts than medium districts rated this as a somewhat or very important reason for having distance education (21 vs. 33 percent).
- A greater proportion of high-poverty districts than low-poverty districts cited generating more district revenues as a somewhat or very important reason for having distance education (21 vs. 11 percent).

Future expansion of distance education courses

Districts that reported offering distance education courses were asked whether they planned to expand their distance education courses in the future. Those districts that planned to expand were asked about the extent to which various factors, if any, might be keeping them from expanding distance education courses. The factors included course development and/or purchasing costs; limited technological infrastructure to support distance education; concerns about course quality; restrictive federal, state, or local laws or policies; concerns about receiving funding based on student attendance for distance education courses; or some other reason.

- Seventy-two percent of districts with students enrolled in distance education courses planned to expand their distance education courses in the future. No differences were detected by district characteristics in plans to expand distance education courses.
- Costs were cited as a major factor more often than any other factor as preventing districts from expanding their distance education courses. Thirty-six percent of districts that were planning to expand their distance education courses selected course development and/or purchasing costs as a major factor preventing their expansion.
- Fifty-four percent of districts that were planning to expand their distance education courses said restrictive federal, state, or local laws or policies were not a factor preventing them from expanding. In addition,

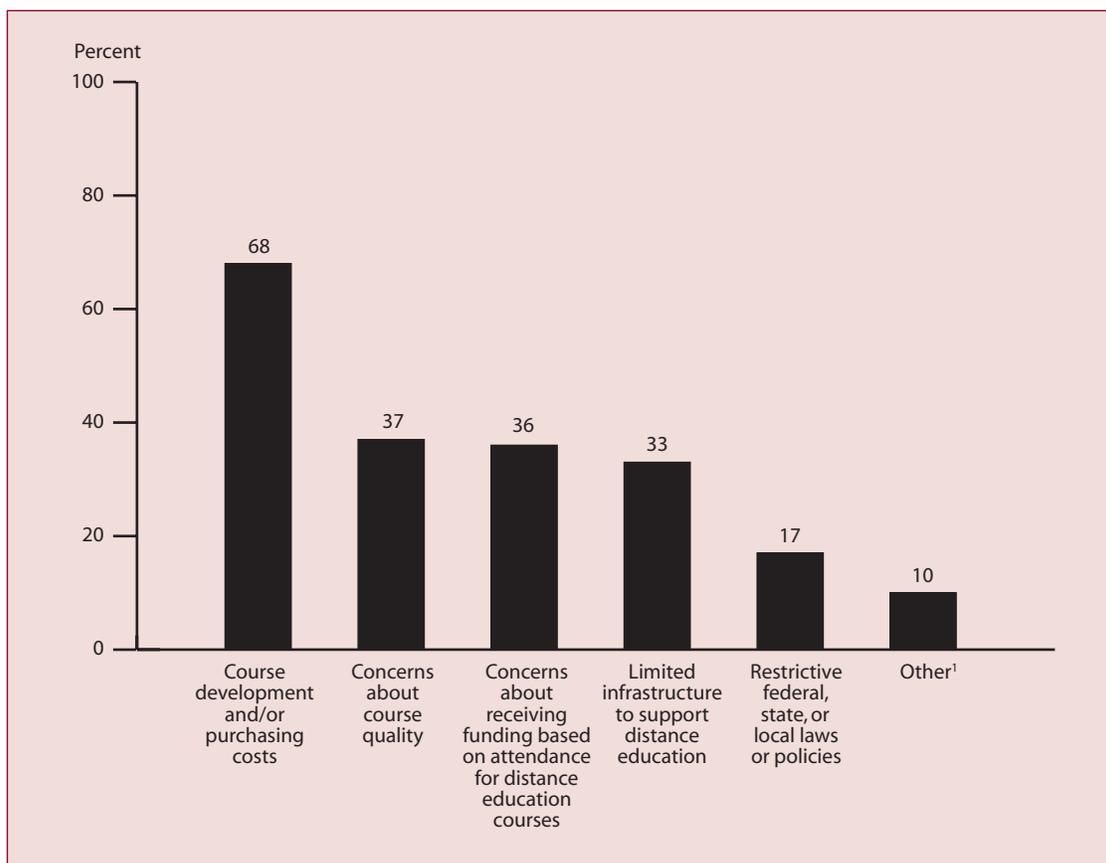
districts said the following were not factors preventing them from expanding distance education courses: limited technological infrastructure to support distance education (41 percent), concerns about receiving funding for distance education courses based on student attendance (40 percent), and concerns about course quality (30 percent).

- Among public school districts with plans to expand their distance education courses, approximately two-thirds (68 percent) said course development and/or purchasing costs were a moderate or major factor keeping the district from expanding distance education courses, followed by concerns about course quality (37 percent); concerns about receiving funding for distance education courses based on attendance (36 percent); limited infrastructure to support distance education (33 percent); restrictive federal, state, or local laws or policies (17 percent); and some other reason (10 percent) (figure 4).
- A greater proportion of urban districts than rural districts cited restrictive federal, state, or local laws or policies as a major or moderate factor preventing expansion of distance education courses (30 vs. 15 percent). Additionally, a greater proportion of urban districts than suburban or rural districts cited receiving funding based on attendance for distance education courses as a major or moderate factor preventing them from expanding (54 vs. 38 and 34 percent, respectively).
- A smaller proportion of districts in the Northeast than in other regions cited receiving funding based on attendance for distance education courses as a major or moderate factor preventing expansion (20 vs. 36 to 43 percent).

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Figure 4. Percent of districts indicating that various factors were preventing them from expanding distance education courses to a moderate or major extent: 2002–03



¹Other responses mentioned included scheduling conflicts, staffing issues, and lack of need.

NOTE: Percentages are based on unrounded numbers. Percentages are based on the estimated 3,960 districts that indicated they were planning to expand distance education courses.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Distance Education Courses for Public Elementary and Secondary School Students: 2002–03," FRSS 84, 2003.

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For technical information, see the complete report:

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Technology in the Classroom

Computer Technology in the Public School Classroom: Teacher Perspectives

—Lawrence Lanahan and Janet Boysen

This article was originally published as an Issue Brief. The sample survey data are from the Teacher Follow-up Survey (TFS).

In recent years, U.S. public school teachers have seen the level of education technology in their schools and classrooms increase substantially. From 1994 to 2002, the percentage of public schools with access to the Internet increased from 35 to 99 percent. Furthermore, in 2001–02, 87 percent of public schools with internet access reported that professional development on how to integrate the use of the Internet into the curriculum was available to teachers (Kleiner and Lewis 2003).

Despite regular reports of increasing school-level access to computers and technology, little national-level data is available on teacher opinions regarding the availability and usefulness of the technology in their classrooms. This Issue Brief uses data from the 2000–01 Teacher Follow-up Survey (TFS) to examine teacher views on the technology in their classrooms.* Specifically, teachers reported which types of technology they considered essential for teaching and whether they felt such technology was sufficiently available in their classrooms.

Which Types of Classroom Technology Do Teachers Consider to Be Essential?

In 2000–01, teachers reported on the types of technology—regardless of availability—they considered essential for teaching. Topping the list were types of technology that reached outside the classroom. A “teacher’s computer station with access to electronic mail” was most frequently reported as “essential” (68 percent) (figure 1). Following e-mail, classroom access to the World Wide Web (61 percent), a telephone in the classroom (56 percent), encyclopedias and other reference materials on CD-ROM (51 percent), and the presence of at least one computer for every four students (49 percent) were the items most frequently reported as essential. Following those items, 35 percent of teachers reported presentation software (e.g., PowerPoint) as essential. The items least frequently reported as essential were multimedia authoring programs (e.g., HyperCard), full-page scanners, and video cameras (21 percent, 20 percent, and 18 percent, respectively).

*The TFS sampling frame consists of all eligible teachers who responded to the Schools and Staffing Survey (SASS) teacher questionnaires in 1999–2000. Analyses in this Issue Brief are based on data from the 4,153 public and charter school teachers in the 2000–01 TFS sample—a subsample of those 1999–2000 SASS respondents who continued teaching—representing a target population of 3.1 million teachers. All differences discussed in this Issue Brief are statistically significant at the .05 level as measured by two-tailed Student’s *t* tests. Bonferroni adjustments were made to control for multiple comparisons where appropriate.

Do Teachers Feel Technology Is Sufficiently Available in Their Classrooms?

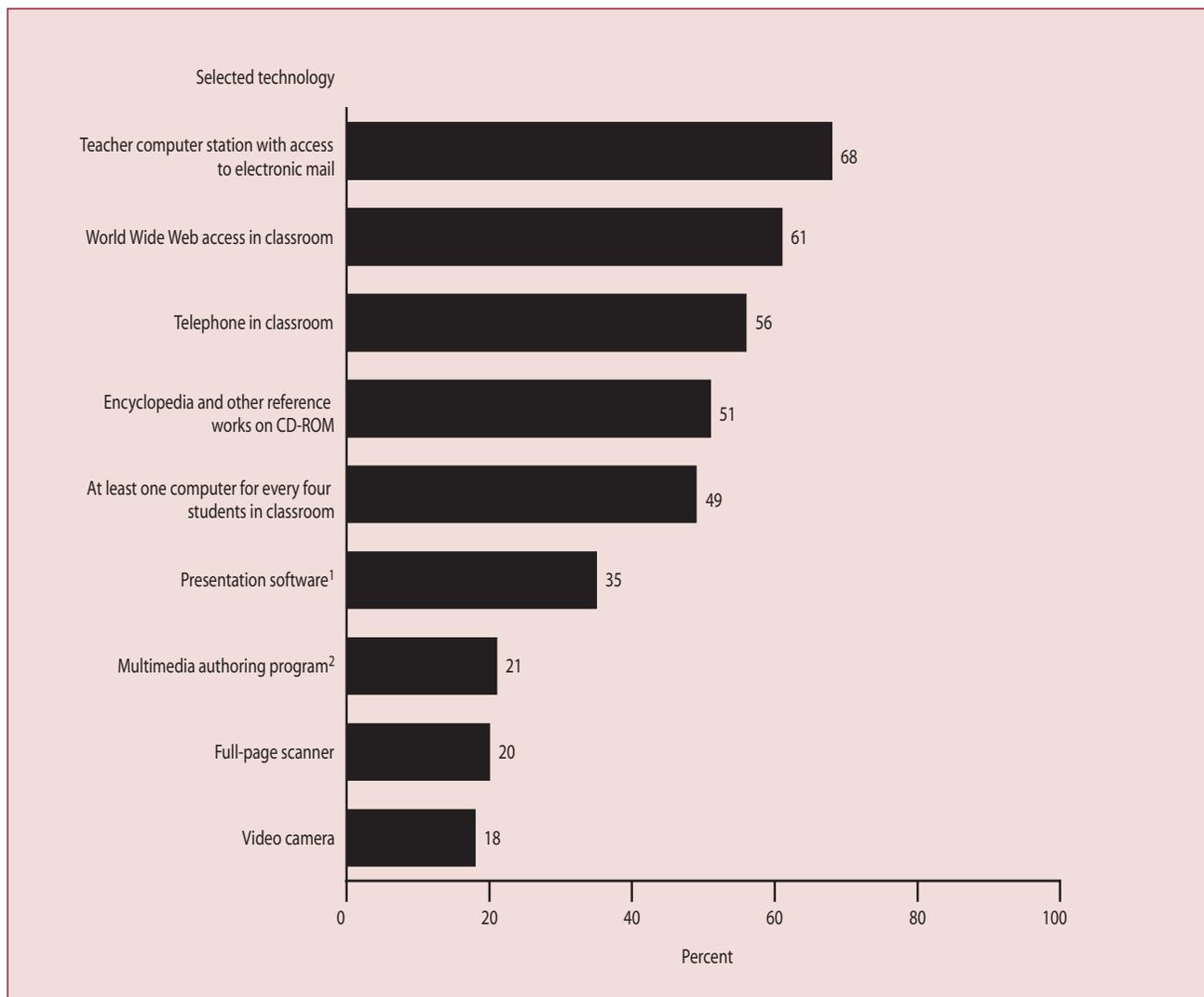
Teachers also reported on the availability of technology in their classrooms. In 2000–01, a majority of teachers (57 percent) agreed with the statement “Computers and other technology for my classroom(s) were sufficiently available.” Of all teachers, 25 percent “strongly” agreed that this was the case. However, 35 percent of all teachers disagreed with the statement, including 15 percent who “strongly” disagreed (figure 2).

Teachers’ familiarity with computers was related to whether they agreed that classroom technology was sufficiently available. Of the teachers who considered themselves “reasonably familiar and comfortable with using computers,” 60 percent agreed that technology was sufficiently available in their classrooms, compared with 48 percent of those who did not report being “reasonably familiar and comfortable with using computers” (table 1). Also, teacher participation in technology-related professional development was related to views on classroom technology. Forty-seven percent of teachers who did not participate in this type of professional development agreed that classroom technology was sufficiently available, compared with 65 percent of teachers who had up to 16 hours and 61 percent of teachers who had 17 or more hours.

The presence of computers in the classroom was also related to teacher reports of sufficient availability of technology. Some 69 percent of teachers with a student-to-computer ratio of less than 4 agreed that classroom technology was sufficiently available. In contrast, 39 percent of teachers without classroom computers for students agreed that classroom technology was sufficiently available (table 1). In general, as the ratio of students to computers increased, teachers’ dissatisfaction with the available classroom technology increased.

Conclusion

By presenting national data on teacher opinions on technology, this Issue Brief adds a new perspective to the literature on the proliferation of education technology. In 2000–01, technologies that allowed teachers to communicate with others or access resources outside the classroom (e-mail, the World Wide Web, and telephone) were among the most

Figure 1. Percentage of teachers who believed selected technologies were essential to their teaching: 2000–01

¹Presentation software refers to software such as PowerPoint.

²Multimedia authoring program refers to software such as Hyperstudio or HyperCard.

NOTE: Standard errors are available at <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2005083>.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Teacher Follow-up Survey (TFS), 2000–01, Questionnaire for Current Teachers.

frequently cited by teachers as being “essential” for their teaching. Most teachers reported that they found their classroom technology to be “sufficiently available.” However, teachers with relatively few computers in the classroom reported sufficient availability of technology less often than teachers with more computers.

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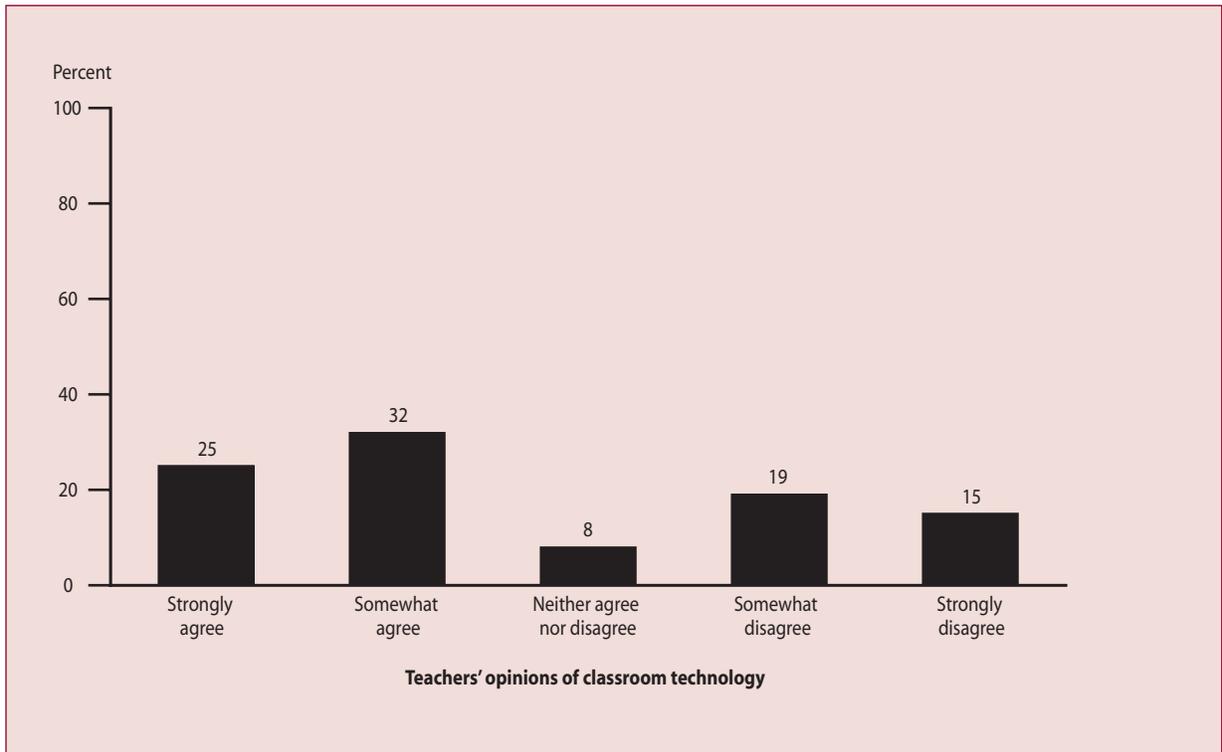
For more information on the Teacher Follow-up Survey, visit <http://nces.ed.gov/surveys/sass/overview.asp#whatstfs>.

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Figure 2. Percentage of teachers who agreed that computers and other technology for their classrooms were sufficiently available: 2000–01



NOTE: Standard errors are available at <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2005083>.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Teacher Follow-up Survey (TFS), 2000–01, Questionnaire for Current Teachers.

Table 1. Percentage of teachers who agreed that computers and other technology for their classrooms were sufficiently available, by selected teacher characteristics: 2000–01

Teacher characteristic	Agree ¹	Neither agree nor disagree	Disagree ²
Total	57	8	35
Main assignment			
Pre-K, kindergarten, and general elementary	58	7	35
Mathematics and science	62	9	29
English/language arts	59	8	33
Social science	64	5!	30
Special education	53	9	39
Foreign languages and bilingual/ESL	54	6!	40
Vocational/technical	56	8!	36
All others ³	52	12	36
Hours of professional development for computers			
No professional development	47	10	43
Up to 16 hours	65	7	28
17 hours or more	61	8	32
Agrees with "I am reasonably familiar and comfortable with using computers"			
Strongly or somewhat agree	60	8	32
Neither agree nor disagree	53	14	33
Strongly or somewhat disagree	48	8	45
Student-to-computer ratio ⁴			
With computers in classroom			
Less than 4	69	8	23
4 to less than 8	67	6	27
8 to less than 16	62	3	35
16 or greater	55	5	40
No computers in classroom	39	13!	48

! Interpret data with caution; estimates are unstable. The coefficient of variation is greater than 30 percent.

¹ Estimate combines those teachers who either "somewhat" agreed or "strongly" agreed that technology for their classrooms was sufficiently available.

² Estimate combines those teachers who either "somewhat" disagreed or "strongly" disagreed that technology for their classrooms was sufficiently available.

³ Includes religion, philosophy, home economics, health, computer science, American Indian studies, military science, gifted programs, arts, physical education, remedial education, and others.

⁴ The classroom student-to-computer ratio was calculated by dividing the number of students in one "typical" class, designated by the teacher within the main assignment, by the number of computers in the classroom where that designated class was taught. Teachers with no computers in the classroom were excluded from the calculation. Percentages are based on the 58 percent of teachers who reported that their students used computers during class time.

NOTE: Standard errors are available at <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2005083>.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Teacher Follow-up Survey (TFS), 2000–01, Questionnaire for Current Teachers.

Biology Teacher Qualifications

Qualifications of Public Secondary School Biology Teachers, 1999–2000

Daniel J. McGrath, Emily W. Holt, and Marilyn M. Seastrom

This article was originally published as an Issue Brief. The sample survey data are from the Schools and Staffing Survey (SASS).

Studies of the qualifications of elementary and secondary school teachers have focused on whether or not teachers have educational backgrounds (a postsecondary major/minor or equivalent) and state certification that match the subjects they teach (Ingersoll 1999; Seastrom et al. 2002). Teachers are described as “in field” or “out of field” based on the presence or absence of a postsecondary major and state certification in the subject taught. However, among teachers who are out of field, further analysis can show the extent to which their training is related to or distant from the field in which they teach.¹ To the extent that out-of-field teachers differ in the subjects in which they have been trained, teachers may differ in the useful knowledge they bring to instruction.

This Issue Brief introduces a measure of teacher qualifications that includes additional detail on the educational backgrounds and certifications of out-of-field teachers. The focal subject for the Issue Brief is biology/life science (called biology in this Issue Brief) at the secondary level. Biology was selected because of its high enrollment rates—in 1998, 93 percent of high school graduates had taken at least 1 year of biology at the secondary level (Roey et al. 2001). For each qualification—postsecondary major/minor and state certification—teachers are grouped first by whether or not they have the qualification in biology. Then, teachers lacking the qualification in biology are grouped by their fields of study or fields of certification. These subjects are grouped by similarity to each other in terms of subject matter and skills. The list of subjects is taken from Seastrom et al. (2002), the most recent National Center for Education Statistics (NCES) Statistical Analysis Report on out-of-field teaching.² Teachers are grouped first in terms of educational background and certification separately (table 1) and then grouped based on the combinations of their postsecondary majors/minors and certification (table 2). The Issue Brief

makes no judgment about which subjects are further out of field than others, but provides the information that allows the reader to make such an assessment. Teachers who reported more than one nonbiology qualification are included in each group. Thus, the groups of teachers lacking biology qualifications are not mutually exclusive.

Data are drawn from the NCES 1999–2000 Schools and Staffing Survey (SASS) teacher and school surveys. The sample used in the analysis includes teachers who reported teaching predominately in the middle or high school grades (called “secondary level” in the balance of the Issue Brief) and teaching “biology or life science” to at least one student.³ Information on teachers’ qualifications and grade level and number of students is drawn from teachers’ reports. Findings are reported in terms of the percentage of biology students taught by teachers of various qualifications (see also Seastrom et al. 2002).

Estimates are reported separately for students in each of four poverty categories based on the percentage of students eligible for free or reduced-price lunch. SASS schools were asked to report the number of students eligible for free and reduced-price lunch. Each category includes approximately 25 percent of the sample: less than 10 percent of students in school qualifying for free or reduced-price lunch, 10–25 percent, 25–50 percent, and more than 50 percent. This allows the Issue Brief to address the extent to which students in high- and low-poverty schools experience more or less out-of-field teaching in biology and to explore the variation of out-of-field teachers’ qualifications across the settings.

Majors, Minors, and Certifications Reported Separately

What proportion of biology students has a teacher with a major or minor in biology?

About 60 percent of biology students at the secondary level in 1999–2000 were taught by teachers with a postsecondary major or minor in biology, leaving about 40 percent of students taught by teachers who were considered out of field in terms of their postsecondary education (table 1). Among this 40 percent of students, there were differences

¹Research on biology and physics teachers has examined courses taken within science, but has not differentiated among teachers who have taken other science coursework in place of subject-specific coursework and those who have taken other science coursework in addition to subject-specific coursework; nor has other research examined coursetaking beyond science (see Wood 2002).

²Differences from the Seastrom et al. (2002) list are the addition of categories for “other subjects” and “no subjects” and the inclusion of arts, music, foreign languages, and bilingual education/English as a Second Language in the “other subjects” category. There were too few cases in which out-of-field biology teachers had qualifications in these subjects to provide an accurate estimate of their prevalence separate from the “other subjects” category.

³The sample includes 1,680 public school teachers. The analysis weighted cases using the TFNLWGT weighting variable.

Table 1. Percentage of public school students in biology classes taught by secondary-level teachers, by percentage of students in the school qualifying for free or reduced-price lunch, and by subject field of teachers' postsecondary majors, minors, and certification: Academic year 1999–2000

Teacher's subject field of major, minor, or certification	Total	Percent free/reduced-price lunch			
		<10%	10–25%	25–50%	>50%
Major or minor in biology	60.8	63.8	64.0	52.6	63.4
Major in biology	55.3	59.8	58.3	46.3	57.0
Minor in biology	5.6	4.0	5.7	6.4	6.4
No major or minor in biology	39.2	36.2	36.0	47.4	36.6
Major or minor in					
Other natural science	49.3	57.7	61.9	46.5	26.0
Elementary education	22.3	8.2!	19.0	22.0	46.2
English	3.9!	8.3	0.4!	3.3!	3.4!
Mathematics	7.8	1.8!	21.2	3.6!	5.3!
Physical education	15.4	12.0!	23.5	14.7!	10.6
Secondary education	14.9	23.0	8.8!	15.4	11.1!
Social science	11.7	12.4	9.3!	9.8	17.2
Special education	7.1	7.0	6.2	9.2	4.7!
Other subject	10.4	11.8	8.1	9.4	13.5!
No major or minor	4.7!	3.6!	#	11.8!	0.3!
Certification in biology	74.7	83.4	78.2	71.3	62.9
No certification in biology	25.3	16.6	21.8	28.7	37.1
Certification in					
Other natural science	36.6	18.0!	34.7	51.4	34.1!
Elementary education	5.7!	23.5!	0.5!	3.2!	1.7!
English	3.4!	5.7!	1.1!	5.7!	1.5!
Mathematics	7.9!	2.7!	21.9!	3.9!	3.9!
Physical education	8.3!	2.8!	3.6!	20.2!	3.2!
Social science	4.5	8.1!	3.3!	3.1!	4.6!
Special education	12.0	9.6	9.2!	9.9	18.0!
Other subject	3.2	3.7!	3.3!	1.1!	5.0!
No certification	35.5	32.9!	29.3	33.8	43.7

Rounds to zero.

! Interpret data with caution. Standard error is more than one-third as large as the estimate.

NOTE: Secondary-level teachers include teachers who taught students in grades 5–12; teachers who taught in grades 5–9 who identified themselves as elementary or special education teachers were not included. Detail may not sum to totals because of rounding. Detail below "No major or minor in biology" and "No certification in biology" do not sum to totals because they are not percentages of the table total, but percentages of the category ("No major or minor in biology" or "No certification in biology"); they do not add to 100 percent, because teachers could report majors/minors or certifications in multiple subjects. Not all apparent differences in this table are statistically significant. Standard errors are available at <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2005081>.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), 1999–2000 "Public School Questionnaire," "Charter School Questionnaire," "Public Teacher Questionnaire," and "Charter Teacher Questionnaire."

across school settings in the educational backgrounds their teachers brought to the classroom. Students in the schools with the highest poverty rates were the least likely to have teachers with a major or minor in another natural science (26 percent of the more than 50 percent group, compared with 46 percent of the 25–50 percent group, 62 percent of the 10–25 percent group, and 58 percent of the less than 10 percent group). Secondary-level biology students in the highest poverty schools were more likely to have out-of-field teachers with elementary education majors or minors than those in all other types of school settings.

What proportion of biology students has a teacher with a certification in biology?

Overall, 25 percent of secondary-level biology students were taught by teachers without a state certification in biology. Students in the highest poverty schools were more likely to be taught by teachers with out-of-field certifications than were those in the two lowest school poverty categories (37 percent of the more than 50 percent group, compared with 22 percent of the 10–25 percent group and 17 percent of the less than 10 percent group).

Majors, Minors, and Certifications Reported in Combinations

Among students of teachers with a certification in biology

Fifty-two percent of secondary-level biology students had teachers with both a certification and a major or minor in biology (table 2). Students in the two lowest school poverty categories were more likely than those in the 25 to 50 percent

school poverty category to have teachers with both qualifications (58 percent of the less than 10 percent group and 57 percent of the 10–25 percent group, compared with 44 percent of the 25–50 percent group).⁴

⁴In the highest poverty group, 46 percent of students had a teacher with both qualifications, but the estimate for this group had a large standard error and, as a result, apparent differences compared with the lower poverty groups are not statistically significant.

Table 2. Percentage of public school students in biology classes taught by secondary-level teachers, by percentage of students in the school qualifying for free or reduced-price lunch, and by combinations of teachers' postsecondary majors/minors and certification subject fields: Academic year 1999–2000

Teacher's combination of major/minor and certification	Total	Percent free/reduced-price lunch			
		<10%	10–25%	25–50%	>50%
Certification in biology	74.7	83.4	78.2	71.3	62.9
And major or minor in biology	51.8	57.8	57.1	44.5	46.3
Major in biology	47.4	54.7	51.7	40.2	41.4
Minor in biology	4.4	3.2	5.4	4.3	4.9!
And no major or minor in biology	22.9	25.6	21.1	26.8	16.6
Major or minor in					
Other natural science	55.5	58.5	57.2	56.3	44.9
Elementary education	17.6	4.4!	23.4!	16.2!	37.8
English	2.9!	6.0!	0.3!	2.1!	2.6!
Mathematics	4.1	0.4!	10.4!	2.5	4.1!
Physical education	19.1	14.4!	26.4	20.7!	13.0!
Secondary education	20.8	29.3	8.9!	23.8!	17.0!
Social science	12.2	11.7!	13.8!	10.4!	14.4!
Special education	5.0	4.4!	4.6!	8.3!	0.3!
Other subject	6.9	8.7!	5.4!	7.9!	3.7!
No major or minor	1.7!	5.1!	#	0.4!	#
No certification in biology	25.3	16.6	21.8	28.7	37.1
And major or minor in biology	9.0	6.0	6.9	8.2	17.1
Major in biology	7.9	5.2!	6.6	6.1	15.6
Minor in biology	1.2!	0.8!	0.3!	2.1!	1.5
And no major or minor in biology	16.3	10.6	14.9	20.6	20.0
Major or minor in					
Other natural science	40.4	55.7	68.6	33.7!	10.3!
Elementary education	29.1	17.4!	12.7!	29.7!	53.2
English	5.2!	13.7!	0.6!	5.0!	4.0!
Mathematics	13.1!	5.0!	36.6!	5.0!	6.3!
Physical education	10.2	6.3!	19.3!	6.8!	8.6!
Secondary education	6.5	7.8!	8.7!	4.5!	6.1!
Social science	10.9	14.0!	3.0!	9.0!	19.4!
Special education	10.0	13.5!	8.6!	10.4!	8.4!
Other subject	15.4	19.3!	11.9!	11.3!	21.6!
No major or minor	9.0!	#	#	26.7!	0.6!

Rounds to zero.

! Interpret data with caution. Standard error is more than one-third as large as the estimate.

NOTE: Secondary-level teachers include teachers who taught students in grades 5–12; teachers who taught in grades 5–9 who identified themselves as elementary or special education teachers were not included. Detail may not sum to totals because of rounding. Detail below "And no major or minor in biology" do not sum to totals because they are not percentages of the table total, but percentages of the category ("And no major or minor in biology"); they do not add to 100 percent, because teachers could report majors/minors or certifications in multiple subjects. Not all apparent differences in this table are statistically significant. Standard errors are available at <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2005081>.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), 1999–2000 "Public School Questionnaire," "Charter School Questionnaire," "Public Teacher Questionnaire," and "Charter Teacher Questionnaire."

Among students taught by teachers who reported having in-field certification but out-of-field educational backgrounds, the most common type of postsecondary major or minor was natural science (56 percent of these students). Among the students with teachers who were certified but had out-of-field educational backgrounds, those in the highest poverty schools were more likely than those in the lowest poverty schools to have teachers with an elementary education major or minor (38 percent of the more than 50 percent group, compared with 4 percent of the less than 10 percent group).

Among students of teachers with no certification in biology

Overall, 9 percent of secondary-level biology students had a teacher who had no certification in biology but did have a major or minor in biology. This combination was more prevalent among the teachers of students in the highest poverty schools than in the two lowest school poverty categories (17 percent of the more than 50 percent group, compared with 7 percent of the 10–25 percent group and 6 percent of the less than 10 percent group).

Among all secondary-level biology students, 16 percent had teachers with neither a certification nor a major or minor in biology. For these students, those in schools in the two lowest school poverty categories were more likely than those in the highest poverty schools to have teachers with a major or a minor in a natural science (56 percent of the less than 10 percent group and 69 percent of the 10–25 percent group, compared with 10 percent of the more than 50 percent group). Also in this group, students in the highest poverty schools were more likely than those in the 10–25 percent school poverty category to have teachers with a major or minor in elementary education (53 percent of the more than 50 percent group, compared with 13 percent of the 10–25 percent group).

Conclusion

Measures of out-of-field teaching that report only the absence or presence of educational and certification qualifications provide important but incomplete information about student exposure to teachers with differing qualifications in the subjects they teach. For subjects like secondary-level biology in which close to 40 percent of students have teachers without a major or minor in the field, 25 percent have teachers without a certification in the field, and 16 percent have teachers with neither a certification nor a major or minor in the field, it is useful to examine in more detail what certifications and majors and minors these teachers actually have. This Issue Brief reported the combination of certifications and majors and minors to which secondary-level

biology students are exposed and how these qualifications vary across schools with differing levels of student poverty. Students of teachers lacking a major or minor in biology in the highest poverty schools were less likely than those in all other schools to have teachers with a major or minor in another natural science and more likely than those in all other schools to have teachers with a major or minor in elementary education. Similarly, among those students with teachers who had neither a certification nor a major or minor in biology, students in the highest poverty schools were less likely than those in the two lowest school poverty categories to have a teacher with a major or minor in natural science.

Of course, certification and postsecondary education are not the only routes through which teachers can gain subject-matter expertise in the subjects they teach. Teachers may bring other professional and life experiences that provide them the subject-matter grounding needed to teach effectively; future data collections may address these issues. However, with current data, additional research could also examine if similar patterns of teacher qualifications across school settings are apparent among other subjects.

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Data source: The NCES 1999–2000 Schools and Staffing Survey (SASS).

For more information on the Schools and Staffing Survey, visit <http://nces.ed.gov/surveys/sass>.

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Private School Teacher Turnover

Private School Teacher Turnover and Teacher Perceptions of School Organizational Characteristics

—Daniel J. McGrath and Daniel Princiotta

This article was originally published as an Issue Brief. The sample survey data are from the Schools and Staffing Survey (SASS) and the Teacher Follow-up Survey (TFS).

National studies have included both private and public school teachers in analyses of teacher turnover (Ingersoll 2001). These studies have shown that teacher turnover is associated with teacher perceptions of school organizational characteristics, including low levels of administrative support, little input into school decisions, student disciplinary problems, and insufficient salary (Ingersoll 2001). Private school teachers generally express less dissatisfaction with school organizational characteristics than do their public school counterparts (Ingersoll 2001; Holton 2003). However, teacher turnover rates are higher in private schools than in public schools; in 2000–01, 21 percent of private school teachers had switched schools or left the teaching force since the previous school year compared with 15 percent of public school teachers (Luekens, Lyter, and Fox 2004). Until recently, nationally representative data have not included sufficiently large sample sizes to allow for in-depth studies of teacher turnover in U.S. private schools.¹ Using the National Center for Education Statistics (NCES) 1999–2000 Schools and Staffing Survey (SASS) data file, this Issue Brief looks within the private sector to investigate teacher-perceived school organizational characteristics, and relationships between these characteristics and teacher turnover in Catholic, other religious, and nonsectarian private schools.

The 1999–2000 SASS data file includes school principal or head reports on teacher turnover.² As part of the sample selection for the Teacher Follow-up Survey (TFS), principals of elementary and secondary teachers in SASS schools in the year following SASS were asked to report whether the teachers had begun the 2000–01 school year in the same school, had moved to another school, or had left teaching entirely.³ For the purposes of the current analysis, a teacher was defined as a “stayer” if the principal reported at the start of

the 2000–01 school year that the teacher stayed in the same school as a teacher between 1999–2000 and 2000–01, a “mover” if the principal reported the teacher had changed schools, and a “leaver” if the principal reported the teacher had left the profession.⁴ School organizational characteristics studied include teacher perceptions of administrative support, salary level, student discipline, and influence over classroom and school policies. Teachers were described as “low” on satisfaction if they scored among the 20 percent least satisfied on the organizational factor. Because low satisfaction was defined relatively, teachers who expressed satisfaction, but less satisfaction than others, may have been described as low on satisfaction. For example, because so few teachers reported serious student discipline problems, teachers who reported that discipline was a mild problem were described as having low satisfaction with student discipline.⁵ Results are presented separately for teachers in Catholic, other religious, and nonsectarian private schools.⁶

Because SASS relies on principals for information regarding teacher turnover, a preliminary analysis compared principal and teacher reports on the teachers’ turnover status for the subset of private school SASS teachers who were included in the TFS sample.⁷ Agreement was sufficiently high to support use of the principal reports in the main analysis of the Issue Brief.⁸

⁴Teachers whose status was listed as unknown, deceased, or living outside the United States were not included. Altogether, there were 41 such teachers. Teachers who moved to administrative positions were considered leavers.

⁵Detailed descriptions of the school organization variables used in the analysis are included in the notes to table 1. Because of the distribution of teachers’ scores on the variables, not all the variables included exactly 20 percent of all teachers; the range was between 18 and 34 percent. On tests of internal reliability, the standardized Cronbach’s Alpha was 0.86 for the composite measure of satisfaction with administrative support, 0.84 for schoolwide influence, 0.78 for classroom influence, and 0.77 for student discipline.

⁶All findings presented in this Brief are descriptive in nature. All differences discussed are statistically significant at the .05 level as measured by two-tailed Student’s *t* tests.

⁷This analysis was based on a sample of 1,631 teachers who participated in both SASS and TFS and whose SASS school principal reported the teacher as a stayer, mover, or leaver at the start of the 2000–01 school year.

⁸In 97 percent of the cases in which private school principals reported teachers had stayed in the same school across the 1999–2000 and 2000–01 school years, teachers also reported they had stayed. When principals reported teachers as being in the mover or leaver category, 92 percent of teachers agreed. A second way of assessing principals’ accuracy is to look at teacher reports and see how often principal reports agreed. In 98 percent of the cases in which teachers reported they had stayed, principals had also reported the teachers stayed. In 87 percent of the cases in which teachers reported they had moved or left, principals had also reported the teachers moved or left.

¹For example, the National Center for Education Statistics (NCES) Teacher Follow-Up Survey (TFS), a nationally representative survey often used to study teacher turnover, included about 1,600 private school teachers in 2001. This Issue Brief uses the NCES 1999–2000 Schools and Staffing Survey (SASS) dataset, which included, for the first time, teacher turnover between the 1999–2000 and 2000–01 school years, as reported by school principals. This dataset included approximately 7,000 private school teachers.

²The analyses in this Issue Brief are based on a sample of 7,057 teachers who completed the SASS Private School Teacher Questionnaire. When weighted using the TFLWGT weighting variable, this sample is representative of U.S. private elementary and secondary school teachers during the 1999–2000 school year.

³This information was used to develop the sample for the 2001 TFS. Principals may have been new to the school in 2000–01.

Private School Type, School Organizational Characteristics, and Teacher Turnover

According to principal reports, between the 1999–2000 and 2000–01 school years, 19 percent of Catholic school teachers, 23 percent of other religious school teachers, and 21 percent of nonsectarian school teachers changed schools or left the teaching profession (not shown in tables).

Table 1 presents the percentage of private school teachers who reported relatively low levels of administrative support and satisfaction with salary, relatively greater problems with student behavior at school, and relatively low levels of classroom and schoolwide influence by teachers' private school type and turnover status. The teacher reports on organizational characteristics are from 1999–2000.

Consistent with prior research (Ingersoll 2001), private school teachers who were reported to have left their schools (movers and leavers) were more likely than stayers to report relatively low levels of administrative support, satisfaction with salary, student discipline, control over classroom policies, and input in school policies. These relationships held within each of the private school types. There were differences, however, across private school type in terms of the percentage of all teachers, stayers, and movers and leavers who reported relatively low levels of organizational characteristics examined in this Issue Brief.

Teachers in Catholic schools were more likely than others to report strong dissatisfaction regarding their salary (48 percent compared with 23 percent of other religious and 31 percent of nonsectarian school teachers). They also were more likely to report relatively low levels of input at the school level (23 percent in low category compared with 19 percent of other religious and 13 percent of nonsectarian school teachers).

A greater percentage of teachers at private schools designated as "other religious schools" reported relatively low levels of classroom input (22 percent) than did those teaching in nonsectarian (15 percent) or Catholic (17 percent) schools. They were less likely than others to report relatively low administrative support (16 percent compared with 22 percent of Catholic and 23 percent of nonsectarian school teachers), satisfaction with salary, and student discipline (18 percent compared with 21 percent of Catholic and 27 percent of nonsectarian school teachers).

Teachers in nonsectarian schools were more likely to report relatively low levels of student discipline than teachers in other private schools. They were also less likely than teachers in other types of private schools to report relatively low levels of input schoolwide and less likely than teachers in other religious schools to report relatively low levels of input in their own classrooms.

In some cases, differences among the private school types were such that stayers in one private school type were at least as likely as movers and leavers in another private school type to express relatively low levels of certain organizational factors. For example, a higher percentage of Catholic school stayers reported strong dissatisfaction with salary (46 percent) than did movers or leavers from other religious schools (27 percent), and there was no statistically significant difference between Catholic school stayers and nonsectarian school movers and leavers (40 percent). Nonsectarian stayers (29 percent) were not significantly different from other religious school movers and leavers (27 percent) in reports of strong dissatisfaction with salary. Similarly, nonsectarian stayers were not significantly different from movers and leavers in Catholic and other religious schools in their likelihood of reporting relatively low student discipline (25 percent of nonsectarian stayers compared with 24 percent of Catholic and 22 percent of other religious movers and leavers).

Conclusion

In a study of teacher turnover in U.S. private schools between the 1999–2000 and 2000–01 school years, within each private school type (i.e., Catholic, other religious, and nonsectarian), teachers who left their school or the profession (movers and leavers) were more likely to report relatively low levels of administrative support, satisfaction with salary, student discipline, and teacher input in classroom and school decisions than were those who remained in the same school (stayers). The percentage of all teachers, stayers, and movers and leavers who reported relatively low levels of organizational characteristics varied across private school type.

By employing principal reports, this Issue Brief's analysis of teacher turnover took advantage of the large 1999–2000 SASS sample, which allowed for analysis of teachers by private school type.

Table 1. Percentage of private school teachers reporting relatively low levels of administrative support, satisfaction with salary, student discipline, and teacher input in classroom and school decisions, by turnover status and private school type: 1999–2000 to 2000–01

Private school type and teacher perceptions of school organizational factors	All teachers	Stayers	Movers and leavers
All private sector			
Low administrative support ¹	20.0	17.9	28.2
Low salary ²	34.0	32.5	39.9
Poor student discipline ³	21.1	20.0	25.6
Low teacher input in classroom decisions ⁴	18.1	16.3	25.3
Low teacher input in school decisions ⁵	18.9	17.6	24.2
Catholic			
Low administrative support ¹	21.5	19.8	29.9
Low salary ²	47.5	45.7	56.1
Poor student discipline ³	20.7	19.9	24.3
Low teacher input in classroom decisions ⁴	16.6	15.2	22.9
Low teacher input in school decisions ⁵	23.0	21.9	28.6
Other religious			
Low administrative support ¹	16.3	13.9	24.6
Low salary ²	23.1	21.9	27.4
Poor student discipline ³	17.8	16.5	22.3
Low teacher input in classroom decisions ⁴	21.7	20.2	27.0
Low teacher input in school decisions ⁵	19.0	17.6	24.0
Nonsectarian			
Low administrative support ¹	23.3	21.2	32.3
Low salary ²	30.8	28.5	40.3
Poor student discipline ³	26.8	25.2	33.4
Low teacher input in classroom decisions ⁴	14.8	12.3	25.4
Low teacher input in school decisions ⁵	12.6	11.2	18.3

¹Teachers were described as reporting low administrative support if their mean response (on a scale from 1 = *strongly disagree* to 4 = *strongly agree*) was below the cut-off score closest to the 20th percentile for private school teachers with respect to the statements: the principal lets staff members know what is expected of them; the school administration's behavior toward the staff is supportive and encouraging; my principal enforces school rules for student conduct and backs me up when I need it; the principal knows what kind of school he/she wants and has communicated it to the staff; and in this school, staff members are recognized for a job well done. The cut-off score was 3.0 out of 4.0. To put this in context, the average score was 3.4 for private school teachers and 3.2 for public school teachers.

²Teachers were described as reporting low salary if their response (on a scale from 1 = *strongly disagree* to 4 = *strongly agree*) was at or below the cut-off score closest to the 20th percentile for private school teachers on the statement: I am satisfied with my salary. The cut-off score was 1.0 out of 4.0. To put this in context, the average score was 2.8 for private school teachers and 2.9 for public school teachers.

³Teachers were coded as reporting poor student discipline in their school if their mean response (on a scale from 1 = *serious problem* to 4 = *not a problem*) was below the cut-off score closest to the 20th percentile for private school teachers on a list of potential school problems: students cutting class; physical conflicts among students; robbery or theft; vandalism of school property; student possession of weapons; and student disrespect for teachers. The cut-off score was 3.5 out of 4.0. To put this in context, the average score was 3.6 for private school teachers and 3.2 for public school teachers.

⁴Teachers were described as reporting low classroom input if their mean response (on a scale from 1 = *no control* to 5 = *complete control*) was below the cut-off score closest to the 20th percentile for private school teachers on a set of questions concerning control over their job: selecting textbooks and other instructional materials; selecting content, topics, and skills to be taught; selecting teaching techniques; evaluating and grading students; disciplining students; and determining the amount of homework to be assigned. The cut-off score was 3.83 out of 5.0. To put this in context, the average score was 4.3 for private school teachers and 4.0 for public school teachers.

⁵Teachers were described as reporting low schoolwide input if their mean response (on a scale from 1 = *no influence* to 5 = *a great deal of influence*) was below the cut-off score closest to the 20th percentile for private school teachers on a set of questions concerning their influence: setting performance standards for students of this school; establishing curriculum; determining the content of in-service professional development programs; evaluating teachers; hiring new full-time teachers; setting discipline policy; and deciding how the school budget will be spent. The cut-off score was 2.14 out of 5.0. To put this in context, the average score was 2.8 for private school teachers and 2.5 for public school teachers.

NOTE: Not all apparent differences in this table are statistically significant. Standard errors are available at <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2005061>.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey (SASS), "Private Teacher Questionnaire," 1999–2000.

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Data sources: The NCES 1999–2000 Schools and Staffing Survey (SASS) and the 2000-01 Teacher Follow-up Survey (TFS).

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For more information about SASS, visit <http://nces.ed.gov/surveys/sass>.

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Parent and Family Involvement

Parent and Family Involvement in Education: 2002–03

Nancy Vaden-Kiernan and John McManus

This article was originally published as the Highlights of the E.D. TAB of the same name. The sample survey data are from the Parent and Family Involvement in Education Survey of the National Household Education Surveys Program (PFI-NHES).

This report presents data on parents' and families' involvement in their children's education in the United States. The data are from the Parent and Family Involvement in Education Survey of the 2003 National Household Education Surveys Program (PFI-NHES:2003). The survey was completed by parents of over 12,000 children in kindergarten through grade 12. Data highlights are shown below, along with examples of questions for each topic area of the questionnaire.

The NHES:2003 sample was selected using random digit dial (RDD) methods, and the data were collected using computer-assisted telephone interviewing (CATI) technology. The sample for the 2003 survey is nationally representative of all children in kindergarten through grade 12 enrolled in regular school or homeschooled in the 50 states and the District of Columbia. A screener was used to collect information on household composition and interview eligibility. Screener interviews had a weighted screener unit response rate of 65 percent. In households with one eligible child, the child was selected for PFI with certainty. In households with two eligible children, both were selected for PFI with certainty. If there were more than two eligible children or youth, then two were sampled with equal probability. The parent interview had a weighted unit response rate of 83 percent using base weights. The overall unit response rate for the Parent and Family Involvement in Education Survey in 2003 was 54 percent. A unit nonresponse bias analysis was undertaken for NHES:2003 (see Montaquila, Brick, and Brock forthcoming). The analysis of unit nonresponse bias showed no evidence of bias in estimates computed with nonresponse adjusted weights from PFI-NHES:2003.

The results presented below were chosen to highlight some of the findings in the tables. To test the differences between estimates, Student's *t* statistics were calculated. All differences reported were significant at the .05 level. (More information about the statistical test used is in the Technical Notes section of the full report, along with a discussion of sampling methodology.)

Many of the tables include estimates for students in kindergarten through grade 12. However, some tables are divided into estimates for students in kindergarten through grade 5 or in grades 6 through 12. This is because for some topic areas (e.g., home activities), different questions were asked of parents of younger children than of parents of older

children. Similarly, while a common set of selected school, household, and student characteristics is repeated across most tables, there are occasional variations in either the characteristics, the population, or both that are designed to fit particular data items. Students who were homeschooled were excluded from all of the tables.

School Practices Encouraging Parents' Involvement

Parents were asked about school communication with families, such as sending the family personal notes or e-mails specifically about their child; sending newsletters, memos, or notices; and calling the family on the telephone. Parents were also asked about school practices to provide information to parents, such as information about their child's performance and their opportunities to volunteer at the school.

- As the student's grade level increased, relatively fewer parents reported that schools sent home notes or e-mails. Relatively more parents of fourth- and fifth-graders reported that schools sent home notes or e-mails specifically about their children (55 percent) than parents of students in sixth to eighth grade (49 percent). Similarly, more parents of students in 6th to 8th grade reported that schools sent home notes or e-mails specifically about their children (49 percent) than parents of students in 9th and 10th grade (42 percent).

Parents' Involvement in Their Children's School

Parents were asked if they had attended a general school meeting, a regularly scheduled parent-teacher conference, or a school or class event. They were also asked if they had acted as a volunteer or served on a school committee and if they had participated in fundraising for the school.

- The percentage of students in kindergarten through grade 12 whose parents reported (in a single-item question) that they had acted as a volunteer at their children's schools or served on a school committee was higher for students in private schools that were either church related or not church related (70 and 63 percent) than for students in public schools that were either assigned or selected by parents* (38 and 40 percent) (table A).

*The analysis in this report divides private school students into those attending private, church-related and private, not church-related schools. Public school students are divided into those attending public assigned and public chosen schools.

Table A. Percentage of students in grades K through 12 whose parents reported participation in school-related activities, by activity type and selected characteristics: 2002–03

Characteristic	Number of students in grades K through 12 (thousands)	Participation in school activities by parent or other household member				
		Attended a general school meeting	Attended regularly scheduled parent-teacher conference	Attended a school or class event	Acted as volunteer or served on school committee	Participated in school fundraising
Total	51,388	88	77	70	42	62
School type						
Public, assigned	37,875	87	75	68	38	60
Public, chosen	7,915	85	80	66	40	61
Private, church-related	4,317	96	87	88	70	84
Private, not church-related	1,280	95	84	80	63	63
School schedule						
Traditional	47,768	88	77	71	42	63
Year-round	3,620	84	82	60	35	49
Household poverty status						
Above poverty level	41,418	90	78	73	45	66
At or below poverty level	9,970	79	75	57	27	46
Parents' highest education level						
Less than high school	3,638	70	68	42	16	33
High school graduate or equivalent	12,891	84	75	62	30	56
Vocational/technical education after high school or some college	16,186	89	78	70	39	63
College graduate	9,877	93	80	80	55	70
Graduate or professional school	8,797	93	79	80	60	71
Parents' language						
Both/only parent(s) speak(s) English	45,505	89	77	72	44	65
One of two parents speaks English	1,090	83	79	62	31	44
No parent speaks English	4,793	79	78	52	21	34
Student's grade level ¹						
K–1st grade	7,823	93	92	71	54	70
2nd–3rd grade	7,696	94	91	77	53	70
4th–5th grade	8,368	94	91	78	50	70
6th–8th grade	12,170	88	75	70	35	61
9th–10th grade	7,783	83	59	63	30	50
11th–12th grade	7,543	74	53	59	31	50
Student's race/ethnicity						
White, non-Hispanic	31,931	89	76	74	48	67
Black, non-Hispanic	8,165	89	79	63	32	59
Hispanic	8,250	83	78	61	28	45
Asian or Pacific Islander, non-Hispanic	1,453	89	78	65	34	61
Other, non-Hispanic	1,588	87	78	72	40	57
Student's sex						
Male	26,328	87	78	67	41	59
Female	25,060	88	76	73	42	65

See notes at end of table.

Table A. Percentage of students in grades K through 12 whose parents reported participation in school-related activities, by activity type and selected characteristics: 2002–03—Continued

Characteristic	Number of students in grades K-through 12 (thousands)	Participation in school activities by parent or other household member				
		Attended a general school meeting	Attended regularly scheduled parent-teacher conference	Attended a school or class event	Acted as volunteer or served on school committee	Participated in school fundraising
Student experiences in school						
Student participated in school activities	29,616	91	78	84	48	69
Teacher or school contacted parent about behavior problems	9,856	86	83	63	34	55
Teacher or school contacted parent about schoolwork problems	13,307	88	83	67	36	59
Student grades or marks ²						
Mostly A's or excellent	20,868	91	77	78	50	69
Mostly B's or above average	18,673	87	76	69	40	61
Mostly C's or average	9,785	82	78	60	32	53
Mostly D's or lower, or below average or failing	2,062	81	81	43	21	43

¹Students whose parents reported that their classes were “ungraded” were excluded from the analyses of grade level.

²Parents were asked whether overall, across all subjects, the student got mostly A's, mostly B's, mostly C's, mostly D's or lower, or whether the student's school did not give those grades. If the student's school did not give letter grades (e.g., A, B, C), parents were asked whether they would describe the student's work at school as excellent, above average, average, below average, or failing. The two questions about grades or marks were combined for the table.

NOTE: Students who were homeschooled were excluded from the table. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Parent and Family Involvement in Education Survey of the 2003 National Household Education Surveys Program (PFI-NHES:2003). (Originally published as table 3 on pp. 11–12 of the complete report from which this article is excerpted.)

- The percentage of students whose parents had attended a general school meeting was higher in households where parents had completed higher levels of education. Specifically, the percentage of students whose parents reported that they had attended a general school meeting was higher for children whose parents had attended graduate or professional school (93 percent) or completed college (93 percent) than for children whose parents had completed only a high school education or the equivalent (84 percent), and children whose parents had completed less than a high school education (70 percent) (table A).
- In kindergarten through grade 12, 95 percent of children had parents who reported they assisted with homework. In addition, 85 percent of children in kindergarten through grade 12 had parents who reported that an adult in the household checked that homework was done.
- Overall, 90 percent of students in kindergarten through grade 12 had a place in their homes set aside for doing homework. Relatively fewer children of parents with less than a high school diploma had a place in their homes set aside for homework (80 percent), compared to children whose parents had completed a high school education or more—90 percent for high school education or the equivalent, 91 percent for vocational/technical education after high school or some college, 89 percent for completed college, and 92 percent for attended graduate or professional school.

Parents' Involvement in Their Children's Homework

Parents were asked about the frequency with which the student did homework at home and the number of hours the student spent doing homework. They were also asked if there is a place in their home set aside for the student to do homework, if an adult in the household checks that homework is done, and the number of days per week that persons inside or outside the household help with homework.

Parents' Involvement With Their Children in Nonschool Activities

Parents of students in kindergarten through grade 3 were asked how often someone in the family had read to the student

in the past week. Parents of students in kindergarten through grade 12 were asked about home activities with the student in the past week and outings with the student in the past month.

- In kindergarten through grade 5, the percentage of students whose parents reported they had played sports, active games, or exercised with them increased as parents' education level increased. Specifically, the percentage of students in kindergarten through grade 5 whose parents reported that they had played sports, active games, or exercised with their children was lower for children whose parents had completed less than a high school education (68 percent) than for children whose parents' highest educational attainment was a high school education or the equivalent (77 percent), children whose parents had completed vocational or technical education after high school or some college (80 percent), children whose parents had completed college (84 percent), and children whose parents had attended graduate or professional school (87 percent).
- The percentage of students in kindergarten through grade 12 whose parents reported taking them to a public library in the past month was higher for Asian students (65 percent) than for White, non-Hispanic (41 percent), Black, non-Hispanic (49 percent), or Hispanic students (44 percent).

Student Experiences With Their Schools

Parents were asked about the extent to which they agreed or disagreed with statements about whether the student finds his or her schoolwork challenging, whether the student enjoys school, whether most students and teachers in the student's school respect each other, and whether the school makes it easy for the family to be involved.

- The percentage of students in kindergarten through grade 12 whose parents reported that they "strongly agreed" that the student's school makes it easy for the family to be involved was higher for students in households above the poverty level (45 percent) than for students in households at or below the poverty level (35 percent).

Parents' Expectations and Planned Financial Support for Their Children's Postsecondary Education

Parents were asked about the highest education level they expected their children to attain. Those who expected their children to continue education after high school were also asked questions about their plans to help pay for their children's education after high school.

- The percentage of students in kindergarten through grade 12 whose parents expected their children to earn a graduate or professional degree was higher among students in private schools that were not church related (48 percent) than in other types of private and public schools (28 to 41 percent) (table B).
- Among students in kindergarten through grade 12 whose parents expected them to continue their education after high school, the percentage whose parents planned to help pay for their children's postsecondary education was higher in households where parents had completed higher levels of education. Specifically, the percentage of students whose parents reported that they planned to help their children pay for education after high school was higher for children whose parents had attended graduate or professional school (93 percent) or completed college (91 percent) than for children whose parents' highest educational attainment was vocational or technical education after high school or some college (81 percent), children whose parents had completed only a high school education or the equivalent (75 percent), and children whose parents had completed less than a high school education (59 percent) (table B).

Student Activities in and out of School

Parents were asked whether the student participated in school activities. They were also asked about student participation in a variety of out-of-school activities, such as music lessons, sports, and educational programs.

- In kindergarten through grade 12, the percentage of students who reportedly participated in school activities increased as parents' education level increased. Specifically, the percentage of students in kindergarten through grade 12 whose parents reported that their children participated in school activities was higher for students whose parents had attended or completed graduate or professional school (70 percent) than for students whose parents' highest level of education completed was a vocational or technical education after high school or some college (58 percent), only a high school education or the equivalent (49 percent), and less than a high school education (35 percent).

Parents' Satisfaction With School

Parents were asked how well the school did at providing information in various areas related to the child and the school (e.g., their child's performance, opportunities to volunteer at the school). Parents were also asked about

Table B. Percentage of students in grades K through 12 whose parents reported educational expectations and plans to help pay for education after high school, by educational attainment expectation and selected characteristics: 2002–03

Characteristic	Number of students in grades K through 12 (thousands)	Parent expects student to ...						Family plans to help pay for student education after high school ¹
		Receive less than a high school diploma	Graduate from high school	Attend vocational or technical school after high school	Attend 2 or more years of college	Finish 4- or 5-year college degree	Earn a graduate or professional degree	
Total	51,388	#	7	7	16	39	30	83
School type								
Public, assigned	37,875	#	8	8	17	39	28	82
Public, chosen	7,915	1	9	7	16	35	33	79
Private, church-related	4,317	#	2	2	9	45	41	91
Private, not church-related	1,280	1!	6	6	7	32	48	92
School schedule								
Traditional	47,768	#	7	7	15	39	31	83
Year-round	3,620	1!	11	8	17	34	29	66
Household poverty status								
Above poverty level	41,418	#	6	7	15	41	32	86
At or below poverty level	9,970	1	15	9	20	30	26	64
Parents' highest education level								
Less than high school	3,638	1!	23	10	20	27	20	59
High school graduate or equivalent	12,891	1	14	11	25	30	20	75
Vocational/technical education after high school or some college	16,186	#	6	9	18	39	27	81
College graduate	9,877	#	2	3	8	55	33	91
Graduate or professional school	8,797	#	1	3	4	38	54	93
Parents' language								
Both/only parent(s) speak(s) English	45,505	#	7	8	16	39	29	85
One of two parents speaks English	1,090	0	6	4	14	27	49	66
No parent speaks English	4,793	1!	9	4	10	36	41	61
Student's grade level ²								
K–1st grade	7,823	#	6	4	13	44	34	†
2nd–3rd grade	7,696	#	7	5	15	40	33	†
4th–5th grade	8,368	#	7	7	16	39	30	†
6th–8th grade	12,170	#	8	8	15	37	31	83
9th–10th grade	7,783	1	10	10	17	35	27	82
11th–12th grade	7,543	1!	7	11	17	38	27	83
Student's race/ethnicity								
White, non-Hispanic	31,931	1	7	8	15	42	27	87
Black, non-Hispanic	8,165	#	9	7	17	30	36	76
Hispanic	8,250	#	8	6	16	36	34	72
Asian or Pacific Islander, non-Hispanic	1,453	#	2!	1!	9	30	56	76
Other, non-Hispanic	1,588	1!	10	8	20	31	29	85
Student's sex								
Male	26,328	1	9	10	15	38	28	82
Female	25,060	#	6	5	16	39	33	83

See notes at end of table.

Table B. Percentage of students in grades K through 12 whose parents reported educational expectations and plans to help pay for education after high school, by educational attainment expectation and selected characteristics: 2002–03—Continued

Characteristic	Number of students in grades K through 12 (thousands)	Parent expects student to ...						Family plans to help pay for student education after high school ¹
		Receive less than a high school diploma	Graduate from high school	Attend vocational or technical school after high school	Attend 2 or more years of college	Finish 4- or 5-year college degree	Earn a graduate or professional degree	
Student grades or marks ³								
Mostly A's or excellent	20,868	#	3	2	9	40	45	85
Mostly B's or above average	18,673	#	6	7	19	43	24	83
Mostly C's or average	9,785	1	16	14	22	31	15	76
Mostly D's or lower, or below average or failing	2,062	5	25	23	17	20	10	75

† Not applicable.

Rounds to zero.

! Interpret data with caution.

¹This question was only asked of parents of children in grades 6 through 12 who expected their children to continue education after high school.²Students whose parents reported that their classes were “ungraded” were excluded from the analyses of grade level.³Parents were asked whether overall, across all subjects, the student got mostly A's, mostly B's, mostly C's, mostly D's or lower, or whether the student's school did not give those grades. If the student's school did not give letter grades (e.g., A, B, C), parents were asked whether they would describe the student's work at school as excellent, above average, average, below average, or failing. The two questions about grades or marks were combined for the table.

NOTE: Students who were homeschooled were excluded from the table. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Parent and Family Involvement in Education Survey of the 2003 National Household Education Surveys Program (PFI-NHES:2003). (Originally published as table 10 on pp. 33–34 of the complete report from which this article is excerpted.)

their satisfaction with the school, their children's teachers in 2002–03, the academic standards of the school, and order and discipline at the school. In addition, parents were asked about the amount of homework assigned and the amount of standardized testing at the school.

- The percentage of students in kindergarten through grade 12 whose parents reported their children's school did “very well” at providing information about the student's performance was lower among students in public, assigned schools (58 percent) than in public schools selected by parents and private schools (64 to 76 percent).
- The percentage of students in kindergarten through grade 12 whose parents reported being “very satisfied” with their school was higher for students whose parents had graduated from college (64 percent) or attended graduate or professional school (64 percent) than for students whose parents' highest education was a high school education or the equivalent (59 percent) or less than a high school education (56 percent).

School Choice

Parents of public school students were asked if their children were in a regularly assigned school or a school that they chose. They were also asked whether the family had moved to the neighborhood so that the student would be eligible for the school.

- The percentage of public school students in kindergarten through grade 12 whose parents reported that their children attended a public school of choice was higher for Black, non-Hispanic students (25 percent) and Asian or Pacific Islander, non-Hispanic students (22 percent) than for White, non-Hispanic students (13 percent) (table C). The percentage of public school students in kindergarten through grade 12 whose parents reported their children attended a public school of choice was also higher for Black, non-Hispanic students (25 percent) than for Hispanic students (14 percent).
- The percentage of public school students in kindergarten through grade 12 whose parents reported they moved to the neighborhood so that their child would be eligible for the school was higher for students

Table C. Percentage distribution of public school students in grades K through 12 by school choice and percent of students whose families moved to neighborhood for students to attend school, by household and student characteristics: 2002–03

Characteristic	Number of students in grades K through 12 (thousands)	Enrollment by school choice			Family moved to neighborhood so student eligible for school
		Student is in assigned school	Student is in chosen school	Student's assigned school is school of choice	
Total	45,790	83	15	2	26
Household poverty status					
Above poverty level	36,181	83	15	2	27
At or below poverty level	9,609	82	17	2	22
Parents' highest education level					
Less than high school	3,535	80	18	2!	22
High school graduate or equivalent	12,262	83	15	2	24
Vocational/technical education after high school or some college	14,822	83	15	2	24
College graduate	8,144	83	14	2	29
Graduate or professional school	7,028	83	16	2	35
Parents' language					
Both/only parent(s) speak(s) English	40,298	83	16	2	26
One of two parents speaks English	991	76	22	3!	30
No parent speaks English	4,501	85	13	1	29
Student's grade level ¹					
K–1st grade	6,798	82	16	2	26
2nd–3rd grade	6,770	81	17	2	26
4th–5th grade	7,436	81	16	2	27
6th–8th grade	10,903	84	15	1	27
9th–10th grade	7,058	83	15	2	24
11th–12th grade	6,819	85	14	1	27
Student's race/ethnicity					
White, non-Hispanic	27,955	85	13	2	28
Black, non-Hispanic	7,472	74	25	1	19
Hispanic	7,672	84	14	2	26
Asian or Pacific Islander, non-Hispanic	1,252	78	22	#	33
Other, non-Hispanic	1,439	79	21	1!	19
Student's sex					
Male	23,496	83	15	2	26
Female	22,295	83	15	2	26

Rounds to zero.

! Interpret data with caution.

¹Students whose parents reported that their classes were “ungraded” were excluded from the analyses of grade level.

NOTE: Students who were homeschooled were excluded from the table. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Parent and Family Involvement in Education Survey of the 2003 National Household Education Surveys Program (PFI-NHES:2003). (Originally published as table 14 on p. 49 of the complete report from which article is excerpted.)

whose parents had graduated from college (29 percent) or attended graduate or professional school (35 percent) than for children whose parents had completed vocational or technical education after high school or some college (24 percent), children whose parents' highest education was a high school education or the equivalent (24 percent), or children whose parents had less than a high school education (22 percent) (table C).

Services Provided for Students With Disabilities

Parents of students with disabilities were asked about the sources of services received for their children's special health needs (e.g., the local school district, a doctor, a clinic, or other health care provider), Individualized Education Program (IEP) services, and their children's participation in special education.

- The percentage of students with disabilities in kindergarten through grade 12 whose parents reported that their children received services through an IEP and that the family worked with the school to develop or change the student's IEP was lowest for students whose parents did not have a high school diploma (71 percent) and highest for students whose parents had attended graduate or professional school (96 percent).

- The percentage of students with disabilities in kindergarten through grade 12 whose parents reported that their children received services through an IEP and that the family worked with the school to develop or change the student's IEP was higher for White, non-Hispanic students (92 percent) than for Black, non-Hispanic students (81 percent), and higher for both White, non-Hispanic (92 percent) and Asian or Pacific Islander, non-Hispanic students (93 percent) than for Hispanic students (75 percent).

Reference

Montaquila, J.M., Brick, J.M., and Brock, S.P. (forthcoming). *Potential Nonresponse Bias in Estimates From the National Household Education Surveys Program of 2003*. U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Data source: The Parent and Family Involvement in Education Survey of the 2003 National Household Education Surveys Program (PFI-NHES:2003).

For technical information, see the complete report:

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To obtain the complete report (NCES 2005-043), call the toll-free ED Pubs number (877-433-7827) or visit the NCES Electronic Catalog (<http://nces.ed.gov/pubsearch>).

High School Dual Enrollment

Dual Enrollment of High School Students at Postsecondary Institutions: 2002–03

—Brian Kleiner and Laurie Lewis

This article was originally published as the Summary of the E.D. TAB of the same name. The sample survey data are from the “Dual Enrollment Programs and Courses for High School Students” survey conducted through the Postsecondary Education Quick Information System (PEQIS).

This article provides data from a nationally representative survey of Title IV degree-granting postsecondary institutions on the topic of dual enrollment of high school students. Dual enrollment, also known as “dual credit,” “concurrent enrollment,” and “joint enrollment,” refers to the participation in college-level courses and the earning of college credits by high school students. Dual enrollment is viewed as providing high school students benefits such as greater access to a wider range of rigorous academic and technical courses, savings in time and money on a college degree, promoting efficiency of learning, and enhancing admission to and retention in college. By providing a pathway for students to move seamlessly between K–12 and postsecondary systems, dual enrollment is thought to promote greater support for students’ college aspirations and greater collaboration between high schools and colleges (Bailey and Karp 2003; Clark 2001). In an effort to prepare high school students for college, 38 states have enacted dual enrollment policies that support the development of programs that promote a smoother transition between high school and postsecondary education (Karp et al. 2004). However, at present, there is no existing national source of information on dual enrollment of high school students at postsecondary institutions. The “Dual Enrollment Programs and Courses for High School Students” survey, undertaken by the National Center for Education Statistics (NCES), Institute of Education Sciences, U.S. Department of Education, was designed to provide policymakers, researchers, educators, and administrators with baseline information on the prevalence and characteristics of dual enrollment programs. While the majority of the survey’s questions focused on dual enrollment programs, several key questions also revealed the prevalence of college coursetaking outside of dual enrollment programs by high school students. The survey was requested by the Office of Vocational and Adult Education, U.S. Department of Education.

The front page of the survey included a definition and description of dual enrollment. For this study, dual enrollment was defined as high school students who earn college credits for courses taken through a postsecondary institution. The definition specified that courses could be part of a dual enrollment program, or courses could be taken outside of a

dual enrollment program. A dual enrollment program was defined as an organized system with special guidelines that allows high school students to take college-level courses. The guidelines might delineate entrance or eligibility requirements, funding, limits on coursetaking, and so on. High school students who simply enrolled in college courses and were treated as regular college students were not considered to be participating in a dual enrollment program. Credit for courses could be earned at both the high school and college levels simultaneously or only at the college level, and credit could be earned immediately or upon enrollment at the postsecondary institution after high school graduation. Courses could be taught on a college campus, on a high school campus, or at some other location. The time frame for the survey was the 2002–03 12-month academic year, including courses taken during summer sessions.¹ The survey definition also specified that information about summer bridge programs for students who had already graduated from high school should not be included.

This survey was conducted by NCES using the Postsecondary Education Quick Information System (PEQIS).² PEQIS is a survey system designed to collect small amounts of issue-oriented data from a previously recruited, nationally representative sample of institutions, with minimal burden on respondents and within a relatively short period of time. Questionnaires for the survey “Dual Enrollment Programs and Courses for High School Students” were mailed in February 2004 to the PEQIS survey coordinators at the approximately 1,600 Title IV degree-granting postsecondary institutions in the 50 states and the District of Columbia that compose the PEQIS panel. Coordinators were informed that the survey was designed to be completed by the person(s) at the institution most knowledgeable about the institution’s dual enrollment programs and courses. Respondents were given the option of completing the survey online. Data were adjusted for questionnaire non-response and weighted to yield national estimates that represent all Title IV eligible, degree-granting institutions in the

¹The summer session included in the 2002–03 12-month academic year (i.e., the summer session of 2002 or the summer session of 2003) was whichever one each institution considered to be part of that 12-month academic year.

²More information about PEQIS may be found at <http://nces.ed.gov/surveys/peqis>.

United States.³ The unweighted response rate was 92 percent, and the weighted response rate⁴ was 93 percent.

Survey respondents at selected postsecondary institutions were asked to report on the prevalence of college course-taking by high school students at their institutions during the 2002–03 12-month academic year, both within and outside of dual enrollment programs. Among institutions with dual enrollment programs, additional information was obtained on the characteristics of programs, including course location and type of instructors, program and course curriculum, academic eligibility requirements, and funding. Institutions with dual enrollment programs were also asked whether they had programs specifically geared toward high school students at risk of education failure; if they answered yes, they were asked a series of questions about the features of such special programs.

The primary focus of this article is to present national estimates on dual enrollment. In addition, selected survey findings are presented by the following institution characteristics:

- *Institution type*: public 2-year, private 2-year, public 4-year, and private 4-year. Institution type was created from a combination of level (2-year and 4-year) and control (public and private). Two-year institutions are defined as institutions at which the highest level of offering is at least 2 but less than 4 years (below the baccalaureate degree); 4-year institutions are those at which the highest level of offering is 4 or more years (baccalaureate or higher degree). Private institutions comprise private nonprofit and private for-profit institutions; these institutions are reported together because there are too few private for-profit institutions in the survey sample to report them as a separate category.
- *Size of institution*: less than 3,000 students, 3,000 to 9,999 students, and 10,000 or more students. These are referred to in the text as small, medium, and large institutions, respectively.

In general, comparisons by these institution characteristics are presented only where significant differences were

³Institutions participating in Title IV federal student financial aid programs (such as Pell grants or Stafford loans) are accredited by an agency or organization recognized by the U.S. Department of Education, have a program of over 300 clock hours or 8 credit hours, have been in business for at least 2 years, and have a signed Program Participation Agreement with the Office of Postsecondary Education (OPE), U.S. Department of Education. Degree-granting institutions are those that offer an associate's, bachelor's, master's, doctoral, or first-professional degree (Knapp et al. 2001).

⁴All weighted response rates were calculated using the base weight (i.e., the inverse of the probability of selection).

detected and follow meaningful patterns. It is important to note that the characteristics of type and size are related to each other. For example, private institutions tend to be smaller than public ones. However, this E.D. TAB focuses on bivariate relationships between the analysis variables (institution type and size) and questionnaire variables rather than on more complex analyses.

All specific statements of comparison made in this report have been tested for statistical significance through *t* tests and are significant at the 95 percent confidence level. However, only selected findings are presented for each topic in the report. Throughout this report, differences that may appear large may not be statistically significant due to the relatively large standard errors surrounding the estimates (because of the small sample size).

Interested readers may refer to a companion E.D. TAB, published by NCES, entitled *Dual Credit and Exam-Based Courses in U.S. Public High Schools: 2002–03* (Waits, Setzer, and Lewis 2005). The companion report describes nationally representative findings from a complementary high school-level survey requested by the Office of Vocational and Adult Education and conducted by NCES through the Fast Response Survey System (FRSS). Unlike the survey for the current report, which focused more broadly on dual enrollment, the FRSS survey focused on dual credit, where dual credit was defined as a course or program where high school students can earn both high school and postsecondary credits for the same course.

The findings in this article are organized as follows:

- prevalence of and enrollment in dual enrollment programs and college-level courses outside of dual enrollment programs;
- characteristics of dual enrollment programs and courses, such as location, instructors, curriculum, eligibility requirements, and funding; and
- dual enrollment programs specifically geared toward students at risk of education failure.

Prevalence of and Enrollment in Dual Enrollment Programs and College-Level Courses

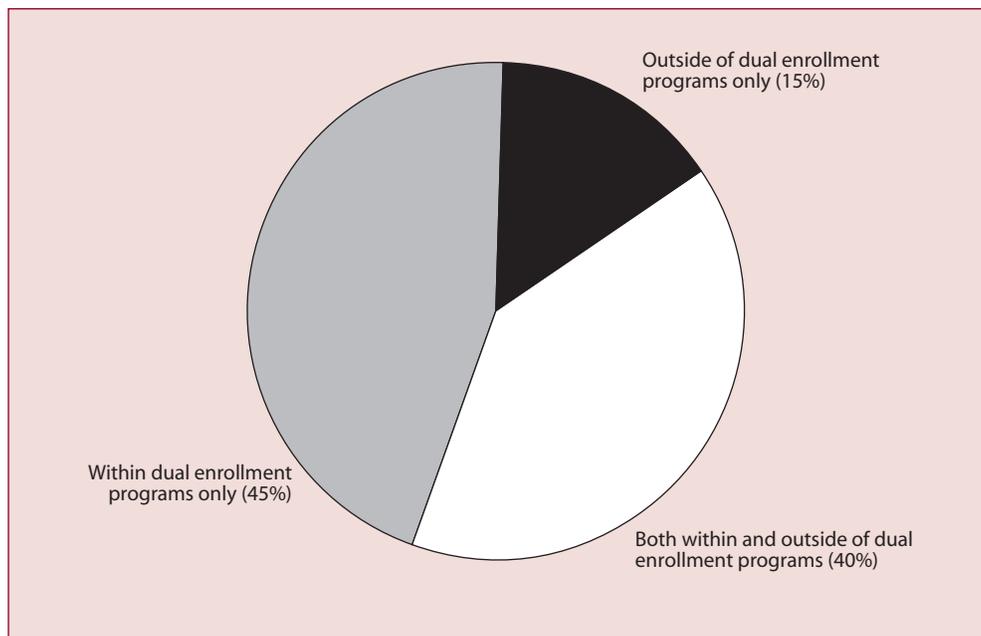
The survey asked whether institutions had any high school students who took courses for college credit during the 2002–03 12-month academic year. Institutions that did were then asked whether high school students took college-level courses outside of any dual enrollment program, followed by a question on whether any high school students took courses for college credit that were part of a dual

enrollment program. If any high school students took courses outside of or within dual enrollment programs, institutions were asked to provide the number of students who did so.

Prevalence of dual enrollment programs and college coursetaking

- During the 2002–03 12-month academic year, 57 percent of all Title IV degree-granting institutions had high school students taking courses for college credit within or outside of dual enrollment programs. Forty-eight percent of institutions had dual enrollment programs for high school students taking college courses, and 31 percent of institutions had high school students taking college courses outside of such programs.
- Of the 57 percent of institutions that had high school students who took courses for college credit during the 2002–03 12-month academic year, 85 percent had high school students taking courses for college credit in dual enrollment programs, and 55 percent had students who took college courses outside of dual enrollment programs.
- Of those institutions with any high school students taking courses for college credit, 45 percent had high school students taking college-level courses within dual enrollment programs only, 15 percent had high school students taking college-level courses outside of dual enrollment programs only, and 40 percent had high school students taking college-level courses both within and outside of those programs (figure 1).
- Ninety-eight percent of public 2-year institutions had high school students taking courses for college credit during the 2002–03 12-month academic year, compared to 77 percent of public 4-year institutions, 40 percent of private 4-year institutions, and 17 percent of private 2-year institutions.
- Among all institutions, a greater percentage of public 2-year institutions than public 4-year and private 4-year institutions had high school students taking college-level courses within dual enrollment programs (93 percent versus 64 and 29 percent, respectively). Similarly, a greater percentage of public 2-year institutions than public 4-year and private 4-year institutions had high school students taking college-level courses *outside* of dual enrollment programs (63 percent versus 40 and 18 percent, respectively).

Figure 1. Percentage distribution of Title IV degree-granting institutions with any high school students taking courses for college credit, by whether courses were taken within dual enrollment programs only, outside of dual enrollment programs only, or both within and outside of programs: 12-month academic year, 2002–03



NOTE: Percentages are based on the 2,410 institutions with any high school students taking courses for college credit. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System (PEQIS), "Dual Enrollment Programs and Courses for High School Students," PEQIS 14, 2004.

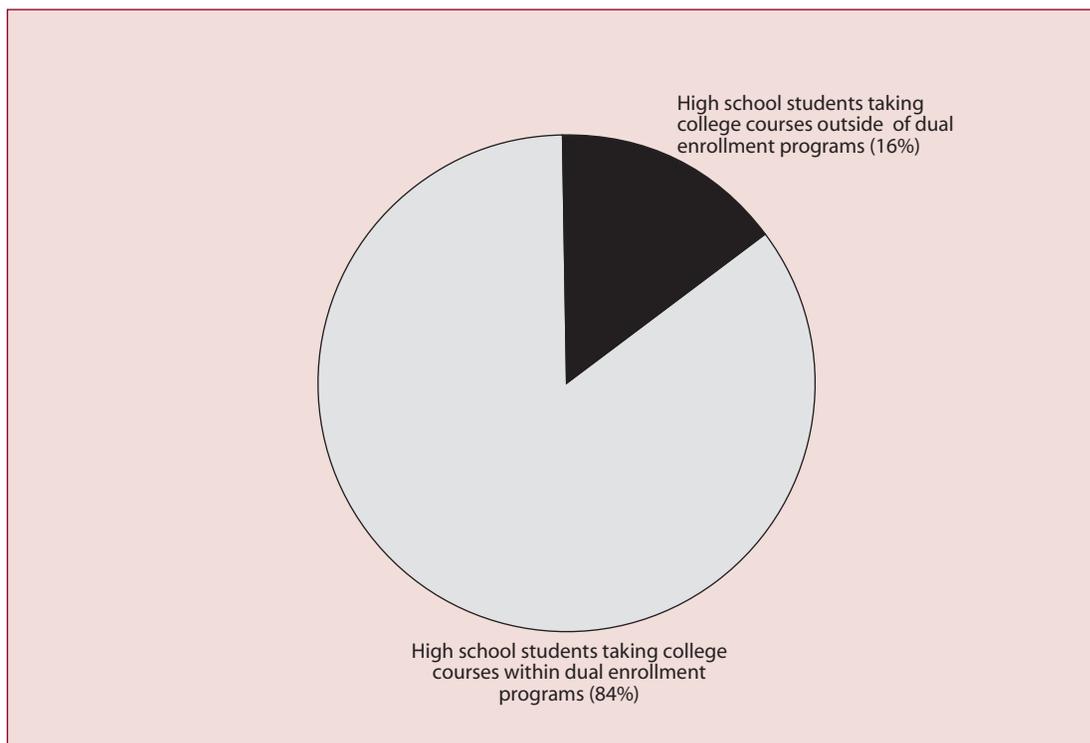
- Among institutions with high school students taking college-level courses, a higher percentage of public 2-year institutions than public 4-year and private 4-year institutions had high school students taking courses within dual enrollment programs (95 percent versus 83 and 73 percent, respectively). Similarly, among those institutions with high school students taking college-level courses, a higher percentage of public 2-year institutions than public 4-year and private 4-year institutions had high school students taking courses *outside* of dual enrollment programs (64 percent versus 52 and 45 percent, respectively).
- Forty-four percent of small institutions had high school students taking courses for college credit, compared to 83 percent of medium institutions and 94 percent of large institutions.
- Based on all institutions, a lower percentage of small institutions than medium and large institutions had high school students taking courses for college credit within dual enrollment programs (36 percent versus 74 and 79 percent, respectively). In addition, based on all institutions, a lower percentage of small institutions than medium and large institutions had high

school students taking courses *outside* of dual enrollment programs (22 percent versus 51 and 50 percent, respectively).

Enrollment of high school students in dual enrollment programs and college-level courses

- Overall, approximately 813,000 high school students took college-level courses through postsecondary institutions, either within or outside of dual enrollment programs, during the 2002–03 12-month academic year. This number represents about 5 percent of all high school students. In fall 2001 (the last year for which data are available), there were over 15 million students enrolled in public and private high schools in the United States (U.S. Department of Education 2003).
- Approximately 680,000 high school students took courses for college credit within dual enrollment programs. Fewer high school students (approximately 133,000) took college-level courses outside of dual enrollment programs. Thus, 84 percent of high school students who took courses for college credit through postsecondary institutions did so as part of a dual enrollment program (figure 2).

Figure 2. Percentage distribution of high school students taking courses for college credit within or outside of dual enrollment programs: 12-month academic year, 2002–03



NOTE: Percentages are based on the 812,700 high school students who took college-level courses at the 2,410 Title IV degree-granting institutions with any high school students taking courses for college credit during the 2002–03 12-month academic year. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System (PEQIS), "Dual Enrollment Programs and Courses for High School Students," PEQIS 14, 2004.

- Public 2-year institutions had more high school students who took college-level courses than public 4-year and private 4-year institutions during the 2002–03 12-month academic year (619,000 versus 122,000 and 67,000, respectively). Thus, 77 percent of high school students who took college-level courses were in public 2-year institutions, versus 15 percent in public 4-year and 8 percent in private 4-year institutions (figure 3).
- Public 2-year institutions also had more high school students than public 4-year and private 4-year institutions within dual enrollment programs (517,000 versus 100,000 and 60,000, respectively) and outside of dual enrollment programs (102,000 versus 22,000 and 7,000, respectively).
- Small institutions had fewer high school students taking college-level courses than medium and large institutions during the 2002–03 12-month academic year (171,000 versus 308,000 and 333,000, respectively). Similarly, small institutions had fewer high school students taking college-level courses than medium and large institutions, both within dual enrollment programs (149,000 versus 249,000 and 282,000,

respectively) and outside of dual enrollment programs (23,000 versus 59,000 and 51,000, respectively).

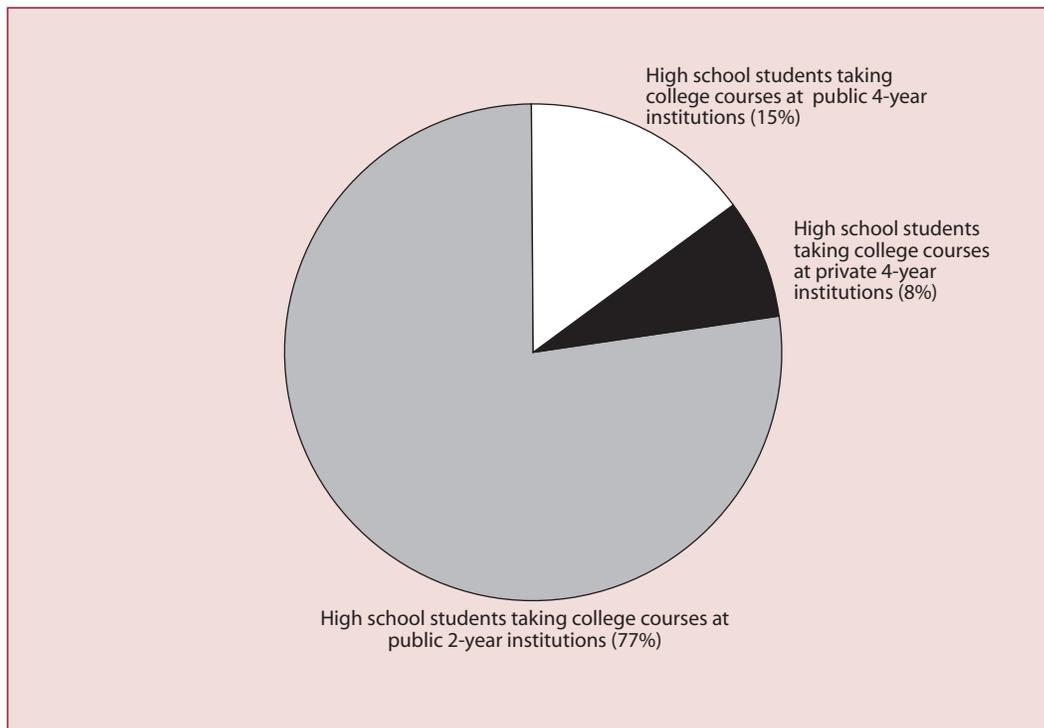
Characteristics of Dual Enrollment Programs

Those institutions that reported having high school students who took courses for college credit within dual enrollment programs were asked about the characteristics of their programs. The topics explored in the survey included course location, course instructors, program curriculum, academic eligibility requirements, and funding.

Course location and type of instructors

Institutions with dual enrollment programs were asked whether high school students in the dual enrollment programs took courses on the campus of the institution, on a high school campus, or at some other location. Institutions with courses taught on a high school campus were also asked whether the courses in the dual enrollment programs were taught by college instructors only, high school instructors only, or by both high school and college instructors. If institutions indicated that at least some courses were taught by high school instructors, they were asked how the minimum qualifications for high school instructors who

Figure 3. Percentage distribution of high school students taking courses for college credit, by institution type: 12-month academic year, 2002–03



NOTE: Percentages are based on the 812,700 high school students who took college-level courses at the 2,410 Title IV degree-granting institutions with any high school students taking courses for college credit during the 2002–03 12-month academic year. Data for private 2-year institutions are not reported in a separate category because too few private 2-year institutions in the sample had any dual enrollment of high school students in 2002–03 to make reliable estimates. Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System (PEQIS), "Dual Enrollment Programs and Courses for High School Students," PEQIS 14, 2004.

taught the courses compared to the qualifications required for college instructors.

- Among institutions with dual enrollment programs, 80 percent offered courses taken by high school students on their college campus, 55 percent offered courses on a high school campus, and 12 percent offered courses at some other location.⁵
- A greater percentage of public 2-year than public 4-year and private 4-year institutions offered the courses taken by high school students on a high school campus (73 percent versus 47 and 28 percent, respectively).
- Of those institutions with dual enrollment programs with courses taught on a high school campus, 26 percent reported that the courses were taught by college instructors only, 32 percent reported high school instructors only, and 42 percent reported both college and high school instructors.
- A smaller percentage of private 4-year institutions had the courses taught on a high school campus taught by college instructors only, compared to public 2-year and public 4-year institutions (10 percent versus 28 and 31 percent, respectively).
- Of those institutions with dual enrollment programs with at least some courses taught by high school instructors, 86 percent said that the minimum qualifications for high school instructors were the same as those required for college instructors, compared to 6 percent that said that the minimum qualifications were different. Four percent of institutions said that they had no set policy with respect to minimum qualifications, and 5 percent said that it varied.
- A higher percentage of public 2-year institutions than public 4-year institutions reported the same minimum qualifications for high school instructors as for college instructors with respect to teaching college-level courses (90 percent versus 73 percent).

Curriculum and coursetaking patterns

Institutions were asked several questions regarding dual enrollment program curriculum and coursetaking patterns, including the typical coursetaking pattern for high school students and the maximum number of courses allowed per academic term. Institutions were also asked whether the curriculum for courses taken in the programs was specially designed for high school students.

- Among institutions with dual enrollment programs, 48 percent of institutions responded that one course per academic term most closely resembled the typical high school enrollment pattern during the 2002–03 12-month academic year, compared to 19 percent that responded two courses per academic term, and 4 percent that responded three or more courses per academic term. Twenty-eight percent of institutions said that it varied.⁶
- A higher percentage of public 4-year and private 4-year institutions than public 2-year institutions reported one course per academic term as the typical pattern of high school enrollments (56 and 64 percent, respectively, versus 36 percent). A higher percentage of public 2-year institutions than public 4-year and private 4-year institutions reported that the typical pattern varied (37 percent versus 28 and 12 percent, respectively).
- Fourteen percent of institutions with dual enrollment programs said that one course was the maximum number allowed per academic term, 30 percent reported allowing a maximum of two courses per academic term, and 25 percent reported allowing three or more courses per academic term. Another 31 percent of institutions said that there was no maximum number of courses per academic term.
- A greater percentage of private 4-year institutions than public 2-year and public 4-year institutions allowed a maximum of one course per academic term (33 percent versus 5 and 11 percent, respectively). Thirty-eight percent of public 2-year institutions had no maximum number of courses per academic term, compared to 31 percent of public 4-year and 19 percent of private 4-year institutions.
- A smaller percentage of large institutions allowed a maximum of one course per academic term, compared to small and medium institutions (8 percent versus 18 and 11 percent, respectively).
- Eighty-nine percent of institutions said that the curriculum of the college-level courses taken by high school students as part of their dual enrollment programs was the same as for regular college students, compared to 3 percent of institutions that said

⁵The percentage of institutions with courses for high school students offered on their college campus, on a high school campus, or at some other location sum to more than 100 percent because institutions may have offered courses at more than one location. Other locations included community centers, vocational/technical schools, and hospitals. Respondents also included online courses as “other locations.”

⁶The “it varied” response could indicate that there was no typical pattern of high school enrollments within a single program, or else that multiple programs within an institution had different typical patterns.

that the curriculum was specially designed for high school students, and 8 percent that said it varied.⁷

Credit awarded

Institutions were asked about when high school students were generally awarded college credit for courses taken, and whether they earned credit at the high school level for courses taken.

- Ninety-four percent of institutions with dual enrollment programs awarded college credit for courses immediately after course completion, compared to 3 percent that awarded credit upon enrollment of students at their institutions and another 3 percent that awarded credit in some other way.⁸
- Fifty-nine percent of institutions with dual enrollment programs indicated that credit for college courses was earned at both the high school and college level, compared to 6 percent where credit was earned at the college level only, and 21 percent where it varied.⁹ Fourteen percent of institutions did not know whether credit was earned at the high school level.
- A greater percentage of respondents at private 4-year institutions than at public 2-year and public 4-year institutions did not know whether credit for courses was earned at the high school level (25 percent versus 9 and 14 percent, respectively).

Academic eligibility requirements

Institutions with dual enrollment programs were asked a series of questions pertaining to academic eligibility requirements for high school students to participate in the dual enrollment programs. Institutions were asked whether they had academic eligibility requirements, what were the requirements, and whether their academic eligibility requirements were the same or different than their institutions' admissions standards for regular college students. In addition, institutions were asked to identify the grade levels at which high school students were eligible to take courses in dual enrollment programs.

⁷"It varied" could mean that the curriculum varied within a single program (e.g., was the same as for regular college students for some courses, but different for others), or else that the curriculum varied across multiple programs within an institution (i.e., was the same as for regular college students in one program, but specially designed for high school students in another program).

⁸Of the roughly 20 "other ways" cited by respondents, about half noted that credits were awarded after high school graduation. The remaining responses varied.

⁹The "it varied" response could indicate that credit was earned in various ways within a single program, or else that credit was earned in different ways across multiple programs within an institution.

Prevalence and type of requirements

- Among institutions with dual enrollment programs, 85 percent had academic eligibility requirements for high school students to participate. A higher percentage of public 4-year institutions than public 2-year and private 4-year institutions had academic eligibility requirements (93 percent versus 83 and 81 percent, respectively).
- A higher percentage of institutions with dual enrollment programs that had academic eligibility requirements had a minimum high school grade point average (GPA) requirement, compared to other kinds of requirements (66 percent versus 16 to 45 percent). Forty-five percent of the institutions used a minimum score on a standardized test, 44 percent used a college placement test, and 16 percent used minimum high school class rank as academic eligibility requirements for high school students to participate in dual enrollment programs. Thirty-one percent had some other academic eligibility requirements, including recommendations or permission (from a high school principal, guidance counselor, or parent/guardian), course prerequisites, strong high school attendance, junior or senior grade level, or an essay or written letter.
- Public 4-year and private 4-year institutions used minimum high school GPA as an academic eligibility requirement more frequently than 2-year institutions (79 and 86 percent, respectively, versus 46 percent). A higher percentage of public 2-year institutions than public 4-year and private 4-year institutions required passing a college placement test (73 percent versus 22 and 13 percent, respectively).
- A greater percentage of public 4-year institutions than public 2-year and private 4-year institutions required a minimum score on a standardized test (60 percent versus 43 and 37 percent, respectively) and a minimum high school class rank (28 percent versus 8 and 19 percent, respectively).

Minimum high school GPA

- Of those institutions with dual enrollment programs that had a minimum high school GPA requirement, the highest percentage (44 percent) required a minimum GPA between 2.75 and 3.24, compared to 7 percent that required between 1.75 and 2.24, 10 percent that required between 2.25 and 2.74, 22 percent that required between 3.25 and 3.74, and 3 percent that

required a minimum GPA of 3.75 or above. Fourteen percent of institutions said that it varied.¹⁰

- A lower percentage of public 2-year institutions than public 4-year and private 4-year institutions required a minimum GPA between 3.25 and 3.74 (15 percent versus 27 and 29 percent, respectively).

Comparability of admissions standards

- Of the 85 percent of institutions with dual enrollment programs that had academic eligibility requirements for high school students to participate, 38 percent indicated that their requirements were the same as admissions standards for regular college students, while 62 percent indicated that their requirements were different from admissions standards for regular college students.
- Fifty-five percent of public 2-year institutions reported that their academic eligibility requirements were the same as admissions standards for regular college students, compared to 21 percent of public 4-year and 27 percent of private 4-year institutions.

Eligible grade levels

- Among institutions with dual enrollment programs, 96 percent allowed grade 12 high school students to take courses in the programs,¹¹ 86 percent allowed grade 11 students, 28 percent allowed grade 10 students, 16 percent allowed grade 9 students, and 2 percent allowed students in grades lower than grade 9.
- A greater percentage of public 2-year institutions than public 4-year and private 4-year institutions allowed grade 9 (21 percent versus 15 and 12 percent, respectively) and grade 10 high school students (35 percent versus 26 and 18 percent, respectively) to take courses in dual enrollment programs. A smaller percentage of private 4-year institutions allowed grade 11 high school students to take courses in dual enrollment programs, compared to public 2-year and public 4-year institutions (76 percent versus 93 and 89 percent, respectively).
- A greater percentage of large than of small or medium institutions allowed grade 9 (26 percent versus 14 and 16 percent, respectively), grade 10 (40 percent

versus 23 and 30 percent, respectively), and grade 11 (93 percent versus 83 and 88 percent, respectively) high school students to take courses in dual enrollment programs.

Funding

Institutions with dual enrollment programs were asked two questions relating to sources of funding for courses taken by high school students in their programs. The first addressed the various sources for tuition payment, and the second addressed how much high school students (and their parents) generally paid out of pocket for the college-level courses taken as part of dual enrollment programs.

- Sixty-four percent of institutions with dual enrollment programs reported that parents and students were a source for tuition for courses taken as part of the programs. Thirty-eight percent of institutions indicated that their own postsecondary institution was a source for tuition (including both actual contributions and tuition waivers), 37 percent said that high schools and public school districts were a source, and 26 percent said that their state was a source for tuition.¹² Nine percent indicated that there was some other source(s) for tuition. The most commonly cited other sources included various federal and county grants, as well as scholarships from local businesses and nonprofit organizations.
- A lower percentage of private 4-year institutions than public 2-year and public 4-year institutions indicated that high schools/public school districts (21 percent versus 45 and 41 percent, respectively) and the state (15 percent versus 31 and 25 percent, respectively) were sources for tuition for courses taken in their dual enrollment programs. However, a higher percentage of private 4-year institutions than public 2-year and public 4-year institutions said that their own institution was a source for tuition (50 percent versus 33 percent each).
- A smaller percentage of public 2-year institutions reported that parents and students were a source for tuition for courses taken in dual enrollment programs, compared to public 4-year and private 4-year institutions (56 percent versus 72 and 71 percent, respectively).
- Twenty percent of institutions with dual enrollment programs indicated that students and parents generally paid full tuition for college-level courses taken in their dual enrollment programs. Another 20 percent

¹⁰"It varied" could indicate that the minimum GPA varied within a single program, or else that the minimum required GPA was different across multiple programs within an institution.

¹¹Four percent of institutions did not allow grade 12 students to participate in dual enrollment programs, while they did allow students in other grades (predominantly grade 11) to participate in dual enrollment programs.

¹²Multiple sources could have been selected.

said that students and parents generally paid partial tuition. Twenty-three percent said that students and parents generally paid for books and/or fees only, and 19 percent said that students and parents generally paid nothing for courses in the dual enrollment programs. Nineteen percent of institutions reported that the amount paid out of pocket by students and parents varied.¹³

- A greater percentage of public 4-year institutions than public 2-year and private 4-year institutions indicated that students and parents generally paid full tuition for courses taken in dual enrollment programs (28 percent versus 20 and 13 percent, respectively). Thirty-eight percent of private 4-year institutions said that students and parents generally paid partial tuition out of pocket, compared to 10 percent of public 2-year and 17 percent of public 4-year institutions.

Dual Enrollment Programs Specifically for Students at Risk of Education Failure

Some postsecondary institutions have developed programs for at-risk students as a way of promoting high school retention as well as enthusiasm for education among a population of students at risk of complete withdrawal from the education system. Institutions with dual enrollment programs were asked whether they had a formal dual enrollment program geared specifically toward high school students who were at risk of education failure. If there was a dual enrollment program for at-risk high school students, institutions were then asked about features of that program, such as the number of students in the program, the primary focus of the program, the typical pattern of enrollments, and any extra support services provided to the at-risk students.

- Among the estimated 2,050 institutions with dual enrollment programs, approximately 110 (5 percent) had dual enrollment programs specifically geared toward high school students at risk of education failure. Two percent of all institutions had such programs.
- During the 2002–03 12-month academic year, there were approximately 6,400 students enrolled in dual enrollment programs geared specifically toward high school students at risk of education failure.¹⁴

- Thirty-nine percent of institutions with dual enrollment programs geared toward students at risk of education failure reported that the primary focus of the program was career/technical (figure 4). Thirty-four percent said that the primary focus was academic, and 21 percent said that the primary focus was equally academic and career/technical. Six percent reported some other primary focus.
- Forty percent of institutions with dual enrollment programs for at-risk students indicated that the most common pattern of enrollments in such programs was one course per academic term, 14 percent reported two courses per academic term, 8 percent reported three or more courses per academic term, and 38 percent reported that the number of courses students took varied considerably (figure 5).
- Sixty percent of institutions with programs for at-risk students provided extra support services specifically for the students in the program, such as tutoring, academic advising, study skills workshops, and pre-college counseling.¹⁵
- Of those institutions with programs for at-risk students that provided extra support services, 84 percent provided academic advising, 82 percent provided tutoring, 76 percent provided study skills workshops, 75 percent offered college application/selection counseling, 62 percent offered financial aid counseling, and 38 percent offered other support services (figure 6). Mentoring and career counseling were commonly cited as other support services.

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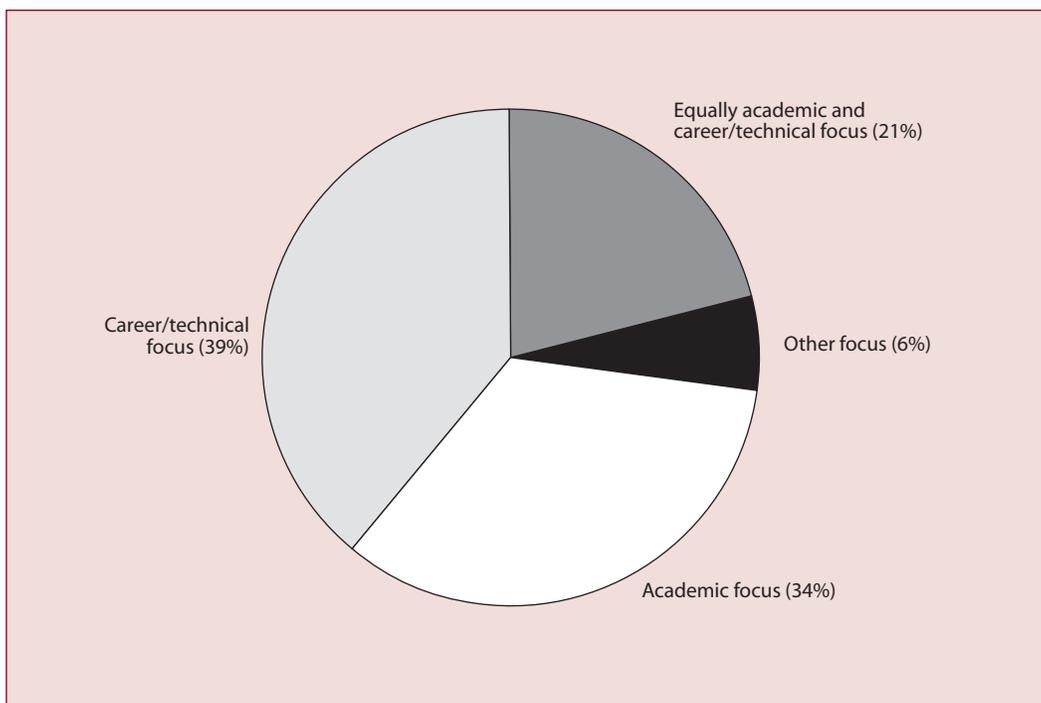
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¹³"It varied" could indicate that the amount paid out of pocket by students and parents varied within a single program, or else that the amount paid varied across multiple programs within an institution.

¹⁴Standard error = 1,110.

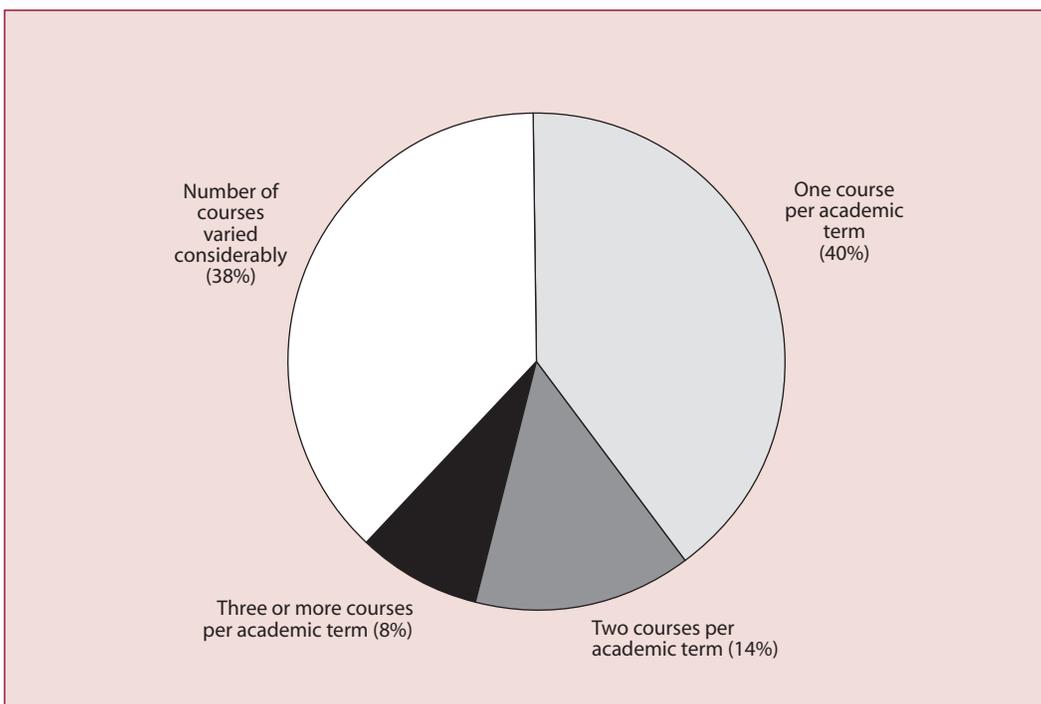
¹⁵Standard error = 8.4. Respondents were asked to include only those support services beyond those usually provided to students taking courses through their institution.

Figure 4. Percentage distribution of Title IV degree-granting institutions with dual enrollment programs for at-risk high school students, by primary focus of such programs: 12-month academic year, 2002–03



NOTE: Percentages are based on the 110 institutions that had dual enrollment programs for at-risk high school students. Detail may not sum to totals because of rounding.
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System (PEQIS), "Dual Enrollment Programs and Courses for High School Students," PEQIS 14, 2004.

Figure 5. Percentage distribution of Title IV degree-granting institutions with dual enrollment programs for at-risk high school students, by typical patterns of enrollments in such programs: 12-month academic year, 2002–03



NOTE: Percentages are based on the 110 institutions that had dual enrollment programs for at-risk high school students. Detail may not sum to totals because of rounding.
 SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System (PEQIS), "Dual Enrollment Programs and Courses for High School Students," PEQIS 14, 2004.

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Data source: The NCES Postsecondary Education Quick Information System (PEQIS), "Dual Enrollment Programs and Courses for High School Students," PEQIS 14, 2004.

For technical information, see the complete report:

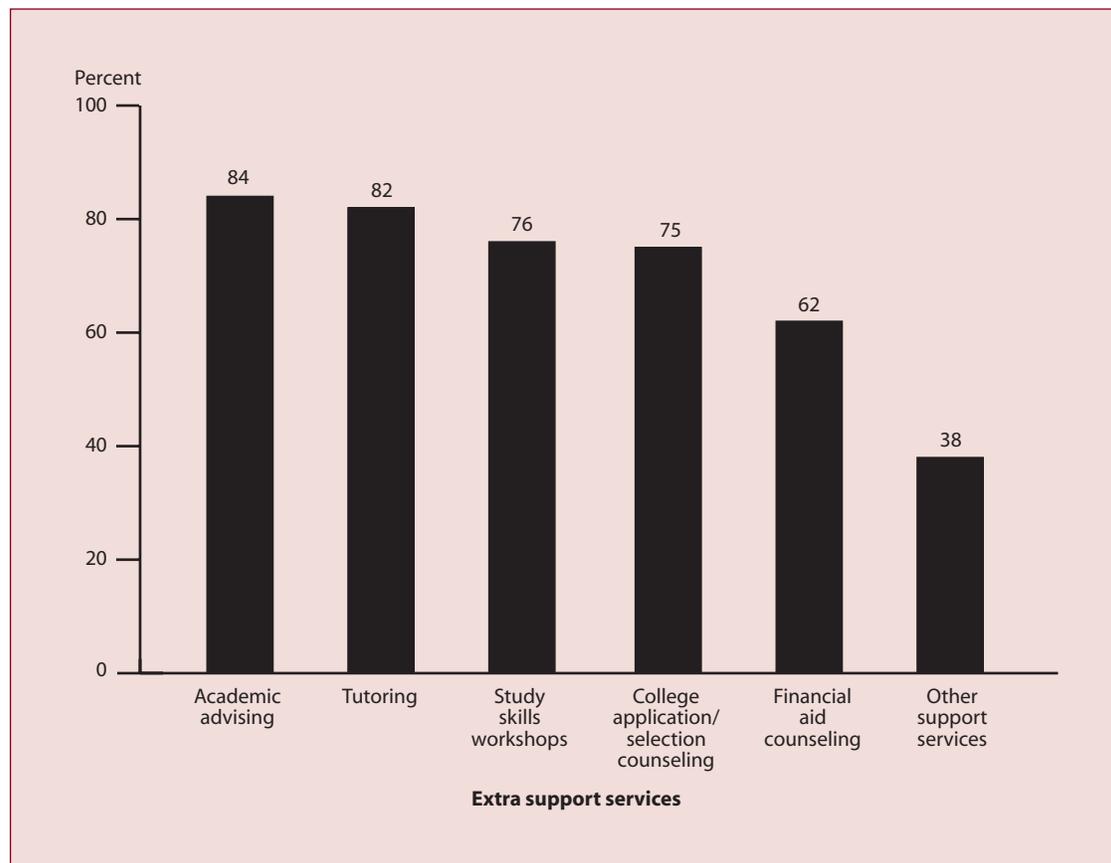
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To obtain the complete report (NCES 2005-008), call the toll-free ED Pubs number (877-433-7827) or visit the NCES Electronic Catalog (<http://nces.ed.gov/pubsearch>).

Figure 6. Percent of Title IV degree-granting institutions with dual enrollment programs for at-risk high school students that had extra support services, by specific extra support services: 12-month academic year, 2002–03



NOTE: Percentages are based on the 60 institutions that had dual enrollment programs for at-risk high school students and provided extra support services to students.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System (PEQIS), "Dual Enrollment Programs and Courses for High School Students," PEQIS 14, 2004.

Dual Credit, AP, and IB Courses

Dual Credit and Exam-Based Courses in U.S. Public High Schools: 2002–03

Tiffany Waits, J. Carl Setzer, and Laurie Lewis

This article was originally published as the Summary of the E.D. TAB of the same name. The sample survey data are from the survey “Dual Credit and Exam-Based Courses,” conducted through the Fast Response Survey System (FRSS).

Background

Dual credit, whereby high school students can earn both high school and postsecondary credits for the same course, is an area in which interest has grown rapidly over the past decade (Bailey and Karp 2003; Clark 2001; Education Commission of the States 2004). However, there has been no existing national source of information on dual credit courses at the high school level. This survey was requested by the Office of Vocational and Adult Education, U.S. Department of Education, to provide baseline information regarding the prevalence and characteristics of dual credit courses. This survey also collected information on two types of exam-based courses, Advanced Placement (AP) and International Baccalaureate (IB). These types of courses provide high school students with another way of bridging K–12 and postsecondary education.

Respondents for this survey were those selected by the school principal as the most knowledgeable about the school’s dual credit, AP, and IB courses. This was typically the school’s director of guidance counseling. Respondents were provided with a definition and description of dual credit and exam-based courses. For this study, dual credit was defined as a course or program where high school students can earn both high school and postsecondary credits for the same course. Dual credit courses could be located on a high school campus or the campus of a postsecondary institution, or taught through distance education. These courses might include courses with an academic focus, such as English, history, or foreign language, or those with a career and technical/vocational focus, such as computer maintenance technology and automotive technology. Additionally, the dual credit options must be either legislated by the state or have an articulated or other formal written agreement between the high school and the postsecondary institution.

AP courses were defined as courses that follow the content and curricular goals as described in the AP Course Description booklets, developed and published by the College Board. A qualifying score on an AP exam may give the student college credit or advanced standing in a college in the subject area in which the course/exam was taken. IB courses were defined as courses that compose a 2-year liberal arts cur-

riculum that leads to a diploma and meets the requirements established by the International Baccalaureate program. Students taking these courses are in grades 11 and 12 and must meet all requirements and pass examinations in each subject area in order to receive the IB diploma. In some schools, students who are not seeking the IB diploma are allowed to take individual IB courses. AP and IB credit is only given at the discretion of the colleges and therefore occurs after students have applied and been accepted to a college, whereas dual credit courses are actual college courses and the credit is usually recorded on a college transcript from the postsecondary institution.

The survey asked respondents to report on the prevalence and enrollment of dual credit and exam-based courses in their high schools. Additional information was obtained on dual credit courses, including the location and educational focus of these courses, dual credit course characteristics, and school requirements surrounding dual credit courses. The time frame for this survey is the 2002–03 12-month school year. As specified on the front of the questionnaire, this includes courses during the summer of 2002 or the summer of 2003, depending upon how the schools kept their records.

This survey was conducted by the National Center for Education Statistics (NCES) using the Fast Response Survey System (FRSS). 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 “Dual Credit and Exam-Based Courses” were mailed in fall 2003 to a representative sample of 1,499 regular public secondary 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 School Universe file, which was the most current file available at the time of selection. The sampling frame includes 17,059 regular secondary schools. The estimated number of schools in the survey universe decreased to an estimated 16,483 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 and weighted response rates were both 92 percent. Detailed information about the

survey methodology is provided in appendix A of the full report, and the questionnaire can be found in appendix B of the full report.

The primary purpose of this report is to present national estimates. In addition, selected survey findings are presented by the following school characteristics, which are defined in more detail in appendix A of the full report:

- school enrollment size¹ (enrollment of less than 500; 500 to 1,199; 1,200 or more);
- locale (city, urban fringe, town, rural);
- region (Northeast, Southeast, Central, West); and
- percent minority enrollment (less than 6 percent, 6 to 20 percent, 21 to 49 percent, 50 percent or more).

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 used for independent analysis may also be related to each other. For example, school enrollment size and locale are related, with city schools typically being larger than rural schools. Other relationships between these analysis variables may exist. However, this E.D. TAB report focuses on the bivariate relationships between the school characteristics and the data gathered in the survey, rather than more complex analyses, to provide descriptive information about dual credit and exam-based courses.²

All specific statements of comparison made in this report have been tested for statistical significance through trend analysis tests and *t* tests and are significant at the 95 percent confidence level. 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 may be due to the relatively large standard errors surrounding the estimates. A detailed description of the statistical tests supporting the survey findings can be found in appendix A of the full report.

Selected Findings

The findings in this report are organized as follows:

- prevalence of courses for dual credit and exam-based course offerings in regular public high schools;

- location and educational focus of courses for dual credit;
- characteristics of courses for dual credit; and
- school requirements related to dual credit courses.

Prevalence of Courses for Dual Credit and Exam-Based Course Offerings in Regular Public High Schools

The survey asked whether schools offered dual credit, Advanced Placement, and/or International Baccalaureate courses during the 2002–03 12-month school year. Schools offering such courses were asked to indicate the course enrollment totals during the survey time frame.

Prevalence of dual credit and exam-based courses

- During the 2002–03 12-month school year, most public high schools offered dual credit and/or exam-based courses. Overall, 71 percent of public high schools offered courses for dual credit, 67 percent offered AP courses, and 2 percent offered IB courses.³
- The size of public high schools was positively related to the percentage of schools offering dual credit and/or AP courses. In 2002–03, 63 percent of small schools, 75 percent of medium-sized schools, and 82 percent of large schools offered courses for dual credit. Similarly, 40 percent of small schools, 82 percent of medium-sized schools, and 97 percent of large schools offered AP courses.
- Schools located in cities were less likely than schools located in either towns or urban fringe areas to report offering dual credit courses (65 vs. 79 and 74 percent, respectively). In addition, schools located in rural areas were less likely to offer these types of courses than were schools located in towns (70 vs. 79 percent). Furthermore, schools located in rural areas were the least likely to report offering AP courses at their schools when compared to all other locales (50 vs. 72 to 87 percent), while schools located in urban fringe areas were the most likely to report offering these courses (87 vs. 50 to 77 percent).
- Public high schools in the Central region were the most likely to offer courses for dual credit (80 vs. 58 to 71 percent) and schools in the Northeast were the least likely to do so (58 vs. 69 to 80 percent). The reverse was true with regard to AP courses. Schools in the Central region were the least likely

¹Throughout this report, school enrollment size will be referred to as small, medium, or large schools.

²E.D. TAB reports are designed to focus on the presentation of selected descriptive data in tabular format.

³Percentages sum to more than 100 because schools could offer more than one type of course.

to offer AP courses (54 vs. 69 to 84 percent), and schools in the Northeast were the most likely to do so (84 vs. 54 to 69 percent).

- While schools with the highest minority enrollment were the least likely to offer dual credit courses when compared to schools with lower minority enrollment (58 vs. 72 to 78 percent), schools with the lowest minority enrollment were the least likely to offer AP courses when compared to schools with higher minority enrollment (58 vs. 69 to 75 percent).
- Public high schools reported the total enrollment in dual credit courses, AP courses, and IB courses. In the 12-month 2002–03 school year, there were an estimated 1.2 million enrollments in courses for dual credit, 1.8 million enrollments in AP courses, and 165,000 enrollments in IB courses.⁴ If a student was enrolled in multiple courses, schools were instructed to count the student for each course in which he or

she was enrolled. Thus, enrollments may include duplicated counts of students.

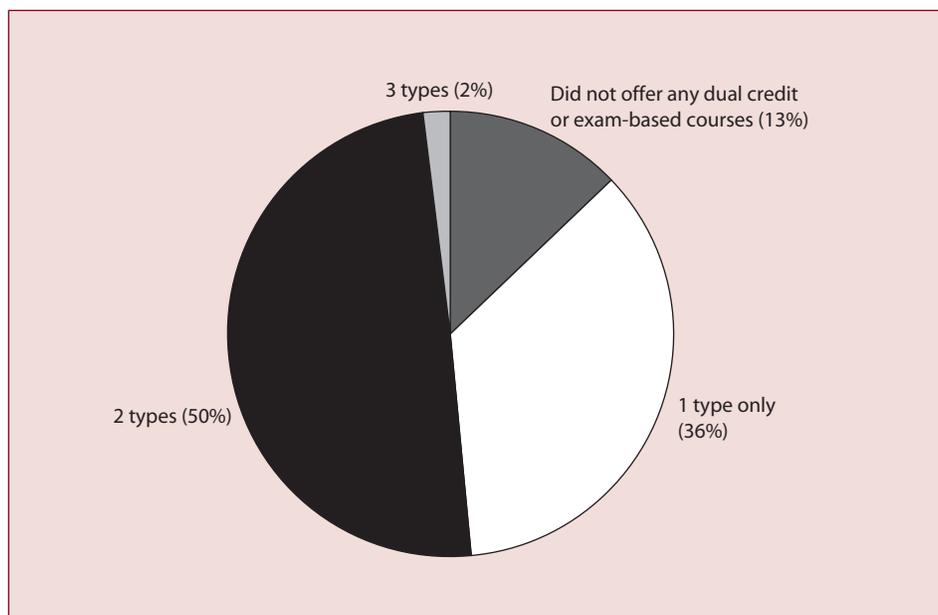
Combinations of dual credit and exam-based courses

In order to provide an overall picture of the ways in which public high schools offer dual credit and exam-based courses, combinations of the two types of dual credit and exam-based courses were examined. These have been grouped as follows: the school offered dual credit courses only; AP courses only; AP and IB courses; AP and dual credit courses; IB and dual credit courses; AP, IB, and dual credit courses; and no exam-based courses or courses for dual credit.

- Thirteen percent of public high schools did not offer any dual credit or exam-based courses during the 2002–03 12-month school year (figure 1). Thirty-six percent offered either dual credit or one of the types of exam-based courses, 50 percent offered a combination of two types of dual credit and exam-based courses, and 2 percent offered all three types of courses (dual credit, AP, and IB).

⁴To put these numbers into context, NCES reports 13,736,000 students enrolled in public high schools in fall 2001 (Snyder, Tan, and Hoffman 2004). It is important to note that the dual credit enrollments collected in the FRSS survey may include duplicated counts of students, while the NCES estimate of 13,736,000 students enrolled is an unduplicated count.

Figure 1. Percentage distribution of public high schools by whether they offered dual credit and/or exam-based courses and the number of types of these courses offered during the 2002–03 12-month school year: 2003



NOTE: Types of courses include Advanced Placement, International Baccalaureate, and any courses taken for dual credit. Percentages are based on all public high schools (16,500). Percentages are based on unrounded numbers. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Dual Credit and Exam-Based Courses," FRSS 85, 2003.

- Forty-nine percent of public high schools offered both dual credit and AP courses, 20 percent offered only courses for dual credit, 16 percent offered only AP courses, 1 percent offered both courses for dual credit and IB courses, and 2 percent offered a combination of all three types of courses (dual credit, AP, and IB). There were no schools that offered IB courses exclusively.
- A greater proportion of small schools than medium schools did not offer any dual credit or exam-based courses (25 vs. 4 percent). School enrollment size was positively related to the likelihood of offering a combination of both dual credit and AP courses (28 percent for small schools, 61 percent for medium schools, and 74 percent for large schools).
- Public high schools located in rural areas were more likely than high schools in other locales to report that they offered dual credit courses only (32 vs. 7 to 21 percent). However, public high schools located in rural areas were the least likely to report that they offered a combination of both dual credit and AP courses, compared with schools in all other locales (37 vs. 53 to 63 percent). In addition, schools in rural areas were more likely than schools located in either urban fringe areas or towns to not offer any dual credit or exam-based courses (18 vs. 5 and 8 percent, respectively). Furthermore, schools located in cities were more likely than schools located in urban fringe areas to not offer these types of courses (15 vs. 5 percent).
- Schools with the highest minority enrollment were the most likely to indicate that they did not offer any dual credit or exam-based courses. Twenty percent of these schools indicated that they did not offer any dual credit or exam-based courses, compared with 6 to 12 percent of schools with lower minority enrollment.

Location and Educational Focus of Courses for Dual Credit

Schools reported whether their students were offered courses for dual credit at three locations: courses taught on the high school campus, courses taught on the campus of a postsecondary institution, and courses taught through distance education technologies. In addition, schools also reported dual credit course enrollment totals, and whether the courses for dual credit taught on a high school or postsecondary campus had an academic focus (such as English, history, or foreign language) or a career and technical/voca-

tional focus (such as computer maintenance technology and automotive technology).

Location of courses

- *Overview.* Of the 11,700 public high schools that offered courses for dual credit, 61 percent indicated that they offered courses for dual credit taught on a high school campus, 65 percent offered courses for dual credit taught on the campus of a postsecondary institution, and 25 percent offered courses for dual credit taught through distance education technologies.⁵
- *High school campus.* Schools located in towns reported offering dual credit courses taught on a high school campus more often (73 percent) than did schools located in cities (54 percent), urban fringe areas (59 percent), or rural areas (61 percent). Schools with the highest minority enrollment were the least likely to offer dual credit courses on the high school campus (51 vs. 63 to 64 percent).
- *Postsecondary campus.* There was a positive relationship between enrollment size and the proportion of schools reporting that their courses for dual credit were taught on the campus of a postsecondary institution (57 percent of small schools, 68 percent of medium schools, and 74 percent of large schools). In addition, schools located in cities and schools in urban fringe areas were both more likely to report that their dual credit courses were taught on the campus of a postsecondary institution than were schools located in rural areas (78 and 70 percent vs. 58 percent). A greater proportion of schools with the highest minority enrollment offered courses for dual credit taught on a campus of a postsecondary institution (76 percent) than did schools with the lowest minority enrollment (59 percent).
- *Distance education.* For dual credit courses taught through distance education, there was a negative relationship between enrollment size and the likelihood of offering these courses through distance education (35 percent of small schools, 21 percent of medium schools, and 17 percent of large schools). Schools in rural areas and schools in towns were both more likely than either schools in cities or schools in urban fringe areas to offer courses for dual credit through

⁵The percentage of schools with courses for dual credit taught on a high school campus, on the campus of a postsecondary institution, and through distance education sum to more than 100 percent because many schools offered courses for dual credit at more than one location. An estimated 21 percent of schools offered courses for dual credit at both the high school and postsecondary institution campus, and an estimated 6 percent offered dual credit courses at the high school campus, postsecondary institution campus, and via distance education.

distance education (33 and 29 percent vs. 11 and 18 percent, respectively).

- **Enrollment.** During the 2002–03 12-month school year, there were approximately 1.2 million enrollments in dual credit courses. Of these, 74 percent (855,000 enrollments) were in courses taught on a high school campus, 23 percent (262,000 enrollments) were in courses taught on the campus of a postsecondary institution, and 4 percent (44,900 enrollments) were in dual credit courses taught through distance education (figure 2).

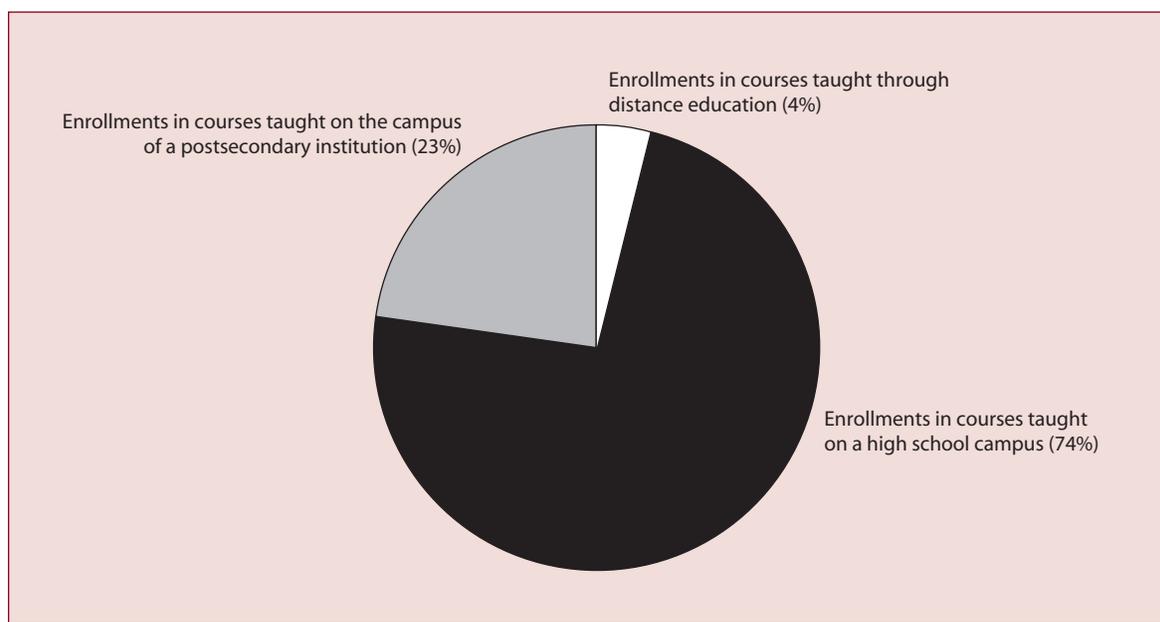
Educational focus of courses

Schools that reported offering courses for dual credit located on either a high school campus or on the campus of a postsecondary institution were asked to report separately for each location about courses with an academic focus and courses with a career and technical/vocational focus. Schools that offered dual credit courses taught through distance education were not asked to report on the educational focus of their dual credit courses. To examine the extent to which schools offered dual credit courses with an academic or a career and technical/vocational focus across locations, dual credit courses with an academic focus that were taught on a high school campus or on the campus of a postsecond-

ary institution were combined into one category, while dual credit courses with a career and technical/vocational focus, regardless of course location, were combined into a second category.

- **Overview.** Of the 11,400 schools that offered courses for dual credit that were taught on a high school campus or on the campus of a postsecondary institution, 92 percent indicated that they offered dual credit courses with an academic focus, and 51 percent reported that they offered dual credit courses with a career and technical/vocational focus.
- **Academic focus.** Schools located in towns were more likely to offer dual credit courses with an academic focus than were schools located in urban fringe areas (96 vs. 90 percent).
- **Career and technical/vocational focus.** School enrollment size was positively related to the likelihood of offering dual credit courses with a career and technical/vocational focus. In 2002–03, 43 percent of small schools, 52 percent of medium schools, and 61 percent of large schools offered these types of courses. Schools in rural areas were less likely to offer dual credit courses with a career and technical/vocational focus than were schools located in either urban fringe

Figure 2. Percentage distribution of enrollment in courses for dual credit, by course location: 2003



NOTE: Percentages are based on the total 1,162,000 enrollments in dual credit courses. Percentages are based on unrounded numbers. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Dual Credit and Exam-Based Courses," FRSS 85, 2003.

areas or towns (43 vs. 56 and 63 percent, respectively). Schools located in the West (62 percent) were the most likely to report that they offered dual credit courses with a career and technical/vocational focus, while schools in the Northeast (30 percent) were the least likely to do so. Finally, schools with less than 6 percent minority enrollment were less likely than schools with 6 to 49 percent minority enrollment to report that they offered these types of courses.

- **Enrollment.** During the 2002–03 12-month school year, there were 1.1 million enrollments in dual credit courses taught on a high school campus or the campus of a postsecondary institution. Of these, 64 percent (719,000 enrollments) were in courses with an academic focus, while 36 percent (398,000 enrollments) were in courses with a career and technical/vocational focus (figure 3).

Educational focus by course location

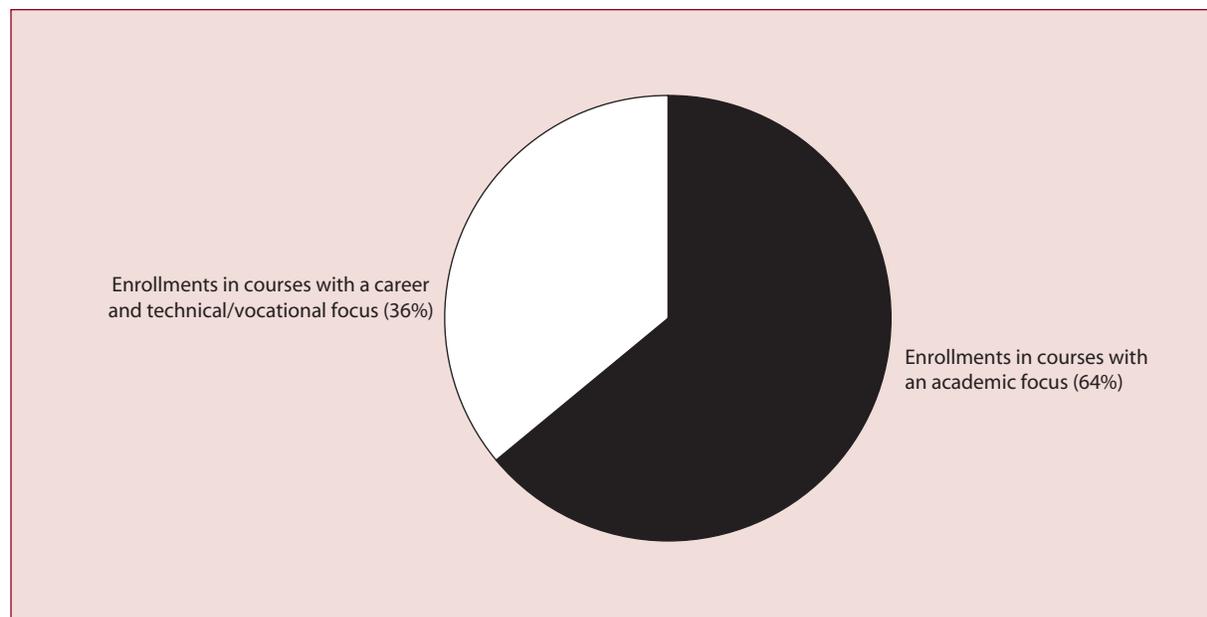
Schools reported the educational focus of the dual credit courses they offered separately for those courses that were located on a high school campus and for those located on the campus of a postsecondary institution.

Courses for dual credit taught on a high school campus

Schools that reported offering dual credit courses taught on their campus indicated whether any of these courses had an academic focus and whether any had a career and technical/vocational focus. Schools could offer both types of courses.

- **Overview.** Of the schools that offered courses for dual credit taught on a high school campus, 83 percent offered courses that had an academic focus and 49 percent offered courses with a career and technical/vocational focus.
- **Academic focus.** Of the schools that offered dual credit courses taught at the high school, small schools were more likely than large schools to offer such courses with an academic focus (87 vs. 78 percent).
- **Career and technical/vocational focus.** School enrollment size was positively related to the likelihood of offering dual credit courses on a high school campus with a career and technical/vocational focus. In 2002–03, 40 percent of small schools, 50 percent of medium schools, and 59 percent of large schools offered these types of courses. Rural schools were less likely than schools in all other locales to offer these dual credit courses on a high school campus (37 vs. 56 to 58 percent). In addition, schools in the West

Figure 3. Percentage distribution of enrollment in courses for dual credit taught on a high school campus or on the campus of a postsecondary institution, by educational focus of those courses: 2003



NOTE: Percentages are based on the 1,117,100 enrollments in dual credit courses taught on a high school campus and/or the campus of a postsecondary institution. Percentages are based on unrounded numbers. Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Dual Credit and Exam-Based Courses," FRSS 85, 2003.

were more likely than those in any other region to offer these dual credit courses on a high school campus (60 vs. 37 to 47 percent).

- **Enrollment.** During the 2002–03 12-month school year, among dual credit courses taught on high school campuses, there were approximately 513,000 enrollments in dual credit courses with an academic course focus, and 342,000 enrollments in courses with a career and technical/vocational focus. These enrollments represent 46 percent and 31 percent, respectively, of the total enrollments in dual credit courses taught on either a high school campus or at a postsecondary institution (figure 4).

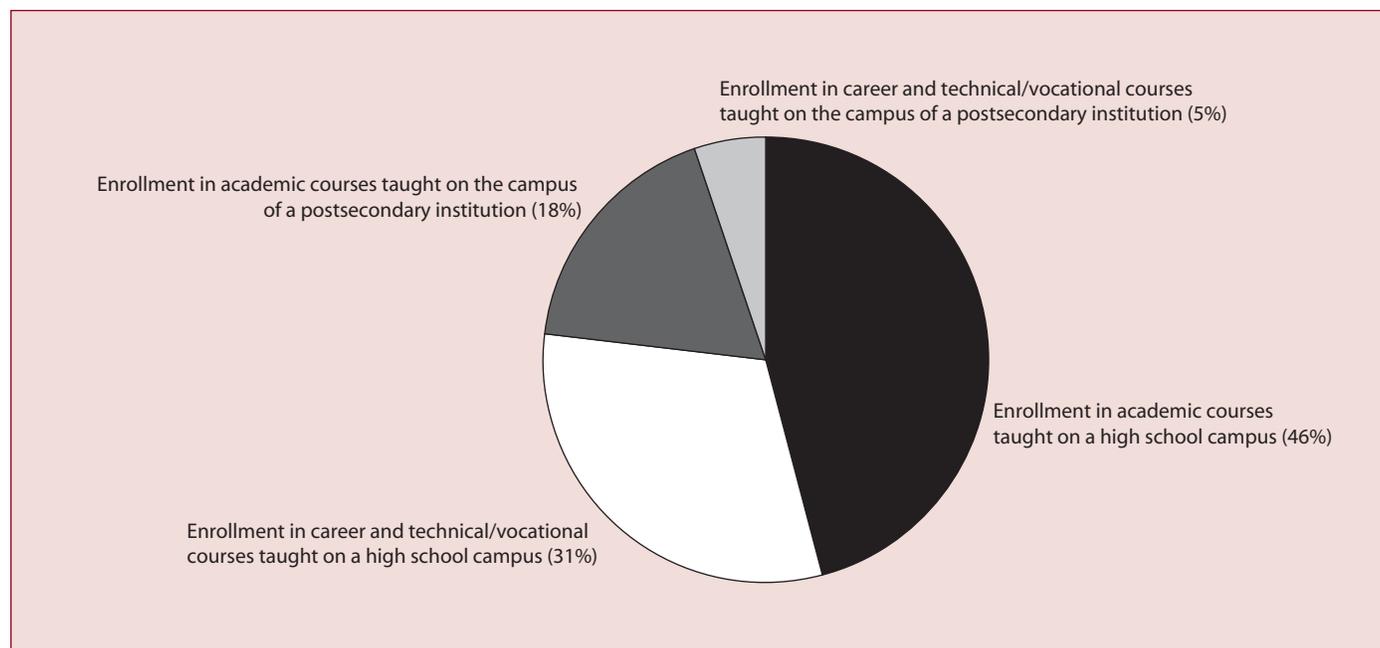
Courses for dual credit taught on the campus of a postsecondary institution

Schools that reported offering dual credit courses taught on the campus of a postsecondary institution indicated whether any of these courses had an academic focus and whether any had a career and technical/vocational focus. Schools could offer both types of courses.

- **Overview.** Of the schools that offered dual credit courses taught on the campus of a postsecondary institution, 92 percent offered courses with an academic focus and 46 percent offered courses with a career and technical/vocational focus.

- **Academic focus.** Schools in the Northeast (99 percent) were more likely than schools in the Southeast (90 percent), Central region (90 percent), or the West (92 percent) to report offering dual credit courses with an academic focus on the campus of a postsecondary institution.
- **Career and technical/vocational focus.** Schools located in towns were more likely than those located in cities or rural areas to offer courses for dual credit with a career and technical/vocational focus on a postsecondary campus (57 vs. 42 percent respectively). Furthermore, schools in the Northeast were less likely than those in other regions to offer these courses on a postsecondary campus (13 percent vs. 48 to 54 percent).
- **Enrollment.** During the 2002–03 12-month school year, there were 205,000 enrollments in academic dual credit courses that were taught on the campus of a postsecondary institution, and 56,000 enrollments in career and technical/vocational courses that were taught on the campus of a postsecondary institution. These enrollments represent 18 percent and 5 percent, respectively, of the total enrollments in dual credit courses taught on the campus of a high school or postsecondary institution (figure 4).

Figure 4. Percentage distribution of enrollment in courses for dual credit, by course location and educational focus: 2003



NOTE: Percentages are based on the 1,117,100 enrollments in dual credit courses taught on a high school campus and/or the campus of a postsecondary institution. Percentages are based on unrounded numbers. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Dual Credit and Exam-Based Courses," FRSS 85, 2003.

Characteristics of Courses for Dual Credit

Dual credit courses vary greatly with regard to a number of characteristics, including whether (1) they are offered individually (“cafeteria style”) or in a sequence of courses, (2) they are taught by high school instructors and/or postsecondary instructors, (3) they serve only public high school students or a mixture of public high school students and postsecondary students, and (4) the postsecondary credit is awarded immediately upon course completion or is held in escrow until after the student graduates from public high school and attends a specific postsecondary institution.

Course structure

In addition to dual credit course location or focus, high schools reported whether students could select courses for dual credit cafeteria style, whereby students selected individual courses from a wide range of courses for which prerequisites were met; and whether students could select the courses for dual credit as part of a sequence, such as a series of courses in a specific content area, such as math, history, nursing, or automotive technology. Respondents could offer these courses both ways.

Sequence of courses

- Among high schools offering dual credit courses on their campus, 53 percent of those offering courses with an academic focus and 72 percent of those offering courses with a career and technical/vocational focus indicated that some or all of these courses were offered as part of a sequence.
- Similarly, among schools offering dual credit courses on the campus of a postsecondary institution, 53 percent of those offering courses with an academic focus and 72 percent of those offering courses with a career and technical/vocational focus reported that some or all of these courses were offered as part of a sequence.
- Among schools that offered dual credit courses with an academic focus on a high school campus, 59 percent of schools located in towns reported offering some or all of these courses as part of a sequence, compared with 42 percent of schools located in cities.
- Among schools that offered dual credit courses with an academic focus on a postsecondary institution’s campus, a greater proportion of schools located in urban fringe areas than in cities offered some or all of these courses as part of a sequence (60 vs. 46 percent, respectively).

Cafeteria-style courses

- Among schools that offered dual credit courses taught on a high school campus, 35 percent of those offering courses with an academic focus reported that some or all of these courses were offered cafeteria style, while 41 percent of those offering courses with a career and technical/vocational focus indicated that some or all of these courses were offered cafeteria style.
- Among public high schools reporting that they offered dual credit courses taught on the campus of a postsecondary institution, 68 percent of those that offered dual credit courses with an academic focus and 59 percent of those that offered courses with a career and technical/vocational focus indicated that some or all of these courses were offered cafeteria style.
- Of the schools that offered career and technical/vocational dual credit courses taught on a high school campus, fewer schools located in cities (29 percent) reported that some or all of these courses were offered cafeteria style, compared with 50 percent in urban fringe areas and 44 percent in towns. In addition, schools in the Southeast region offering career and technical/vocational dual credit courses on a high school campus were less likely to indicate that some or all of these courses were offered cafeteria style than were schools in the other regions (25 vs. 42 to 46 percent).
- Of the schools that offered career and technical/vocational dual credit courses taught on the campus of a postsecondary institution, schools in the Northeast were more likely to report that some or all of these courses were offered cafeteria style than were schools in all other regions (100 vs. 55 to 59 percent).

Course instructors

Public high schools indicating that they offered dual credit courses taught on their high school campus were asked to specify whether these courses were taught by high school instructors only, postsecondary instructors only, or both high school and postsecondary instructors.⁶ Most dual credit courses taught on a high school campus were taught by high school instructors only, regardless of the educational focus of the dual credit courses.

- Of the schools that offered academic courses for dual credit taught on a high school campus, 64 percent indicated that these courses were taught solely by

⁶Information about course instructors was not collected for dual credit courses taught at a postsecondary institution, because research during survey development indicated that these courses are almost always taught by postsecondary faculty.

high school instructors, 24 percent reported that both high school and postsecondary instructors taught the courses, and 11 percent stated that the courses were taught only by postsecondary instructors.

- For schools that offered career and technical/vocational courses for dual credit taught on a high school campus, 76 percent indicated that these courses were taught by high school instructors only, 12 percent of schools reported that the courses were taught by both high school and postsecondary instructors, and 12 percent reported that the courses were taught by postsecondary instructors only.

Student composition

Schools that offered dual credit courses taught on the campus of a postsecondary institution were asked to indicate whether the most common student composition in these courses was high school students only or a combination of high school students and postsecondary students. The most common student composition for dual credit courses taught on the campus of a postsecondary institution was a mix of both high school and postsecondary students, regardless of the educational focus.

- Of the schools that offered academic dual credit courses on a postsecondary campus, 82 percent reported that these courses enrolled both high school and postsecondary students, while 18 percent reported enrolling high school students only.
- Similarly, of the schools that offered career and technical/vocational dual credit courses on a postsecondary campus, 78 percent reported that these courses contained both high school and postsecondary students, while 22 percent reported they contained high school students only.

Awarding of postsecondary credit

There are two primary ways in which postsecondary credit for dual credit courses is awarded. The credit can be awarded immediately upon completion of the dual credit course, or it can be held in escrow until the student has graduated from public high school and enrolls in a specific postsecondary institution that accepts the credit. Students taking courses for dual credit were most commonly awarded postsecondary credit immediately upon completion of the course, regardless of course location or educational focus.

- Among schools that offered academic dual credit courses on a high school campus, 86 percent awarded postsecondary credits to their students immediately and 15 percent held credits in escrow. Sixty-one

percent of schools offering career and technical/vocational dual credit courses reported immediate award of credits and 41 percent reported holding credits in escrow.

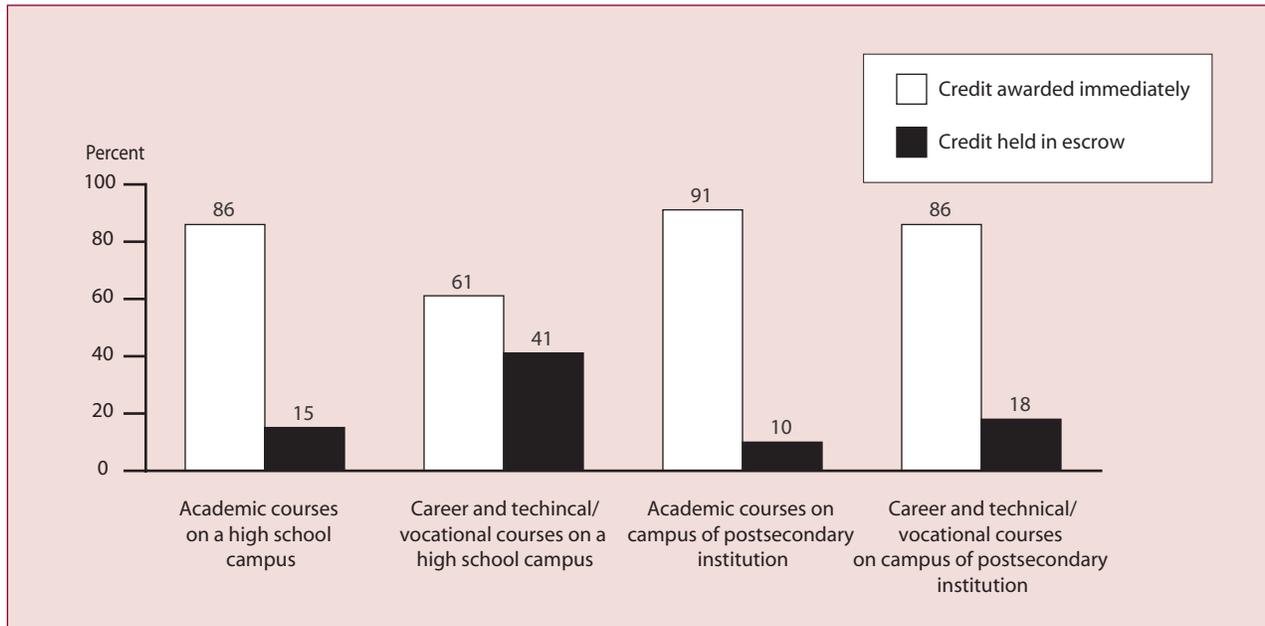
- Among schools that offered academic dual credit courses taught on the campus of a postsecondary institution, 91 percent awarded postsecondary credits to their students immediately and 10 percent held credits in escrow. Eighty-six percent of schools offering career and technical/vocational dual credit courses reported immediate award of credits and 18 percent of schools reported holding credits in escrow.
- Schools that offered courses for dual credit on a high school campus or on the campus of a postsecondary institution were more likely to report that the postsecondary credit was awarded immediately rather than held in escrow, regardless of course location or focus. However, the percentage point difference between schools that offered postsecondary credit immediately and those that held it in escrow was smaller for dual credit courses with a career and technical/vocational focus taught on a high school campus than for any other dual credit course location or focus (20 percentage point difference vs. 68 to 81 percentage point difference) (figure 5).

School Requirements Related to Dual Credit Courses

Schools that offered courses for dual credit were asked whether their school had established any entrance requirements, other than state or specific postsecondary entrance requirements, that their students must meet in order to enroll in courses for dual credit. Schools that had such requirements were asked to indicate which requirements students must meet.

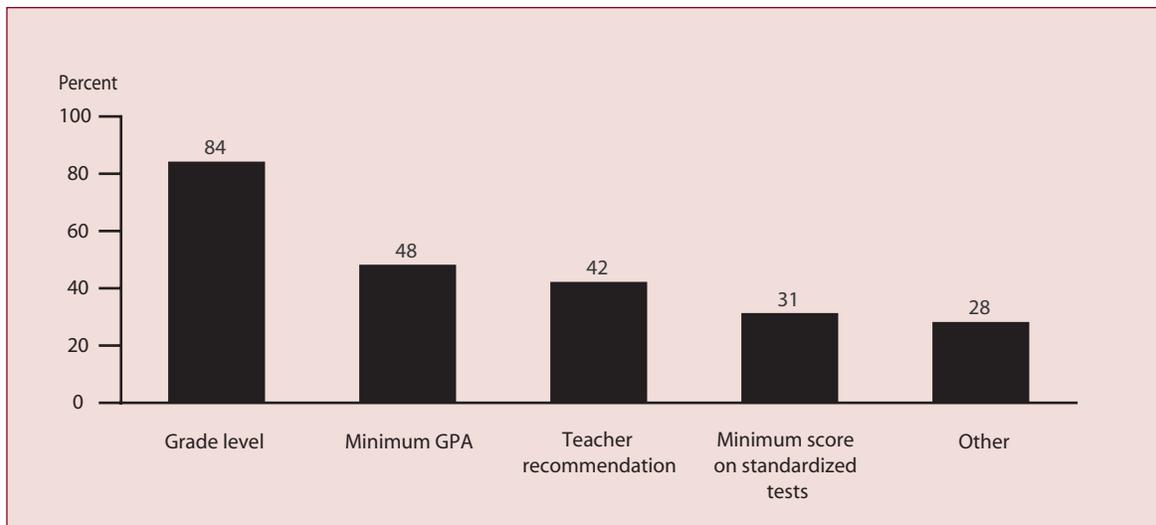
- Sixty-two percent of schools that offered courses for dual credit indicated that their school had established requirements for students to enroll in dual credit courses. Among schools with requirements, the most common requirement was grade level (84 percent), followed by minimum GPA (48 percent), teacher recommendation (42 percent), and minimum score on standardized tests (31 percent) (figure 6). Twenty-eight percent reported that their school had established some other requirement(s) than those listed.
- A greater proportion of schools located in urban fringe areas reported that their school had specific requirements for taking dual credit courses (56 percent) than schools located in cities or towns

Figure 5. Percent of public high schools that offered courses for dual credit during the 2002–03 12-month school year indicating whether postsecondary credit was awarded immediately or held in escrow, by dual credit course location and focus: 2003



NOTE: Percentages are based on unrounded numbers. Detail may not sum to totals since schools could select more than one response option.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Dual Credit and Exam-Based Courses," FRSS 85, 2003.

Figure 6. Percent of public high schools reporting established requirements that students must meet in order to enroll in courses for dual credit: 2003



NOTE: Percentages are based on the 7,300 schools that reported having established requirements that students must meet to enroll in dual credit courses. Percentages are based on unrounded numbers.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Dual Credit and Exam-Based Courses," FRSS 85, 2003.

(69 and 68 percent, respectively). Furthermore, a greater proportion of schools in the Northeast (70 percent) and the Southeast (70 percent) than in the West (61 percent) or Central region (55 percent) reported having specific requirements.

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Data source: The NCES Fast Response Survey System (FRSS).

For technical information, see the complete report:

Waits, T., Setzer, J.C., and Lewis, L. (2005). *Dual Credit and Exam-Based Courses in U.S. Public High Schools: 2002-03* (NCES 2005-009).

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To obtain the complete report (NCES 2005-009), call the toll-free ED Pubs number (877-433-7827) or visit the NCES Electronic Catalog (<http://nces.ed.gov/pubsearch>).

Public Schools in 2002–03

Public Elementary and Secondary Students, Staff, Schools, and School Districts: School Year 2002–03

Lee Hoffman, Jennifer Sable, Julia Naum, and Dell Gray

This article was originally published as the Summary of Findings of the E.D. TAB of the same name. The universe data are from the Common Core of Data (CCD).

Introduction

This report presents information about public elementary and secondary education for the 2002–03 school year. The data were provided by state education agencies through the Common Core of Data (CCD) survey system. Discussion of data is limited to the 50 states and the District of Columbia, and excludes the Bureau of Indian Affairs, Department of Defense schools, and five outlying areas: American Samoa, Guam, the Northern Marianas, Puerto Rico, and the Virgin Islands. (Note that tables include data for all jurisdictions.)

Selected Findings

More than 48.2 million students were enrolled in public schools in 2002–03. Among the states with the largest number of students in membership were California (6.4 million); Texas (4.3 million); and Florida, Illinois, and New York, which each reported more than 2 million students. The total 2002–03 student membership was an increase of 5.4 million, or 13 percent more students than in 1992–93 (table A).

Approximately 6.4 million students, or 13 percent of the total membership, had special education individualized education programs (IEPs) and received special education services in 2002–03 (table B). English language learner (ELL) services were provided to 4 million students (8 percent of all students), and 16.4 million (34 percent) were eligible for free or reduced-price meals.

A total of 2.6 million students were awarded a high school diploma in 2001–02, and an additional 45,000 received a certificate of completion or comparable credential (table C).

The average student/teacher ratio in 2002–03 was 15.9, or about 16 students for every teacher employed. This was a decrease from the pupil/teacher ratio of 17.4 in 1992–93 (derived from table A). In 2002–03, California, Oregon, and Utah had student/teacher ratios of more than 20 to 1.

Overall, public education employed almost 6 million full-time-equivalent (FTE) positions in 2002–03 (table D). More than 3 million of these were teachers and 664,000 were teacher aides. These instructional staff accounted for 62 percent of the reported personnel. School and school district administrators accounted for 4 percent of all staff.

More than 92,000 public schools had students in membership during 2002–03. Of these schools, 57 percent were primary schools, 17 percent were middle schools, and 19 percent were high schools. An additional 6 percent of schools had some other grade configuration.

The average number of students in primary schools was 439 in 2002–03, in middle schools it was 617, and in high schools 754. In Florida, Hawaii, and Maryland, the average-size high school had more than 1,200 students.

In 2002–03, almost 13 percent of all public schools were in large cities. Another 29 percent were located in rural areas. The remaining 59 percent of schools were in midsize cities, urban fringes, or towns.

Across the states that reported these school characteristics, there were almost 50,000 Title I eligible schools in 2002–03 and these schools accounted for about 50 percent of all students. There were close to 2,600 charter schools. About 45 percent were administered directly by public school districts that also included noncharter schools, and 55 percent were administered by exclusively charter districts.

Not all local education agencies in 2002–03 were regular school districts. While 83 percent of local agencies were in this category, another 8 percent provided other services (e.g., administration, staff development) to local school districts. The remaining 8 percent of agencies were state- or federally administered, or charter school, districts.

Data sources: The NCES Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey," 2002–03, Version 1a; "State Nonfiscal Survey of Public Elementary/Secondary Education," 1992–93, Version 1c, 2002–03, Version 1a; and "Local Education Agency Universe Survey," 2002–03, Version 1a.

For technical information, see the complete report:

Hoffman, L., Sable, J., Naum, J., and Gray, D. (2005). *Public Elementary and Secondary Students, Staff, Schools, and School Districts: School Year 2002–03* (NCES 2005-314).

Author affiliations: L. Hoffman, NCES; J. Sable, Education Statistics Services Institute; J. Naum and D. Gray, U.S. Census Bureau.

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To obtain the complete report (NCES 2005-314), call the toll-free ED pubs number (877-433-7827) or visit the NCES Electronic Catalog (<http://nces.ed.gov/pubsearch>).

Table A. Public school student membership and number of teachers: United States and other jurisdictions, school years 1992-93 and 2002-03

State	Total student membership			Number of teachers		
	1992-93	2002-03	Percent change from 1992-93 to 2002-03	1992-93	2002-03	Percent change from 1992-93 to 2002-03
United States ¹	42,823,312	48,202,324 ²	12.6	2,458,956	3,034,064	23.4
Alabama	731,634	739,678 ²	1.1	41,961	47,104 ²	12.3
Alaska	122,487	134,364	9.7	7,282	8,080	11.0
Arizona	673,477	937,755	39.2	36,076	47,101	30.6
Arkansas	441,490	450,985	2.2	26,017	30,330	16.6
California	5,254,844	6,356,348 ³	21.0	218,566	307,672 ³	40.8
Colorado	612,635	751,862	22.7	33,419	45,401	35.9
Connecticut	488,476	570,023	16.7	34,193	42,296	23.7
Delaware	104,321	116,342	11.5	6,252	7,698	23.1
District of Columbia	80,937	76,166	-5.9	6,064	5,005 ⁴	-17.5
Florida	1,981,407	2,539,929	28.2	107,590	138,226	28.5
Georgia	1,207,186	1,496,012	23.9	66,942	96,044	43.5
Hawaii	177,448	183,829	3.6	10,083	10,973	8.8
Idaho	231,668	248,515	7.3	11,827	13,896	17.5
Illinois	1,873,567	2,084,187	11.2	111,461	131,045	17.6
Indiana	960,630	1,003,875	4.5	54,552	59,968	9.9
Iowa	494,839	482,210	-2.6	31,403	34,573	10.1
Kansas	451,536	470,957	4.3	29,753	32,643	9.7
Kentucky	655,041	660,782	0.9	37,868	40,662	7.4
Louisiana	797,985	730,464	-8.5	46,904	50,062	6.7
Maine	216,453	204,337	-5.6	15,375	16,837	9.5
Maryland	751,850	866,743	15.3	44,495	55,382	24.5
Massachusetts	859,948	982,989	14.3	57,225	74,214	29.7
Michigan	1,603,610	1,785,160	11.3	82,301	89,595 ⁵	8.9
Minnesota	793,724	846,891	6.7	45,050	52,808	17.2
Mississippi	506,668	492,645	-2.8	27,829	31,598	13.5
Missouri	859,357	924,445	7.6	52,984	66,717	25.9
Montana	160,011	149,995	-6.3	10,135	10,362	2.2
Nebraska	282,414	285,402	1.1	19,323	21,043	8.9
Nevada	222,974	369,498	65.7	11,953	20,037	67.6
New Hampshire	181,247	207,671	14.6	11,654	14,977	28.5
New Jersey	1,130,560	1,367,438	21.0	83,057	107,004	28.8
New Mexico	315,668	320,234	1.4	17,912	21,172	18.2
New York	2,689,686	2,888,233	7.4	176,375	210,926 ⁴	19.6
North Carolina	1,114,083	1,335,954	19.9	66,630	87,677	31.6
North Dakota	118,734	104,225	-12.2	7,794	8,078	3.6

See notes at end of table.

Table A. Public school student membership and number of teachers: United States and other jurisdictions, school years 1992–93 and 2002–03—Continued

State	Total student membership			Number of teachers		
	1992–93	2002–03	Percent change from 1992–93 to 2002–03	1992–93	2002–03	Percent change from 1992–93 to 2002–03
Ohio	1,795,199	1,838,285	2.4	106,233	125,372	18.0
Oklahoma	597,096	624,548	4.6	38,433	40,638	5.7
Oregon	510,122	554,071	8.6	26,634	27,126	1.8
Pennsylvania	1,717,613	1,816,747	5.8	100,912	118,256	17.2
Rhode Island	143,798	159,205	10.7	10,069	11,196 ⁴	11.2
South Carolina	640,464	694,584	8.5	37,295	46,578	24.9
South Dakota	134,573	128,039	-4.9	8,767	9,257	5.6
Tennessee	855,231	928,000 ²	8.5	43,566	58,652	34.6
Texas	3,541,769	4,259,823	20.3	219,385	288,655	31.6
Utah	463,870	489,072	5.4	19,191	22,415	16.8
Vermont	98,558	99,978	1.4	7,521	8,542	13.6
Virginia	1,031,925	1,177,229	14.1	68,181	99,919	46.5
Washington	896,475	1,014,798	13.2	44,295	52,953	19.5
West Virginia	318,296	282,455	-11.3	20,961	20,119	-4.0
Wisconsin	829,415	881,231	6.2	53,387	60,385	13.1
Wyoming	100,313	88,116	-12.2	5,821	6,795 ²	16.7
Department of Defense (DoD) dependents schools, Bureau of Indian Affairs, and outlying areas						
DoDDS: DoD schools (overseas)	—	72,722	—	—	4,793	—
DDESS: DoD schools (domestic)	—	32,115	—	—	2,424	—
Bureau of Indian Affairs	—	46,126	—	—	—	—
American Samoa	13,994	15,984	14.2	725	943	30.1
Guam	30,077	—	—	1,628	—	—
Northern Marianas	8,086	11,251	39.1	425	545	28.2
Puerto Rico	637,034	596,502	-6.4	38,381	42,369	10.4
Virgin Islands	22,887	18,333	-19.9	1,595	1,502	-5.8

— Not available.

¹U.S. totals include the 50 states and the District of Columbia.²Includes prekindergarten data imputed based on current-year (fall 2002) data.³California did not report the number of ungraded teachers, and the total number of teachers in California is therefore underestimated.⁴Data imputed based on prior-year (fall 2001) data.⁵Data disaggregated from reported total.

NOTE: Teacher counts are full-time-equivalency (FTE) counts.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 1992–93, Version 1c; and "State Nonfiscal Survey of Public Elementary/Secondary Education," 2002–03, Version 1a. (Originally published as table 2 on pp. 5–6 of the complete report from which this article is excerpted.)

Table B. Number and percentage of public school students participating in selected programs: United States and other jurisdictions, school year 2002–03

State	Number of students with IEPs	Percent of students with IEPs	Number of students receiving ELL services	Percent of students receiving ELL services	Number of students receiving migrant services during school year ¹	Number of students receiving migrant services during summer	Number of students eligible for free or reduced-price meals	Percent of all students eligible for free or reduced-price meals
Reporting states ²	6,449,904	13.4	4,029,340	8.4	—	—	16,955,477	35.2
Alabama	94,343	12.9	10,568	1.4	7,825	2,630	364,226	50.1
Alaska	18,131	13.5	16,378	12.2	10,220	1,369	34,846	25.9
Arizona	101,648	10.6	143,744	14.9	2,094	8,635	(³)	(³)
Arkansas	57,185	12.7	15,146	3.4	8,813	1,558	218,277	48.4
California	673,935	10.8	1,599,542	25.6	230,478	151,112	3,002,890	48.1
Colorado	75,585	10.1	86,128	11.5	12,653	3,026	214,115	28.5
Connecticut	74,020	12.9	22,651	4.0	4,551	2,206	145,017	25.4
Delaware	16,723	14.4	3,449	3.0	291	170	41,319	35.5
District of Columbia	12,400	16.3	5,798	7.6	814	115	47,189	62.0
Florida	389,632	15.3	203,712	8.0	49,091	4,357	1,148,685	45.4
Georgia	177,608	11.9	70,464	4.7	9,539	3,671	674,800	45.1
Hawaii	22,814	12.4	12,853	7.0	1,520	271	80,630	43.9
Idaho	28,904	11.6	18,747	7.5	8,347	4,284	90,447	36.4
Illinois	305,970	14.7	168,727	8.1	—	2,441	741,954	35.6
Indiana	166,414	16.6	42,629	4.2	—	—	325,856	32.5
Iowa	73,123	15.2	13,961	2.9	4,538	833	137,404	28.5
Kansas	63,845	13.6	17,942	3.8	12,526	3,444	168,744	36.0
Kentucky	100,294	15.2	6,343	1.0	14,801	4,873	434,012	69.0
Louisiana	99,729	13.7	11,108	1.5	4,077	3,443	443,102	60.7
Maine	33,763	16.1	2,632	1.3	—	2,730	62,047	30.4
Maryland	106,299	12.3	27,311	3.2	348	900	265,989	30.7
Massachusetts	150,551	15.3	51,622	5.3	2,203	—	257,359	26.2
Michigan	238,273	13.3	(³)	(³)	—	(³)	553,124	31.0
Minnesota	111,960	13.2	51,275	6.1	987	3,326	231,450	27.3
Mississippi	63,738	12.9	2,250	0.5	2,405	950	321,712	65.3
Missouri	143,383	15.5	13,121	1.4	4,616	485	333,964	36.2
Montana	19,162	12.8	6,642	4.4	—	—	47,877	31.9
Nebraska	45,018	15.8	13,803	4.8	13,419	3,382	92,423	32.4
Nevada	42,504	11.5	58,753	15.9	548	40	125,660	34.1
New Hampshire	29,238	14.1	3,270	1.6	155	—	32,132	15.5
New Jersey	218,533	16.0	57,548	4.2	868	1,298	371,392	27.2
New Mexico	63,593	19.9	65,317	20.4	1,924	583	182,469	57.0
New York	420,274	14.4	178,909	6.1	—	—	(³)	(³)
North Carolina	190,146	14.2	59,849	4.5	15,132	9,021	452,486	33.9
North Dakota	13,653	13.1	883	0.8	291	438	29,270	28.1

See notes at end of table.

Table B. Number and percentage of public school students participating in selected programs: United States and other jurisdictions, school year 2002–03—Continued

State	Number of students with IEPs	Percent of students with IEPs	Number of students receiving ELL services	Percent of students receiving ELL services	Number of students receiving migrant services during school year ¹	Number of students receiving migrant services during summer	Number of students eligible for free or reduced-price meals	Percent of all students eligible for free or reduced-price meals
Ohio	248,127	13.5	25,782	1.4	(³)	—	535,072	29.2
Oklahoma	91,184	14.6	40,192	6.4	—	631	320,600	51.3
Oregon	71,433	12.9	52,331	9.4	20,394	5,105	211,674	38.5
Pennsylvania	242,837	13.4	—	—	8,768	7,446	528,011	29.1
Rhode Island	32,500	20.4	10,087	6.3	—	—	53,084	33.4
South Carolina	109,423	15.8	7,467	1.1	518	1,022	343,810	49.6
South Dakota	17,241	13.5	4,524	3.5	2,265	245	38,800	30.3
Tennessee	142,566	15.8	—	—	—	—	—	—
Texas	502,700	11.8	630,686	14.8	108,649	—	1,968,976	46.2
Utah	56,085	11.6	43,299	8.9	4,105	3,485	149,728	30.9
Vermont	13,765	13.8	1,057	1.1	858	411	25,501	25.5
Virginia	169,237	14.4	49,845	4.2	1,273	569	355,212	30.2
Washington	122,277	12.0	70,431	6.9	—	6,608	347,562	34.2
West Virginia	50,259	17.8	1,281	0.5	135	—	136,469	48.3
Wisconsin	126,259	14.3	25,764	2.9	1,028	394	242,158	27.5
Wyoming	11,620	13.4	3,519	4.1	210	291	25,953	30.0
Department of Defense (DoD) dependents schools, Bureau of Indian Affairs, and outlying areas								
DoDDS: DoD schools (overseas)	6,056	8.3	6,140	8.4	—	—	—	—
DDESS: DoD schools (domestic)	3,212	10.0	1,892	5.9	—	—	—	—
Bureau of Indian Affairs	—	—	—	—	—	—	—	—
American Samoa	867	5.4	15,447	96.6	—	—	15,891	99.4
Guam	—	—	—	—	—	—	—	—
Northern Marianas	542	4.8	—	—	1,030	1,199	11,070	98.4
Puerto Rico	69,327	11.6	—	—	14,128	(³)	484,069	81.2
Virgin Islands	1,497	8.2	1,223	6.7	—	—	—	—

— Not available.

¹Migrant students include those who were enrolled at any time during the previous (2001–02) regular school year. They are reported for each school in which they enrolled; because this is a duplicated count, the table does not show migrants as a percentage of all students.

²Reporting states total includes the 50 states and the District of Columbia. It is suppressed if data were missing for 15 percent or more of all schools or agencies. State totals exclude states for which data were missing for 20 percent or more of the schools or agencies.

³Data were missing for more than 20 percent of schools or districts.

NOTE: IEP is the acronym for individualized education program. ELL is the acronym for English language learner. Some data items were more likely to be missing from charter schools than from other schools. Free lunch data were missing for 459 of 2,575 charter schools in the 50 states and District of Columbia, and migrant student data were missing for 417. Data on ELL students were missing for 248 of the total 1,241 operational charter school districts in the 50 states and District of Columbia. Percentages are based on schools and agencies reporting. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey," 2002–03, Version 1a; and "Local Education Agency Universe Survey," 2002–03, Version 1a. (Originally published as table 3 on pp. 7–8 of the complete report from which this article is excerpted.)

Table C. Number of public high school completers, by type of completion: United States and other jurisdictions, school year 2001–02

State	Total high school completers	Diploma recipients	Other high school completers ¹	High school equivalency recipients ²
Reporting states ³	—	2,635,277	45,081	—
Alabama	—	35,887	3,529	—
Alaska	8,106	6,945	28	1,133
Arizona	—	47,175	1,208	—
Arkansas	33,942	26,984	1,909	5,049
California	—	325,895	†	—
Colorado	45,239	40,760	232	4,247
Connecticut	33,323	32,327	158	838
Delaware	6,796	6,482	134	180
District of Columbia	—	3,090	213	—
Florida	139,666	119,537	5,602	14,527
Georgia	—	65,983	6,581	—
Hawaii	—	10,452	217	—
Idaho	—	15,874	34	—
Illinois	—	116,657	†	—
Indiana	62,102	56,722	1,531	3,849
Iowa	35,617	33,789	43	1,785
Kansas	—	29,541	†	—
Kentucky	—	36,337	332	—
Louisiana	42,553	37,905	903	3,745
Maine	12,858	12,596	29	233
Maryland	—	50,881	510	—
Massachusetts	—	55,272	†	—
Michigan	97,530	95,001	666	1,863
Minnesota	62,228	57,440	†	4,788
Mississippi	25,612	23,740	1,603	269
Missouri	56,530	54,487	†	2,043
Montana	11,488	10,554	†	934
Nebraska	—	19,910	95	—
Nevada	18,608	16,270	685	1,653
New Hampshire	—	12,452	—	947
New Jersey	83,393	77,664	†	5,729
New Mexico	—	18,094 ⁴	—	—
New York	—	153,879	4,889	—
North Carolina	75,217	65,955	691	8,571
North Dakota	9,473	8,114	†	1,359

See notes at end of table.

Table C. Number of public high school completers, by type of completion: United States and other jurisdictions, school year 2001–02—Continued

State	Total high school completers	Diploma recipients	Other high school completers ¹	High school equivalency recipients ²
Ohio	114,694	110,608	†	4,086
Oklahoma	46,277	36,852	†	9,425
Oregon	41,466	31,153	3,927	6,386
North Dakota	123,510	114,943	†	8,567
Rhode Island	10,364	9,006	9	1,349
South Carolina	—	31,302	2,384	—
South Dakota	—	8,796	†	—
Tennessee	—	40,894	3,728	—
Texas	233,476	225,167	†	8,309
Utah	33,329	30,183	155	2,991
Vermont	7,190	7,083	92	15
Virginia	72,850	66,519	2,753	3,578
Washington	58,974	58,311	152	511
West Virginia	18,417	17,128	19	1,270
Wisconsin	—	60,575	—	12,543
Wyoming	—	6,106	40	—
Department of Defense (DoD) dependents schools, Bureau of Indian Affairs, and outlying areas				
DoDDS: DoD schools (overseas)	—	2,554	†	—
DDESS: DoD schools (domestic)	—	565	†	—
Bureau of Indian Affairs	—	—	†	—
American Samoa	885	823	7	55
Guam	—	—	†	—
Northern Marianas	417	416	†	1
Puerto Rico	(⁵)	(⁵)	(⁵)	(⁵)
Virgin Islands	—	883	†	—

— Not available.

† Not applicable.

¹ Includes individuals who receive certificates of attendance or some other credential in lieu of diplomas. Total other high school completers does not include New Hampshire, New Mexico, and Wisconsin.² Includes recipients ages 19 or younger, except in Minnesota, where they are ages 20 or younger.³ U.S. totals include the 50 states and the District of Columbia.⁴ Data imputed based on prior-year (fall 2001) data.⁵ Number was withheld from publication because the number of completers exceeded 12th-grade membership in 2001–02.

NOTE: High school completer categories may include students not included in 12th-grade membership in the 2001–02 school year.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 2002–03, Version 1a. (Originally published as table 4 on pp. 9–10 of the complete report from which this article is excerpted.)

Table D. Number of staff employed by public elementary and secondary school systems and percentage of total staff, by category: United States and other jurisdictions, school year 2002–03

State	Total staff	Teachers		Instructional aides		Instructional coordinators and supervisors		Guidance counselors	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
United States ³	5,956,689 ⁴	3,034,064	50.9 ⁴	664,385	11.2 ⁴	47,998	0.8 ⁴	100,901	1.7 ⁵
Alabama	88,882 ⁴	47,104	53.0 ⁴	6,169	6.9	667	0.8	1,696	1.9
Alaska	17,101 ²	8,080	47.2	2,328	13.6	172	1.0 ⁴	289	1.7
Arizona	96,639	47,101	48.7	13,650	14.1	187	0.2	1,264	1.3
Arkansas	63,815	30,330	47.5	6,217	9.7	613	1.0	1,436	2.3
California	581,664 ⁴	307,672	52.9 ^{4,6}	72,242	12.4	6,664	1.1	6,684	1.1
Colorado	90,396	45,401	50.2	11,008	12.2	926	1.0	1,390	1.5
Connecticut	86,361	42,296	49.0	12,076	14.0	400	0.5	1,328	1.5
Delaware	14,449	7,698	53.3	1,388	9.6	181	1.3	238	1.6
District of Columbia	11,549 ⁵	5,005	43.3 ⁵	1,536	13.3 ⁵	20	0.2 ⁵	243	2.1 ⁵
Florida	287,090	138,226	48.1	31,040	10.8	658	0.2	5,640	2.0
Georgia	197,944	96,044	48.5	23,792	12.0	1,490	0.8	3,319	1.7
Hawaii	20,703	10,973	53.0	2,603	12.6	524	2.5	649	3.1
Idaho	24,897	13,896	55.8	2,641	10.6	274	1.1	591	2.4
Illinois	258,234 ⁴	131,045	50.7	32,902	12.7 ⁴	1,298	0.5	2,942	1.1
Indiana	126,998	59,968	47.2	17,426	13.7	1,623	1.3	1,812	1.4
Iowa	67,426	34,573	51.3	8,439	12.5	477	0.7	1,197	1.8
Kansas	63,911	32,643	51.1	6,805	10.6	118	0.2	1,142	1.8
Kentucky	95,839	40,662	42.4	14,078	14.7	846	0.9	1,460	1.5
Louisiana	102,333	50,062	48.9	11,372	11.1	1,348	1.3	3,094	3.0
Maine	34,578	16,837	48.7	5,903	17.1	218	0.6	646	1.9
Maryland	102,642	55,382	54.0	9,726	9.5	948	0.9	2,228	2.2
Massachusetts	143,944 ⁵	74,214	51.6	19,945	13.9	3,603	2.5	2,924	2.0
Michigan	187,093	89,595	47.9	22,664	12.1	2,988	1.6	2,660	1.4
Minnesota	105,311	52,808	50.1	14,758	14.0	439	0.4	1,063	1.0
Mississippi	66,133	31,598	47.8	8,314	12.6	619	0.9	966	1.5
Missouri	128,124	66,717	52.1	11,884	9.3	1,057	0.8	2,730	2.1
Montana	19,379 ⁴	10,362	53.5	2,368	12.2 ⁴	171	0.9	432	2.2
Nebraska	40,743	21,043	51.6	4,692	11.5	408	1.0	777	1.9
Nevada	33,441	20,037	59.9	3,220	9.6	254	0.8	715	2.1
New Hampshire	30,087	14,977	49.8	6,050	20.1	196	0.7 ⁷	772	2.6
New Jersey	199,381	107,004	53.7	22,671	11.4	1,464	0.7	3,611	1.8
New Mexico	43,826	21,172	48.3	5,158	11.8	660	1.5	775	1.8
New York	428,038 ⁵	210,926	49.3 ⁵	42,479	9.9	2,167	0.5 ⁵	7,241	1.7
North Carolina	169,328	87,677	51.8	27,476	16.2	889	0.5	3,422	2.0
North Dakota	15,090	8,078	53.5	1,798	11.9	126	0.8	279	1.8

See notes at end of table.

Table D. Number of staff employed by public elementary and secondary school systems and percentage of total staff, by category: United States and other jurisdictions, school year 2002–03—Continued

State	Total staff	Teachers		Instructional aides		Instructional coordinators and supervisors		Guidance counselors	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
Ohio	242,372	125,372	51.7	17,397	7.2	501	0.2	3,587	1.5
Oklahoma	74,422	40,638	54.6	6,323	8.5	217	0.3	1,570	2.1
Oregon	55,042	27,126	49.3	8,313	15.1	434	0.8	1,172	2.1
Pennsylvania	231,251	118,256	51.1	24,497	10.6	1,464	0.6	4,292	1.9
Rhode Island	18,774 ⁵	11,196	59.6 ⁵	2,344	12.5 ⁵	67	0.4 ⁵	351	1.9 ⁵
South Carolina	63,165 ⁴	46,578	73.7	1,947	3.1	741	1.2	1,717	2.7
South Dakota	19,031	9,257	48.6	3,312	17.4	376	2.0	320	1.7
Tennessee	114,357	58,652	51.3	14,199	12.4	1,179	1.0 ⁵	1,878	1.6
Texas	594,002	288,655	48.6	58,933	9.9	1,335	0.2	9,924	1.7
Utah	41,555	22,415	53.9	5,602	13.5	653	1.6	684	1.6
Vermont	18,384	8,542	46.5	4,210	22.9	325	1.8	418	2.3
Virginia	162,994 ⁴	99,919	61.3	2,632	1.6	1,465	0.9	2,362	1.4
Washington	112,740	52,953	47.0	10,116	9.0	2,394	2.1	1,972	1.7
West Virginia	38,132	20,119	52.8	3,087	8.1	336	0.9	660	1.7
Wisconsin	113,262	60,385	53.3	12,851	11.3	1,663	1.5	1,948	1.7
Wyoming	13,837 ⁴	6,795	49.1 ⁴	1,804	13.0	155	1.1	391	2.8
Department of Defense (DoD) dependents schools, Bureau of Indian Affairs, and outlying areas									
DoDDS: DoD schools (overseas)	7,044	4,793	68.0	228	3.2	102	1.4	258	3.7
DDESS: DoD schools (domestic)	4,199	2,424	57.7	399	9.5	47	1.1	105	2.5
Bureau of Indian Affairs	—	—	—	—	—	—	—	—	—
American Samoa	1,735	943	54.4	147	8.5	44	2.5	46	2.7
Guam	—	—	—	—	—	—	—	—	—
Northern Marianas	1,093	545	49.9	212	19.4	9	0.8	16	1.5
Puerto Rico	74,553	42,369	56.8	233	0.3	360	0.5	995	1.3
Virgin Islands	3,036	1,502	49.5	313	10.3	19	0.6	84	2.8

See notes at end of table.

Table D. Number of staff employed by public elementary and secondary school systems and percentage of total staff, by category: United States and other jurisdictions, school year 2002–03—Continued

State	Librarians		Student/other support staff ¹		School administrators		School district administrators		Administrative support staff ²	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
United States ³	54,207	0.9 ⁵	1,416,221	23.8 ⁴	164,180	2.8 ⁵	62,791	1.1 ⁵	411,942	6.9 ⁴
Alabama	1,359	1.5	23,774	26.7	3,424	3.9	1,273	1.4	3,416	3.8
Alaska	161	0.9	3,593	21.0	567	3.3	527	3.1	1,384	8.1
Arizona	855	0.9	23,434	24.2	2,205	2.3	192	0.2	7,751	8.0
Arkansas	1,012	1.6	18,451	28.9	1,766	2.8	673	1.1	3,317	5.2
California	1,388	0.2	114,420	19.7	13,478	2.3	2,750	0.5	56,366	9.7
Colorado	847	0.9	20,800	23.0	2,344	2.6	969	1.1	6,711	7.4
Connecticut	785	0.9	21,030	24.4	2,216	2.6	1,291	1.5	4,939	5.7
Delaware	126	0.9	3,420	23.7	367	2.5	273	1.9	758	5.2
District of Columbia	119	1.0 ⁵	3,644	31.6 ⁵	284	2.5 ⁵	49	0.4 ⁵	649	5.6 ⁵
Florida	2,666	0.9	71,430	24.9	6,750	2.4	1,733	0.6	28,947	10.1
Georgia	2,142	1.1	54,053	27.3	5,006	2.5	1,879	0.9	10,219	5.2
Hawaii	291	1.4	3,765	18.2	509	2.5	131	0.6	1,258	6.1
Idaho	176	0.7	5,124	20.6	724	2.9	123	0.5	1,348	5.4
Illinois	1,940	0.8	60,277	23.3 ⁴	6,304	2.4	4,029	1.6	17,497	6.8 ⁴
Indiana	1,029	0.8	33,926	26.7	2,946	2.3	973	0.8	7,295	5.7
Iowa	612	0.9	14,951	22.2	2,182	3.2	967	1.4	4,028	6.0
Kansas	950	1.5	16,107	25.2	1,728	2.7	1,263	2.0	3,155	4.9
Kentucky	1,159	1.2	24,710	25.8	2,506	2.6	1,216	1.3	9,202	9.6
Louisiana	1,245	1.2	26,282	25.7	2,642	2.6	277	0.3	6,011	5.9
Maine	242	0.7	7,354	21.3 ⁷	920	2.7	573	1.7	1,885	5.5 ⁷
Maryland	1,091	1.1	24,567	23.9	3,094	3.0	869	0.8	4,737	4.6
Massachusetts	1,007	0.7	26,616	18.5	3,153	2.2	765	0.5	11,717	8.1 ⁵
Michigan	1,367	0.7	47,545	25.4	4,403	2.4	2,979	1.6	12,892	6.9
Minnesota	968	0.9	22,083	21.0 ⁷	2,157	2.0	1,063	1.0	9,972	9.5 ⁷
Mississippi	942	1.4	17,154	25.9	1,702	2.6	966	1.5	3,872	5.9
Missouri	1,668	1.3	31,069	24.2	3,093	2.4	1,318	1.0	8,588	6.7
Montana	357	1.8	3,781	19.5 ⁴	499	2.6	150	0.8	1,259	6.5 ⁴
Nebraska	562	1.4	9,596	23.6	1,007	2.5	566	1.4	2,092	5.1
Nevada	327	1.0	5,595	16.7	1,032	3.1	253	0.8	2,008	6.0
New Hampshire	289	1.0	5,479	18.2 ⁷	520	1.7 ⁷	508	1.7	1,296	4.3 ⁷
New Jersey	1,855	0.9	39,844	20.0	4,889	2.5	1,885	0.9	16,158	8.1
New Mexico	290	0.7	10,542	24.1	1,015	2.3	834	1.9	3,380	7.7
New York	3,190	0.7 ⁵	118,605	27.7 ⁵	8,410	2.0	2,956	0.7 ⁵	32,064	7.5 ⁵
North Carolina	2,299	1.4	41,242	24.4	4,708	2.8	1,580	0.9	35	0.0
North Dakota	199	1.3	3,299	21.9	400	2.7	429	2.8	482	3.2

See notes at end of table.

Table D. Number of staff employed by public elementary and secondary school systems and percentage of total staff, by category: United States and other jurisdictions, school year 2002–03—Continued

State	Librarians		Student/other support staff ¹		School administrators		School district administrators		Administrative support staff ²	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Ohio	1,615	0.7	54,587	22.5	6,543	2.7	6,549	2.7	26,221	10.8
Oklahoma	1,031	1.4	16,475	22.1	2,007	2.7	714	1.0	5,447	7.3
Oregon	510	0.9	10,492	19.1	1,597	2.9	701	1.3	4,697	8.5
Pennsylvania	2,227	1.0	58,495	25.3	4,581	2.0	1,639	0.7	15,800	6.8
Rhode Island	61	0.3 ⁵	2,748	14.6 ⁵	452	2.4 ⁵	199	1.1 ⁵	1,356	7.2 ⁵
South Carolina	1,131	1.8	1,780	2.8	3,141	5.0	299	0.5	5,831	9.2 ⁴
South Dakota	162	0.9	3,940	20.7	415	2.2	443	2.3	806	4.2
Tennessee	1,522	1.3	23,803	20.8 ⁷	4,895	4.3	1,197	1.0	7,032	6.1 ⁷
Texas	4,875	0.8	165,064	27.8	29,391	4.9	7,950	1.3	27,875	4.7
Utah	282	0.7	7,999	19.2	1,010	2.4	165	0.4	2,745	6.6
Vermont	234	1.3	3,098	16.9	430	2.3	145	0.8	982	5.3
Virginia	1,851	1.1	39,479	24.2	4,108	2.5 ⁵	1,855	1.1	9,323	5.7
Washington	1,325	1.2	33,649	29.8	2,717	2.4	1,037	0.9	6,577	5.8
West Virginia	391	1.0	9,873	25.9	1,063	2.8	415	1.1	2,188	5.7
Wisconsin	1,340	1.2	24,176	21.3	2,538	2.2	923	0.8	7,438	6.6
Wyoming	135	1.0	3,001	21.7	342	2.5	278	2.0	936	6.8
Department of Defense (DoD) dependents schools, Bureau of Indian Affairs, and outlying areas										
DoDDS: DoD schools (overseas)	153	2.2	487	6.9	268	3.8	39	0.6	716	10.2
DDESS: DoD schools (domestic)	70	1.7	671	16.0	113	2.7	36	0.9	334	8.0
Bureau of Indian Affairs	—	—	—	—	—	—	—	—	—	—
American Samoa	6	0.3	263	13.5	82	4.7	39	2.2	165	9.5
Guam	—	—	—	—	—	—	—	—	—	—
Northern Marianas	0	0.0	151	12.8	33	3.0	7	0.6	120	11.0
Puerto Rico	1,050	1.4	21,877	29.1	1,537	2.1	1,571	2.1	4,561	6.1
Virgin Islands	39	1.3	707	23.2	86	2.8	79	2.6	207	6.8

—Not available.

¹ Student/other support services include library support staff, student support services staff, and all other nonadministrative support staff.² Administrative support staff includes district and school-level administrative support staff.³ U.S. totals include the 50 states and the District of Columbia.⁴ Data imputed based on current-year (fall 2002) data.⁵ Data imputed based on prior-year (fall 2001) data.⁶ California did not report the number of ungraded teachers, and the total numbers of teachers in California is therefore underestimated.⁷ Data disaggregated from reported total.

NOTE: All staff counts are full-time-equivalency (FTE) counts. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," 2002–03, Version 1a. (Originally published as table 6 on pp. 13–16 of the complete report from which this article is excerpted.)

Revenues and Expenditures

Revenues and Expenditures by Public School Districts: School Year 2001–02

—Frank Johnson

This article was originally published as the E.D. TAB of the same name. The universe data are from the Common Core of Data (CCD) “School District Finance Survey (F-33).” The Methodology and Definitions sections from the original report have been omitted.

This report presents findings from the Common Core of Data (CCD) “School District Finance Survey.” These data are collected annually from state education agencies through the U.S. Census Bureau’s “Survey of Local Government Finances: School Systems.” Data in the “School District Finance Survey” include revenues by source, expenditures by function and object, long-term and short-term debt, and student membership for each school district in the United States.

This short report on school district revenues and expenditures is a companion to the state-level E.D. TAB, *Revenues and Expenditures for Public Elementary and Secondary Education: School Year 2001–02* (Cohen and Johnson 2004), which presents total state and national spending on public elementary and secondary education. These data were collected and edited between March 2003 and March 2004. These data are final.

Only regular school districts with student counts greater than 0, current expenditures per student between \$2,500 and \$35,000, and that are on the CCD “Local Education Agency Universe Survey” file were included in this analysis. There were 14,002 such districts in school year 2001–02.

Data on the number of students and districts within each state also show the variation in the organization of education across the country. For example, Florida, with over 2 million students, has 67 school districts, whereas Nebraska, with fewer than 300,000 students, has 524 school districts. The number and size of school districts may affect administrative and other overhead costs.

The District of Columbia is a single urban school district. It is treated separately from the states in the analysis below, because it is often an outlier with larger revenues and expenditures per student than 95 percent of the districts in most states. The District of Columbia did not report any finance data for its charter schools.

The federal range ratio is used in this report as an indicator of the difference between districts with relatively high revenues (or expenditures) per student and districts with relatively low revenues (or expenditures) per student, within the state and the nation. It is the difference between

the amount per student of the district at the 95th percentile and the district at the 5th percentile, divided by the amount for the district at the 5th percentile.¹

Highlights

Revenues per student received by school districts

- In the 2001–02 school year, the median school district received \$8,572 per student in revenues from state, local, and federal sources (table 1). The median revenue per student indicates that half of the districts received less than \$8,572 per student and half of the districts received more than \$8,572 per student.
- Median school district revenues per student among the states ranged from \$6,039 in Tennessee to \$16,342 in Alaska. Revenues in the District of Columbia were \$16,627.
- Ninety percent of the school districts in the country received between \$6,208 and \$16,286 per student. When school district revenues per student are ranked from highest to lowest, the value for the district at the 5th percentile was \$6,208, and the value for the district at the 95th percentile was \$16,286. The federal range ratio indicates the difference, or “disparity,” between the 5th and 95th percentile. The federal range ratio for total revenues per student was 1.62, indicating that the district at the 95th percentile received 162 percent more revenue per student as the district at the 5th percentile.
- The federal range ratio varied from 0.3 in Kentucky, Maryland, and West Virginia to 2.7 in Montana. In 25 states the revenues per student were relatively homogeneous, with districts at the 95th percentile reporting less than twice the amount of revenue per student as the district at the 5th percentile; that is, their federal range ratios were under 1.0. On the other hand, the top 5 percent of the districts in four states received revenues per student of more than three times the revenue per student of the districts

¹Comparisons using the federal range ratio exclude the top and bottom 5 percent of districts, and reduce the influence of extreme cases. The federal range ratio conveys an idea of the magnitude of differences between districts with relatively high revenues or expenditures per student and districts with relatively low revenues or expenditures per student, after excluding extremes. The federal range ratio has been used by Berne and Stiefel (1984); Parrish, Matsumoto, and Fowler (1995); and Hussar and Sonnenberg (2000).

at the bottom 5 percent; that is, their federal range ratios were greater than 2.0.

Total expenditures per student by school districts

- In 2001–02, the median total expenditure by school districts in the nation was \$8,424 per student (table 2). This included current operating expenditures, capital outlays (for school construction and equipment), expenditures for programs other than elementary/secondary education (such as adult education and community service programs), interest payments on long-term debt, and payments to state and local governments. Total expenditures do not include payments to other school districts. (Revenues received from other school districts are included in total revenues.)
- Tables 2 and 3 include median expenditures across districts in all states for specific types of expenditures and for the total of these expenditures. The median district in total expenditures is unlikely to be the median district in current expenditures or other types of expenditures. Therefore, the median expenditures for the components (e.g., current, instruction, support services, etc.) do not sum to the median for total expenditures.
- Total expenditures per student ranged between \$6,001 and \$16,184 for 90 percent of the school districts in the country (i.e., those districts between the 5th and 95th percentiles; table 2). The federal range ratio for total expenditures per student was 1.70, indicating that the district at the 95th percentile spent 170 percent more per student as the district at the 5th percentile. The federal range ratio was slightly less for current expenditures (1.38) and instruction (1.44) and slightly more for support services (1.90).
- Per student spending on capital outlay (for school construction and equipment) in districts with per student expenditures at the 95th percentile was 8,417 percent more than that of districts at the 5th percentile (table 2). Most of the expenditures reported for capital outlay are for school construction. School districts with stable student populations may not need to make large expenditures for school construction, whereas districts experiencing a growing population of children tend to spend more money on school construction. In addition, expenditures for construction do not appear regularly from one year to the next. Districts may build several schools at the same time. This results in a large expenditure for capital outlays one year and small expenditures in subsequent years.

- Per student spending for programs other than elementary/secondary education was approximately 29 times greater in high-spending districts than the national median (\$263 vs. \$9; table 2). The adult education and community service programs that make up most of the other program spending do not exist in many school districts. At least 5 percent of all school districts do not have programs other than elementary/secondary education, nor do they have interest payments or payments to other government agencies.
- Median total expenditures per student ranged from \$5,954 in Mississippi to \$16,456 in Alaska (table 3). Total expenditures in the District of Columbia were \$16,738. The median total expenditure per student was over \$10,000 in Alaska, Connecticut, Delaware, the District of Columbia, Massachusetts, New Jersey, New Mexico, New York, and Wyoming.
- Median per student expenditures for instruction (teacher salaries, classroom supplies, etc.) ranged from \$3,254 in Mississippi to \$8,931 in Alaska (table 3). Among the 10 states with the highest median expenditures per student for instruction, 8 were in the Northeast.²
- Median per student expenditures for capital projects (primarily school construction) ranged from \$145 in Vermont to \$1,597 in Delaware (table 3) among the 50 states. Capital expenditures per student were \$3,198 in the District of Columbia.

Current expenditures per student

Because of the variation in the kinds of programs run by school districts and the large swings in school construction expenditures, researchers often use current rather than total expenditures when reporting and comparing school district expenditures. Current expenditures are expenditures for the day-to-day operations of schools and school districts. They do not include expenditures for construction, equipment, debt financing, and programs outside of public elementary/secondary education.

- The median current expenditure per student for the nation was \$7,294 (table 4).
- Per student spending in districts at the 95th percentile was more than 138 percent more than per student spending in districts at the 5th percentile (i.e., the federal range ratio was 1.38). Spending in districts at the 95th percentile was less than 50 percent higher

²These states are New York, New Jersey, Rhode Island, Connecticut, Massachusetts, Maine, Vermont, and Delaware. Instruction expenditures per student in the District of Columbia were higher than any state's median per student instruction expenditures, except in Alaska and New York.

than spending in districts at the 5th percentile in 13 states (i.e., the federal range ratio was less than 0.50).

- The median current expenditure per student in Alaska (\$14,549) and the District of Columbia (\$13,330) was larger than the current expenditure per student in 95 percent of all districts in the nation (in other words, greater than \$13,026).
- The three states with the highest federal range ratio in current expenditures per student were Alaska, Montana, and Nevada. Expenditures per student were more than three times greater in the district at the 95th percentile than the district at the 5th percentile in these states (i.e., their federal range ratio was greater than 2.0). The ratio was lowest in Alabama, Florida, Kentucky, Maryland, and West Virginia. In the five lowest states, current expenditures per student at the 95th percentile were less than 35 percent greater than spending at the 5th percentile.

Current expenditures for charter schools

Independent charter schools are public schools that are exempted from significant state or local rules that normally govern the operation and management of public schools. A charter school may be affiliated with a regular school district, a university, or a private organization. In order to include all charter schools in its files, NCES created a separate school district record for each charter school (or charter school organization) that is not affiliated with a school district. In this report, data for charter schools that are associated with regular school districts are included with the data reported for the entire school district, and the data for those schools and the affiliated districts are indistinguishable from districts that do not have charter schools.

Data for independent charter schools that are not affiliated with a regular school district were included in this report if they could be matched to the CCD “Local Education Agency Universe Survey,” if they had a student membership count greater than 0, and if they had both total revenues and total expenditures greater than 0. Data for independent charter school districts are reported at the bottom of each table in this report and are not included in the national totals or averages. Certain charter school districts in Arizona, Arkansas, California, Connecticut, Delaware, Georgia, Michigan, Minnesota, New Jersey, North Carolina, Ohio, Pennsylvania, and Texas fell into this category. These data are kept separate because in many cases the data are not complete or fail to meet NCES editing standards. This is to be expected if the districts are not required to report finance data to a district or other local government agency. In some

cases a charter school district may operate more than one charter school.

- The median revenue per student for independent charter schools (not affiliated with a public school district) was \$7,283 (table 1). The median revenue for 90 percent of these districts ranged from \$3,876 to \$13,894.
- The median total expenditure per student for independent charter schools was \$7,066 (table 2).
- Current expenditures per student in charter schools ranged from \$3,952 to \$12,133 for 90 percent of the charter school districts.

Current expenditures for unified districts

District-level analyses and comparisons can be complicated by the variety of administrative structures that exist across the nation in regular school districts. States such as Florida, Maryland, Nevada, and West Virginia have large districts that are coterminous with counties and encompass all levels and types of public schools. School districts in other states may exist in small communities with only one school, or in larger communities where all elementary schools are in one school district and all secondary schools are in another. In some states, all special education schools are administered by a few specific districts; in other states, each district may have all kinds of different schools and programs.³ This variety in the types of school districts makes comparison of expenditures among school districts difficult.

The information presented in tables 1 through 4 is based on all regular education school districts reporting student counts that are reported on the CCD “Local Education Agency Universe Survey,” regardless of grades served. Table 5 presents current expenditures per student in regular unified districts only. Unified districts are school districts with both elementary and secondary education programs.

In nine states, fewer than half of the school districts were unified (Arizona, California, Illinois, Maine, Montana, Nebraska, New Hampshire, New Jersey, and Vermont). In two states, Montana and Vermont, fewer than half of the students attended schools in unified districts. The federal range ratio was reduced from 1.38 to 1.17 when only unified school districts were analyzed.

- Unified school districts serve students in all grades. The median current expenditure for unified school districts in the nation was \$7,157 per student, with 90 percent of all districts ranging between \$5,505

³Special education districts were not included in regular districts.

and \$11,931 (table 5). The federal range ratio was 1.17, indicating a slight reduction in variation of per student spending compared with all regular school districts (1.38) reported in table 4.

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Data source: The NCES Common Core of Data (CCD), "School District Finance Survey (F-33)," FY 2002.

For technical information, see the complete report:

Johnson, F. (2005). *Revenues and Expenditures by Public School Districts: School Year 2001–02* (NCES 2005-342).

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To obtain the complete report (NCES 2005-342), visit the NCES Electronic Catalog (<http://nces.ed.gov/pubsearch>).

Table 1. Revenues per student for public elementary and secondary school districts, by state: School year 2001–02

State	Revenues per student			Federal range ratio ¹	Number of districts	Number of students
	5th percentile	Median	95th percentile			
United States	\$6,208	\$8,572	\$16,286	1.62	14,002	46,941,294
Alabama	6,149	6,768	8,492	0.38	128	726,367
Alaska	7,930	16,342	28,555	2.60	53	133,010
Arizona	5,659	8,173	18,035	2.19	230	864,264
Arkansas	5,956	6,611	8,974	0.51	310	449,161
California	6,710	7,979	14,628	1.18	971	6,066,162
Colorado	6,607	8,272	14,653	1.22	178	741,319
Connecticut	9,357	11,300	16,820	0.80	166	543,829
Delaware	9,102	10,239	12,295	0.35	16	105,752
District of Columbia	† ²	16,627	† ²	† ²	1	68,449
Florida	6,512	7,207	9,435	0.45	67	2,500,179
Georgia	6,973	8,119	10,632	0.52	179	1,466,836
Hawaii	† ²	10,239	† ²	† ²	1	184,546
Idaho	5,730	7,510	13,691	1.39	114	246,415
Illinois	6,439	8,135	13,680	1.12	891	2,047,836
Indiana	7,360	8,474	11,144	0.51	292	994,348
Iowa	7,225	8,332	11,477	0.59	371	485,932
Kansas	6,858	8,392	11,460	0.67	303	470,204
Kentucky	6,167	6,837	8,021	0.30	176	654,363
Louisiana	6,126	7,220	9,367	0.53	66	725,027
Maine	8,158	10,620	20,750	1.54	224	204,949
Maryland	8,202	9,250	11,017	0.34	24	860,640
Massachusetts	8,164	10,623	19,685	1.41	302	935,424
Michigan	7,617	8,715	12,098	0.59	553	1,661,301
Minnesota	7,414	8,775	12,013	0.62	342	832,369
Mississippi	5,246	6,087	8,085	0.54	152	492,198
Missouri	6,201	7,513	11,321	0.83	522	909,918
Montana	5,278	8,148	19,325	2.66	442	151,745
Nebraska	5,125	8,551	16,750	2.27	524	283,789
Nevada	6,938	8,309	17,348	1.50	17	356,814
New Hampshire	7,309	10,618	21,521	1.94	162	203,072
New Jersey	9,775	12,458	19,636	1.01	551	1,306,347
New Mexico	6,792	10,404	18,727	1.76	89	320,068
New York	10,283	12,838	20,939	1.04	687	2,846,644
North Carolina	6,497	7,475	9,836	0.51	117	1,296,156
North Dakota	5,902	8,355	16,957	1.87	218	105,936
Ohio	6,848	8,045	14,991	1.19	611	1,796,601
Oklahoma	5,520	6,897	10,677	0.93	542	621,573
Oregon	7,107	8,322	19,671	1.77	197	549,604
Pennsylvania	7,819	9,167	12,296	0.57	500	1,766,513
Rhode Island	8,751	10,142	14,682	0.68	36	156,624

See notes at end of table.

Table 1. Revenues per student for public elementary and secondary school districts, by state: School year 2001–02—Continued

State	Revenues per student			Federal range ratio ¹	Number of districts	Number of students
	5th percentile	Median	95th percentile			
South Carolina	6,904	8,349	10,642	0.54	85	674,347
South Dakota	6,354	7,516	13,574	1.14	173	127,129
Tennessee	5,300	6,039	7,822	0.48	137	897,695
Texas	6,718	8,280	15,673	1.33	1,045	4,115,727
Utah	5,426	6,738	11,335	1.09	40	481,182
Vermont	8,661	14,376	24,525	1.83	240	96,427
Virginia	6,960	8,042	10,801	0.55	132	1,162,045
Washington	6,944	8,390	17,128	1.47	296	1,009,200
West Virginia	7,533	8,244	9,731	0.29	55	282,145
Wisconsin	8,386	9,757	12,009	0.43	426	875,216
Wyoming	8,658	12,063	22,898	1.64	48	87,897
Independent charter school districts	3,876	7,283	13,894	2.58	943	260,188

† Not applicable.

¹The federal range ratio indicates the difference between the district at the 5th percentile and the 95th percentile (when districts are ranked by revenues per student within the state) as a ratio of the value to revenues per student for the district at the 5th percentile.

²The District of Columbia and Hawaii consist of one school district each.

NOTE: National figures do not include independent charter school districts, i.e., those not affiliated with a non-charter school district. Charter schools that are affiliated with regular school districts are included in the national and state figures. Only regular school districts matching the Common Core of Data (CCD) Agency Universe and with student membership > 0 were used in creating the national and state figures. Regular school districts with current expenditures per student between \$2,500 and \$35,000 were included in the national and state figures; 99.87 percent of the school districts met this criterion. Charter school districts with revenues > 0 or expenditures > 0 were included in the charter school analysis; 99.79 percent of charter school districts met this criterion. It is assumed that some charter school districts did not report all revenues.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "School District Finance Survey (F-33)," FY 2002, version 1a.

Table 2. Expenditures per student for elementary and secondary education, by type of expenditure for regular districts and for independent charter school districts: School year 2001–02

Type of expenditure	Expenditures per student			Federal range ratio ¹
	5th percentile	Median	95th percentile	
Regular districts				
Total	\$6,001	\$8,424	\$16,184	1.70
Current	5,463	7,294	13,026	1.38
Instruction	3,311	4,500	8,087	1.44
Support services	1,641	2,481	4,762	1.90
Non-instruction services	20	321	635	30.44
Capital outlay	50	443	4,298	84.17
Other programs	0	9	263	†
Payments to state and local governments	0	0	139	†
Interest on long-term debt	0	115	662	†
Payments to other school districts ²	0	52	1,356	†
Independent charter school districts				
Total	4,000	7,066	14,215	2.55
Current	3,952	6,545	12,133	2.07
Instruction	1,453	3,439	6,667	3.59
Support services	1,354	2,861	6,125	3.52
Non-instruction services	0	62	582	†
Capital outlay	0	0	2,266	†
Other programs	0	0	282	†
Payments to state and local governments	0	0	0	†
Interest on long-term debt	0	0	184	†
Payments to other school districts ²	0	0	67	†

† Not applicable.

¹The federal range ratio indicates the difference between the district at the 5th percentile and the 95th percentile (when districts are ranked by expenditures per student within the state) as a ratio of the value to expenditures per student for the district at the 5th percentile.

²Total expenditures do not include payments to other school districts.

NOTE: National figures do not include independent charter school districts, i.e., those not affiliated with a non-charter school district. Charter schools that are affiliated with regular school districts are included in the national and state figures. Only regular school districts matching the Common Core of Data (CCD) Agency Universe and with student membership > 0 were used in creating the national and state figures. Regular school districts with current expenditures per student between \$2,500 and \$35,000 were included in the national and state figures; 99.87 percent of the school districts met this criterion. Charter school districts with revenues > 0 or expenditures > 0 were included in the charter school analysis; 99.79 percent of charter school districts met this criterion. The District of Columbia and Hawaii consist of one school district each. Other programs include community services, adult education, and community colleges.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "School District Finance Survey (F-33)," FY 2002, version 1a.

Table 3. School district expenditures per student, by type of expenditure and state: School year 2001–02

State	Median per pupil expenditures						
	Total expenditures ¹	Current expenditures ²	Instruction expenditures	Capital outlay expenditures	Other programs ³ and payments to other gov. agencies	Interest expenditures on long-term debt	Payments to other districts ¹
United States	\$8,424	\$7,294	\$4,500	\$443	\$15	\$115	\$52
Alabama	6,755	6,042	3,725	380	132	72	1
Alaska	16,456	14,549	8,931	759	21	0	0
Arizona	7,585	6,197	3,287	679	0	12	0
Arkansas	6,438	5,813	3,671	283	0	118	0
California	8,109	7,003	4,448	617	20	29	32
Colorado	8,129	7,101	4,160	523	0	126	131
Connecticut	10,558	9,737	6,182	314	14	255	120
Delaware	10,726	8,742	5,489	1,597	17	81	300
District of Columbia ⁴	16,738	13,330	6,617	3,198	210	0	0
Florida	7,262	6,015	3,437	907	107	91	0
Georgia	7,901	6,975	4,450	628	1	73	6
Hawaii ⁴	7,785	7,306	4,417	228	250	0	0
Idaho	7,439	6,645	4,077	358	0	107	0
Illinois	8,157	7,043	4,257	585	1	117	286
Indiana	8,362	6,887	4,178	604	609	32	215
Iowa	7,551	6,796	4,173	434	0	83	694
Kansas	8,149	7,397	4,330	453	0	107	5
Kentucky	6,705	6,221	3,852	222	96	132	0
Louisiana	7,148	6,525	3,964	356	25	116	0
Maine	9,723	9,016	5,859	188	24	62	225
Maryland	9,272	8,077	4,853	793	25	87	89
Massachusetts	10,445	9,343	6,073	175	0	215	245
Michigan	8,467	7,268	4,532	450	76	346	10
Minnesota	8,478	7,014	4,502	581	291	299	264
Mississippi	5,954	5,420	3,254	282	4	112	0
Missouri	7,309	6,457	3,980	383	73	85	58
Montana	8,245	7,572	4,702	186	0	0	27
Nebraska	8,473	7,801	5,268	324	0	0	0
Nevada	8,530	7,807	4,623	496	40	242	1
New Hampshire	9,445	8,489	5,344	277	0	129	187
New Jersey	11,826	10,630	6,440	370	49	156	233
New Mexico	10,238	8,205	4,423	1,201	32	133	0
New York	13,629	11,219	7,449	995	51	318	29
North Carolina	7,425	6,633	4,131	380	28	107	0
North Dakota	7,859	7,303	4,225	391	0	0	403
Ohio	7,781	6,735	4,037	455	88	105	28
Oklahoma	6,897	6,601	3,780	200	4	15	0
Oregon	8,646	7,408	4,469	301	0	98	9
Pennsylvania	9,040	7,625	4,794	485	17	392	427
Rhode Island	9,845	9,530	6,209	150	54	153	210

See notes at end of table.

Table 3. School district expenditures per student, by type of expenditure and state: School year 2001–02—Continued

State	Median per pupil expenditures						
	Total expenditures ¹	Current expenditures ²	Instruction expenditures	Capital outlay expenditures	Other programs ³ and payments to other govt. agencies	Interest expenditures on long-term debt	Payments to other districts ⁴
South Carolina	8,478	6,936	4,144	832	80	178	12
South Dakota	7,865	6,772	4,007	640	0	43	39
Tennessee	6,378	5,523	3,611	369	67	146	0
Texas	8,417	7,066	4,372	531	5	168	40
Utah	6,727	5,656	3,492	722	151	171	0
Vermont	9,293	8,818	5,736	145	0	107	4,784
Virginia	7,797	6,989	4,325	449	13	104	60
Washington	8,156	7,049	4,279	415	1	182	12
West Virginia	8,361	7,671	4,695	496	52	0	8
Wisconsin	9,478	8,294	5,126	377	134	343	99
Wyoming	11,268	9,539	5,620	1,066	3	92	0
Independent charter school districts	7,066	6,545	3,439	0	0	0	0

¹Total expenditures do not include payments to other school districts.

²Current expenditures includes instruction, support services, and non-instruction services.

³Other programs include community services, adult education, and community colleges.

⁴The District of Columbia and Hawaii consist of only one school district each.

NOTE: National figures do not include independent charter school districts, i.e., those not affiliated with a non-charter school district. Charter schools that are affiliated with regular school districts are included in the national and state figures. Only school districts matching the Common Core of Data (CCD) Agency Universe and with student membership > 0 were used in creating this table. Districts with current expenditures per student between \$2,500 and \$35,000 were included in the national and state figures; 99.87 percent of the school districts met this criterion. Charter schools with revenues > 0 and expenditures > 0 were included in the charter school analysis; 99.79 percent of the charter school districts met this criterion. This table reports the median school district expenditure for each category; therefore, totals do not equal the sum of the detail.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "School District Finance Survey (F-33)," FY 2002, version 1a.

Table 4. Current expenditures per student for public elementary and secondary school districts, by state: School year 2001–02

State	Expenditures per student			Federal range ratio ¹	Number of districts	Number of students
	5th percentile	Median	95th percentile			
United States	\$5,463	\$7,294	\$13,026	1.38	14,002	46,941,294
Alabama	5,410	6,042	7,207	0.33	128	726,367
Alaska	7,740	14,549	24,377	2.15	53	133,010
Arizona	4,481	6,197	12,828	1.86	230	864,264
Arkansas	5,116	5,813	7,947	0.55	310	449,161
California	5,865	7,003	11,777	1.01	971	6,066,162
Colorado	5,568	7,101	13,175	1.37	178	741,319
Connecticut	8,424	9,737	12,869	0.53	166	543,829
Delaware	7,359	8,742	10,077	0.37	16	105,752
District of Columbia	† ²	13,330	† ²	† ²	1	68,449
Florida	5,432	6,015	7,012	0.29	67	2,500,179
Georgia	6,114	6,975	8,942	0.46	179	1,466,836
Hawaii	† ²	7,306	† ²	† ²	1	184,546
Idaho	5,087	6,645	11,326	1.23	114	246,415
Illinois	5,436	7,043	11,053	1.03	891	2,047,836
Indiana	6,057	6,887	9,027	0.49	292	994,348
Iowa	5,915	6,796	8,593	0.45	371	485,932
Kansas	5,903	7,397	9,932	0.68	303	470,204
Kentucky	5,554	6,221	7,353	0.32	176	654,363
Louisiana	5,725	6,525	8,050	0.41	66	725,027
Maine	7,221	9,016	15,707	1.18	224	204,949
Maryland	7,339	8,077	9,668	0.32	24	860,640
Massachusetts	7,575	9,343	14,038	0.85	302	935,424
Michigan	6,404	7,268	10,257	0.60	553	1,661,301
Minnesota	5,989	7,014	9,490	0.58	342	832,369
Mississippi	4,607	5,420	7,225	0.57	152	492,198
Missouri	5,287	6,457	9,378	0.77	522	909,918
Montana	4,946	7,572	17,000	2.44	442	151,745
Nebraska	5,063	7,801	14,147	1.79	524	283,789
Nevada	5,797	7,807	18,295	2.16	17	356,814
New Hampshire	6,542	8,489	12,341	0.89	162	203,072
New Jersey	8,620	10,630	15,157	0.76	551	1,306,347
New Mexico	5,924	8,205	12,883	1.17	89	320,068
New York	8,997	11,219	17,853	0.98	687	2,846,644
North Carolina	5,850	6,633	8,241	0.41	117	1,296,156
North Dakota	5,000	7,303	14,818	1.96	218	105,936
Ohio	5,848	6,735	9,410	0.61	611	1,796,601
Oklahoma	5,156	6,601	10,116	0.96	542	621,573
Oregon	6,393	7,408	15,451	1.42	197	549,604
Pennsylvania	6,346	7,625	10,307	0.62	500	1,766,513
Rhode Island	7,964	9,530	11,948	0.50	36	156,624

See notes at end of table.

Table 4. Current expenditures per student for public elementary and secondary school districts, by state: School year 2001–02—Continued

State	Expenditures per student			Federal range ratio ¹	Number of districts	Number of students
	5th percentile	Median	95th percentile			
South Carolina	6,140	6,936	9,149	0.49	85	674,347
South Dakota	5,434	6,772	11,532	1.12	173	127,129
Tennessee	4,783	5,523	7,217	0.51	137	897,695
Texas	5,821	7,066	11,752	1.02	1,045	4,115,727
Utah	4,447	5,656	9,646	1.17	40	481,182
Vermont	6,577	8,818	13,512	1.05	240	96,427
Virginia	6,135	6,989	9,512	0.55	132	1,162,045
Washington	6,027	7,049	15,840	1.63	296	1,009,200
West Virginia	6,978	7,671	8,807	0.26	55	282,145
Wisconsin	7,053	8,294	10,133	0.44	426	875,216
Wyoming	7,492	9,539	16,327	1.18	48	87,897
Independent charter school districts	3,952	6,545	12,133	2.07	943	260,188

† Not applicable.

¹The federal range ratio indicates the difference between the district at the 5th percentile and the 95th percentile (when districts are ranked by expenditures per student within the state) as a ratio of the value to expenditures per student for the district at the 5th percentile.

²The District of Columbia and Hawaii consist of one school district each.

NOTE: National figures do not include independent charter school districts, i.e., those not affiliated with a non-charter school district. Charter schools that are affiliated with regular school districts are included in the national and state figures. Only regular school districts matching the Common Core of Data (CCD) Agency Universe and with student membership > 0 were used in creating this table. Districts with current expenditures per student between \$2,500 and \$35,000 per student were included in the national and state figures; 98.87 percent of school districts met this criterion. Charter schools with revenues > 0 and expenditures > 0 were included in the charter school analysis; 99.79 percent of the charter school districts met this criterion.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, "School District Finance Survey (F-33)," FY 2002, version 1a.

Table 5. Current expenditures per student for unified school districts, by state: School year 2001–02

State	Expenditures per student				Number of districts unified	Percent of districts unified	Number of students	Percent of students in unified districts
	5th percentile	Median	95th percentile	Federal range ratio ¹				
United States	\$5,505	\$7,157	\$11,931	1.17	10,629	75.9	43,405,395	92.5
Alabama	5,410	6,042	7,207	0.33	128	100.0	726,367	100.0
Alaska	7,740	14,549	24,377	2.15	53	100.0	133,010	100.0
Arizona	4,619	5,938	11,382	1.46	101	43.9	551,987	63.9
Arkansas	5,116	5,813	7,947	0.55	310	100.0	449,161	100.0
California	6,105	6,984	11,077	0.81	364	37.5	4,480,470	73.9
Colorado	5,568	7,101	13,175	1.37	178	100.0	741,319	100.0
Connecticut	8,525	9,588	13,157	0.54	113	68.1	511,008	94.0
Delaware	7,359	8,742	10,077	0.37	16	100.0	105,752	100.0
District of Columbia	† ²	13,330	† ²	† ²	1	100.0	68,449	100.0
Florida	5,432	6,015	7,012	0.29	67	100.0	2,500,179	100.0
Georgia	6,114	6,966	8,834	0.44	174	97.2	1,464,902	99.9
Hawaii	† ²	7,306	† ²	† ²	1	100.0	184,546	100.0
Idaho	5,087	6,481	9,938	0.95	108	94.7	246,281	99.9
Illinois	5,487	6,794	8,733	0.59	405	45.5	1,298,575	63.4
Indiana	6,057	6,890	9,027	0.49	291	99.7	994,112	100.0
Iowa	5,924	6,784	8,052	0.36	350	94.3	482,404	99.3
Kansas	5,903	7,397	9,932	0.68	303	100.0	470,204	100.0
Kentucky	5,556	6,220	7,343	0.32	171	97.2	652,514	99.7
Louisiana	5,725	6,525	8,050	0.41	66	100.0	725,027	100.0
Maine	7,111	8,347	10,783	0.52	111	49.6	177,396	86.6
Maryland	7,339	8,077	9,668	0.32	24	100.0	860,640	100.0
Massachusetts	7,666	9,165	12,906	0.68	210	69.5	869,432	92.9
Michigan	6,422	7,252	9,832	0.53	524	94.8	1,659,757	99.9
Minnesota	5,989	6,978	9,164	0.53	327	95.6	830,173	99.7
Mississippi	4,607	5,391	6,680	0.45	148	97.4	490,857	99.7
Missouri	5,277	6,399	8,824	0.67	449	86.0	898,337	98.7
Montana	5,686	8,957	19,932	2.51	55	12.4	18,404	12.1
Nebraska	6,276	7,699	10,423	0.66	245	46.8	271,346	95.6
Nevada	5,797	7,665	18,295	2.16	16	94.1	356,725	100.0
New Hampshire	6,646	8,152	10,691	0.61	67	41.4	157,793	77.7
New Jersey	9,059	10,721	14,582	0.61	218	39.6	980,363	75.0
New Mexico	5,924	8,205	12,883	1.17	89	100.0	320,068	100.0
New York	8,952	11,092	16,435	0.84	638	92.9	2,796,260	98.2
North Carolina	5,850	6,633	8,241	0.41	117	100.0	1,296,156	100.0
North Dakota	5,152	7,053	11,687	1.27	164	75.2	102,500	96.8
Ohio	5,851	6,742	9,410	0.61	610	99.8	1,796,546	100.0
Oklahoma	5,115	6,514	9,586	0.87	430	79.3	599,534	96.5
Oregon	6,385	7,293	13,779	1.16	178	90.4	549,130	99.9
Pennsylvania	6,346	7,625	10,350	0.63	498	99.6	1,765,610	99.9
Rhode Island	7,964	9,461	11,948	0.50	32	88.9	154,482	98.6

See notes at end of table.

Table 5. Current expenditures per student for unified school districts, by state: School year 2001–02—Continued

State	Expenditures per student			Federal range ratio ¹	Number of districts unified	Percent of districts unified	Number of students	Percent of students in unified districts
	5th percentile	Median	95th percentile					
South Carolina	6,140	6,936	9,149	0.49	85	100.0	674,347	100.0
South Dakota	5,434	6,689	10,170	0.87	168	97.1	126,031	99.1
Tennessee	4,804	5,523	7,207	0.50	123	89.8	875,998	97.6
Texas	5,821	7,026	11,208	0.93	979	93.7	4,105,037	99.7
Utah	4,447	5,656	9,646	1.17	40	100.0	481,182	100.0
Vermont	6,586	8,450	12,032	0.83	37	15.4	34,632	35.9
Virginia	6,135	6,989	9,512	0.55	132	100.0	1,162,045	100.0
Washington	6,104	6,962	13,784	1.26	246	83.1	999,210	99.0
West Virginia	6,978	7,671	8,807	0.26	55	100.0	282,145	100.0
Wisconsin	7,159	8,297	9,950	0.39	368	86.4	839,670	95.9
Wyoming	7,492	9,385	14,730	0.97	46	95.8	87,322	99.3
Independent charter school districts	4,009	6,154	13,933	2.48	257	27.3	85,179	32.7

† Not applicable.

¹The federal range ratio indicates the difference between the district at the 5th percentile and the 95th percentile (when districts are ranked by expenditures per student within the state) as a ratio of the value to expenditures per student for the district at the 5th percentile.

²The District of Columbia and Hawaii consist of one school district each.

NOTE: National figures do not include independent charter school districts, i.e., those not affiliated with a non-charter school district. Charter schools that are affiliated with regular school districts are included in the national and state figures. Only regular school districts matching the Common Core of Data (CCD) Agency Universe and with student membership > 0 were used in creating this table. Districts with current expenditures per student between \$2,500 and \$35,000 per student were included in the national and state figures; 98.87 percent of school districts met this criterion. Charter schools with revenues > 0 and expenditures > 0 were included in the charter school analysis; 99.79 percent of the charter school districts met this criterion.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, "School District Finance Survey (F-33)," FY 2002, version 1a.

Revenues and Expenditures

Revenues and Expenditures for Public Elementary and Secondary Education: School Year 2002–03

—Jason Hill and Frank Johnson

This article was excerpted from the Introduction and Selected Findings of the E.D. TAB of the same name. The universe data are from the "National Public Education Financial Survey" (NPEFS), part of the Common Core of Data (CCD). Technical notes and definitions from the original report have been omitted.

Approximately \$440 billion in revenue was raised to fund public education for grades prekindergarten through 12 in school year 2002–03, also referred to as fiscal year 2003. Total expenditures for public education, including school construction, debt financing, community services, and adult education programs, came to \$455 billion. Current expenditures (those excluding construction, equipment, and debt financing) were over \$387 billion, a 5.2 percent increase from fiscal year 2002. About three out of every five current expenditure dollars were spent on teachers, textbooks, and other instructional services and supplies. An average of \$8,044 was spent on each student—an increase of 4.0 percent from \$7,734 in school year 2001–02 (in unadjusted dollars).¹

These and other financial data on public elementary and secondary education are collected and reported each year by the National Center for Education Statistics (NCES), U.S. Department of Education. The data are part of the "National Public Education Financial Survey" (NPEFS), one of the components of the Common Core of Data (CCD) collection of surveys. The initial release data in this report were collected from March to September 2004. Editing and imputations were completed in November 2004.

Revenues for Public Elementary and Secondary Education

- Approximately \$440 billion were collected for public elementary and secondary education for school year 2002–03 in the 50 states and the District of Columbia (table 1). Total revenues ranged from a high of around \$57 billion in California, which serves about 1 out of every 8 students in the nation, to a low of about \$825 million in North Dakota, which serves roughly 1 out of every 449 students in the nation (table 5).
- Nationally, revenues increased an average of 4.9 percent over the previous year's revenues of nearly \$420 billion (in unadjusted dollars).
- The greatest part of education revenues came from state and local governments, which together provided nearly \$403 billion, or 91.5 percent of all revenues (tables 1 and 2).

¹ Comparisons are based on the previous edition of this report, *Revenues and Expenditures for Public Elementary and Secondary Education: School Year 2001–02* (Cohen and Johnson 2004).

- The federal government contribution to education revenues made up approximately \$38 billion. The relative contributions from these levels of government can be expressed as portions of the typical education dollar (figure 1). Local sources for school year 2002–03 made up 43 cents of every dollar in revenue, state revenues comprised 49 cents, and the remaining 9 cents came from federal sources. (The cents do not sum to \$1 due to rounding.)
- Among states with more than one school district, revenues from local sources ranged from 12.9 percent in New Mexico to 62.8 percent in Nevada (table 2).² Revenues from state sources also showed a wide distribution in their share of total revenues. The state revenue share of total revenues was 30.2 percent in Nevada and 73.8 percent in Minnesota. Federal revenues ranged from 4.3 percent in New Jersey to 17.7 percent in Alaska. Federal sources contributed 10 percent or more of the revenues in Alabama, Alaska, Arizona, Arkansas, the District of Columbia, Florida, Kentucky, Louisiana, Mississippi, Montana, New Mexico, North Dakota, Oklahoma, South Dakota, Tennessee, and West Virginia.

Current Expenditures for Public Elementary and Secondary Education

- Current expenditures for public education in 2002–03 totaled approximately \$388 billion (table 3). This represents a \$19 billion (5.2 percent) increase over expenditures in the previous school year (\$368 billion in unadjusted dollars). Nearly \$238 billion in current expenditures were spent on instruction. Instructional expenditures include teacher salaries and benefits, supplies (e.g., textbooks), and purchased services. Another \$134 billion were expended for a cluster of services that support instruction. Almost \$16 billion were spent on noninstructional services.
- Expressed in terms of the typical education dollar, instructional expenditures accounted for approximately 61 cents of the education dollar for current

² Both the District of Columbia and Hawaii have only one school district each. Therefore, neither is comparable to other states. Hawaii funds public education primarily through state taxes. Local revenues in Hawaii consist almost entirely of student fees and charges for services, such as food services, summer school, and student activities.

expenditures (figure 2). About 35 cents of the education dollar went for support services, which include operation and maintenance of buildings, school administration, transportation, and other student and school support activities (e.g., student counseling, libraries, and health services). Just over 4 cents of every education dollar went to noninstructional activities, which include school meals and enterprise activities, such as bookstores.

- Most states were clustered around the national average (61.3 percent) in terms of the share of current expenditures spent on instruction (table 4). Among the states, New Mexico spent the smallest percentage (55.5 percent) of its current expenditures on instruction, while New York spent the largest percentage (68.7 percent) of its current expenditures on instruction. The District of Columbia spent 52.5 percent of its current expenditures on instruction.

Current Expenditures per Student

- In 2002–03, the 50 states and the District of Columbia spent an average of \$8,044 in current expenditures for every pupil in membership (table 5). This represents a 4.0 percent increase in current expenditures per student from the previous school year (\$7,734 in unadjusted dollars).
- The median of the state per pupil expenditures was \$7,574, indicating that one-half of all states educated students at a cost of less than \$7,574 per student (derived from table 5). Three states—New Jersey (\$12,568), New York (\$11,961), and Connecticut (\$11,057)—expended more than \$11,000 per pupil. The District of Columbia, which comprises a single urban district, spent \$11,847 per pupil. Only one state, Utah, had expenditures of less than \$5,000 for each pupil in membership (\$4,838).
- On average, for every student in 2002–03, about \$4,934 was spent for instructional services. Expenditures per pupil for instruction ranged from \$3,103 in Utah to \$8,213 in New York. Support services expenditures per pupil were highest in the District of Columbia (\$5,331) and New Jersey (\$4,757), and lowest in Mississippi (\$1,966), Tennessee (\$1,885), and Utah (\$1,461). Expenditures per pupil for noninstructional services such as food services were \$329 for the nation.

Expenditures for Instruction

- Expenditures for instruction totaled nearly \$238 billion for school year 2002–03 (table 6). Nearly \$169

billion went for salaries for teachers and instructional aides. Benefits for instructional staff made up almost \$46 billion, bringing the total for salaries and benefits for teachers and teacher aides to nearly \$215 billion.

- Instructional supplies, including textbooks, made up over \$11 billion. (Expenditures for computers and desks are not considered current expenditures, but are otherwise part of replacement equipment in table 7.) Expenditures for purchased services were over \$7 billion. These expenditures include the costs for contract teachers (who are not on the school district's payroll), educational television, computer-assisted instruction, and rental of equipment for instruction.
- Tuition expenditures for sending students to out-of-state schools and nonpublic schools within the state totaled over \$3 billion.

Total Expenditures

- Total expenditures made by school districts came to approximately \$455 billion in the 2002–03 school year (table 7). About \$388 billion of total expenditures were current expenditures for public elementary and secondary education. Of the total expenditures made by school districts, a little less than \$43 billion were spent on facilities acquisition and construction, about \$6 billion were spent on replacement equipment, and a little over \$11 billion were spent on interest payments on debt. The remaining amount (\$7 billion) was spent on other programs, such as community services and adult education, which are not part of public elementary and secondary education.

Reference

Cohen, C., and Johnson, F. (2004). *Revenues and Expenditures for Public Elementary and Secondary Education: School Year 2001–02* (NCES 2004-341). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Data source: The NCES Common Core of Data (CCD), "National Public Education Financial Survey" (NPEFS), 2002–03.

For technical information, see the complete report:

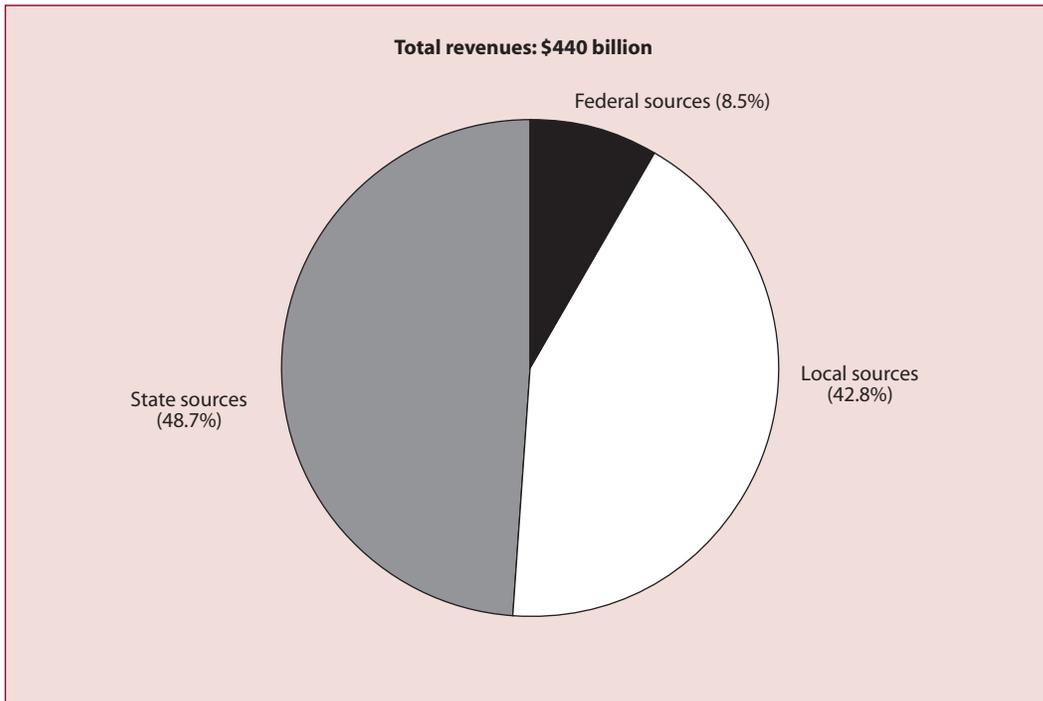
Hill, J., and Johnson, F. (2005). *Revenues and Expenditures for Public Elementary and Secondary Education: School Year 2002–03* (NCES 2005-353).

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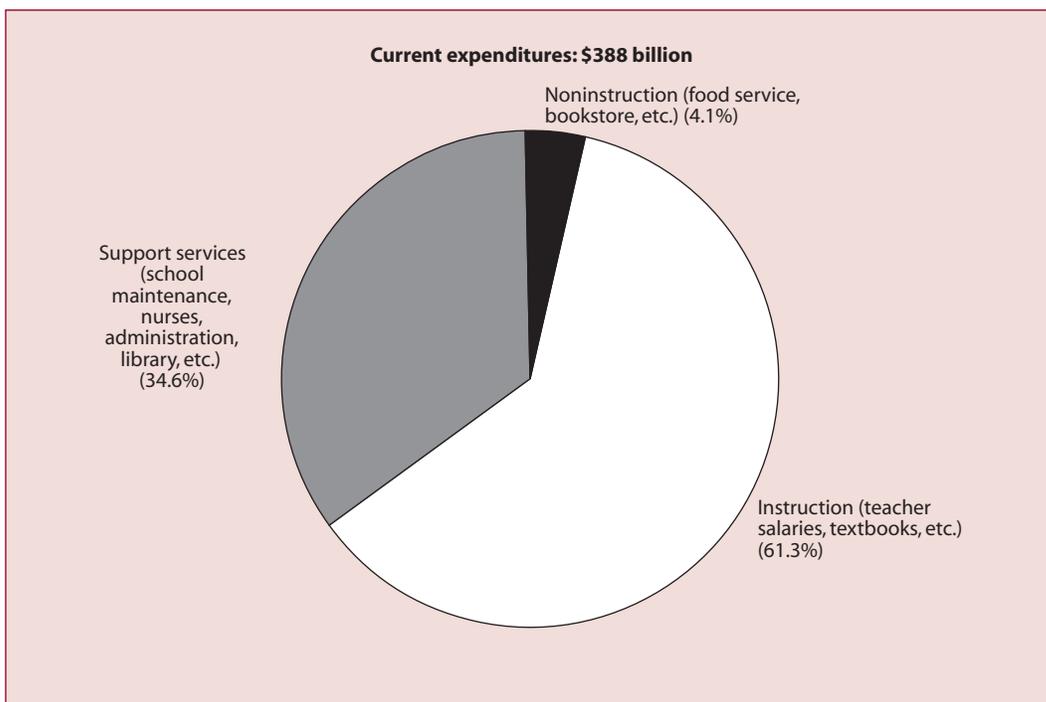
To obtain the complete report (NCES 2005-353), visit the NCES Electronic Catalog (<http://nces.ed.gov/pubsearch>).

Figure 1. Revenues by source: School year 2002–03



SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey," 2002–03.

Figure 2. Current expenditures by function: School year 2002–03



SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey," 2002–03.

Table 1. Revenues for public elementary and secondary schools, by source, state, and outlying areas: School year 2002-03

State	[In thousands of dollars]			
	Total	Local	State	Federal
United States	\$440,157,299 ¹	\$188,363,983 ¹	\$214,277,407	\$37,515,909
Alabama	5,153,795	1,591,360	2,966,979	595,456
Alaska	1,468,276	373,952	834,259	260,064
Arizona	7,351,310 ¹	2,956,463 ¹	3,555,570	839,278
Arkansas	3,266,318	1,079,085	1,804,362	382,871
California	57,021,363	17,830,356	33,561,358	5,629,649
Colorado	6,299,536	3,174,971	2,715,206	409,359
Connecticut	7,087,302	4,065,646	2,652,212	369,444
Delaware	1,197,512	335,292	759,290	102,929
District of Columbia	1,114,021	960,776	†	153,246
Florida	18,984,106	8,699,188	8,285,654	1,999,264
Georgia	13,448,966	5,876,044	6,489,049	1,083,873
Hawaii	2,078,876	35,183	1,873,316	170,377
Idaho	1,698,503	528,369	1,003,508	166,626
Illinois	19,154,705	11,208,836	6,327,132	1,618,737
Indiana	7,926,062	2,656,914	4,663,625	605,523
Iowa	4,241,508	1,951,347	1,974,707	315,454
Kansas	4,071,712	1,374,386	2,326,819	370,506
Kentucky	4,764,253	1,460,287	2,799,254	504,713
Louisiana	5,549,582	2,092,810	2,723,938	732,835
Maine	2,161,238	1,040,061	927,774	193,403
Maryland	8,668,097	4,768,098	3,317,559	582,440
Massachusetts	11,801,318	6,267,814	4,827,630	705,875
Michigan	17,954,395	5,188,315	11,358,303	1,407,777
Minnesota	8,349,227	1,688,920	6,165,549	494,757
Mississippi	3,263,897	1,006,635	1,754,445	502,816
Missouri	7,662,199	4,302,867	2,743,289	616,043
Montana	1,204,497	471,698	558,114	174,685
Nebraska	2,550,525	1,447,099	877,657	225,769
Nevada	2,784,681	1,747,987	840,435	196,258
New Hampshire	1,957,267	897,514	957,850	101,904
New Jersey	18,905,028	9,869,241	8,230,289	805,498
New Mexico	2,685,725	346,541	1,936,713	402,471
New York	37,894,517	17,981,391	17,267,655	2,645,471
North Carolina	9,379,577	2,504,549	5,975,983	899,045
North Dakota	825,135	395,181	303,925	126,029
Ohio	18,143,062	8,843,542	8,132,703	1,166,816
Oklahoma	4,161,621	1,355,733	2,277,241	528,646
Oregon	4,599,717	1,841,006	2,342,430	416,281
Pennsylvania	18,751,160	10,430,431	6,867,531	1,453,198
Rhode Island	1,744,838	898,017	733,211	113,611
South Carolina	5,732,697	2,410,997	2,757,948	563,752
South Dakota	963,997	487,671	325,091	151,235
Tennessee	6,114,870	2,820,286	2,680,969	613,615
Texas	34,605,869	17,041,583	14,146,697	3,417,588
Utah	2,912,991	999,579	1,643,684	269,728

See notes at end of table.

Table 1. Revenues for public elementary and secondary schools, by source, state, and outlying areas: School year 2002–03—Continued

State	[In thousands of dollars]			
	Total	Local	State	Federal
Vermont	1,149,920	290,683	779,215	80,022
Virginia	10,283,182	5,531,962	4,072,761	678,459
Washington	8,696,472	2,543,056	5,373,852	779,564
West Virginia	2,552,446	712,551	1,568,125	271,770
Wisconsin	8,858,181	3,594,201	4,727,338	536,643
Wyoming	961,248	387,510	489,201	84,536
Outlying areas				
American Samoa	68,812	2,545	12,591	53,676
Guam	—	—	—	—
Northern Marianas	60,712	299	37,230	23,183
Puerto Rico	2,619,532	95	1,816,733	802,703
Virgin Islands	177,087	139,969	0	37,119

— Not available.

† Not applicable.

¹ Value affected by redistribution of reported values to correct for missing data items.

NOTE: Detail may not sum to totals because of rounding. National totals do not include outlying areas. Local revenues include intermediate revenues. Both the District of Columbia and Hawaii have only one school district each; therefore, neither is comparable to other states. Local revenues in Hawaii consist almost entirely of student fees and charges for services, such as food services, summer school, and student activities.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey," 2002–03.

Table 2. Percentage distribution of revenue for public elementary and secondary schools, by source, state, and outlying areas: School year 2002–03

State	Within-state percentage distribution		
	Local	State	Federal
United States ¹	42.8	48.7	8.5
Alabama	30.9	57.6	11.6
Alaska	25.5	56.8	17.7
Arizona ¹	40.2	48.4	11.4
Arkansas	33.0	55.2	11.7
California	31.3	58.9	9.9
Colorado	50.4	43.1	6.5
Connecticut	57.4	37.4	5.2
Delaware	28.0	63.4	8.6
District of Columbia	86.2	†	13.8
Florida	45.8	43.6	10.5
Georgia	43.7	48.2	8.1
Hawaii	1.7	90.1	8.2
Idaho	31.1	59.1	9.8
Illinois	58.5	33.0	8.5
Indiana	33.5	58.8	7.6
Iowa	46.0	46.6	7.4
Kansas	33.8	57.1	9.1
Kentucky	30.7	58.8	10.6
Louisiana	37.7	49.1	13.2
Maine	48.1	42.9	8.9
Maryland	55.0	38.3	6.7
Massachusetts	53.1	40.9	6.0
Michigan	28.9	63.3	7.8
Minnesota	20.2	73.8	5.9
Mississippi	30.8	53.8	15.4
Missouri	56.2	35.8	8.0
Montana	39.2	46.3	14.5
Nebraska	56.7	34.4	8.9
Nevada	62.8	30.2	7.0
New Hampshire	45.9	48.9	5.2
New Jersey	52.2	43.5	4.3
New Mexico	12.9	72.1	15.0
New York	47.5	45.6	7.0
North Carolina	26.7	63.7	9.6
North Dakota	47.9	36.8	15.3
Ohio	48.7	44.8	6.4
Oklahoma	32.6	54.7	12.7
Oregon	40.0	50.9	9.1
Pennsylvania	55.6	36.6	7.7
Rhode Island	51.5	42.0	6.5
South Carolina	42.1	48.1	9.8
South Dakota	50.6	33.7	15.7
Tennessee	46.1	43.8	10.0
Texas	49.2	40.9	9.9
Utah	34.3	56.4	9.3

See notes at end of table.

Table 2. Percentage distribution of revenue for public elementary and secondary schools, by source, state, and outlying areas: School year 2002–03—Continued

State	Within-state percentage distribution		
	Local	State	Federal
Vermont	25.3	67.8	7.0
Virginia	53.8	39.6	6.6
Washington	29.2	61.8	9.0
West Virginia	27.9	61.4	10.6
Wisconsin	40.6	53.4	6.1
Wyoming	40.3	50.9	8.8
Outlying areas			
American Samoa	3.7	18.3	78.0
Guam	—	—	—
Northern Marianas	0.5	61.3	38.2
Puerto Rico	0.0	69.4	30.6
Virgin Islands	79.0	0.0	21.0

— Not available.

† Not applicable.

¹ Distribution affected by redistribution of reported values to correct for missing items.

NOTE: Detail may not sum to totals because of rounding. National totals do not include outlying areas. Local revenues include intermediate revenues. Both the District of Columbia and Hawaii have only one school district each; therefore, neither is comparable to other states. Local revenues in Hawaii consist almost entirely of student fees and charges for services, such as food services, summer school, and student activities.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey," 2002–03.

Table 3. Current expenditures for public elementary and secondary schools, by function, state, and outlying areas: School year 2002–03

State	[In thousands of dollars]			
	Total	Instruction	Support services	Noninstruction
United States	\$387,592,494 ¹	\$237,731,734 ¹	\$134,021,897	\$15,838,863
Alabama	4,657,643	2,818,526	1,521,337	317,780
Alaska	1,326,226	771,237	510,329	44,661
Arizona	5,891,105	3,530,858	2,082,411	277,836
Arkansas	2,923,401	1,786,323	990,294	146,784
California	47,983,402	29,170,269	17,017,791	1,795,342
Colorado	5,551,506	3,180,392	2,180,040	191,074
Connecticut	6,302,988	4,019,659	2,058,828	224,501
Delaware	1,127,745	693,970	381,184	52,592
District of Columbia	902,318	473,414	406,079	22,825
Florida	16,355,123	9,616,720	5,938,232	800,171
Georgia	11,630,576	7,367,694	3,678,590	584,293
Hawaii	1,489,092	888,473	521,929	78,689
Idaho	1,511,862	924,975	521,688	65,199
Illinois	17,271,301	10,320,227	6,393,248	557,826
Indiana	8,088,684	4,951,003	2,807,529	330,153
Iowa	3,652,022	2,174,018	1,210,993	267,011
Kansas	3,510,675	2,078,415	1,269,958	162,303
Kentucky	4,401,627	2,686,505	1,475,797	239,325
Louisiana	5,056,583	3,069,994	1,673,753	312,837
Maine	1,909,268	1,281,073	566,838	61,357
Maryland	7,933,055	4,934,017	2,636,403	362,635
Massachusetts	10,281,820	6,542,762	3,426,551	312,507
Michigan	15,674,698	8,929,871	6,264,837	479,990
Minnesota	6,867,403	4,404,702	2,147,923	314,779
Mississippi	2,853,531	1,707,391	968,645	177,495
Missouri	6,793,957 ¹	4,142,285 ¹	2,358,352	293,320
Montana	1,124,291	690,810	387,437	46,044
Nebraska	2,304,223	1,470,002	673,441	160,780
Nevada	2,251,044	1,408,570	768,641	73,834
New Hampshire	1,781,594	1,156,573	570,229	54,792
New Jersey	17,185,966	10,152,232	6,504,334	529,401
New Mexico	2,281,608	1,266,008	910,138	105,462
New York	34,546,965	23,721,563	9,989,057	836,345
North Carolina	8,766,968	5,574,861	2,703,000	489,107
North Dakota	716,007	427,511	232,465	56,031
Ohio	15,868,494	9,110,815	6,232,340	525,340
Oklahoma	3,804,570	2,203,126	1,349,256	252,188
Oregon	4,150,747	2,458,745	1,550,553	141,449
Pennsylvania	16,344,439	10,095,432	5,609,932	639,074
Rhode Island	1,647,587	1,064,304	540,735	42,548
South Carolina	4,888,250	2,915,986	1,711,287	260,977
South Dakota	851,429	498,922	307,100	45,407
Tennessee	5,674,773 ¹	3,647,986 ¹	1,748,705	278,082
Texas	30,399,603	18,347,986	10,516,120	1,535,497
Utah	2,366,897	1,518,242	714,894	133,760

See notes at end of table.

Table 3. Current expenditures for public elementary and secondary schools, by function, state, and outlying areas: School year 2002–03—Continued

State	[In thousands of dollars]			
	Total	Instruction	Support services	Noninstruction
Vermont	1,045,213	671,163	345,762	28,289
Virginia	9,208,329	5,661,332	3,184,354	362,643
Washington	7,359,566 ¹	4,381,186 ¹	2,620,468	357,911
West Virginia	2,349,833	1,444,689	774,469	130,675
Wisconsin	7,934,755	4,904,809	2,775,318	254,628
Wyoming	791,732	474,108	292,306	25,317
Outlying areas				
American Samoa	47,566	24,662	14,268	8,637
Guam	—	—	—	—
Northern Marianas	50,843	43,548	4,922	2,372
Puerto Rico	2,541,385	1,876,195	361,322	303,868
Virgin Islands	125,405	81,742	39,754	3,910

— Not available.

¹ Value affected by redistribution of reported values to correct for missing data items.

NOTE: Detail may not sum to totals because of rounding. National totals do not include outlying areas. Both the District of Columbia and Hawaii have only one school district each; therefore, neither is comparable to other states.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey," 2002–03.

Table 4. Percentage distribution of current expenditures for public elementary and secondary schools, by function, state, and outlying areas: School year 2002–03

State	Within-state percentage distribution		
	Instruction	Support services	Noninstruction
United States ¹	61.3	34.6	4.1
Alabama	60.5	32.7	6.8
Alaska	58.2	38.5	3.4
Arizona	59.9	35.3	4.7
Arkansas	61.1	33.9	5.0
California	60.8	35.5	3.7
Colorado	57.3	39.3	3.4
Connecticut	63.8	32.7	3.6
Delaware	61.5	33.8	4.7
District of Columbia	52.5	45.0	2.5
Florida	58.8	36.3	4.9
Georgia	63.3	31.6	5.0
Hawaii	59.7	35.1	5.3
Idaho	61.2	34.5	4.3
Illinois	59.8	37.0	3.2
Indiana	61.2	34.7	4.1
Iowa	59.5	33.2	7.3
Kansas	59.2	36.2	4.6
Kentucky	61.0	33.5	5.4
Louisiana	60.7	33.1	6.2
Maine	67.1	29.7	3.2
Maryland	62.2	33.2	4.6
Massachusetts	63.6	33.3	3.0
Michigan	57.0	40.0	3.1
Minnesota	64.1	31.3	4.6
Mississippi	59.8	33.9	6.2
Missouri ¹	61.0	34.7	4.3
Montana	61.4	34.5	4.1
Nebraska	63.8	29.2	7.0
Nevada	62.6	34.1	3.3
New Hampshire	64.9	32.0	3.1
New Jersey	59.1	37.8	3.1
New Mexico	55.5	39.9	4.6
New York	68.7	28.9	2.4
North Carolina	63.6	30.8	5.6
North Dakota	59.7	32.5	7.8
Ohio	57.4	39.3	3.3
Oklahoma	57.9	35.5	6.6
Oregon	59.2	37.4	3.4
Pennsylvania	61.8	34.3	3.9
Rhode Island	64.6	32.8	2.6
South Carolina	59.7	35.0	5.3
South Dakota	58.6	36.1	5.3
Tennessee ¹	64.3	30.8	4.9
Texas	60.4	34.6	5.1
Utah	64.1	30.2	5.7

See notes at end of table.

Table 4. Percentage distribution of current expenditures for public elementary and secondary schools, by function, state, and outlying areas: School year 2002–03—Continued

State	Within-state percentage distribution		
	Instruction	Support services	Noninstruction
Vermont	64.2	33.1	2.7
Virginia	61.5	34.6	3.9
Washington ¹	59.5	35.6	4.9
West Virginia	61.5	33.0	5.6
Wisconsin	61.8	35.0	3.2
Wyoming	59.9	36.9	3.2
Outlying areas			
American Samoa	51.8	30.0	18.2
Guam	—	—	—
Northern Marianas	85.7	9.7	4.7
Puerto Rico	73.8	14.2	12.0
Virgin Islands	65.2	31.7	3.1

— Not available

¹ Distribution affected by redistribution of reported values to correct for missing items.

NOTE: Detail may not sum to totals because of rounding. National totals do not include outlying areas. Both the District of Columbia and Hawaii have only one school district each; therefore, neither is comparable to other states.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey," 2002–03.

Table 5. Student membership and current expenditures per pupil in membership for public elementary and secondary schools, by function, state, and outlying areas: School year 2002–03

State	Fall 2002 student membership	Current expenditures per pupil in membership			
		Total	Instruction	Support services	Noninstruction
United States	48,183,086 ¹	\$8,044 ^{1,2}	\$4,934 ^{1,2}	\$2,782 ¹	\$329 ¹
Alabama	739,366 ¹	6,300 ¹	3,812 ¹	2,058 ¹	430 ¹
Alaska	134,364	9,870	5,740	3,798	332
Arizona	937,755	6,282	3,765	2,221	296
Arkansas	450,985	6,482	3,961	2,196	325
California	6,353,667 ¹	7,552 ¹	4,591 ¹	2,678 ¹	283 ¹
Colorado	751,862	7,384	4,230	2,900	254
Connecticut	570,023	11,057	7,052	3,612	394
Delaware	116,342	9,693	5,965	3,276	452
District of Columbia	76,166	11,847	6,216	5,331	300
Florida	2,539,929	6,439	3,786	2,338	315
Georgia	1,496,012	7,774	4,925	2,459	391
Hawaii	183,829	8,100	4,833	2,839	428
Idaho	248,604	6,081	3,721	2,098	262
Illinois	2,084,187	8,287	4,952	3,068	268
Indiana	1,003,875	8,057	4,932	2,797	329
Iowa	482,210	7,574	4,508	2,511	554
Kansas	470,957	7,454	4,413	2,697	345
Kentucky	660,782	6,661	4,066	2,233	362
Louisiana	730,464	6,922	4,203	2,291	428
Maine	204,337	9,344	6,269	2,774	300
Maryland	866,743	9,153	5,693	3,042	418
Massachusetts	982,989	10,460	6,656	3,486	318
Michigan	1,785,160	8,781	5,002	3,509	269
Minnesota	846,891	8,109	5,201	2,536	372
Mississippi	492,645	5,792	3,466	1,966	360
Missouri	906,499 ¹	7,495 ^{1,2}	4,570 ^{1,2}	2,602 ¹	324 ¹
Montana	149,995	7,496	4,606	2,583	307
Nebraska	285,402	8,074	5,151	2,360	563
Nevada	369,498	6,092	3,812	2,080	200
New Hampshire	207,671	8,579	5,569	2,746	264
New Jersey	1,367,438	12,568	7,424	4,757	387
New Mexico	320,234	7,125	3,953	2,842	329
New York	2,888,233	11,961	8,213	3,459	290
North Carolina	1,335,954	6,562	4,173	2,023	366
North Dakota	104,225	6,870	4,102	2,230	538
Ohio	1,838,285	8,632	4,956	3,390	286
Oklahoma	624,548	6,092	3,528	2,160	404
Oregon	554,071	7,491	4,438	2,798	255
Pennsylvania	1,816,747	8,997	5,557	3,088	352
Rhode Island	159,205 ¹	10,349	6,685	3,396	267
South Carolina	694,389	7,040	4,199	2,464	376
South Dakota	130,048	6,547	3,836	2,361	349
Tennessee	927,608 ¹	6,118 ^{1,2}	3,933 ^{1,2}	1,885 ¹	300 ¹
Texas	4,259,823	7,136	4,307	2,469	360
Utah	489,262	4,838	3,103	1,461	273

See notes at end of table.

Table 5. Student membership and current expenditures per pupil in membership for public elementary and secondary schools, by function, state, and outlying areas: School year 2002–03—Continued

State	Fall 2002 student membership	Current expenditures per pupil in membership			
		Total	Instruction	Support services	Noninstruction
Vermont	99,978	10,454	6,713	3,458	283
Virginia	1,177,229	7,822	4,809	2,705	308
Washington	1,014,798	7,252 ²	4,317 ²	2,582	353
West Virginia	282,455	8,319	5,115	2,742	463
Wisconsin	881,231	9,004	5,566	3,149	289
Wyoming	88,116	8,985	5,381	3,317	287
Outlying areas					
American Samoa	15,984	2,976	1,543	893	540
Guam	—	—	—	—	—
Northern Marianas	11,251	4,519	3,871	437	211
Puerto Rico	596,502	4,260	3,145	606	509
Virgin Islands	18,333	6,840	4,459	2,168	213

— Not available.

¹ Prekindergarten students were imputed, affecting total student count and per pupil expenditure calculation. In Tennessee, prekindergarten students were imputed and tuition expenditures (included in Instruction) were redistributed.

² Value affected by redistribution of reported expenditure values to correct for missing data items.

NOTE: Detail may not sum to totals because of rounding. National totals do not include outlying areas. Both the District of Columbia and Hawaii have only one school district each; therefore, neither is comparable to other states.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey," 2002–03.

Table 6. Current expenditures for instruction for public elementary and secondary schools, by type of expenditure, state, and outlying areas: School year 2002–03

State	[In thousands of dollars]						
	Total	Salaries	Employee benefits	Purchased services	Tuition to out-of-state and private schools	Instructional supplies	Other
United States	\$237,731,734 ¹	\$168,828,934 ¹	\$45,947,180 ¹	\$7,289,623 ¹	\$3,298,588 ¹	\$11,294,271 ¹	\$1,073,139 ¹
Alabama	2,818,526	1,979,767	530,508	74,940	1,628	219,288	12,396
Alaska	771,237	518,112	143,069	45,372	0	41,992	22,691
Arizona	3,530,858	2,506,569 ¹	671,154 ¹	101,526 ¹	68,008 ¹	163,709 ¹	19,892 ¹
Arkansas	1,786,323	1,282,075	280,711	50,660	3,671	157,189	12,017
California	29,170,269	20,548,956	5,596,635	850,615	615,502	1,555,769	2,792
Colorado	3,180,392	2,364,954	443,785	62,450	42,688	220,620	45,894
Connecticut	4,019,659	2,783,320	743,765	124,293	253,786	109,335	5,158
Delaware	693,970	473,465	160,279	13,161	6,557	31,708	8,799
District of Columbia	473,414	279,891	87,079	11,831	79,524	14,141	947
Florida	9,616,720	6,451,460	1,622,841	951,541	239	479,965	110,673
Georgia	7,367,694	5,343,778	1,535,410	108,902	3,716	368,600	7,287
Hawaii	888,473	628,259	174,755	28,228	2,690	44,225	10,317
Idaho	924,975	657,590	195,701	22,616	632	48,144	292
Illinois	10,320,227	7,507,171	1,925,826	239,329	235,211	396,136	16,554
Indiana	4,951,003	3,261,483	1,442,278	57,031	21	178,136	12,054
Iowa	2,174,018	1,582,285	444,273	56,911	17,087	71,025	2,436
Kansas	2,078,415	1,571,521	322,489	57,397	1,169	107,427	18,413
Kentucky	2,686,505	2,010,083	494,189	49,081	478	119,368	13,306
Louisiana	3,069,994	2,207,461	620,927	57,199	740	164,083	19,584
Maine	1,281,073	808,446	307,685	51,388	66,055	40,457	7,041
Maryland	4,934,017	3,409,666	1,055,203	107,728	207,197	142,771	11,452
Massachusetts	6,542,762	4,590,788	1,451,904	36,314	292,563	157,385	13,808
Michigan	8,929,871	5,978,301	2,251,300	338,487	127	325,071	36,585
Minnesota	4,404,702	3,180,600	852,050	156,024	34,870	158,353	22,805
Mississippi	1,707,391	1,229,621	317,134	41,021	4,789	107,961	6,866
Missouri	4,142,285 ¹	3,020,805	655,388	108,336 ¹	27,258 ¹	308,578	21,920 ¹
Montana	690,810	479,486	131,610	21,893	626	54,103	3,091
Nebraska	1,470,002	1,062,668	278,989	48,874	15,511	49,655	14,306
Nevada	1,408,570	959,395	292,228	23,572	265	66,601	66,508
New Hampshire	1,156,573	770,344	221,417	31,783	93,994	36,377	2,658
New Jersey	10,152,232	6,882,187	2,047,112	242,964	496,819	380,087	103,063
New Mexico	1,266,008	919,979	241,945	26,219	0	77,540	325
New York	23,721,563	16,980,488	4,973,883	893,203	204,731	665,614	3,644
North Carolina	5,574,861	4,307,889	805,555	117,705	0	338,096	5,617
North Dakota	427,511	301,152	87,473	13,572	1,094	22,345	1,875
Ohio	9,110,815	6,342,858	1,867,422	269,331	104,195	397,876	129,133
Oklahoma	2,203,126	1,602,392	404,457	32,428	0	157,301	6,549
Oregon	2,458,745	1,567,870	645,630	95,924	22,599	121,848	4,874
Pennsylvania	10,095,432	7,176,001	1,857,297	480,109	161,525	404,584	15,916
Rhode Island	1,064,304	739,961	234,364	8,146	56,512	23,401	1,921
South Carolina	2,915,986	2,093,030	575,609	70,932	234	149,800	26,380
South Dakota	498,922	349,991	90,500	21,841	5,947	28,890	1,753
Tennessee	3,647,986 ¹	2,610,771	587,124	53,374	291 ¹	382,532	13,893
Texas	18,347,986	14,088,723	2,137,116	535,880	37,469	1,398,826	149,972
Utah	1,518,242	1,041,674	368,343	27,676	295	74,741	5,512

See notes at end of table.

Table 6. Current expenditures for instruction for public elementary and secondary schools, by type of expenditure, state, and outlying areas: School year 2002–03—Continued

State	[In thousands of dollars]						
	Total	Salaries	Employee benefits	Purchased services	Tuition to out-of-state and private schools	Instructional supplies	Other
Vermont	671,163	436,793	127,245	35,179	50,371	19,998	1,576
Virginia	5,661,332	4,218,653	1,065,839	110,321	2,222	260,582	3,715
Washington	4,381,186 ¹	3,234,041	699,110	207,742	8,081 ¹	199,704	32,509
West Virginia	1,444,689	949,554	416,838	22,805	401	54,824	267
Wisconsin	4,904,809	3,212,515	1,360,394	77,351	68,477	170,732	15,341
Wyoming	474,108	324,091	103,342	18,416	721	26,777	761
Outlying areas							
American Samoa	24,662	15,725	3,040	2,858	0	2,253	785
Guam	—	—	—	—	—	—	—
Northern Marianas	43,548	30,217	7,986	2,505	0	2,840	0
Puerto Rico	1,876,195	1,430,330	214,335	6,665	0	24,985	199,880
Virgin Islands	81,742	63,994	16,143	164	0	1,380	60

— Not available.

¹ Value affected by redistribution of reported values to correct for missing data items.

NOTE: Detail may not sum to totals because of rounding. National totals do not include outlying areas. Both the District of Columbia and Hawaii have only one school district each; therefore, neither is comparable to other states.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey," 2002–03.

Table 7. Total expenditures for public elementary and secondary education and other related programs, by type of expenditure, state, and outlying areas: School year 2002–03

State	[In thousands of dollars]					
	Total	Current for public elementary/secondary education	Facilities acquisition and construction	Replacement equipment	Other programs	Interest on debt
United States	\$454,905,783 ^{1,2}	\$387,592,494 ²	\$42,806,889	\$6,133,485 ^{1,2}	\$6,873,755 ^{1,2}	\$11,499,160
Alabama	5,305,144	4,657,643	401,473	33,051	106,661	106,315
Alaska	1,609,420	1,326,226	230,754	16,825	11,051	24,565
Arizona	7,050,421 ¹	5,891,105	655,258	196,387 ¹	42,109 ¹	265,562
Arkansas	3,304,710	2,923,401	207,693	79,934	23,798	69,884
California	56,542,273	47,983,402	6,772,856	215,923	1,010,545	559,547
Colorado	6,704,415	5,551,506	687,619	137,717	53,074	274,499
Connecticut	7,334,520 ¹	6,302,988	681,063	87,070 ¹	122,087 ¹	141,313
Delaware	1,342,095	1,127,745	170,368	8,567 ²	17,846 ²	17,569
District of Columbia	1,114,681	902,318	167,944	27,997	16,422	0
Florida	20,161,939	16,355,123	2,719,748	198,464	418,707	469,897
Georgia	13,586,716	11,630,576	1,515,260	197,603	61,048	182,229
Hawaii	1,657,914	1,489,092	32,883	31,278	50,252	54,410
Idaho	1,739,541	1,511,862	157,149	29,740	4,894	35,895
Illinois	20,658,276	17,271,301	2,225,747	502,318	127,354	531,557
Indiana	9,688,103	8,088,684	719,134	121,668	63,903	694,712
Iowa	4,203,671	3,652,022	371,002	88,038	28,279	64,330
Kansas	3,910,054	3,510,675	100,242	149,885	16,061	133,191
Kentucky	4,687,217	4,401,627	31,588	102,115	53,807	98,079
Louisiana	5,630,084	5,056,583	323,450	87,624	50,551	111,876
Maine	2,124,554	1,909,268	118,037	30,810	22,294	44,145
Maryland	8,734,564	7,933,055	617,971	69,006	22,844	91,688
Massachusetts	11,084,082	10,281,820	116,238	156,414	227,367	302,243
Michigan	19,291,044	15,674,698	2,297,337	267,942	381,464	669,603
Minnesota	8,720,326	6,867,403	1,024,833	140,667	330,091	357,332
Mississippi	3,156,153	2,853,531	121,198	89,169	24,716	67,539
Missouri	7,953,797 ²	6,793,957 ²	547,938	219,609	158,259	234,034
Montana	1,220,956	1,124,291	60,411	18,324	6,067	11,863
Nebraska	2,678,767	2,304,223	245,441	70,297 ²	4,306 ²	54,501
Nevada	3,012,227	2,251,044	486,310	90,795	15,529	168,549
New Hampshire	2,041,865	1,781,594	188,733	26,127	6,285	39,124
New Jersey	19,168,738	17,185,966	1,417,798	92,845 ²	183,107 ²	289,021
New Mexico	2,734,668	2,281,608	371,981	21,857	22,518	36,704
New York	39,903,445	34,546,965	2,815,123	361,545	1,442,295	737,518
North Carolina	10,104,266	8,766,968	946,775	63,592	46,078	280,854
North Dakota	810,960	716,007	55,160	24,734	6,226	8,834
Ohio	19,000,331	15,868,494	1,894,969	447,912	440,362	348,594
Oklahoma	4,144,802	3,804,570	224,110	47,946	15,948	52,228
Oregon	4,976,856	4,150,747	570,653	34,932	34,179	186,345
Pennsylvania	19,350,934	16,344,439	1,652,840	234,329	375,346	743,981
Rhode Island	1,746,150	1,647,587	17,431	14,185	37,659	29,288
South Carolina	6,028,152	4,888,250	807,133	69,159	72,231	191,379
South Dakota	998,417	851,429	84,127	38,371	2,762	21,727
Tennessee	6,499,907 ²	5,674,773 ²	521,042	119,784	42,072	142,236
Texas	36,903,089	30,399,603	4,368,741	395,242	276,742	1,462,762
Utah	2,991,570	2,366,897	415,790	49,073	71,100	88,710

See notes at end of table.

Table 7. Total expenditures for public elementary and secondary education and other related programs, by type of expenditure, state, and outlying areas: School year 2002–03—Continued

State	[In thousands of dollars]					
	Total	Current for public elementary/secondary education	Facilities acquisition and construction	Replacement equipment	Other programs	Interest on debt
Vermont	1,110,930	1,045,213	28,261	18,338	3,710	15,409
Virginia	10,487,025	9,208,329	846,658	222,728	63,288	146,022
Washington	8,927,605 ²	7,359,566 ²	1,075,313	125,979	42,793	323,954
West Virginia	2,557,190	2,349,833	97,800	65,941	33,080	10,537
Wisconsin	9,300,201	7,934,755	521,023	161,800	182,299	500,324
Wyoming	911,017	791,732	78,484	31,831	2,289	6,681
Outlying areas						
American Samoa	54,744	47,566	2,864	1,112	3,201	0 ³
Guam	—	—	—	—	—	—
Northern Marianas	51,249	50,843	374	31	1	0 ³
Puerto Rico	2,632,580	2,541,385	212	19,174	53,394	18,415
Virgin Islands	133,034	125,405	4,680	1,239	1,710	0 ³

— Not available.

¹ Value contains imputation for missing data. Imputed value is less than 2 percent of total expenditures in any one state.

² Value affected by redistribution of reported values to correct for missing data items.

³ Interest on debt expenditures is not made by the departments of education in these outlying areas.

NOTE: Detail may not sum to totals because of rounding. National totals do not include outlying areas. Both the District of Columbia and Hawaii have only one school district each; therefore, neither is comparable to other states.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey," 2002–03.

