# 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.

All NCES publications appearing in volume 3 (issues 1 through 4) of the *Quarterly* are indexed at the end of this issue. 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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*Val Plisko, Associate Commissioner*
*Early Childhood, International, and Crosscutting Studies Division*

## Surveying Households About Education Issues

Historically, the National Center for Education Statistics (NCES) has collected data from teachers, students, and schools through school-based surveys and from administrative records through surveys of school districts and state education agencies. In 1991, with the initiation of the National Household Education Surveys Program (NHES), NCES broadened its approach to include the collection of education data from households.

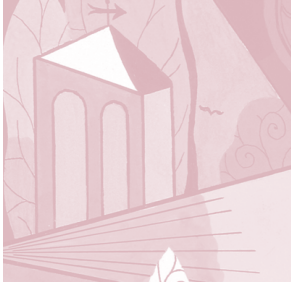
NHES defies neat pigeonholing, as it is not limited by institutional reporting and can span a number of topical issues and populations. Using household-based surveys, NHES has the potential to address many issues in education that were not addressed by earlier NCES data collection activities. These issues range from the education and care of young children to the learning experiences of adults throughout their lives. Over the past decade, NHES has surveyed household members about several education-related topics, including parents' involvement in their children's education, before- and after-school arrangements, homeschooling, and the civic engagement of young people and adults. By definition, many of these topics are outside the scope of institution-based data collections.

Each cycle of NHES typically includes two to three substantive surveys on education-related topics. The most recent data collection, NHES:2001, included the Adult Education and Lifelong Learning Survey (AELL), the Early Childhood Program Participation Survey (ECPP), and the Before- and After-School Programs and Activities Survey (ASPA). The next collection, NHES:2003, is expected to include the Parent and Family Involvement in Education Survey (PFI) and the Adult Education for Work-Related Reasons Survey (AEWR).

To provide comparative data across survey years, NHES repeats topical surveys on a rotating basis. New topics can be added to the NHES system as particular issues gain importance. In addition, one-time surveys on topics of interest to the Department of Education have occasionally been fielded. Thus, while NHES affords the opportunity for tracking phenomena over time, it is also dynamic in addressing new issues. As new NHES cycles are planned, conceptual and methodological refinements are also incorporated.

### Spotlight on NHES Reports

This issue of the *Education Statistics Quarterly* highlights findings from two recent reports that draw on NHES data: *Efforts by Public K–8 Schools to Involve Parents in Children's Education: Do School and Parent Reports Agree?* and *Participation Trends and Patterns in*



*Adult Education: 1991 to 1999*. These two reports—together with *Homeschooling in the United States: 1999,* a recent report that appeared in the previous issue of the *Quarterly*—demonstrate the usefulness and the impressive range of NHES data. NHES can be used to shed light on the differences between parents' perceptions and school officials' perceptions of the extent to which parent involvement is encouraged and engaged in. It can also fill a data gap with reliable statistics on the extent to which parents opt to homeschool their children and their motivations for this choice. Turning to adult education, it can document developments over time in the extent to which adults participate in both formal and informal learning experiences and their reasons for doing so. Not only does NHES provide the numbers of people participating in various forms of education, but it can also provide some indication as to why people make certain choices.

## Use of Telephone Interviews

The NHES design lends itself to collecting detailed information on education issues from a relatively large and targeted sample of households in a timely fashion. Households are selected using random-digit-dialing (RDD) methods, and data are collected using computer-assisted telephone interviewing (CATI). The NHES sample is drawn from the civilian population in households having a telephone in the 50 states and the District of Columbia. In each NHES survey year, between 45,000 and 64,000 households are screened, and individuals within each household who meet predetermined criteria are sampled for more detailed or extended interviews on one or more of that year's topics.

Use of telephone-based interviewing provides NHES with quick access to respondents. The turnaround for NHES data collection and reporting is estimated to be less than a year. Yet telephone interviewing is not without problems. The largest component of potential coverage bias in telephone surveys is probably due to nontelephone households (approximately 6 percent of households do not have a telephone). The NHES design does, however, incorporate steps to minimize such potential biases and to limit their possible effect on survey estimates. In future data collections, NHES will need to address innovatively the growing ubiquity of cell phones, as well as solve current problems with respondent burnout caused by commercial solicitations over the telephone. The flexibility and usefulness of the NHES design should enable it to continue to meet such challenges.

# Featured Topic: National Household Education Surveys Program



Parent Involvement

## Efforts by Public K–8 Schools to Involve Parents in Children's Education: Do School and Parent Reports Agree?

*Xianglei Chen*

***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 "Survey on Family and School Partnerships in Public Schools, K–8," conducted through the NCES Fast Response Survey System (FRSS), and from the NCES National Household Education Surveys Program (NHES).***

The importance of parent involvement in children's education has long been established. Research over the last 2 decades has demonstrated that children whose parents are involved are more likely than others to have positive educational outcomes such as improved academic performance, better school attendance, higher aspirations, reduced dropout rates, and increased graduation rates (Catsambis 1998; Desimone 1999; Keith et al. 1986; Ma 1999; McNeal 1999; Miedel and Reynolds 1999; Nord and West 2001; Trusty 1999). Given the clear evidence of positive returns to parent involvement, schools nationwide are being called upon to develop policies and practices that encourage parents to become more involved in their children's education both in school and at home (Partnership for Family Involvement in Education 2000; U.S. Department of Education 1994).

What practices do schools adopt to promote parent involvement? What programs do schools offer parents to encourage them to participate? To what extent do parents attend school-sponsored activities designed to increase their involvement? In 1996, the National Center for Education Statistics (NCES) conducted two surveys to investigate these issues from two different perspectives.

The first survey, the "Survey on Family and School Partnerships in Public Schools, K–8," gathered data from public K–8 schools on their efforts to involve parents in their children's schooling.[1] Conducted as part of the Fast Response Survey System (FRSS), this survey was designed to

[1]This survey targeted public schools that offered no grade higher than 8. These schools are referred to as "public K–8 schools" in this report.

provide information on the ways that schools engage parents in their children's education and the extent to which parents respond to the opportunities for involvement that schools provide (Carey et al. 1998). Specific questions included the frequency with which schools communicated with parents about various matters relating to the processes and progress of their children's learning and development, the resources that schools provided to parents to assist them in parenting and participating in their children's schooling, volunteering opportunities available to parents, and parents' involvement in school governance.

The second survey, the Parent and Family Involvement in Education/Civic Involvement Survey of the National Household Education Surveys Program, 1996 (PFI/CI–NHES:1996), collected data from parents on several topics similar to those schools were asked about in the FRSS survey: the activities or events involving parents held by their children's schools, schools' efforts to recruit parents as volunteers in schools, school-initiated communication with parents and dissemination of information to parents, and schools' policies or organizations that involve parents in school decisionmaking.[2]

Using these two data sets, the purpose of this report is to study the level of agreement between parents' and schools' views of how schools involve parents in their children's education and how parents respond to the opportunities for involvement that schools provide. Specifically, this report addresses two major questions: Do children's parents acknowledge the efforts that schools reportedly are making? and Do schools report the same level of parent participation in school programs as parents do? The findings of this report can assist policymakers, educators, researchers, and school staff in their future efforts to evaluate parents' involvement in their children's education and further encourage it. For example, discrepancies between the reports of schools and parents may indicate that despite schools' efforts, many parents are unaware of what schools do to encourage their involvement. Schools may then use this information to develop better ways to reach parents who may be unaware of school-provided opportunities.

## Schools' and Parents' Reports on School Practices to Involve Parents

Discrepancies were apparent between schools' and parents' reports on whether schools used various practices to involve parents in their children's education. For each school practice examined in this study, public K–8 schools were more likely than parents of children in such schools to indicate that schools used that practice to involve parents (figure A).

The investigation into how schools' and parents' responses varied by school characteristics further revealed that the discrepancies between the two reports were not consistent across school characteristics. For some practices, the discrepancies were found in some types of schools, but not in others. For example, 81 percent of large schools and 85 percent of schools in cities/urban fringes reported giving parents information about child or adolescent development, whereas lower proportions of parents in large schools (71 percent) and in city/urban fringe schools (73 percent) reported that their children's schools helped them understand the issue of child development (figure B). However, this school/parent difference was not found in small schools (78 and 75 percent) and rural schools (76 and 72 percent).

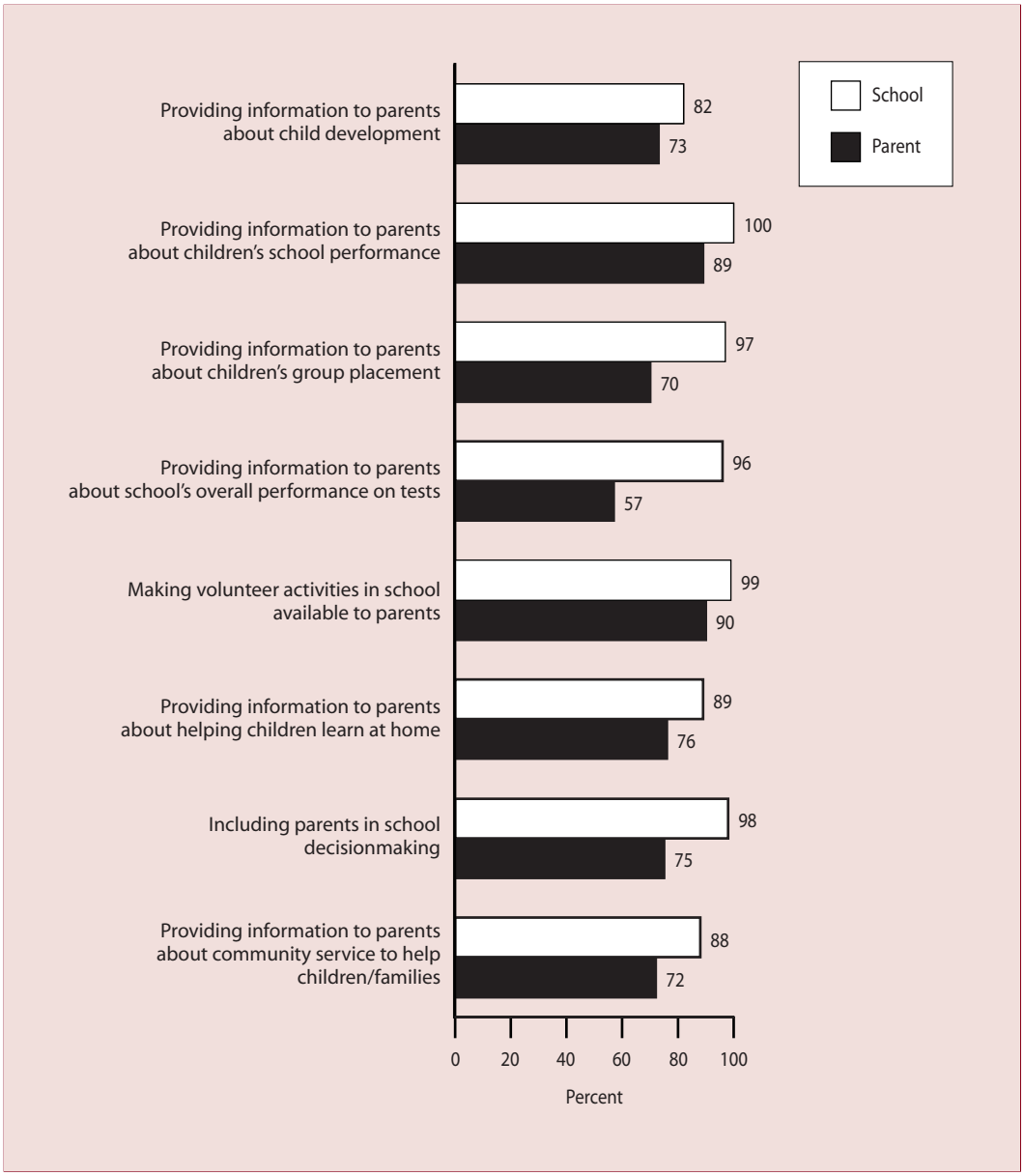
For other practices, while the discrepancies were found in all types of schools, the magnitude of the discrepancies increased with school level, size, and minority concentration. For instance, the difference between schools' and parents' reports on whether the school provided parents with information about helping children with homework was larger in middle schools than in elementary schools, in large schools than in small schools, and in high-minority enrollment schools than in low-minority enrollment schools (figure C).

There could be several explanations for these inconsistent reports, although none of them can be established empirically by this study. First, the discrepancy pattern suggests that despite schools' reported efforts, some parents were still not aware of what schools were doing to encourage their involvement. It is possible that schools have not done enough to reach out to every parent in implementing various practices. The varying gaps between schools' and parents' reports across school characteristics also suggest that schools might not be equally effective in reaching out to parents and making them aware of school programs. Elementary schools, small schools, and schools with low minority enrollment may have done a better job at this than secondary schools, large schools, and schools with high minority enrollment.

Parents may also share some of the responsibility. Although it is possible that schools are not doing "enough" to involve

[2]This survey targeted parents of 3-year-olds through 12th-graders. For comparability with the FRSS survey, parents of children who were enrolled in grades K–8 in public schools that offered no grade higher than 8 were selected for this study.

**Figure A.—Percentage of public K–8 schools that reported using various practices to promote parent involvement in children's education, and percentage of K–8 public school students whose parents reported that their child's school used such practices: 1996**



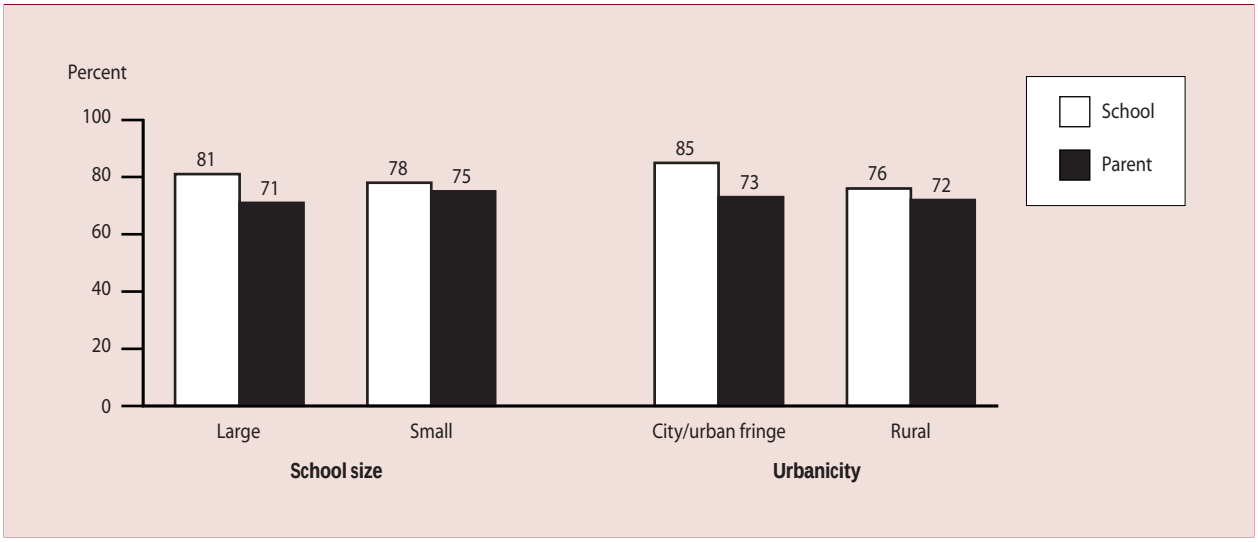

NOTE: Some items may not be strictly comparable between the two surveys. See table 1 of the complete report for the exact wording of the survey items used in this report.

SOURCE: U.S. Department of Education, National Center for Education Statistics: Fast Response Survey System, "Survey on Family and School Partnerships in Public Schools, K–8," FRSS 58, 1996; and the Parent and Family Involvement in Education/Civic Involvement Survey of the National Household Education Surveys Program, 1996 (PFI/CI–NHES:1996).

parents, some parents simply may not set aside enough time to pay attention to the information or opportunities provided by the school because of demanding work schedules and other family and work obligations. It is also likely that some parents, particularly those who are less involved, may have poor information about their children's schools and thus may be providing less accurate and reliable data about school programs.

The second potential explanation for the inconsistent reports may come from inaccuracy of the schools' and parents' reports. The pressure to provide socially

**Figure B.—Percentage of public K–8 schools that reported providing parents with information about child or adolescent development, and percentage of public K–8 school students whose parents reported that their child's school helped them understand what children at the child's age are like, by school size and urbanicity: 1996**




NOTE: Schools that enrolled 600 students or more were defined as large schools and those with fewer than 300 students were defined as small schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics: Fast Response Survey System, "Survey on Family and School Partnerships in Public Schools, K–8," FRSS 58,1996; and the Parent and Family Involvement in Education/Civic Involvement Survey of the National Household Education Surveys Program, 1996 (PFI/CI–NHES:1996).

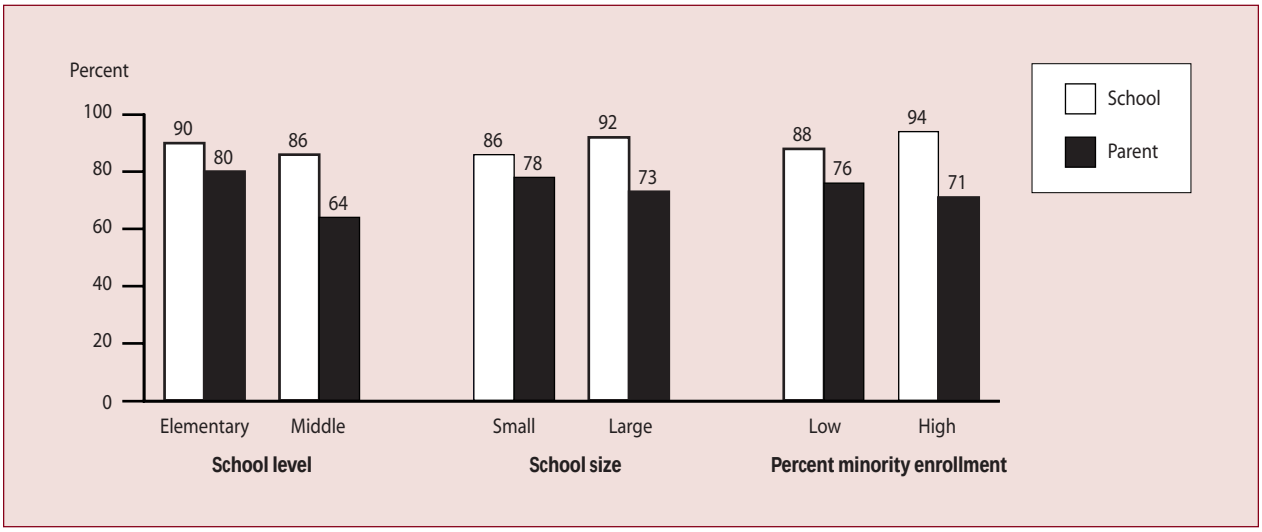
appropriate responses may affect the responses of both schools and parents. The fact that schools consistently provided more favorable reports than did parents suggests that schools may have overreported their actions to involve parents. The social desirability of outreach practices may lead schools to exaggerate their efforts and report them in a favorable way. The same explanation can also be given for parents' responses. Responding to interviewers in a socially desirable way may lead parents to overstate their own behaviors and understate the actions of the schools.

In addition, schools may have inadvertently provided inaccurate information about certain practices, particularly those that are typically initiated by teachers rather than by the school (e.g., informing parents about their children's performance). For these practices, teachers' responses perhaps would be more accurate than the school reports. To remedy overreporting or reporting of inaccurate information, objective data (e.g., data collected by direct observation) or more reliable data (e.g., from teachers) may need to be collected in the future.

A third potential source for the discrepancies between the reports of schools and parents may be related to differences in the way the questions were worded in the two surveys. For example, schools in the FRSS survey were asked whether they provided information to parents about child development. However, the question in PFI/CI–NHES:1996 was posed differently: parents were asked whether their child's school helped them understand what children at their child's age are like. It is possible that parents may have received information from the school about child development, but they may not have thought that the school helped them understand the developmental characteristics of children at their child's age.

In addition, the FRSS survey did not ask schools whether their practices were targeted to all parents or only to specific groups of parents; therefore, detailed examination of schools' and parents' behaviors was not possible. This may have contributed to the discrepancies between the reports of schools and parents. For example, schools may provide child-development information only to parents of kindergartners and sixth-graders (i.e., children in "transitional" grades), not to parents of children in all grades. Although these schools may say that they used this practice, parents with children who were not in the targeted group certainly would not agree with this statement.

**Figure C.—Percentage of public K–8 schools that reported providing parents with information about helping children with their homework, and percentage of K–8 public school students whose parents reported that they received such information from their child's school, by school level, size, and percent minority enrollment: 1996**




NOTE: Schools that enrolled 600 students or more were defined as large schools, and those with fewer than 300 students were defined as small schools. Schools with more than 75 percent minority students were defined as high-minority enrollment schools, and those with less than 25 percent minority students were defined as low-minority enrollment schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics: Fast Response Survey System, "Survey on Family and School Partnerships in Public Schools, K–8," FRSS 58,1996; and the Parent and Family Involvement in Education/Civic Involvement Survey of the National Household Education Surveys Program, 1996 (PFI/CI–NHES:1996).

Consequently, parents would be less likely than schools to report such school effort.

Finally, readers should be aware that differences between the surveys in the response rates (i.e., the school response rate in the FRSS was higher than the parent response rate in PFI/CI–NHES:1996) and response bias (e.g., parents in PFI/CI–NHES:1996 underreported the size of their children's schools) may also have contributed to the school/parent discrepancies. However, it is not possible to investigate how these differences may have affected the results presented in this report.

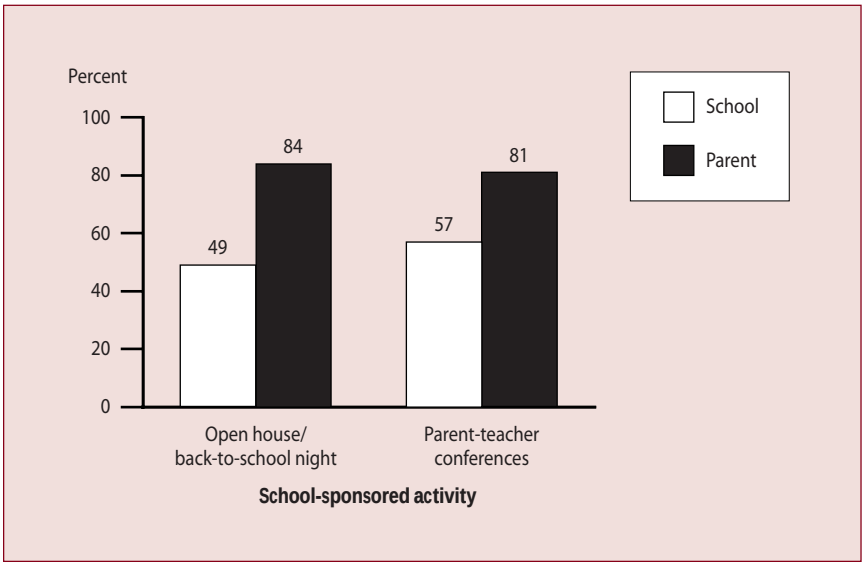
## Schools' and Parents' Reports on Parent Participation in School-Sponsored Activities

Comparisons of schools' and parents' reports on the extent to which parents attended school-sponsored activities (e.g., an open house or back-to-school night and schoolwide parent-teacher conferences) also revealed discrepancies. The direction of the differences, however, was the opposite of that found for school practices, in which schools gave more favorable reports than parents did. A majority of parents said that they attended various school-sponsored events, whereas lower proportions of schools holding these events said that "most or all" parents attended them (figure D).[3] The differences between schools' and parents' reports were generally found to increase with school level, size, and the percentage of minority students enrolled (figure E), suggesting that the problem of the inconsistent reports was more pronounced in middle schools, large schools, and schools with high minority enrollment than in elementary schools, small schools, and schools with low minority enrollment.

These findings create uncertainty about the credibility of both schools' and parents' reports. Because schools and parents may both have a vested interest in reporting parents' behavior in a certain light, the reports may be distorted on both sides. The critical question becomes: did parents overreport their participation, did schools underreport

[3]These inconsistent reports may, to an extent, be due to some differences in the question wording in the two surveys. For example, in PFI/CI–NHES:1996, parents were asked whether they attended a school-sponsored event during the school year ("yes" or "no"). In the FRSS survey, schools were asked to report the best representation of typical parent attendance at a school-held event ("most or all," "more than half," "about half," "less than half," or "few"). A school could hold a particular type of event more than once during the school year. It is possible that many parents attend at least one such event, but not all of them, and the school may just consider the parent attendance at one "typical" event. Thus, the school-reported parent attendance rate is likely to be lower than the rate reported by parents.

**Figure D.—Percentage of public K–8 schools that reported that most or all parents attended various school-sponsored activities, and percentage of K–8 public school students whose parents reported that they attended such activities: 1996**




SOURCE: U.S. Department of Education, National Center for Education Statistics: Fast Response Survey System, "Survey on Family and School Partnerships in Public Schools, K–8," FRSS 58, 1996; and the Parent and Family Involvement in Education/Civic Involvement Survey of the National Household Education Surveys Program, 1996 (PFI/CI–NHES:1996).

parents' participation, or did both of these problems occur? In the future, more objective data may be needed to verify self-reports and obtain reliable and accurate data on parent participation in school activities. In addition, comparisons between schools' and parents' responses using samples of parents whose children attend the surveyed schools may result in more reliable information about schools' perceptions on parents' behaviors or vice versa. In other words, to examine the consistency between parents' and schools' reports, it would be better to collect parent and school data within the same survey framework rather than from two different survey systems.

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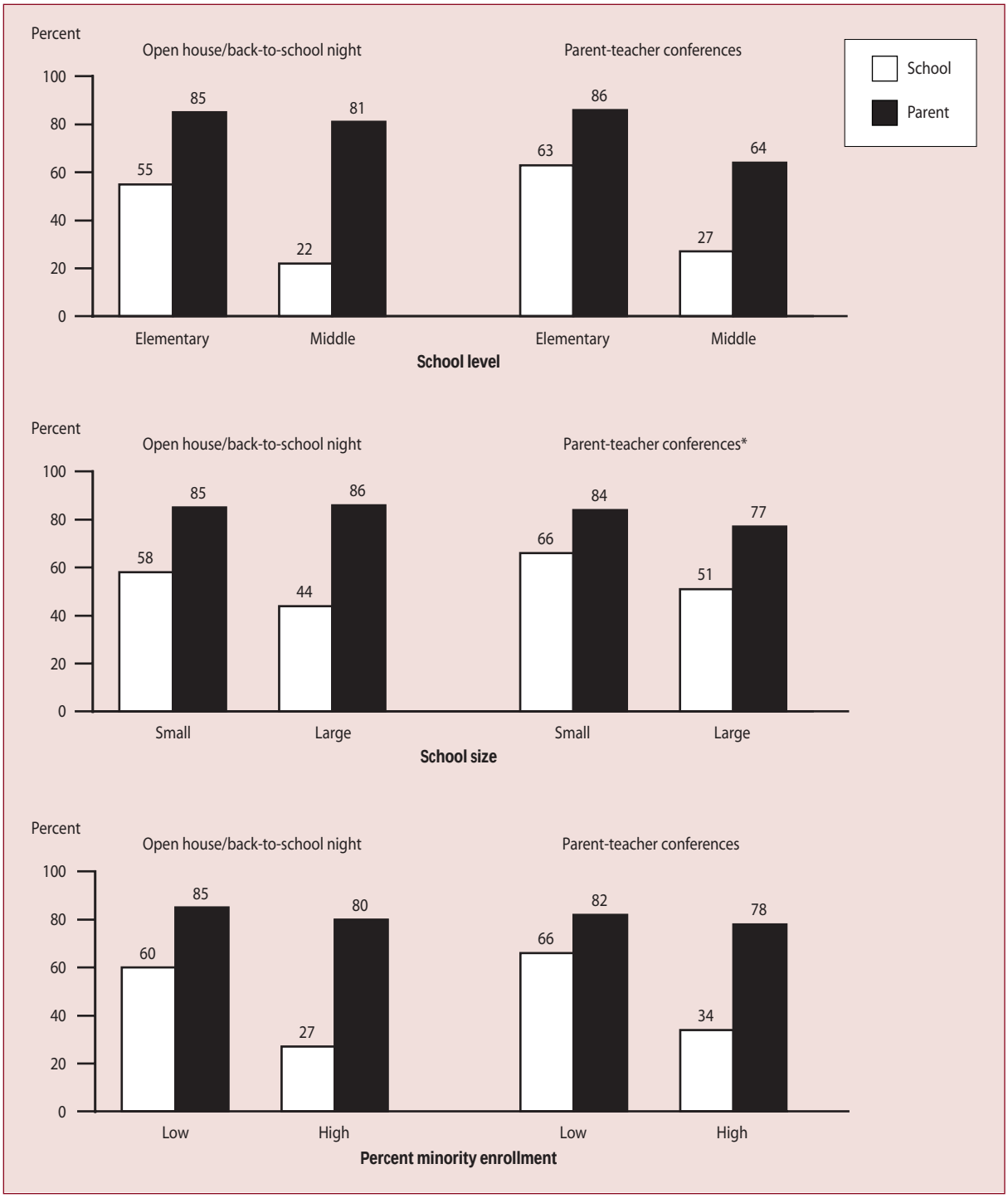
**Figure E.—Percentage of public K–8 schools that reported that most or all parents attended various school-sponsored activities, and percentage of K–8 public school students whose parents reported that they attended such activities, by school level, size, and percent minority enrollment: 1996**




*The gap between schools' and parents' reports was not larger in large schools than in small schools.

NOTE: Schools that enrolled 600 students or more were defined as large schools, and those with fewer than 300 students were defined as small schools. Schools with more than 75 percent minority students were defined as high-minority enrollment schools, and those with less than 25 percent minority students were defined as low-minority enrollment schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics: Fast Response Survey System, "Survey on Family and School Partnerships in Public Schools, K–8," FRSS 58, 1996; and the Parent and Family Involvement in Education/Civic Involvement Survey of the National Household Education Surveys Program, 1996 (PFI/CI–NHES:1996).

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***Data sources*:** The NCES Fast Response Survey System, "Survey on Family and School Partnerships in Public Schools, K–8," FRSS 58, 1996; and the Parent and Family Involvement in Education/Civic Involvement Survey of the National Household Education Surveys Program, 1996 (PFI/CI–NHES:1996).

***For technical information,*** see the complete report:

Chen, X. (2001). *Efforts by Public K–8 Schools to Involve Parents in Children's Education: Do School and Parent Reports Agree?* (NCES 2001–076).

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***For questions about content,*** contact Kathryn Chandler *(kathryn.chandler@ed.gov)*.

***To obtain the complete report (NCES 2001–076),*** call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov)*, or contact GPO (202–512–1800).

# Participation Trends and Patterns in Adult Education: 1991 to 1999

*Sean Creighton and Lisa Hudson*

***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 NCES National Household Education Surveys Program (NHES).***

This report provides an overview of adult participation in formal learning activities (courses and programs) during the 1990s, focusing on trends in participation over time and patterns of participation in 1999. The report replicates previous studies' findings of an overall increase in participation and (with some qualifications) differences in participation rates based on age, sex, race/ethnicity, education level, labor force status, and occupation group. The report extends these findings by examining trends over time in which groups of adults participate in adult education and by providing a more detailed view of participation patterns in specific types of adult education, including the underlying determinants of these patterns.

The data for this report come from the 1991, 1995, and 1999 Adult Education Surveys of the National Household Education Surveys Program (AE–NHES:1991/1995/1999), conducted by the National Center for Education Statistics (NCES). In these surveys, adults were defined as all civilian, noninstitutionalized individuals age 16 or older who were not in elementary or secondary education at the time of the survey. Adult education activities included adult basic education and English as a Second Language (ESL) courses, apprenticeship programs, *some* programs leading to a formal (typically college) credential, courses taken for work-related reasons, and courses taken for reasons other than work (non-work-related courses). Since the continuous pursuit of formal education is typically not considered adult education, in this report full-time participation in postsecondary credential programs by those ages 16–24 is not counted as an adult education activity.

The report examines trends and patterns of participation among the groups of adults listed in table A. Participation trends in adult education overall are examined from 1991 to 1999, and changes in participation in specific types of adult education are examined from 1995 to 1999. Patterns of participation in adult education among different groups of adults are also compared in 1991 and 1999. Finally, the report also uses multivariate statistical analyses to examine the determinants of participation for work-related courses and for non-work-related courses in 1999. Some of the key questions addressed by this report are summarized below, along with the report's findings concerning each question.

## Which Adults Increased Their Participation in Adult Education Between 1991 and 1999?

The overall increase in participation in adult education between 1991 and 1999 was widespread, occurring among virtually every group of adults examined in this report. Specifically, participation rates increased among the following: all age groups except those ages 35–44, both men and women, all racial/ethnic groups, all education levels, all labor force groups, and all occupation groups except those in professional or managerial positions (table A). The groups that did not increase their participation rates had some of the highest initial participation rates in 1991 and constant rates of participation thereafter.

## Did the Patterns of Participation in Adult Education Among Various Groups of Adults Change Between 1991 and 1999?

Many participation patterns were the same in 1991 and 1999. In both years, adults with higher levels of education participated at higher rates than adults with lower levels of education; retired adults participated at a lower rate than those in all other labor force groups; and those in higher status occupations participated at higher rates than those in lower status occupations.

Changes in participation that did occur over time generally ameliorated differences among groups of adults. In 1991, younger and older adults participated at a lower rate than mid-aged adults, but in 1999 only older adults participated at a lower rate than those in other age groups (table A). In 1991, non-Hispanic Blacks participated at a lower rate than non-Hispanic Whites, but in 1999, all minority groups participated at the same rate as non-Hispanic Whites. In 1991, full-time workers participated at a higher rate than all other adults, but in 1999, part-time and unemployed workers participated at the same rate as full-time workers; only those not in the labor force participated at a lower rate than full-time workers. There was only one situation in which participation rates became more disparate over time: In 1991, there was no difference in participation rates by sex, but in 1999, women participated at a higher rate than men.

**Table A.—Summary of changes in participation patterns between 1991 and 1999, and 1999 patterns of participation in adult education**

| Group of adults | Change in participation between 1991 and 1999 | 1999 participation pattern |
|---|---|---|
| All adults | Increase in participation | Forty-six percent of adults participated. |
| Age | | |
| 16–24 | Increase | Two oldest age groups (55–64 and 65 or older) participate at lower rates than younger age groups. |
| 25–34 | Increase | |
| 35–44 | No change | |
| 45–54 | Increase | |
| 55–64 | Increase | |
| 65 or older | Increase | |
| Sex | | |
| Male | Increase | Women participate at a higher rate than men. |
| Female | Increase | |
| Race/ethnicity | | |
| White, non-Hispanic | Increase | No differences in participation rates between non-Hispanic Whites and other racial/ethnic groups. |
| Black, non-Hispanic | Increase | |
| Hispanic | Increase | |
| Other minorities | Increase | |
| Education level | | |
| Less than high school | Increase | Adults with higher levels of education participate at higher rates than adults with lower levels of education. |
| High school | Increase | |
| Some college | Increase | |
| Bachelor's degree or higher | Increase | |
| Labor force status | | |
| Employed full time | Increase | Full-time workers participate at a higher rate than those who are retired or otherwise out of the labor force. Full-time workers participate at the same rate as part-time workers and the unemployed. |
| Employed part time | Increase | |
| Unemployed | Increase | |
| Not in labor force, not retired | Increase | |
| Retired | Increase | |
| Occupation group | | |
| Professional and managerial | No change | Adults in higher status occupations participate at higher rates than those in lower status occupations. (Highest participation rate for professional and managerial; lowest rate for trades) |
| Sales, service, and support | Increase | |
| Trades | Increase | |

NOTE: Adults include civilian, noninstitutionalized individuals age 16 or older who are not enrolled in elementary or secondary education. Among adults ages 16–24, participation in full-time credential programs was not counted as an adult education activity.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Adult Education Survey of the National Household Education Surveys Program, 1991 and 1999 (AE–NHES:1991/1999).

## In Which Types of Adult Education Did Adults Increase Their Participation Between 1995 and 1999?

Participation rates in specific types of adult education could not be examined for 1991, because the 1991 Adult Education Survey does not provide a comparable classification of education activities. Over the shorter time period between 1995 and 1999, participation rates increased overall and for all types of adult education except ESL programs and work-related courses, for which participation rates remained roughly level.

## What Are the Patterns of Participation in 1999 for Each Type of Adult Education Activity?

Participation patterns vary, often in expected ways, among the four most common types of adult education (work-related courses, non-work-related courses, adult basic education, and credential programs). Participation rates in adult basic education programs, for example, are highest among the youngest adults, those with the lowest levels of education, minorities, and those in nonprofessional and nonmanagerial occupations. Participation rates in credential programs, in contrast, tend to be higher among those with

more education (up to "some college"), those in the labor force, those in professional or managerial occupations, and those with continuing education requirements.

Participation rates in the two most common learning activities (work-related courses and non-work-related courses) are lower for the oldest adults, for Hispanics compared to non-Hispanic Whites, and for those with (rather than without) continuing education requirements. Participation also increases with education level and occupational status (with the lowest participation rate for those in the trades; a higher rate for those in sales, service, or support occupations; and the highest rate for those in professional or managerial occupations). But participation in work-related courses also is lower for the youngest adults compared to mid-aged adults, and is higher for those employed full time compared to all other labor force groups. In comparison, participation rates in non-work-related courses are higher among women than men and among those employed part time rather than full time.

## What Accounts for the 1999 Participation Patterns in the Two Most Popular Adult Education Activities, Work-Related Courses and Non-Work-Related Courses?

To answer this question, logistic regression equations were performed, predicting participation from adults' demographic, education, and labor force characteristics. These analyses reveal the relationship of each of these adult characteristics to participation independently of other adult characteristics.

### Age

The finding that the youngest adults (ages 16–24) participate in work-related courses at a lower rate than mid-aged adults (ages 35–44) does not appear to be due to age differences in the employment characteristics of adults, as the participation difference remains when these characteristics are taken into account. It may be that employers are less likely to provide formal training to young workers compared to mid-aged workers, or that young adults have more current skills and thus less need to participate in work-related education. In contrast, adults ages 55–64 are less likely than mid-aged adults to participate in work-related education primarily because these older adults are less likely to be employed. It is less clear why adults age 65 or older participate in work-related courses at a relatively low rate. In accordance with human capital theory, these older adults may have less to gain from an investment in work-related education; however, among employed adults with the same level of income, adults age 65 or older participate in work-related education at the same rate as mid-aged adults, suggesting that differences in income and employment status also play a role. The lower participation rate of older adults (ages 55 or older) in non-work-related courses does not appear to be due to education, labor force, or income differences, and may have more to do with the interests of older adults or the targeting of course offerings.

### Sex

Women's higher participation rate in non-work-related courses is not due to women having more time for these activities by virtue of working part time or not at all; even after accounting for labor force status, women participate in these courses at a higher rate than men. When women and men with the same labor force status are compared, women also participate in work-related courses at a higher rate than men. Hypothetically, this sex difference in participation in both work-related courses and non-work-related courses could result from women having a greater propensity to seek formal instruction or from a targeting of course offerings to women.

### Race/ethnicity

Hispanics' lower participation rate in work-related courses is not entirely due to their education level, labor force status, occupation group, or income level; this difference remains even after accounting for these factors. Language barriers or specific occupational patterns that could not be detected in this study may account for this difference in participation rates. Hispanics' lower participation rate in non-work-related courses appears to be related to their lower average education level; when education level is accounted for, Hispanics and non-Hispanic Whites participate in non-work-related courses at the same rate.

### Labor force status

Full-time workers participate in work-related courses at a higher rate than other adults regardless of age, sex, occupation group, income level, or continuing education status (i.e., whether or not the adult has continuing education requirements). This higher participation rate is probably motivated by labor market incentives that make work-related courses most available to and valuable for those employed full time. Participation rates in non-work-related courses are higher not only among part-time workers (compared to full-time workers), but also—after accounting for other factors—among those who are retired or otherwise not in the labor force (compared to those who are employed). This difference in participation rates may arise

from the greater amount of free time available to those who are employed part time or who are not in the labor force compared to those who are employed full time.

### Occupation group

Participation in work-related courses is highest among those in professional and managerial occupations, even after accounting for education level and other factors; this may reflect a tendency by employers to provide more training to workers in these positions. Occupational differences in participation in non-work-related courses are related to education level; after accounting for education level, those in professional and managerial jobs participate in non-work-related courses at the same rate as other employed adults.

### Education level and continuing education requirements

After accounting for other factors, those with higher levels of education and those with continuing education requirements participate in both work-related and non-work-related courses at a higher rate than do (respectively) those with lower education levels and those who do not have continuing education requirements. A common motivation may underlie these findings; those who enjoy learning of all types may be more likely to continue their formal education, enter occupations that have continuing education requirements, and participate in non-work-related courses. On the other hand, taking courses in one's post–high school years, either to continue one's formal education or to meet continuing education requirements, may help foster an interest in other types of adult education.

## Summary

The increase in participation in adult education found in this report is not new. What *is* new is evidence of the breadth of this increase. Virtually every group of adults examined increased their participation in adult education between 1991 and 1999, often in ways that reduced disparities in participation that had existed in 1991. But a closer look at participation in specific activities reveals some troubling signs of groups being left behind—especially Hispanics, those with lower levels of education, those with lower status jobs, and those who are employed part time. Even after accounting for other factors, all of these groups have relatively low rates of participation in work-related courses, an adult education activity that is likely to have economic payoffs. Adults with lower levels of education also are less likely than those with higher levels of education to participate in non-work-related courses, after accounting for other factors. Thus, although the widespread increase in participation in adult education has been accompanied by an elimination of some inequities, in many cases the highly educated and high status groups that have been the traditional beneficiaries of adult education remain the main beneficiaries today.

***Data source***: The NCES Adult Education Survey of the National Household Education Surveys Program, 1991, 1995, and 1999 (AE–NHES:1991/1995/1999).

***For technical information,*** see the complete report:

Creighton, S., and Hudson, L., (2001). *Participation Trends and Patterns in Adult Education: 1991 to 1999* (NCES 2002–119).

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***To obtain the complete report (NCES 2002–119),*** call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site *(http://nces.ed.gov).*

# Invited Commentary: Household Data in the Federal Statistical System: The Role of the National Household Education Surveys Program

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***This commentary represents the opinions of the author and does not necessarily reflect the views of the Office of Management and Budget or the National Center for Education Statistics.***

In order to meet ever-increasing demands to carry out its responsibilities efficiently and effectively, the federal government continues to have a pressing need for data that are timely, accurate, reliable, and relevant. To inform decisions about a vast array of social, economic, housing, and educational services, federal agencies collect, analyze, use, and disseminate a wealth of information.

Much of this information is collected directly from the public—from individuals, large and small businesses, educational and nonprofit institutions, federal contractors, and state, local, and tribal governments. Narrowing the focus of this discussion to education statistics, data typically are collected by asking for information from schools (including individual schools, school districts, and state school systems), teachers, administrators, parents and, of course, students. The National Center for Education Statistics (NCES) has, over the years, made great strides in refining, improving, and expanding its family of surveys in order to create and utilize a far-reaching set of statistics that offer policymakers, researchers, and educators the pertinent information they need. Embracing an approach of continuous examination and evaluation of the methods and procedures used to collect the data can lead to substantial improvements and strengthening of the education statistics we have come to rely upon.

The two reports highlighted in this issue of the *Education Statistics Quarterly* offer an excellent view of the success, value, and contributions of the NCES-sponsored National Household Education Surveys Program (NHES). In the first report, *Efforts by Public K–8 Schools to Involve Parents in Children's Education: Do School and Parent Reports Agree?*, Xianglei Chen offers a valuable comparison of the opinions and views held by both schools and parents. By looking at the level of agreement between schools' and parents' reports, we can identify areas that are working well, and also those in need of some improvement. Because parental involvement is considered to be crucial in support of children's educational development, and because schools devote considerable resources to promoting parental involvement, the results of this study are an important asset to the education community.

In the second report, *Participation Trends and Patterns in Adult Education: 1991 to 1999*, Sean Creighton and Lisa Hudson provide important information on the degree to which adults are actively engaged in educational activities and examine trends over time to view changing patterns of participation. This study takes a careful look at six types of adult education activities and offers detailed analyses of the characteristics of participants. The key finding of this study—that participation rates in adult education increased for virtually every group of adults examined—is truly a "good news" story that reveals tremendous accomplishment in providing greater access to educational opportunities. This very positive result, however, is tempered by a detailed view of those groups that traditionally have had relatively low rates of participation in adult education. For example, the study found that Hispanics, those with lower levels of education, those with lower status jobs, and those employed part time all continued to have relatively low rates of participation in work-related adult education at the end of the 1990s. Both the positive and negative findings of this study are critically important as adult education planners develop new strategies for the coming years.

These two studies have considerable merit in and of themselves and could easily serve as the subject of extensive commentary on their own. However, it is also useful to discuss more broadly the federal statistical system and the role that NHES and other national household surveys play in providing our country with information needed for policy formulation, program evaluation and assessment, and decisionmaking. Part of this discussion involves the telephone survey methodology that is used in NHES as well as other national surveys.

## The Federal Statistical System

The United States is one of a small number of countries that have highly decentralized national statistical systems. More than 70 federal agencies, or organizational units within agencies, collect statistical information, often in concert with program administration or regulatory functions. The Office of Management and Budget (OMB) provides oversight, coordination, and guidance for federal statistical

activities and promotes the quality, integrity, and efficiency of federal government statistical programs. In particular, OMB works closely with federal agencies to improve the relevance, accuracy, timeliness, and availability of federal statistics while protecting the integrity of statistical information products, respecting pledges of confidentiality, and minimizing both the reporting burden on the public and the statistical system's use of federal resources.

To ensure the quality of federal government statistical activities, careful attention is paid to the underlying statistical methods and procedures that accompany any information collection. Strengthening source data to improve their coverage, accuracy, timeliness, and quality is a goal shared by the federal statistical community at large. While considerable progress has been made in improving the overall performance and efficiency of the federal statistical system as well as the quality of the data provided by specific studies, rapid changes in our economy and society present continuing challenges to our statistical infrastructure and the methods used to obtain needed data.

## The Value of Household Surveys

The surveys and censuses that support the infrastructure of the federal statistical system incorporate a wide variety of methods, procedures, and analytic approaches. The data collection methods for a specific survey are usually tailored to meet data needs and study objectives within resource and time constraints. While some data collections measure particular phenomena or are only one-time surveys, many other federal surveys are ongoing, national in scope, and serve to describe and measure important social, economic, housing, and educational dimensions of the United States.

NHES joins other household-based federal surveys—the Current Population Survey, the Consumer Expenditures Survey, the Survey of Income and Program Participation, the National Health Interview Survey, the National Immunization Survey, the National Crime Victimization Survey, and the American Housing Survey, to name just a few—in providing key indicators on critical aspects of our society. These surveys all share one important feature: they collect information from a representative sample of the U.S. population through the administration of questionnaires to household members. The voluntary participation by literally millions of people in such federal surveys directly supports the federal statistical system and is critical to the ultimate quality of the information that federal agencies produce.

## Topics and Goals of NHES

The majority of national education statistics come from institution-based surveys. NHES provides the only regularly fielded education surveys that target household members. As a system of household surveys, NHES has the capability to identify, describe, and address a wide range of education-related issues that are not easily covered by surveys of institutions. For example, NHES provides information about activities that families engage in with young children that might promote these children's readiness to begin school. Most topics covered by NHES are repeated in various survey years on a rotating basis.

Included in the ongoing NHES data collection system are surveys on school readiness, early childhood program participation, parent and family involvement in education, before- and after-school programs and activities, and adult education. A particularly attractive feature of NHES, shared by many other major national surveys, is that by conducting the surveys on a repeated basis over the course of years, it provides measures of the same phenomena at different points in time. These trend analyses are very important, as they detect significant change in patterns and practice. However, NHES also has the flexibility to include one-time surveys on key topics when the need arises; for example, the 1993 collection included a survey on household members' perceptions of school safety and discipline.

NHES is designed to produce reliable estimates not only for the total U.S. noninstitutionalized population, but also for different racial/ethnic groups. Estimates by race and ethnicity are of great interest, especially for monitoring trends over time. Therefore, the NHES sample design oversamples minorities in order to increase the reliability of estimates for these groups.

Each collection of NHES begins with the screening of a representative sample of households to select participants for that year's topical surveys. The number of households screened has ranged from 45,000 to 64,000. The high costs associated with screening large numbers of households in order to meet the sample size requirements of NHES have led to a design that allows for more than one topical survey to be carried out concurrently whenever possible. In deciding which topics should be addressed in the same collection, consideration is given to the probability of households being eligible for one or more of the topical surveys. The ideal combination of topical surveys is one

that maximizes the probability of a household qualifying for a survey interview, but limits the number of households that must respond to more than one survey.

## Benefits and Drawbacks of Conducting NHES by Telephone

The design of data collection methods depends on numerous factors, including the objectives of the study and the type of information sought, the length and complexity of the questionnaire, the resources available, and the urgency with which the data are needed. Any choice of data collection mode and its accompanying procedures must weigh heavily on the quality and efficiency of a project. Because of their complexity and length, most national surveys sponsored by the federal government are conducted by personal visits.

The choice to conduct a survey by telephone is typically made because the results can be quickly produced, the cost is less than a personal visit, and the survey instrument is adaptable to telephone administration (i.e., the length is not terribly great, and hand cards, calendars, and other administration tools are not needed to improve response quality). For these reasons, the telephone was chosen as the mode of administration for NHES. Households are selected for screening using list-assisted random-digit-dialing (RDD) methods, and data are collected using computer-assisted telephone interviewing (CATI) procedures.

While using the telephone as the mode of survey administration has numerous benefits, it is generally held that, compared to personal-visit surveys, certain types of survey errors will be higher for telephone surveys. Two types of errors that tend to be higher for telephone surveys are nonresponse bias and coverage bias. Nonresponse bias occurs when a significant number of the people sampled do not respond to the questionnaires *and* are different from those who do in a way that is important to the study; coverage bias occurs when the list or frame from which the sample is drawn does not include all elements of the population that the researchers wish to study (Salant and Dillman 1994).

When taking the household screening interview as well as the completed topical interviews into account, NHES has an overall response rate below 70 percent. With the advent of answering machines, cell phones, caller ID, and other technologies, it is unclear at this point how response rates for telephone surveys such as NHES will be affected and whether concerns about survey error will grow. However, NHES does have a comprehensive and sophisticated approach to addressing possible biases that might result from coverage limitations or nonresponse.

## Conclusion

The family of surveys conducted by NCES is designed to address the needs of the education community and to provide accurate, timely, reliable, high-quality data for education policymakers, practitioners, and the general public. NHES is a critical component of this family of surveys, as it provides household data on a wide array of important topics. It is an excellent example of a well-designed survey that takes aggressive action to minimize nonresponse and coverage biases (as well as other types of survey errors). Household surveys such as NHES constitute a key component of the federal statistical system, as they provide a portrait of our nation's social, economic, housing, and educational characteristics. Ongoing research and evaluation efforts to improve the quality of all federal data, including those provided by NHES, will continue as our country's demand for relevant information increases. These efforts are laudable and will serve the nation, as well as the federal statistical system, well.

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Uses of NHES

# Invited Commentary: When School Surveys Just Aren't Enough: Uses of the National Household Education Surveys Program

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***This commentary represents the opinions of the author and does not necessarily reflect the views of the National Center for Education Statistics.***

The National Center for Education Statistics (NCES) began its National Household Education Surveys Program (NHES) in 1991 in response to the increasingly evident fact that not all educationally relevant data can be collected from schools. NHES, conducted again in 1993, 1995, 1996, 1999, and 2001, consists of a rotating series of topical modules—adult education, before- and after-school programs and activities, early childhood program participation, parent and family involvement in education, and activities with family members that might promote young children's readiness to begin school. In addition to periodic surveys of these topics, NHES has fielded surveys on school safety and discipline, household library use, and civic involvement. NHES will be conducted again in 2003 and beyond, with the next administration revisiting the topics of adult education for work-related reasons as well as parent and family involvement in education.

## The Utility of Household Surveys

Conducting a household survey is not a simple enterprise. In general, such surveys are more logistically difficult and demanding than are school-based surveys, or at the least create a whole new assortment of sampling and other technical problems. Household surveys require the screening of large numbers of households to get the smaller number that can provide data on the issues that the researcher cares about. Response rate becomes a particular problem, since the interviewer must first secure the participation of the household and then the participation of the proper respondent within the household. Why, then, would NCES launch a long-term and ambitious series of household surveys?

The answer is simple enough. Much of the most significant decisionmaking and resource allocation having to do with "education" (very broadly construed) takes place in households. Families, even more than schools, provide the locations at which many education policy instruments have their most direct impacts. Further, many educational events and processes are not primarily school based—household library use, noncredit adult learning, and school readiness activities are just three examples. The share of these events and processes that is not inherently school based is almost certainly getting larger. "Out-of-school schooling" takes place as families seek extraeducational opportunities for their children, as postindustrialism fuels the demand for worker reskilling, and as families and children pursue alternatives to traditional schooling. As sociologists would have it, the normative American life course is becoming more fragmented and diverse, and families are developing different strategies to pass on various resources to their children. So if everyone (with some inevitable ambiguities) by definition lives in a household, and if many educationally significant activities take place in households and away from schools, it follows that we need to study these through household surveys.

Household surveys have shown their utility elsewhere. The Current Population Survey conducted by the U.S. Census Bureau produces such important data as the monthly unemployment rate. Sociologists and demographers in particular have for years made great use of such series as the National Survey of Families and Households and the General Social Surveys. The new American Community Survey from the Census Bureau may have a similar impact over time. In fact, the household survey is the research method of choice in much of the development policy literature. As pointed out by Angus Deaton in his valuable *The Analysis of Household Surveys: A Microeconometric Approach to Development Policy* (1997), household surveys provide a means to examine the microeconomics of household budgets of families who may have little formal link to such institutions as schools or work establishments.

## Two Studies That Use NHES Data

The two studies highlighted in this issue of the *Education Statistics Quarterly*—Xianglei Chen's analysis of parental involvement in children's K–8 education and Sean Creighton and Lisa Hudson's examination of trends and patterns of participation in adult education—both demonstrate the payoff of NCES's commitment to NHES. Creighton and Hudson's study is based on the Adult Education Surveys of NHES (AE–NHES:1991/1995/1999). Chen combines data from the Parent and Family Involvement in Education/Civic Involvement Survey of NHES (PFI/CI–NHES:1996) and the 1996 "Survey on Family and School Partnerships in Public Schools, K–8." The latter, a

survey of schools, is part of the NCES Fast Response Survey System (FRSS). The two surveys used by Chen are independent of one another, meaning that the children in PFI/CI–NHES are not matched to the schools in the FRSS survey. Chen builds on sociologist Joyce Epstein's useful work on the connections between schools and families (e.g., Epstein 1990).

### Findings about parental involvement

Chen's concern is with the extent to which schools and parents agree or disagree about the nature of their relationships with one another. This agreement turns out to be pretty dismal. Schools tend to report that they are providing parents with both numerous opportunities to participate in school activities and adequate amounts of information about what goes on in their children's school. Parents are more likely to report that schools fall short in these efforts. Similarly, parents describe their own involvement as engaged and regular, while schools report that parents often disregard offers to participate and show far too little interest in what happens in school. The author found these discrepancies in all types of schools, but was struck that they generally increased with school level, school size, and minority concentration.

None of this is necessarily too surprising. The 1966 *Equality of Educational Opportunity* (i.e., Coleman) report showed that schools and parents often described the same schools in very different ways. One could probably find further evidence well before that, and Chen cites research that shows that parents and teachers (as well as students) give different estimates of parental involvement. What Chen has, of course, are not so much data on parental involvement as data on perceptions of parental involvement. While there is ultimately a real amount of interaction between parents and schools, it may lie somewhere between the perceptions of educators and those of parents, or it may lie beyond these extremes.

### Examples of a methodological limitation

The problem of determining the actual extent of parent-school interaction raises a difficulty with household surveys. In PFI/CI–NHES, parents are asked to describe the characteristics of institutions in which they do not work, that they do not own, and often in which they spend little time. How accurately can we expect parents to report the characteristics of schools? In a methodological exercise, Chen shows that parents do make quite substantial mistakes in describing their children's schools. This by no means diminishes the value of the central findings regarding a disconnect between home and school, but it does help provide some context for these findings.

A similar problem emerges in Creighton and Hudson's comprehensive analysis of trends in participation in adult education in the 1990s. Like Chen, Creighton and Hudson rely on household members to describe the characteristics of various institutions to which they are more or less strongly linked—work establishments, colleges, and other education providers. We don't really know how well people can do this, but there is probably some slippage between how AE–NHES respondents would describe these providers and how these providers would (presumably more accurately) describe themselves. In the case of AE–NHES, the problem is less that individuals report inaccurately on the characteristics of institutions than the fact that the survey has no means by which to provide independent estimates describing providers of instruction. This is particularly evident when looking at employer-provided instruction. While we know quite a lot about how to collect good self-descriptive data from work establishments (e.g., Kalleberg et al. 1996), the challenge is still how to gather high-quality information from the employees of these establishments.

### Findings about adult education

Notwithstanding the lack of independent descriptions of adult education providers, Creighton and Hudson's analysis is an informative one, remarkably attentive to detail and nuance. They provide compelling evidence of the increase in participation in adult education in the space of a single decade. This increase was as broad as it was deep—most social and demographic groups increased their participation. It also cut across most kinds of adult education. For the most part, more Americans were pursuing more kinds of adult learning at the end of the nineties than they were at the beginning of the decade.

However, Creighton and Hudson are careful to point out that not everyone participated equally in adult education at the end of the decade. In both 1991 and 1999,* for example, those with lower levels of education and those with lower status jobs had relatively low rates of participation in adult education overall, in work-related adult education, and in non-work-related adult education. In 1999, rates of participation in work-related adult education also remained relatively low among Hispanics and part-time workers. This pattern presents a particular challenge as we enter a "learning society" in which one's initial experience in the

*Keep in mind that NHES is not a panel study, so that Creighton and Hudson are not examining the same individuals at these different points in time.

education system no longer suffices as preparation for the employment and civic demands brought on by rapid technological, economic, and cultural change. If Creighton and Hudson's main story is an encouraging one of increased participation and engagement in lifelong learning, it is also a warning against the ongoing marginalization of some groups and the troubling polarization of opportunities.

### Conclusions drawn from these studies

Both Chen and Creighton and Hudson are judicious in their recommendations. Both, too, are candid about methodological or conceptual shortcomings. Chen puts some of the responsibility for the poor relationships between schools and parents on both parties, indicating that schools may need to be more energetic about keeping in touch with parents and that many parents may need to make a greater commitment to their children's schooling. To my mind, Chen is correct in not reducing the problem to one of "better communication" between schools and families. As considerable research has shown (see Lareau 2000 for a good example), in many cases the relationships between schools and families are rife with cultural or economic conflict that cannot be solved by simply enhancing communication. Such findings are consistent with those reported by Chen and should point policy in the direction of providing both schools and families with the means to interact more effectively. This will probably have more to do with finding ways to permit working parents and overextended teachers the material and logistic means to actually be in the same place at the same time than it will with greater "communication." Chen's study goes a long way in describing some of the constraints that have to be overcome for this to take place.

Creighton and Hudson do not comment at any length on the policy implications of their findings, but these are every bit as urgent as those arising from Chen's report. Adult education—whether job training, English as a Second Language (ESL), basic skills education, or academic or vocational credential programs—is no longer optional for successful participation in a postindustrial economy. While perhaps too often a cliche, the "learning society" is going to require a different set of institutions and expectations as technology and transformed work arrangements draw adult Americans back into the education system. Whether through incentives or sanctions, we need serious attention to policies that target employer involvement in the post-compulsory education of the marginalized groups described by Creighton and Hudson.

As the authors also show, though, not all adult education is driven by the exigencies of making a living. Americans have, and probably always have had, a remarkable attraction to education for personal growth, cultural development, or simply for distraction and amusement. (This, incidentally, is a finding that would have been resistant to discovery by anything other than a household survey.) Based in both community colleges and a range of still-vibrant clubs, civic associations, and assorted institutes, such lifelong learning gives every indication of thriving as much in the next decade as it did in the last. We need to know much more about the motivations that people have for participating in these educational activities and about reducing the barriers that stand in the way of their participation.

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Science 2000

# The Nation's Report Card: Science Highlights 2000

***This article was originally published as the NCES tabloid-style publication of the same name. The sample survey data are from the National Assessment of Educational Progress (NAEP) 1996 and 2000 Science Assessments. Some of the tables and figures from the original publication have been omitted.***

## Introduction

The National Assessment of Educational Progress (NAEP) is a project of the National Center for Education Statistics (NCES) in the U.S. Department of Education and is overseen by the National Assessment Governing Board (NAGB). Since 1969, NAEP has been the sole, ongoing national indicator of what American students know and can do in major academic subjects.

Over the years, NAEP has measured students' achievement in many subjects, including reading, mathematics, science, writing, history, civics, geography, and the arts. In 2000, NAEP conducted assessments in reading at grade 4 and in mathematics and science at grades 4, 8, and 12. In addition, NAEP conducted state-by-state assessments in mathematics and science at grades 4 and 8.

This publication presents highlights of national and state-level results from the NAEP 2000 Science Assessment. Results in 2000 are compared to results in 1996. Students' performance is described in terms of average scores on a 0-to-300 scale and in terms of the percentages of students attaining three achievement levels: *Basic*, *Proficient*, and *Advanced*.

### Achievement levels

Achievement levels provide a context for interpreting students' performance on NAEP. These performance standards, set by NAGB and based on recommendations from broadly representative panels of educators and members of the public, determine what students should know and be able to do in each subject area and at each grade assessed:

- The *Basic* level denotes partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at each grade.
- The *Proficient* level—identified by NAGB as the standard all students should reach—represents solid academic performance for each grade assessed. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.
- The *Advanced* level signifies superior performance.

As provided by law, the Acting Commissioner of Education Statistics, upon review of a congressionally mandated evaluation of NAEP, has determined that the achievement levels are to be considered developmental and should be interpreted and used with caution. However, both the Acting Commissioner and NAGB believe that these performance standards are useful for understanding trends in student achievement. NAEP achievement levels have been widely used by national and state officials, including the National Education Goals Panel.

### Design of the NAEP 2000 Science Assessment

*Framework.* The NAEP Science Framework used to develop the 2000 assessment (as well as the 1996 assessment) is organized according to two dimensions: Fields of Science, and Ways of Knowing and Doing Science. Three fields of science are addressed in the framework: earth, physical, and life sciences. The ways of knowing and doing science are conceptual understanding, scientific investigation, and practical reasoning.

*Accommodations.* The design of the 2000 science assessment allowed for the reporting of results that included performance data for special-needs students (i.e., students identified by their school as being either students with disabilities or limited-English-proficient students) who were assessed by NAEP using accommodations as well as for those students who took NAEP without accommodations.

*Samples.* The 2000 science assessment was conducted nationally at grades 4, 8, and 12 and state by state at grades 4 and 8. National results are based on the national sample and not on a combination of the state samples. The national assessment included representative samples of both public and nonpublic schools, while the state-by-state assessments included public schools only. In total, 47,000 students from 2,100 schools were assessed in the national sample and 180,000 students from 7,500 schools in the state samples.

### Content of this publication

*The Nation's Report Card: Science Highlights 2000* briefly describes the NAEP 2000 Science Assessment, presents results of the assessment, and provides several sample questions and student responses from the assessment. Results presented in *Science Highlights 2000* include average scores and achievement-level performance at the national and state levels, national results for selected subgroups of students, and national results in relation to students' and teachers' responses to background questionnaires.

The results presented here include only those students who were assessed without accommodations—whether or not they were identified as special-needs students. Results that include the performance of special-needs students assessed with accommodations are available on the NAEP Web Site (*http://nces.ed.gov/nationsreportcard*).

## Major Findings for the Nation

National results are for students attending both public and nonpublic schools.

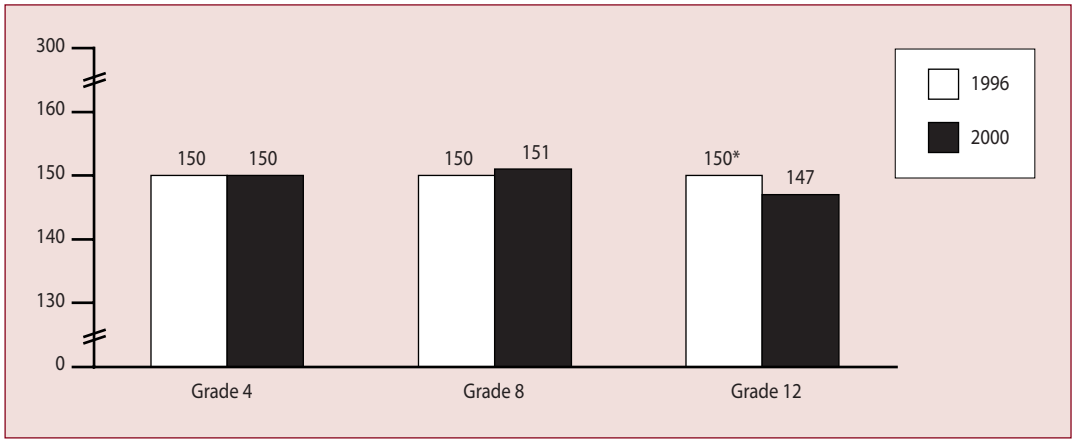
### No change in national average scores at grades 4 and 8, decline at grade 12

This science assessment was first administered to nationally representative samples of fourth-, eighth-, and twelfth-grade students in 1996. Figure A shows national average scores in 1996 and 2000 based on the 0-to-300 NAEP science scale at each grade. In 2000, the average scores of fourth- and eighth-graders were essentially unchanged from 1996. The only significant change in average score results occurred at grade 12, where there was a three-point decline in students' average score.

### Few changes seen in students' 2000 achievement-level performance

The 2000 science assessment results show few changes since 1996 in the percentages of students at or above any of the NAEP achievement levels (figure B). At grade 4, there was no change between 1996 and 2000 in the percentage of students attaining any of the achievement levels. At grade 8,

**Figure A.—Average science scores, grades 4, 8, and 12: 1996–2000**




*Significantly different from 2000.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1996 and 2000 Science Assessments.
(Originally published on p. 1 of *The Nation's Report Card: Science Highlights 2000*.)

however, between 1996 and 2000 there was an increase in the percentage of students reaching the *Proficient* level or above. At grade 12, the percentage of students at or above *Basic* declined between 1996 and 2000.

### Gain for highest-performing eighth-graders and decline for middle-performing twelfth-graders

An examination of scores at different percentiles on the 0-to-300 scale at each grade indicates whether or not the few changes seen in the national average science score results are reflected in the performance of lower-, middle-, and higher-performing students.

Few changes occurred between 1996 and 2000 in scores across the performance distribution. At grade 4, the percentile scores remained relatively unchanged—indicating little or no shift in the performance distribution since 1996. At grade 8, although the national average score did not change between 1996 and 2000, there was an increase in the 90th percentile score. This finding indicates that some improvement occurred among the highest-performing eighth-graders. At grade 12, consistent with the national average score results, the 50th percentile score declined between 1996 and 2000.

## Results for Participating States and Jurisdictions

In addition to national results on students' science performance, the 2000 assessment collected performance data for fourth- and eighth-graders who attended public schools in states and other jurisdictions that volunteered to participate. The results of the state assessment are for students attending public schools only.

In 2000, 40 states and 5 other jurisdictions participated at grade 4, and 39 states and 5 other jurisdictions participated at grade 8. Not all jurisdictions met minimum school participation guidelines for reporting their results in 2000. Data are presented for each jurisdiction that met minimum participation guidelines at grade 4 in 2000 and at grade 8 in 1996 and/or 2000. The science state-by-state assessment was not conducted at grade 4 in 1996.

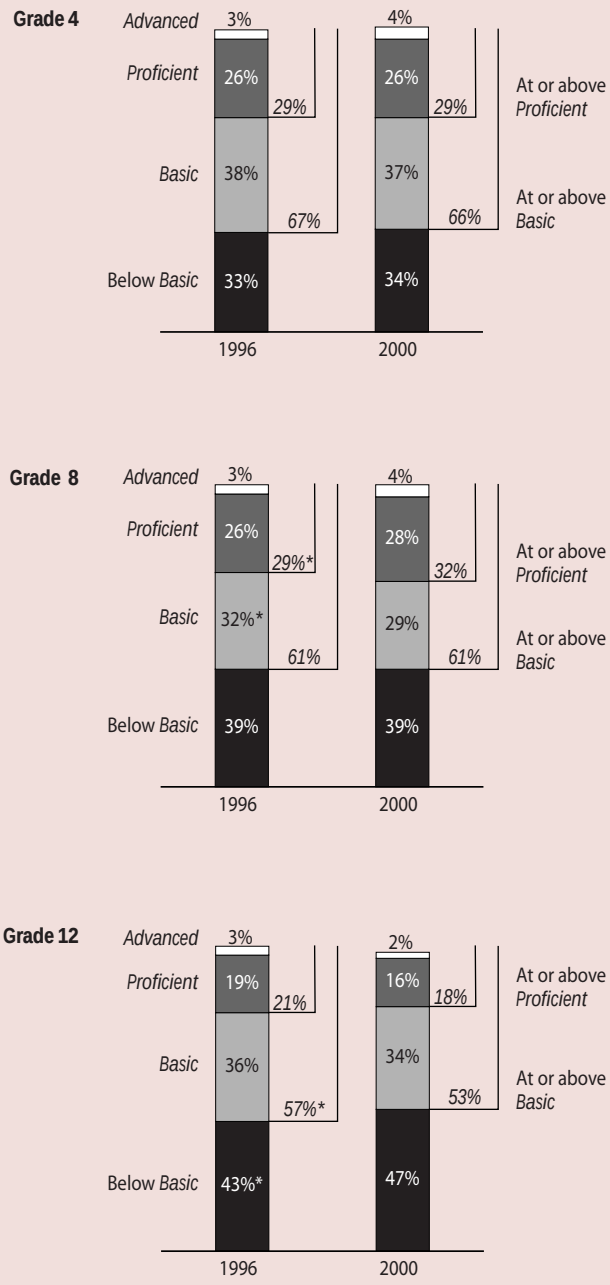
### Average score results

Figure C shows states' and other jurisdictions' 2000 average score performance at grade 4 in comparison to the national average score for public schools. Of the 44 states and other jurisdictions that met minimum participation guidelines at grade 4 in 2000, 20 had scores that were higher than the national average score, 11 had scores that were not different from the national average, and 13 had scores that were lower than the national average.

Figure D shows that of the 42 states and other jurisdictions that met minimum participation guidelines at grade 8 in 2000, 18 had scores that were higher than the national average score, 11 had scores that did not differ from the national average, and 13 had scores that were lower than the national average.

A total of 36 jurisdictions met minimum participation guidelines at grade 8 in both 1996 and 2000. Of these,

**Figure B.—Percentage of students within and at or above achievement levels, grades 4, 8, and 12: 1996–2000**



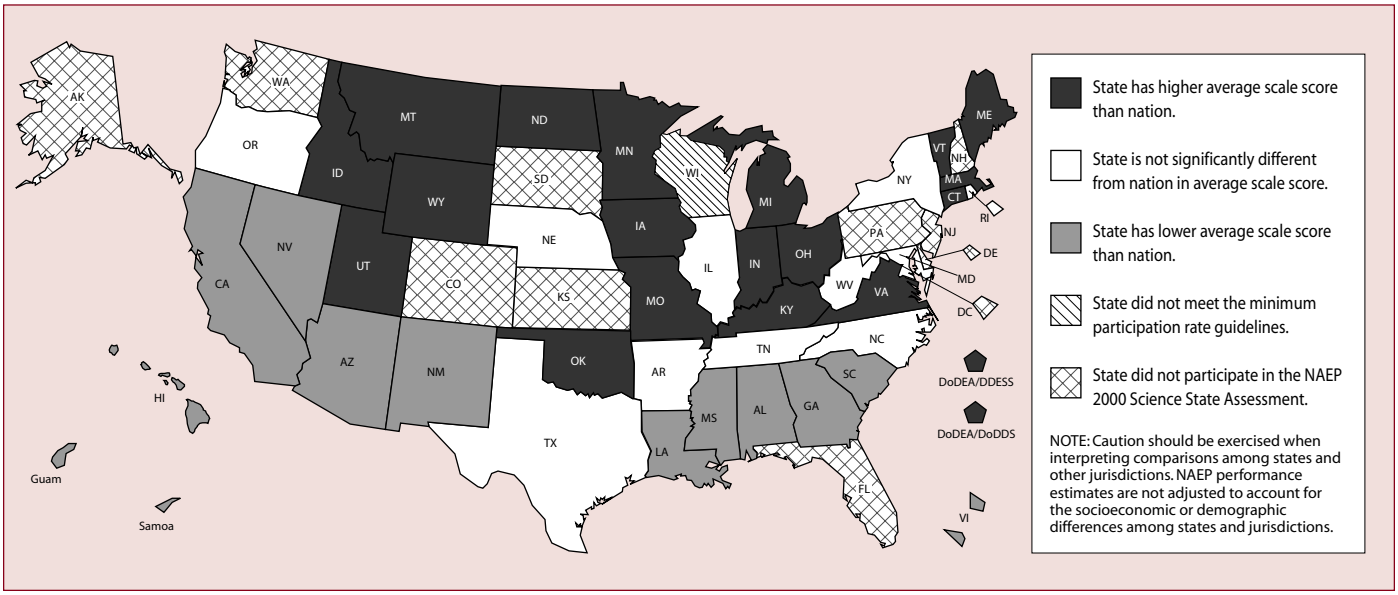

*Significantly different from 2000.

NOTE: Percentages within each science achievement-level range may not add to 100, or to the exact percentages at or above achievement levels, because of rounding.

HOW TO READ THIS FIGURE:
- The italicized percentages to the right of the shaded bars represent the percentages of students at or above *Basic* and *Proficient*.
- The percentages in the shaded bars represent the percentages of students within each achievement level.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1996 and 2000 Science Assessments. (Originally published on p. 2 of *The Nation's Report Card: Science Highlights 2000*.)

## Figure C.—State versus national average score, grade 4 public schools: 2000



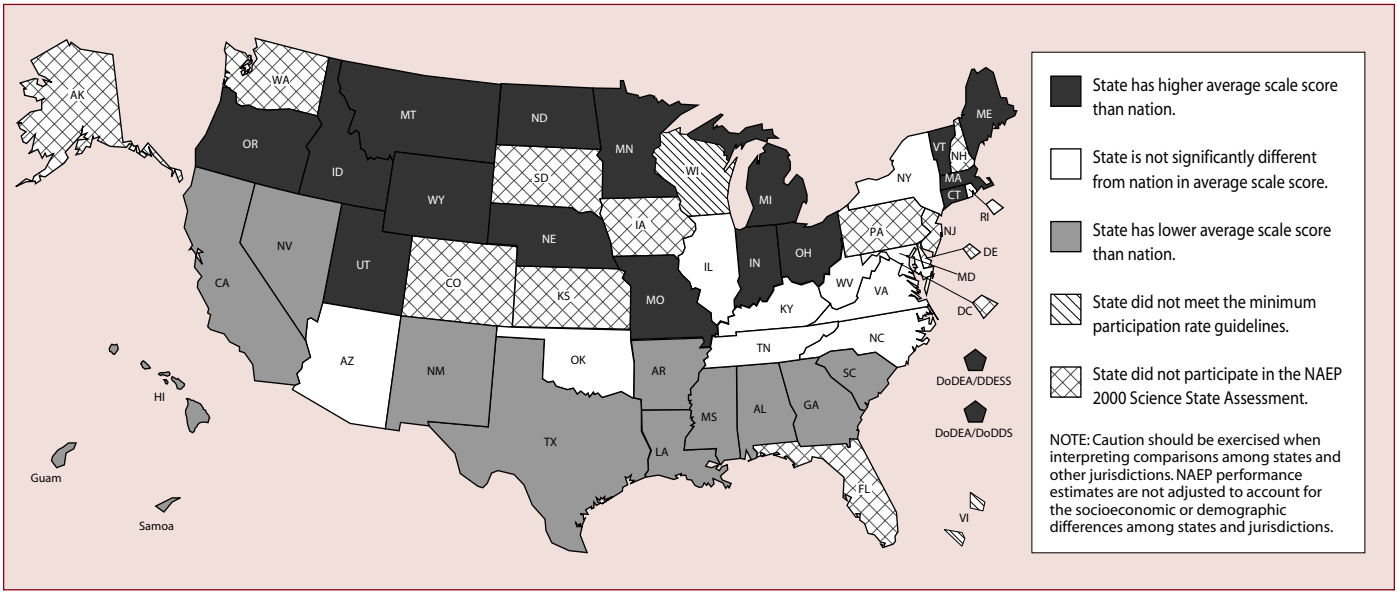

DoDEA/DDESS: Department of Defense Education Activities/Department of Defense Domestic Dependent Elementary and Secondary Schools.

DoDEA/DoDDS: Department of Defense Education Activities/Department of Defense Dependents Schools (Overseas).

NOTE: National results are based on the national sample, not on aggregated state assessment samples.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2000 Science Assessment. (Originally published as figure A on p. 4 of *The Nation's Report Card: Science Highlights 2000*.)

## Figure D.—State versus national average score, grade 8 public schools: 2000




DoDEA/DDESS: Department of Defense Education Activities/Department of Defense Domestic Dependent Elementary and Secondary Schools.

DoDEA/DoDDS: Department of Defense Education Activities/Department of Defense Dependents Schools (Overseas).

NOTE: National results are based on the national sample, not on aggregated state assessment samples.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2000 Science Assessment. (Originally published as figure B on p. 5 of *The Nation's Report Card: Science Highlights 2000*.)

1 state and 2 other jurisdictions showed significant score gains since 1996: Missouri and the Department of Defense Schools (domestic and overseas).

### Achievement-level results

At grade 4, 12 states and other jurisdictions had higher percentages of students at or above *Proficient* than did the nation, 17 had percentages that were not different from the percentage for the nation, and 15 had percentages that were lower than that for the nation. At grade 8, 17 states and other jurisdictions had higher percentages of students at or above *Proficient* than did the nation, 8 had percentages that were not different from the percentage for the nation, and 17 had percentages that were lower than that for the nation.

## National Results for Student Subgroups

In addition to reporting information on all students' performance on its assessments, NAEP also studies the performance of various subgroups of students. Studying the science achievement of subgroups of students in 2000 reveals whether they have progressed since 1996 as well as how they performed in comparison to one another in 2000.

When reading these subgroup results, it is important to keep in mind that there is no simple, causal relationship between membership in a subgroup and science achievement. A complex mix of educational and socioeconomic factors may interact to affect student performance.

### Science scores by race/ethnicity

Average scores on the NAEP science assessment are examined for five major racial/ethnic subgroups: White, Black, Hispanic, Asian/Pacific Islander, and American Indian. For most of these subgroups, average scores in 2000 were not significantly different than in 1996 across the three grades tested. However, scores for two subgroups of students have declined. American Indian students at grade 8 and White students at grade 12 both had lower scores in 2000 than in 1996 (figure E).

Comparing students' 2000 performance across subgroups indicates that some subgroups had higher average scores than others. At grade 4, White students scored higher than Black, Hispanic, or American Indian students. American Indian students also scored higher than Black students and Hispanic students.

At grade 8, White students had a higher average score than any of the other subgroups. Asian/Pacific Islander eighth-graders scored higher than Black, Hispanic, or American Indian eighth-graders. Both Hispanic and American Indian eighth-graders scored higher than Black eighth-graders.

At grade 12, White students and Asian/Pacific Islander students both scored higher than Black, Hispanic, or American Indian students. American Indian twelfth-graders had a higher average score than that of either Black or Hispanic twelfth-graders.

### Differences in average science score gaps between selected racial/ethnic subgroups

The large gaps in average scores between White and Black students and between White and Hispanic students have remained relatively unchanged since 1996. None of the apparent differences in these gaps between 1996 and 2000 were statistically significant.

### Achievement-level results by race/ethnicity

There was little change in the science achievement of racial/ethnic subgroups of students between 1996 and 2000. White twelfth-graders showed a decline in the percentage of students at or above *Basic*. None of the other apparent differences between 1996 and 2000 in the percentages of students at or above *Basic* or *Proficient* were statistically significant.

Comparing the performance of students in different racial/ethnic subgroups in 2000 shows that a higher percentage of White and Asian/Pacific Islander students were at or above *Basic* and *Proficient*, compared to the other subgroups. This finding was consistent across the three grades. Data for Asian/Pacific Islander students were not available at grade 4 in 2000 because special analyses raised concerns about the accuracy of the results.

### Science scores by gender

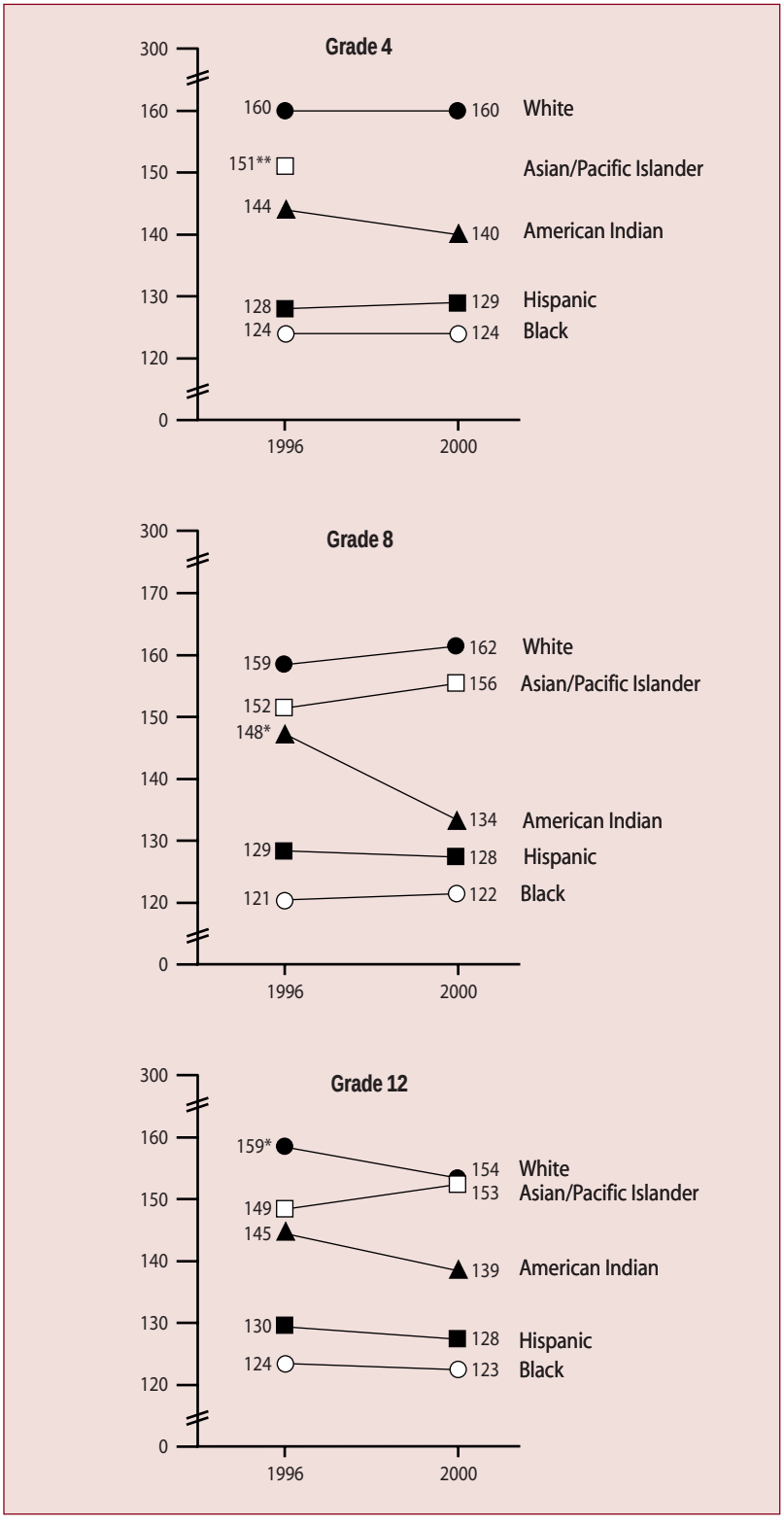
Figure F presents average science scores for males and females in 1996 and 2000. At grade 8, males' average score was higher in 2000 than in 1996, while at grade 12, males' average score declined in 2000 compared to 1996.

Comparing scores of males and females shows that males outscored females in 2000 at grades 4 and 8. The apparent difference between the scores of males and females at grade 12 was not statistically significant.

### Differences in average science score gaps between males and females

Between 1996 and 2000, the score gaps favoring males over females widened by three points at grade 4 and by five points

**Figure E.—Average science scores by race/ethnicity, grades 4, 8, and 12: 1996–2000**

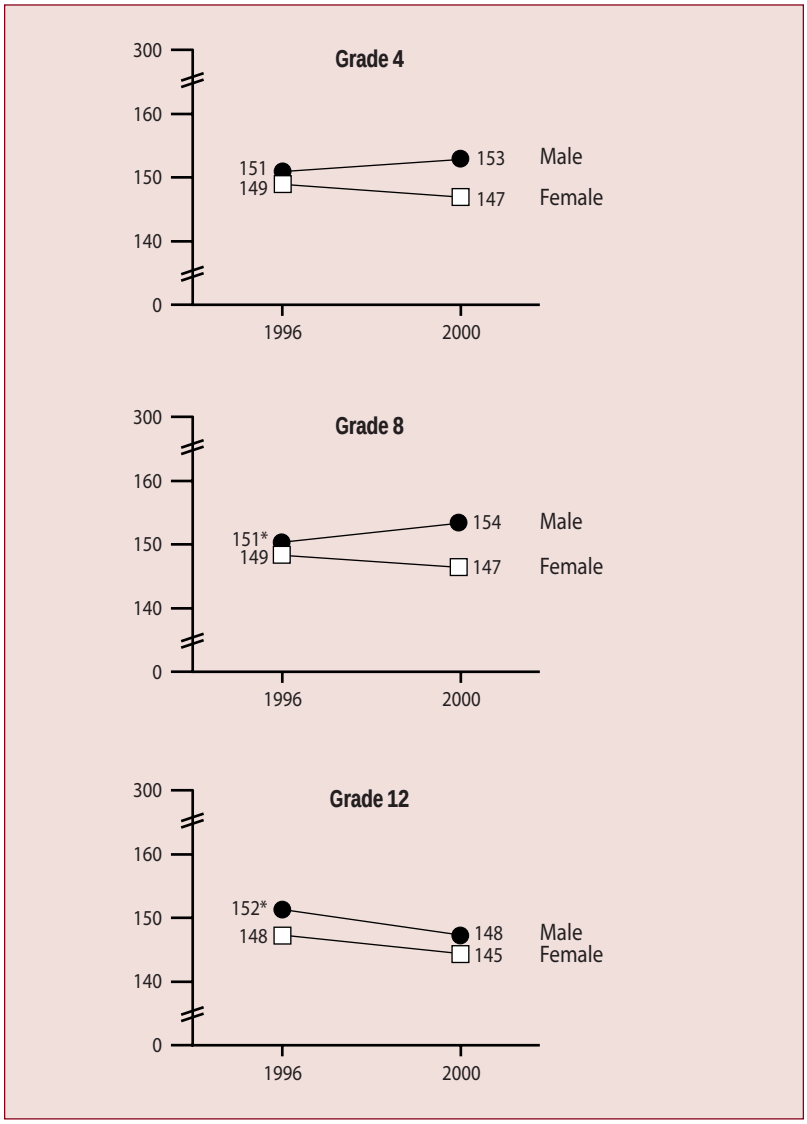



*Significantly different from 2000.

**Special analyses raised concerns about the accuracy and precision of national grade 4 Asian/Pacific Islander results in 2000. As a result, they are omitted here. (See technical notes on the NAEP Web Site [*http://nces.ed.gov/nationsreportcard*].)

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1996 and 2000 Science Assessments. (Originally published on p. 8 of *The Nation's Report Card: Science Highlights 2000*.)

**Figure F.—Average science scores by gender, grades 4, 8, and 12: 1996–2000**




*Significantly different from 2000.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1996 and 2000 Science Assessments. (Originally published on p. 10 of *The Nation's Report Card: Science Highlights 2000*.)

at grade 8. At grade 12, the apparent narrowing of the gap in 2000 compared to 1996 was not statistically significant.

### Achievement-level results by gender

Between 1996 and 2000, few changes occurred in the percentages of males and females at or above the *Proficient* level and at or above the *Basic* level. The only changes that occurred were among male students. At grade 8, the percentage of male students at or above *Proficient* increased between 1996 and 2000. At grade 12, however, the percentage of male students at or above *Basic* declined during the same time period.

Comparing the performance of males and females on the 2000 assessment reveals that there were higher percentages of males at or above the *Proficient* achievement level at all

three grades and higher percentages of males at or above the *Basic* level at grades 4 and 8.

## The Role of Teacher and Student Factors in Science Performance

As part of the NAEP 2000 Science Assessment, students and teachers were asked various questions related to their background and classroom practices. Relationships were investigated between student performance on the assessment and responses to questions about teachers' undergraduate major, how computers were used in the classroom, and student coursetaking. While these findings may suggest a positive or negative relationship between performance on the science assessment and certain practices, it is important to remember that the relationships are not necessarily causal—there are many factors that play a role in science performance.

### Teachers' undergraduate major related to science scores at grade 8

Results of the 2000 assessment show that while teachers' undergraduate major was not related to performance at grade 4, eighth-graders whose teachers majored in science education had higher average scores than eighth-graders whose teachers did not. While these results might suggest that teachers' undergraduate major has an impact on student performance at grade 8, it is also possible that teachers' educational background could influence the classes they are assigned to teach, so that teachers with specialized degrees teach classes with high-performing students.

### Certain types of computer use in the classroom associated with higher science scores

Finding the best ways to use computers to enhance learning has been a challenge to many educators. Results of the 2000 assessment show that fourth-graders whose teachers reported using computers for playing learning games had higher scores than fourth-graders whose teachers did not. At grade 8, students whose teachers used computers for simulations and models or for data analysis scored higher than students whose teachers did not indicate doing so.

Twelfth-grade students were asked how frequently they used computers to collect data using probes, download data, analyze data, or exchange information via the Internet. Of the two-thirds of the twelfth-grade sample taking a science course in their senior year, those who reported using computers to collect data, download data, or analyze data had higher scores than those students who reported never doing so. More frequent use (1–2 times per month) of computers to collect data or to analyze data was also associated with higher scores than less frequent use (less than once a month).

### Science courses related to scores at grades 8 and 12

Science achievement has been shown to vary depending on the type of science courses students take. Results from the 2000 assessment show that eighth-grade students who were not taking science performed the lowest (figure G). Eighth-grade students enrolled in a life science course had lower scores than their peers enrolled in earth science, integrated science, physical science, or general science.

Twelfth-graders who had taken first-year biology, first-year chemistry, or first-year physics at some point since eighth grade had higher scores than students who had not (figure H). The performance of twelfth-grade students did not differ by whether or not they had taken general science at any time in high school.

## Sample Science Questions and Student Responses

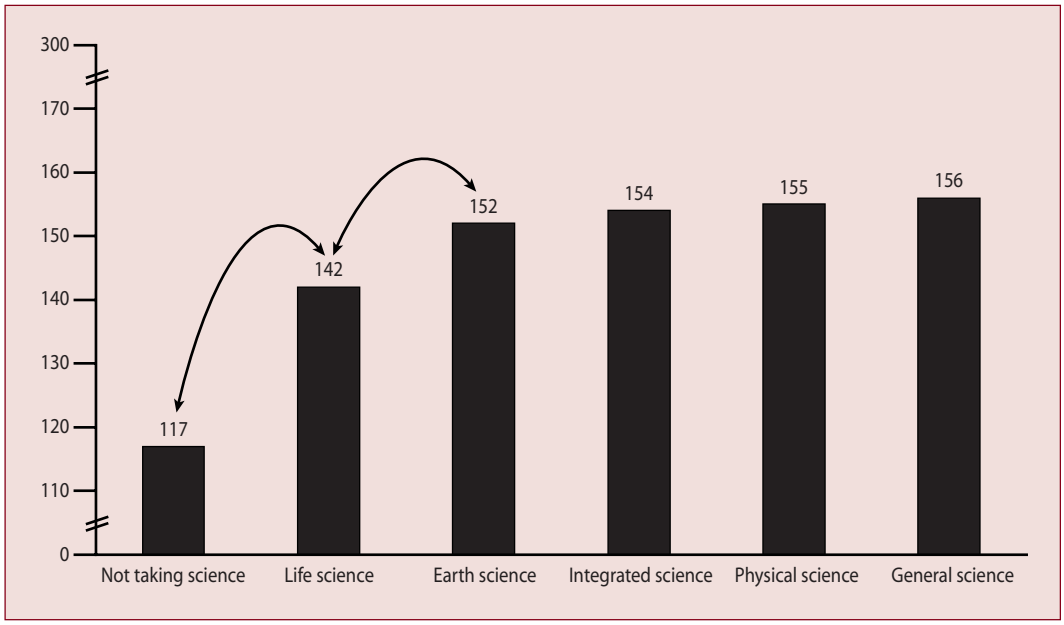
An understanding of students' performance on the NAEP 2000 Science Assessment can be gained by examining individual test questions and how students responded. The types of questions shown here—one multiple-choice and one constructed-response for each grade—are typical of those used in the science assessment. The tables that accompany these sample questions show two types of percentages: the overall percentage of students who answered successfully and the percentage of students at each achievement level who answered successfully.* The oval corresponding to the correct multiple-choice response is darkened, and sample student constructed responses scored "Complete" or "Essential" are provided. Additional sample questions can be viewed on the NAEP Web Site *(http://nces.ed.gov/nationsreportcard)*.

### Grade 4 sample questions and responses

Fourth-grade students are expected to be familiar with internal parts of the human body. The following multiple-choice question, which probed conceptual understanding in the field of life science, required students to demonstrate an understanding of the function of the esophagus.

*The overall percentage answering successfully includes students who were below the *Basic* level. The achievement levels correspond to different score ranges on the NAEP science composite scale that was developed for each grade. On the grade 4 scale, *Basic* is 138–169, *Proficient* is 170–203, and *Advanced* is above 203. On the grade 8 scale, *Basic* is 143–169, *Proficient* is 170–206, and *Advanced* is above 206. On the grade 12 scale, *Basic* is 145–177, *Proficient* is 178–209, and *Advanced* is above 209.

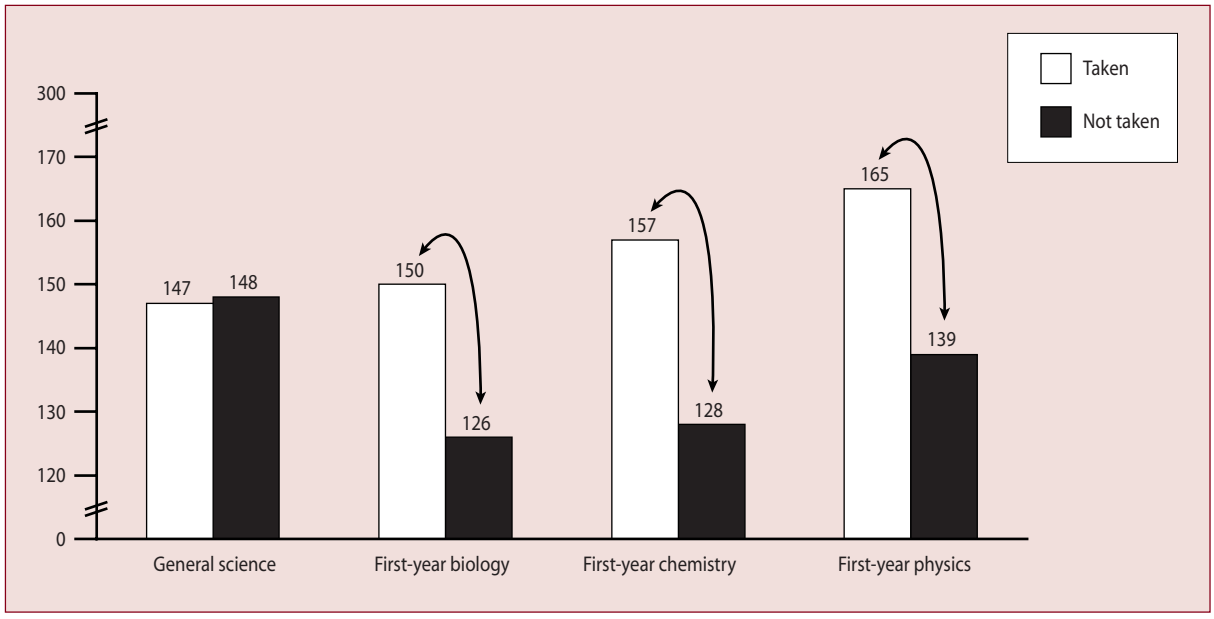
**Figure G.—Average scores by current science course, grade 8: 2000**




⌒ Significantly different average scores.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2000 Science Assessment. (Originally published on p. 12 of *The Nation's Report Card: Science Highlights 2000*.)

**Figure H.—Average scores by enrollment since the eighth grade in science courses, grade 12: 2000**

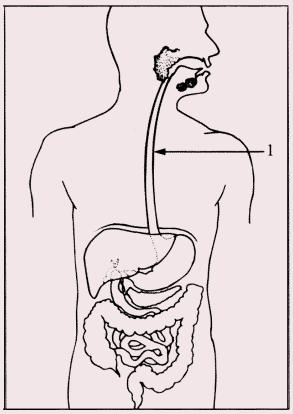



⌒ Significantly different average scores.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2000 Science Assessment. (Originally published on p. 12 of *The Nation's Report Card: Science Highlights 2000*.)

### Sample multiple-choice question for grade 4

| Percentage of students giving correct response | | | |
|---|---|---|---|
| | Within achievement level | | |
| Overall | *Basic* | *Proficient* | *Advanced* |
| 55 | 55 | 75 | 90 |




*Look at the picture above, which shows some of the organs that can be found inside the human body. What is the main job of the organ labeled 1?*

- Ⓐ *Carrying air*
- ● *Carrying food*
- Ⓒ *Carrying blood*
- Ⓓ *Carrying messages from the brain*

The following short constructed-response question, which probed fourth-graders' conceptual understanding in the field of earth science, required students to recognize the interaction between the Earth's atmosphere and hydrosphere as it relates to the water cycle. Responses to the question were scored on a three-level scale: "Unsatisfactory," "Partial," or "Complete." A "Complete" response needed to recognize that the Earth does not run out of rain because there is a repeating cycle in which rain leads to evaporation and a recurrence of rain.

### Sample short constructed-response question for grade 4

| Percentage of students giving "Complete" response | | | |
|---|---|---|---|
| | Within achievement level | | |
| Overall | *Basic* | *Proficient* | *Advanced* |
| 28 | 26 | 45 | 65 |

*Think about where rain comes from and explain why the Earth never runs out of rain.*

#### Sample "Complete" response

This "Complete" response to the question stated the basic steps of the Earth's water cycle and demonstrated understanding that the steps repeat in a cyclical pattern.

When we get rain it evaprates and rains again.

## Grade 8 sample questions and responses

Eighth-grade students are expected to be able to perform an activity separating mixtures into their components. The following multiple-choice question, which probed practical reasoning abilities in the field of physical science, asked students to recognize the appropriate laboratory equipment needed to separate a mixture of given composition into its components.

### Sample multiple-choice question for grade 8

| Percentage of students giving correct response | | | |
|---|---|---|---|
| | Within achievement level | | |
| Overall | *Basic* | *Proficient* | *Advanced* |
| 59 | 59 | 71 | 81 |

*All of the following would be helpful in separating a mixture of sand and salt EXCEPT*

- ● *a magnet*
- Ⓑ *a glass cup*
- Ⓒ *a filter paper and funnel*
- Ⓓ *water*

The following short constructed-response question, which probed eighth-graders' practical reasoning abilities in the field of earth science, asked students to apply the concepts of weathering and erosion to a practical situation involving the deterioration of a stone monument placed in New York City. Responses to the question were scored on a three-level scale: "Unsatisfactory," "Partial," or "Complete."

### Sample short constructed-response question for grade 8

| Percentage of students giving "Complete" response | | | |
|---|---|---|---|
| | Within achievement level | | |
| Overall | *Basic* | *Proficient* | *Advanced* |
| 28 | 28 | 47 | 71 |

*Cleopatra's Needle is a large stone monument that stood in an Egyptian desert for thousands of years. Then it was moved to New York City's Central Park. After only a few years, its surface began crumbling.*

#### Sample "Complete" response

This "Complete" response to the question stated two valid reasons for the damage to the stone monument and gave a possible way of preventing its further deterioration.

*What probably caused this crumbling?*

Because of the pollution and acid rain.

*New York City wants to keep Cleopatra's Needle in the same location in Central Park. How can the city prevent further damage to the stone?*

They could put roof over it or something to protect it from the rain

## Grade 12 sample questions and responses

The following multiple-choice question, which probed twelfth-graders' conceptual understanding in the field of earth science, required students to understand the model of the solar system as well as to recognize the concept that an object appears larger when it is closer than when it is far away. Knowledge of both these areas was necessary for students to apply the concept of the apparent size of an object depending on its proximity to the model of the solar system.

### Sample multiple-choice question for grade 12

| Percentage of students giving correct response | | | |
|---|---|---|---|
| | Within achievement level | | |
| Overall | *Basic* | *Proficient* | *Advanced* |
| 41 | 43 | 60 | 75 |

*As observed with special instruments from Earth, the Sun appears in the sky to be slightly larger in January than in July. Which of the following accounts for this observation?*

- ● *The Earth moves in an orbit that is not circular but is closer to the Sun in January than in July.*
- Ⓑ *The diameter of the Earth is not constant, but bulges slightly at the Equator and contracts slightly during the winter.*
- Ⓒ *The Earth's orbit is not in the same plane as the orbits of the other planets.*
- Ⓓ *The axis of rotation of the Earth is not perpendicular to the plane of its orbit but instead is tilted at an angle.*

The following extended constructed-response question asked twelfth-graders to design a step-by-step procedure to determine the density of a metal ring and to specify the necessary laboratory equipment. Responses were scored on a four-level scale: "Unsatisfactory," "Partial," "Essential," or "Complete." The most common "Complete" procedure is to measure the mass and volume of the ring, and divide mass by volume to obtain the density. The question asked students to demonstrate their ability to design scientific investigations in the field of physical science.

### Sample extended constructed-response question for grade 12

**Percentage of students giving "Essential" or better response**

| | Within achievement level | | |
|---|---|---|---|
| Overall | *Basic* | *Proficient* | *Advanced* |
| 19 | 18 | 58 | 89 |

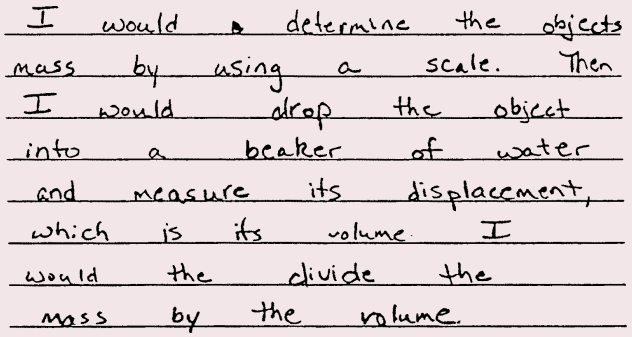
*One characteristic that can be used to identify pure metals is density. If you determine the density of a pure metal, you can determine what the metal is, as shown in the table below.*

| Metal | Gold | Lead | Silver | Copper | Tin |
|---|---|---|---|---|---|
| Density (gram/cm$^3$) | 19.3 | 11.3 | 10.5 | 8.9 | 7.3 |

*Suppose that you have been given a ring and want to determine if it is made of pure gold. Design a procedure for determining the density of the ring. Explain the steps you would follow, including the equipment that you would use, and how you would use this equipment to determine the ring's density.*

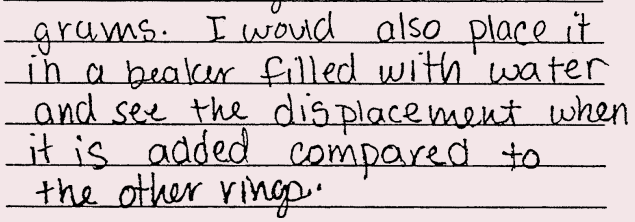
### Sample "Complete" response

This "Complete" response to the question specified all three steps of the procedure—measuring the ring's mass, measuring the ring's volume, and calculating the ring's density—along with the proper equipment.


I would determine the objects mass by using a scale. Then I would drop the object into a beaker of water and measure its displacement, which is its volume. I would the divide the mass by the volume.

### Sample "Essential" response

This "Essential" response specified two of the three steps of the procedure—measuring the ring's mass and measuring the ring's volume—along with the proper equipment. The step involving the calculation of the ring's density was missing.


I would weigh it on a scale in grams. I would also place it in a beaker filled with water and see the displacement when it is added compared to the other rings.

***Data source:*** The National Assessment of Educational Progress (NAEP) 1996 and 2000 Science Assessments.

***For technical information,*** see the NAEP Web Site: *http://nces.ed.gov/nationsreportcard*

***For questions about content,*** contact Holly Spurlock *(holly.spurlock@ed.gov)*.

***To obtain the complete publication (NCES 2002–452),*** call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov)*, or contact GPO (202–512–1800).

NAEP Advanced Science Study

# Assessing the Best: NAEP's 1996 Assessment of Twelfth-Graders Taking Advanced Science Courses

*Christine Y. O'Sullivan and Wendy S. Grigg*

***This article was originally published as the Highlights of the Statistical Analysis Report of the same name. The sample survey data are from the National Assessment of Educational Progress (NAEP) 1996 Science Assessment.***

## Introduction

The National Assessment of Educational Progress (NAEP) is the nation's only ongoing survey of what students know and can do in various subject areas. Authorized by Congress and administered by the National Center for Education Statistics (NCES) in the U.S. Department of Education, NAEP regularly reports to the public on the educational progress of students in grades 4, 8, and 12.

In addition to the main NAEP science assessment that was conducted at all three grade levels in 1996, a special study was done that focused on 12th-grade students taking advanced science courses in biology, chemistry, or physics during the 1995–96 school year. The purpose of the study was to assess what the top science students in the country know and can do in these subject areas.

The results of the study are presented in this report, which includes information on the science courses students reported taking, their overall performance on the advanced science study, and performance results for selected questions. Students' overall performance on the advanced science study is reported using two scales, a biology scale and a chemistry/physics scale.* Wherever possible, information is also provided for students who participated in the 1996 main NAEP science assessment, including data for the subgroup of students who were not enrolled in advanced science courses.

## Highlights

The following are some of the major findings from this study.

### Science coursetaking

- An estimated 23 percent of all 12th-grade students were taking advanced science courses in the 1995–96 school year.
- Sixty-nine percent of students in the advanced science study and 23 percent of the students from the main NAEP assessment who were not enrolled in an advanced science course reported taking seven or more semesters of science.
- Female students who participated in the advanced science study were more likely than males to go beyond 1 year of coursework in biology.
- More than two-thirds of the students who participated in the advanced science study reported taking 1 or more years of biology (98 percent), chemistry (94 percent), or physics (70 percent). While a similar proportion of students who were not taking an advanced science course reported taking 1 or more years of biology (92 percent), there were fewer students taking 1 or more years of chemistry or physics (60 percent and 23 percent, respectively).

### Performance on the advanced science study

- Males outperformed females on questions that measured students' knowledge of chemistry and physics (table A).
- White students and Asian/Pacific Islander students had higher scale scores than Black students and Hispanic students for chemistry/physics and biology (tables A and B).
- The average scale scores of students who attended public and nonpublic schools were about the same.

### Performance on questions common to the advanced science study and the main assessment

- Students in the advanced science study were more likely than students in the main NAEP science assessment to respond correctly to the set of common questions administered to both groups. The difference in scores on common questions between the advanced study and the main NAEP assessment ranged from 2 to 19 percentage points (table C).
- In general, constructed-response questions in the advanced science study were more difficult than multiple-choice questions and tended to have a higher percentage of omits than multiple-choice questions. This was also true for the main NAEP assessment.

*The results for chemistry and physics were combined into a single scale in order to be consistent with the main NAEP science assessment, in which similar questions were grouped together under the broad domain of "physical science."

**Table A.—Chemistry/physics advanced science study scale scores, by gender, race/ethnicity, and type of school: 1996**

| | Chemistry/physics scale score |
|---|---|
| **Total** | **175** |
| Male | 181 |
| Female | 169 |
| White | 180 |
| Black | 150 |
| Hispanic | 153 |
| Asian/Pacific Islander | 178 |
| Public schools | 175 |
| Nonpublic schools | 172 |
| Catholic schools | 171 |
| Other nonpublic | 175 |

NOTE: Average scores are based on a scale that ranges from 0 to 300.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1996 Science Assessment. (Originally published as table 2.7 on p. 13 of the complete report from which this article is excerpted.)

**Table B.—Biology advanced science study scale scores, by gender, race/ethnicity, and type of school: 1996**

| | Biology scale score |
|---|---|
| **Total** | **173** |
| Male | 174 |
| Female | 172 |
| White | 178 |
| Black | 149 |
| Hispanic | 155 |
| Asian/Pacific Islander | 172 |
| Public schools | 173 |
| Nonpublic schools | 172 |
| Catholic schools | 170 |
| Other nonpublic | 175 |

NOTE: Average scores are based on a scale that ranges from 0 to 300.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1996 Science Assessment. (Originally published as table 2.6 on p. 13 of the complete report from which this article is excerpted.)

**Table C.—Percentage correct on common items for students in the advanced science study and main NAEP: 1996**

| Content domain | Item type[1] | Question score in advanced study[2] | Question score in main NAEP[3] |
|---|---|---|---|
| **Biology** | | | |
| Theory of Evolution | mc | 71 | 53 |
| Major Plant Group | mc | 45 | 35 |
| Evolutionary Relationships | mc | 33 | 31 |
| Temperature Regulation | scr | 57 | 49 |
| Cause of Menstruation | scr | 20 | 13 |
| Research Project | ecr | 35 | 26 |
| **Chemistry** | | | |
| Stoichiometry | mc | 88 | 76 |
| Exothermic Reaction | mc | 69 | 57 |
| Ionic Properties | mc | 57 | 41 |
| Neutralization | scr | 41 | 22 |
| Test for pH | scr | 41 | 28 |
| Rate of Movement | scr | 32 | 25 |
| **Physics** | | | |
| Acceleration | mc | 89 | 74 |
| Nuclear Decay | mc | 73 | 59 |
| Path of Car on Ice | mc | 64 | 54 |
| Electrical Circuits | scr | 57 | 47 |
| Predict Composition of Object | scr | 25 | 22 |
| Devise Density Experiment | ecr | 37 | 23 |

[1]mc = multiple-choice, scr = short constructed-response, ecr = extended constructed-response

[2]Question score obtained by students who participated in the advanced science study.

[3]Question score obtained by all students who took part in the main NAEP science assessment.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1996 Science Assessment. (Originally published as table 3.13 on p. 42 of the complete report from which this article is excerpted.)

***Data source:*** The National Assessment of Educational Progress (NAEP) 1996 Science Assessment.

***For technical information,*** see the complete report:

O'Sullivan, C.Y., and Grigg, W.S. (2001). *Assessing the Best: NAEP's 1996 Assessment of Twelfth-Graders Taking Advanced Science Courses* (NCES 2001–451).

***Author affiliations:*** C.Y. O'Sullivan and W.S. Grigg, Educational Testing Service.

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***To obtain the complete report (NCES 2001–451),*** call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov)*, or contact GPO (202–512–1800).

# Dropout Rates in the United States: 2000

*Phillip Kaufman, Martha Naomi Alt, and Christopher D. Chapman*

***This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data come primarily from the U.S. Census Bureau's October Current Population Survey (CPS), and the universe data primarily from the NCES Common Core of Data (CCD).***

This report is the 13th in a series of National Center for Education Statistics (NCES) reports on high school dropout and completion rates. It presents data on rates in 2000, the most recent year for which data are available, and includes time series data on high school dropout and completion rates for the period 1972 through 2000. In addition to extending time series data reported in earlier years, this report examines the characteristics of high school dropouts and high school completers in 2000. It shows that while progress was made during the 1970s and 1980s in reducing high school dropout rates and increasing high school completion rates, these rates have remained comparatively stable during the 1990s.

## Event Dropout Rates

Event dropout rates for 2000 describe the proportion of youth ages 15 through 24 who dropped out of grades 10–12 in the 12 months preceding October 2000. Demographic data collected in the Current Population Survey (CPS) permit event dropout rates to be calculated across various individual characteristics, including race/ethnicity, sex, region of residence, and income level.

- Five out of every 100 young adults enrolled in high school in October 1999 left school before October 2000 without successfully completing a high school program (tables A and B). The percentage of young adults who left school each year without successfully completing a high school program decreased from 1972 through 1987. Despite year-to-year fluctuations, the percentage of students dropping out of school each year has stayed relatively unchanged since 1987 (figure A).
- In 2000, young adults living in families with incomes in the lowest 20 percent of all family incomes were six times as likely as their peers from families in the top 20 percent of the income distribution to drop out of high school.
- In 2000, about three-fourths (75.8 percent) of the current-year dropouts were ages 15 through 18; moreover, about two-fifths (42.0 percent) of the dropouts were ages 15 through 17.

**Table A.—Percentage of 15- through 24-year-olds who dropped out of grades 10–12 in the past year, percentage of 16- through 24-year-olds who were dropouts, and percentage of 18- through 24-year-olds who had completed high school, by race/ethnicity: October 2000**

| Dropout and completion measures | Total[1] | White, non-Hispanic | Black, non-Hispanic | Hispanic | Asian/Pacific Islander |
|---|---|---|---|---|---|
| Percentage of 15- through 24-year-olds who dropped out of grades 10–12, October 1999 to October 2000 (event dropout rate) | 4.8 | 4.1 | 6.1 | 7.4 | 3.5 |
| Percentage of 16- through 24-year-olds who were dropouts in 2000 (status dropout rate) | 10.9 | 6.9 | 13.1 | 27.8 | 3.8 |
| Percentage of 18- through 24-year-olds who were high school completers in 2000[2] (completion rate) | 86.5 | 91.8 | 83.7 | 64.1 | 94.6 |

[1]Due to small sample sizes, American Indians/Alaska Natives are included in the total but are not shown separately.

[2]Excludes those still enrolled in high school.

SOURCE: U.S. Department of Commerce, U.S. Census Bureau, Current Population Survey (CPS), October 2000.

**Table B.—Event dropout rates and number and distribution of 15- through 24-year-olds who dropped out of grades 10–12, by background characteristics: October 2000**

| Characteristic | Event dropout rate (percent) | Number of event dropouts (thousands) | Population enrolled (thousands) | Percent of all event dropouts | Percent of population enrolled |
|---|---|---|---|---|---|
| Total | 4.8 | 488 | 10,126 | 100.0 | 100.0 |
| Sex | | | | | |
| Male | 5.5 | 280 | 5,087 | 57.4 | 50.2 |
| Female | 4.1 | 208 | 5,039 | 42.6 | 49.8 |
| Race/ethnicity[1] | | | | | |
| White, non-Hispanic | 4.1 | 276 | 6,786 | 56.6 | 67.0 |
| Black, non-Hispanic | 6.1 | 91 | 1,510 | 18.6 | 14.9 |
| Hispanic | 7.4 | 100 | 1,351 | 20.5 | 13.3 |
| Asian/Pacific Islander | 3.5 | 13 | 379 | 2.7 | 3.7 |
| Family income[2] | | | | | |
| Low income | 10.0 | 141 | 1,408 | 28.9 | 13.9 |
| Middle income | 5.2 | 298 | 5,728 | 61.1 | 56.6 |
| High income | 1.6 | 48 | 2,990 | 9.9 | 29.5 |
| Age[3] | | | | | |
| 15–16 | 2.9 | 84 | 2,924 | 17.2 | 28.9 |
| 17 | 3.5 | 121 | 3,452 | 24.8 | 34.1 |
| 18 | 6.1 | 165 | 2,721 | 33.8 | 26.9 |
| 19 | 9.6 | 70 | 724 | 14.3 | 7.1 |
| 20–24 | 16.1 | 49 | 305 | 10.0 | 3.0 |
| Region | | | | | |
| Northeast | 3.9 | 73 | 1,849 | 15.0 | 18.3 |
| Midwest | 4.4 | 109 | 2,481 | 22.3 | 24.5 |
| South | 6.2 | 220 | 3,543 | 45.1 | 35.0 |
| West | 3.8 | 86 | 2,253 | 17.6 | 22.2 |

[1]Due to small sample sizes, American Indians/Alaska Natives are included in the total but are not shown separately.

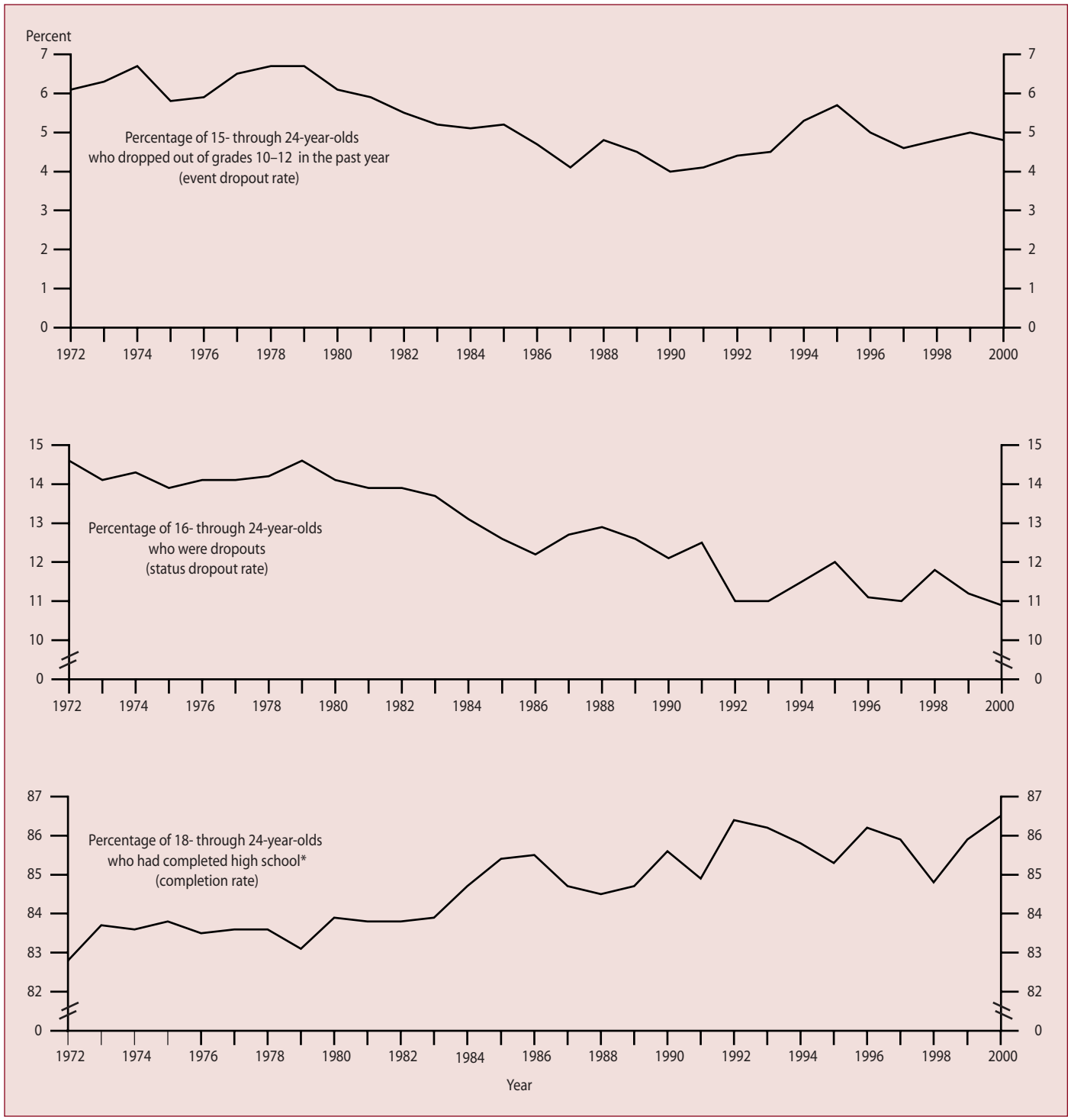
[2]Low income is defined as the bottom 20 percent of all family incomes for 2000; middle income is between 20 and 80 percent of all family incomes; and high income is the top 20 percent of all family incomes.

[3]Age when a person dropped out may be 1 year younger, because the dropout event could occur at any time over a 12-month period.

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

SOURCE: U.S. Department of Commerce, U.S. Census Bureau, Current Population Survey (CPS), October 2000. (Originally published as table 1 on p. 4 of the complete report from which this article is excerpted.)

**Figure A.—Percentage of 15- through 24-year-olds who dropped out of grades 10–12 in the past year, percentage of 16- through 24-year-olds who were dropouts, and percentage of 18- through 24-year-olds who had completed high school: October 1972 through October 2000**




*Excludes those still enrolled in high school.

NOTE: Data for years 1987 through 2000 reflect new editing procedures instituted by the U.S. Census Bureau for cases with missing data on school enrollment items. Data for years 1992 through 2000 reflect new wording of the educational attainment item in the Current Population Survey (CPS) beginning in 1992. Data for years 1994 through 2000 reflect changes in the CPS due to newly instituted computer-assisted interviewing and the change in population controls used in the 1990 census-based estimates, with adjustment for undercounting in the 1990 census.

SOURCE: U.S. Department of Commerce, U.S. Census Bureau, Current Population Survey (CPS), October 1972–2000.

## Status Dropout Rates

Over the last decade, between 347,000 and 544,000 10th- through 12th-grade students left school each year without successfully completing a high school program. Status dropout rates represent the proportion of young people ages 16 through 24 who are out of school and who have not earned a high school credential. Status rates are higher than event rates because they include all dropouts in this age range, regardless of when they last attended school.

- In October 2000, some 3.8 million young adults were not enrolled in a high school program and had not completed high school. These youths accounted for 10.9 percent of the 34.6 million 16- through 24-year-olds in the United States in 2000 (tables A and C). As noted with event rates, status rates declined from the early 1970s into the late 1980s, but since then have remained stable (figure A).
- The status dropout rate for Whites in 2000 remained lower than the rate for Blacks, but over the past 3 decades, the difference between the rates for Whites and Blacks has narrowed. However, this narrowing of the gap occurred during the 1970s and 1980s. Since 1990, the gap has remained fairly constant.
- In 2000, Hispanic young adults in the United States continued to have a relatively high status dropout rate when compared to Asian/Pacific Islanders, Whites, or Blacks.
- In 2000, the status dropout rate for Asian/Pacific Islander young adults was lower than for young adults from all other racial/ethnic groups. The status rate for Asian/Pacific Islanders was 3.8 percent compared with 27.8 percent for Hispanics, 13.1 percent for Blacks, and 6.9 percent for Whites.
- In 2000, 44.2 percent of Hispanic young adults born outside of the United States were high school dropouts. Hispanic young adults born within the United States were much less likely to be dropouts. However, when looking at just those young adults born within the United States, Hispanics were still more likely to be dropouts than were other young adults.

## High School Completion Rates

High school completion rates represent the proportion of 18- through 24-year-olds, not currently enrolled in high school or below, who have completed a high school diploma or an equivalent credential, including a General Educational Development (GED) credential.

- In 2000, 86.5 percent of all 18- through 24-year-olds not enrolled in high school had completed high school (tables A and D). Completion rates rose slightly from the early 1970s to the late 1980s, but have remained fairly constant during the 1990s (figure A).
- High school completion rates increased for White and Black young adults between the early 1970s and late 1980s, but have remained relatively constant in the 1990s. By 2000, 91.8 percent of White and 83.7 percent of Black 18- through 24-year-olds had completed high school.
- White and Asian/Pacific Islander young adults in 2000 were more likely than their Black and Hispanic peers to have completed high school.

**Table C.—Status dropout rates and number and distribution of 16- through 24-year-olds who were dropouts, by background characteristics: October 2000**

| Characteristic | Status dropout rate (percent) | Number of status dropouts (thousands) | Population (thousands) | Percent of all status dropouts | Percent of population |
|---|---|---|---|---|---|
| Total | 10.9 | 3,776 | 34,568 | 100.0 | 100.0 |
| Sex | | | | | |
| Male | 12.0 | 2,082 | 17,402 | 55.1 | 50.3 |
| Female | 9.9 | 1,694 | 17,166 | 44.9 | 49.7 |
| Race/ethnicity[1] | | | | | |
| White, non-Hispanic | 6.9 | 1,564 | 22,574 | 41.4 | 65.3 |
| Black, non-Hispanic | 13.1 | 663 | 5,058 | 17.6 | 14.6 |
| Hispanic | 27.8 | 1,456 | 5,237 | 38.6 | 15.1 |
| Asian/Pacific Islander | 3.8 | 54 | 1,417 | 1.4 | 4.1 |
| Age | | | | | |
| 16 | 3.9 | 153 | 3,887 | 4.1 | 11.2 |
| 17 | 7.6 | 307 | 4,023 | 8.1 | 11.6 |
| 18 | 11.6 | 468 | 4,019 | 12.4 | 11.6 |
| 19 | 13.5 | 544 | 4,026 | 14.4 | 11.6 |
| 20–24 | 12.4 | 2,304 | 18,613 | 61.0 | 53.8 |
| Recency of immigration | | | | | |
| Born outside the 50 states and the District of Columbia | | | | | |
| Hispanic | 44.2 | 1,007 | 2,282 | 26.7 | 6.6 |
| Non-Hispanic | 7.4 | 140 | 1,907 | 3.7 | 5.5 |
| First generation[2] | | | | | |
| Hispanic | 14.6 | 244 | 1,669 | 6.5 | 4.8 |
| Non-Hispanic | 4.6 | 84 | 1,837 | 2.2 | 5.3 |
| Second generation or more[3] | | | | | |
| Hispanic | 15.9 | 205 | 1,286 | 5.4 | 3.7 |
| Non-Hispanic | 8.2 | 2,096 | 25,586 | 55.5 | 74.0 |
| Region | | | | | |
| Northeast | 8.5 | 504 | 5,945 | 13.3 | 17.2 |
| Midwest | 9.2 | 741 | 8,058 | 19.6 | 23.3 |
| South | 12.9 | 1,597 | 12,337 | 42.3 | 35.7 |
| West | 11.3 | 933 | 8,228 | 24.7 | 23.8 |

[1]Due to small sample sizes, American Indians/Alaska Natives are included in the total but are not shown separately.

[2]Individuals defined as "first generation" were born in the 50 states or the District of Columbia, and one or both of their parents were born outside the 50 states and the District of Columbia.

[3]Individuals defined as "second generation or more" were born in the 50 states or the District of Columbia, as were both of their parents.

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

SOURCE: U.S. Department of Commerce, U.S. Census Bureau, Current Population Survey (CPS), October 2000. (Originally published as table 3 on p. 13 of the complete report from which this article is excerpted.)

**Table D.—High school completion rates and number and distribution of 18- through 24-year-old completers not currently enrolled in high school or below, by background characteristics: October 2000**

| Characteristic | Completion rate (percent) | Number of completers (thousands) | Population (thousands) | Percent of all completers |
|---|---|---|---|---|
| Total | 86.5 | 21,743 | 25,138 | 100.0 |
| Sex | | | | |
| Male | 84.9 | 10,580 | 12,460 | 48.7 |
| Female | 88.1 | 11,164 | 12,678 | 51.3 |
| Race/ethnicity* | | | | |
| White, non-Hispanic | 91.8 | 15,145 | 16,502 | 69.7 |
| Black, non-Hispanic | 83.7 | 2,999 | 3,582 | 13.8 |
| Hispanic | 64.1 | 2,433 | 3,797 | 11.2 |
| Asian/Pacific Islander | 94.6 | 1,016 | 1,074 | 4.7 |
| Age | | | | |
| 18–19 | 84.0 | 5,645 | 6,718 | 26.0 |
| 20–21 | 86.4 | 6,359 | 7,363 | 29.2 |
| 22–24 | 88.1 | 9,739 | 11,057 | 44.8 |
| Region | | | | |
| Northeast | 89.1 | 3,799 | 4,265 | 17.5 |
| Midwest | 88.9 | 5,209 | 5,861 | 24.0 |
| South | 84.4 | 7,506 | 8,895 | 34.5 |
| West | 85.5 | 5,230 | 6,117 | 24.1 |

*Due to small sample sizes, American Indians/Alaska Natives are included in the total but are not shown separately.

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

SOURCE: U.S. Department of Commerce, U.S. Census Bureau, Current Population Survey (CPS), October 2000. (Originally published as table 4 on p. 20 of the complete report from which this article is excerpted.)

***Data sources:***

NCES: The Common Core of Data (CCD), "Local Education Agency Universe Survey," 1991–92 through 1999–2000; the National Education Longitudinal Study of 1988 Eighth-Graders (NELS:88/94); and the High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B-So:80/82).

Other: U.S. Department of Commerce, Bureau of the Census, Current Population Survey (CPS), October 1972–2000; and American Council on Education, GED Testing Service, *GED Statistical Report* (1990–99).

***For technical information,*** see the complete report:

Kaufman, P., Alt, M.N., and Chapman, C.D. (2001). *Dropout Rates in the United States: 2000* (NCES 2002–114).

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***To obtain the complete report (NCES 2002–114),*** call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site *(http://nces.ed.gov)*, or contact GPO (202–512–1800).

# Indicators of School Crime and Safety: 2001

*Phillip Kaufman, Xianglei Chen, Susan P. Choy, Katharin Peter, Sally A. Ruddy, Amanda K. Miller, Jill K. Fleury, Kathryn A. Chandler, Michael G. Planty, and Michael R. Rand*

***This article was originally published as the Executive Summary of the report of the same name. The report is a joint effort of the Bureau of Justice Statistics (BJS) and the National Center for Education Statistics (NCES). The numerous data sources are listed at the end of this article.***

## Overview

Schools should be safe and secure places for all students, teachers, and staff members. Without a safe learning environment, teachers cannot teach and students cannot learn. Student safety is of concern outside of school as well. In fact, as the data in this report show, more serious victimizations happen away from school than at school.[1] In 1999, students were more than two times as likely to be victims of serious violent crime away from school as at school.[2]

In 1999, students ages 12 through 18 were victims of about 2.5 million total crimes at school. In that same year, these students were victims of about 186,000 serious violent crimes at school (i.e., rape, sexual assault, robbery, and aggravated assault). There were also 47 school-associated violent deaths in the United States between July 1, 1998, and June 30, 1999—including 38 homicides, 33 of which involved school-age children.

The total nonfatal victimization rate for young people generally declined between 1992 and 1999. The percentage of students being victimized at school also declined over the last few years. Between 1995 and 1999, the percentage of students ages 12 through 18 who reported being victims of crime at school decreased from 10 percent to 8 percent. This decline was due in large part to the decrease in percentages of students in grades 7 through 9 who reported being victimized. Between 1995 and 1999, the prevalence of reported victimization dropped from 11 percent to 8 percent for 7th-graders, from 11 percent to 8 percent for 8th-graders, and from 12 percent to 9 percent for 9th-graders.

However, the prevalence rates of some types of crimes at school have not changed. For example, between 1993 and 1999, the percentage of students in grades 9 through 12 who were threatened or injured with a weapon on school property in the past 12 months remained constant—at about 7 to 8 percent.

[1]These data do not take into account the number of hours that students spend on school property and the number of hours they spend elsewhere.

[2]In comparisons between victimization at and away from school, "students" refers to persons 12 through 18 years of age who have attended any grade equal to or less than high school. An uncertain percentage of these persons may not have attended school during the survey reference period.

As the rate of victimization in schools has declined or remained constant, students also seem to feel more secure at school now than just a few years ago. The percentage of students ages 12 through 18 who reported avoiding one or more places at school for their own safety decreased between 1995 and 1999—from 9 to 5 percent. Furthermore, the percentage of students who reported that street gangs were present at their schools decreased from 1995 to 1999. In 1999, 17 percent of students ages 12 through 18 reported that they had street gangs at their schools, compared with 29 percent in 1995.

There was an increase in the use of marijuana among students in grades 9 through 12 between 1993 and 1995, but percentages of students in these grades reporting marijuana use were similar in 1995, 1997, and 1999. In 1999, about 27 percent of these students had used marijuana in the last 30 days. Furthermore, in 1995, 1997, and 1999, about one-third of these students (between 30 and 32 percent) reported that someone had offered, sold, or given them an illegal drug on school property—an increase from 24 percent in 1993.

Therefore, the data shown in this report present a mixed picture of school safety. While overall school crime rates have declined, violence, gangs, and drugs are still present, indicating that more work needs to be done.

## Report Organization

This report, the fourth in a series of annual reports on school crime and safety from the Bureau of Justice Statistics (BJS) and the National Center for Education Statistics (NCES), presents the latest available data on school crime and student safety. The report repeats many indicators from the 2000 report but also provides updated data on fatal and nonfatal student victimization, nonfatal teacher victimization, students being threatened or injured with a weapon at school, fights at school, students carrying weapons to school, students' use of alcohol and marijuana, and student reports of drug availability on school property.

The report is organized as a series of indicators, with each indicator presenting data on a different aspect of school

crime and safety. It starts with the most serious violence. There are five sections to the report: Violent Deaths at School; Nonfatal Student Victimization—Student Reports; Violence and Crime at School—Public School Principal/ Disciplinarian Reports; Nonfatal Teacher Victimization at School—Teacher Reports; and School Environment. Each section contains a set of indicators that, taken together, describe a distinct aspect of school crime and safety.

Rather than relying on data from a large omnibus survey of school crime and safety, this report uses a variety of independent data sources from federal departments and agencies including BJS, NCES, and the Centers for Disease Control and Prevention. Each data source has an independent sample design, data collection method, and questionnaire design, all of which may be influenced by the unique perspective of the primary funding agency. By combining multiple and independent sources of data, it is hoped that this report will present a more complete portrait of school crime and safety than would be possible with any single source of information.

However, because the report relies on so many different data sets, the age groups, the time periods, and the types of respondents analyzed can vary from indicator to indicator. Readers should keep this in mind as they compare data from different indicators. Furthermore, while every effort has been made to keep key definitions consistent across indicators, different surveys sometimes use different definitions, such as those for specific crimes and "at school." Therefore, caution should be used in making comparisons between results from different data sets.

## Key Findings

Some of the key findings from the various sections of this report are as follows:

### Violent Deaths at School

From July 1, 1998, through June 30, 1999, there were 47 school-associated violent deaths in the United States. Thirty-eight of these violent deaths were homicides, six were suicides, two involved suspects killed by a law enforcement officer in the line of duty, and one was unintentional. Thirty-three of the 38 school-associated homicides were of school-age children. By comparison, a total of 2,407 children ages 5 through 19 were victims of homicide in the United States from July 1, 1998, through June 30, 1999. Four of the six school-associated suicides occurring from July 1, 1998, through June 30, 1999, were of school-age children. A total of 1,854 children ages 5 through 19 committed suicide that year.

### Nonfatal Student Victimization—Student Reports

Students ages 12 through 18 were more likely to be victims of nonfatal serious violent crime—including rape, sexual assault, robbery, and aggravated assault—away from school than when they were at school. In 1999, students in this age range were victims of about 476,000 serious violent crimes away from school, compared with about 186,000 at school.

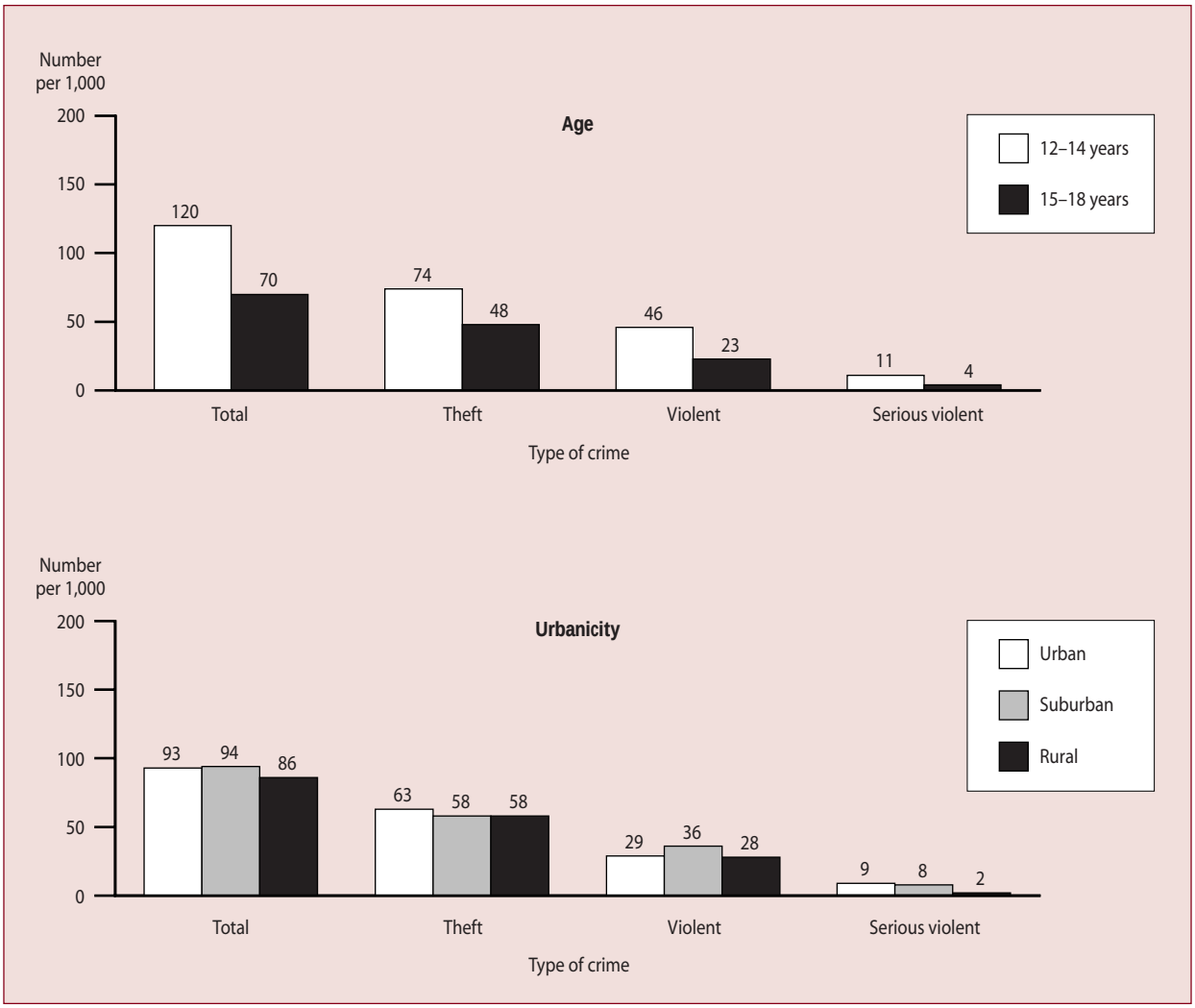
- The percentage of students in grades 9 through 12 who have been threatened or injured with a weapon on school property[3] has not changed significantly in recent years. In 1993, 1995, 1997, and 1999, about 7 to 8 percent of students in these grades reported being threatened or injured with a weapon such as a gun, knife, or club on school property in the past 12 months.
- In 1999, 12- through 18-year-old students living in urban and suburban locales were equally vulnerable to serious violent crime at school (figure A). Away from school, however, urban students were more vulnerable to serious violent crime than were suburban students, and suburban students were more likely to experience serious violent victimization than were rural students (figure B). Yet, student vulnerability to theft at school and away from school in 1999 was similar in urban, suburban, and rural areas.
- In 1999, younger students (ages 12 through 14) were more likely than older students (ages 15 through 18) to be victims of crime at school (figure A). However, older students were more likely than younger students to be victimized away from school (figure B).

### Violence and Crime at School—Public School Principal/ Disciplinarian Reports

In 1996–97, 10 percent of all public schools reported at least one serious violent crime to the police or a law enforcement representative. Principals' reports of serious violent crimes included murder, rape or other type of sexual battery, suicide, physical attack or fight with a weapon, or robbery. Another 47 percent of public schools reported at least one less serious violent or nonviolent crime (but not a serious violent one). Crimes in this category include physical attack or fight without a weapon, theft/larceny, and vandalism. The remaining 43 percent of public schools did not report any of these crimes to the police.

[3]Definitions for "on school property" and "at school" may differ.

**Figure A.—Number of nonfatal crimes against students ages 12 through 18 occurring at school or going to or from school per 1,000 students, by type of crime and selected student characteristics: 1999**




NOTE: Serious violent crimes include rape, sexual assault, robbery, and aggravated assault. Violent crimes include serious violent crimes and simple assault. Total crimes include violent crimes and theft. "At school" includes inside the school building, on school property, or on the way to or from school. Detail may not add to totals because of rounding.

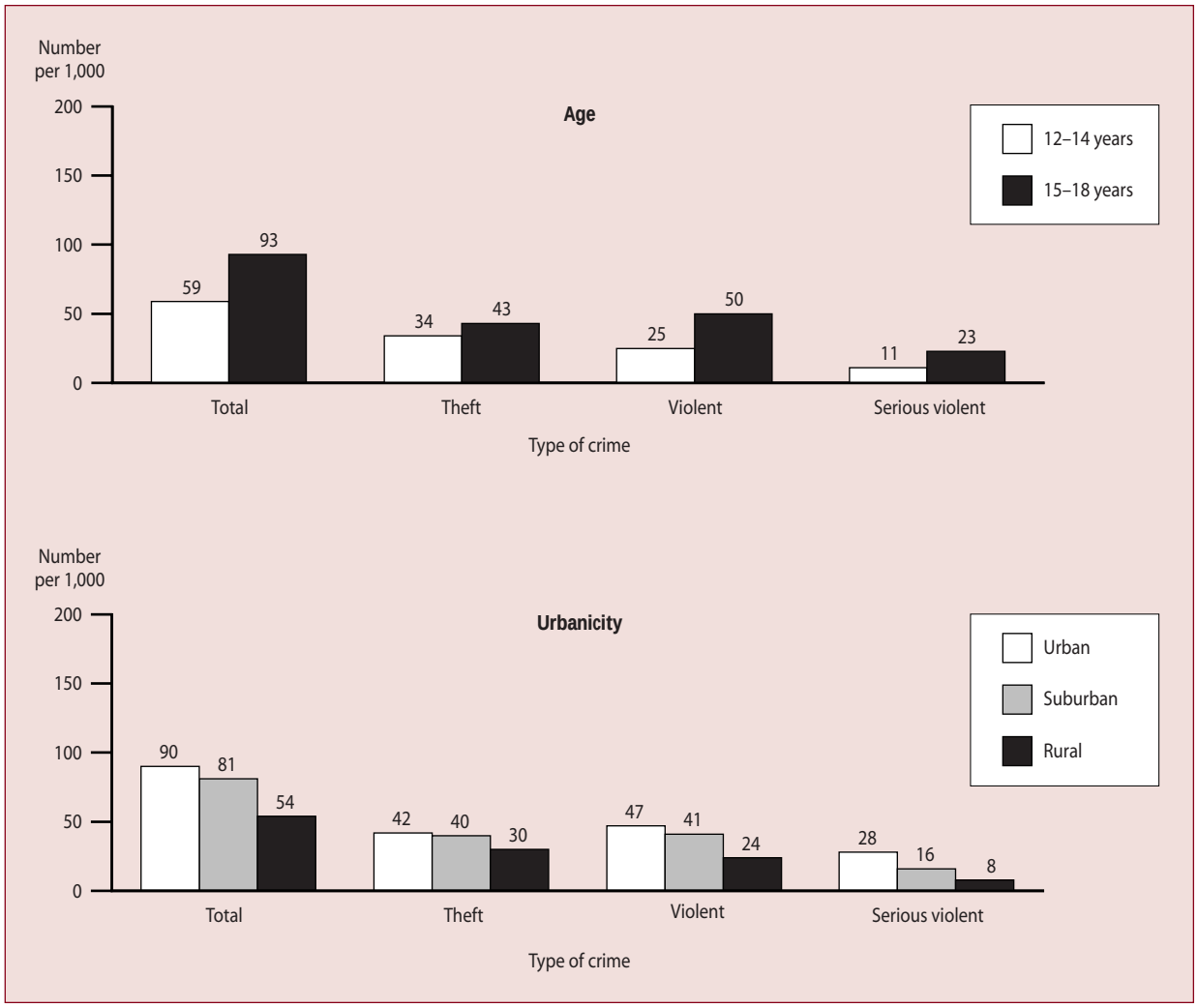
SOURCE: U.S. Department of Justice, Bureau of Justice Statistics, National Crime Victimization Survey, 1999. (Taken from figure 2.2 on p. 6 of the complete report from which this article is excerpted.)

- Elementary schools were much less likely than either middle or high schools to report any type of crime in 1996–97. Elementary schools were much more likely to report vandalism (31 percent) than any other crime (19 percent or less).
- At the middle and high school levels, physical attack or fight without a weapon was generally the most commonly reported crime in 1996–97 (9 incidents per 1,000 middle school students and 8 incidents per 1,000 high school students). Theft or larceny was more common at the high school than at the middle school level (6 vs. 4 incidents per 1,000 students).

## Nonfatal Teacher Victimization at School—Teacher Reports

Over the 5-year period from 1995 through 1999, teachers were victims of approximately 1,708,000 nonfatal crimes at school, including 1,073,000 thefts and 635,000 violent crimes (rape or sexual assault, robbery, and aggravated and simple assault). On average, this translates into 79 crimes per 1,000 teachers per year.

**Figure B.—Number of nonfatal crimes against students ages 12 through 18 occurring away from school per 1,000 students, by type of crime and selected student characteristics: 1999**

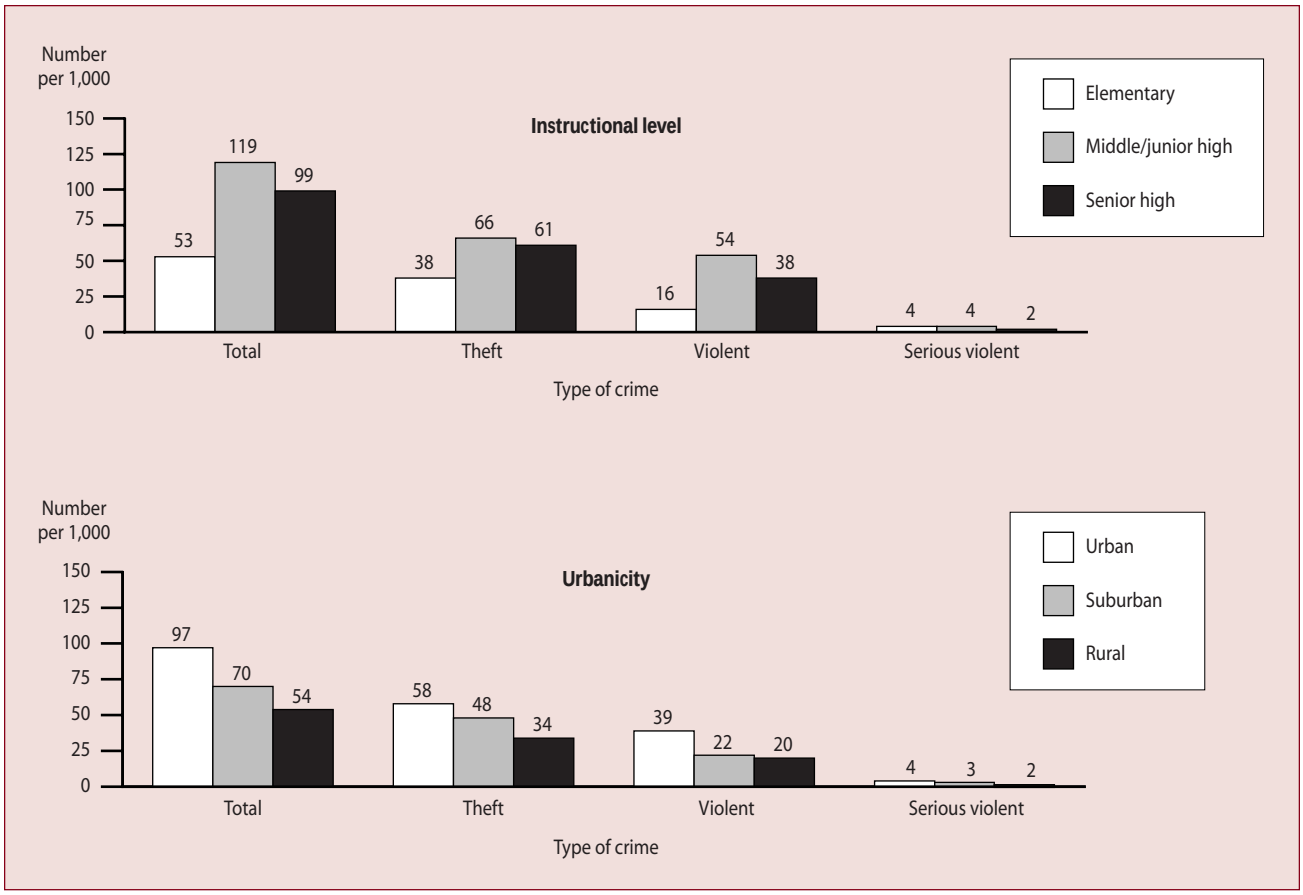



NOTE: Serious violent crimes include rape, sexual assault, robbery, and aggravated assault. Violent crimes include serious violent crimes and simple assault. Total crimes include violent crimes and theft. Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Justice, Bureau of Justice Statistics, National Crime Victimization Survey, 1999. (Taken from figure 2.3 on p. 7 of the complete report from which this article is excerpted.)

- During the 1995 through 1999 period, senior high school and middle/junior high school teachers were more likely than elementary school teachers to be victims of violent crimes (most of which were simple assaults) (38 and 54 crimes per 1,000 senior and middle/junior high school teachers, respectively, vs. 16 crimes per 1,000 elementary school teachers) (figure C).
- Teachers were differentially victimized by violent crimes at school according to where they taught. Over the 5-year period from 1995 through 1999, urban teachers were more likely to be victims of violent crimes than suburban and rural teachers (39 crimes per 1,000 urban teachers vs. 22 and 20 crimes per 1,000 suburban and rural teachers, respectively) (figure C).
- In the 1993–94 school year, 12 percent of all elementary and secondary school teachers were threatened with injury by a student and 4 percent were physically attacked by a student. This represented about 341,000 teachers who were victims of threats of injury by students that year and 119,000 teachers who were victims of attacks by students.

**Figure C.—Average annual number of nonfatal crimes against teachers at school per 1,000 teachers, by type of crime and selected characteristics: Aggregated from 1995 to 1999**




NOTE: Serious violent crimes include rape, sexual assault, robbery, and aggravated assault. Violent crimes include serious violent crimes and simple assault. Total crimes include violent crimes and theft. The data were aggregated from 1995 to 1999 due to the small number of teachers in each year's sample. Detail may not add to totals because of rounding. "At school" includes inside the school building, on school property, at work site, or while working. For thefts, "while working" was not considered since theft of teachers' property kept at school can occur when teachers are not present.

SOURCE: U.S. Department of Justice, Bureau of Justice Statistics, National Crime Victimization Survey, 1995 to 1999. (Taken from figure 9.1 on p. 23 of the complete report from which this article is excerpted.)

## School Environment

Between 1995 and 1999, the percentages of students who felt unsafe while they were at school and while they were going to and from school decreased. In 1995, 9 percent of students ages 12 through 18 sometimes or most of the time feared they were going to be attacked or harmed at school. In 1999, this percentage had fallen to 5 percent. During the same period, the percentage of students ages 12 through 18 fearing they would be attacked while traveling to and from school fell from 7 percent to 4 percent.

- Between 1993 and 1999, the percentage of students in grades 9 through 12 who reported carrying a weapon on school property within the previous 30 days fell from 12 percent to 7 percent (about a 42 percent reduction).
- Between 1995 and 1999, the percentage of students ages 12 through 18 who avoided one or more places at school out of fear for their own safety decreased, from 9 to 5 percent.
- In 1999, about 13 percent of students ages 12 through 18 reported that someone at school had used hate-related words against them. That is, in the prior 6 months someone at school called them a derogatory word having to do with race/ethnicity, religion, disability, gender, or sexual orientation. In addition, about 36 percent of students saw hate-related graffiti at school.
- Between 1995 and 1999, the percentage of students who reported that street gangs were present at their schools decreased. In 1995, 29 percent of students

ages 12 through 18 reported gangs being present at their schools. By 1999, this percentage had fallen to 17 percent.

- In 1999, about 5 percent of students in grades 9 through 12 had at least one drink of alcohol on school property in the previous 30 days. Half of students in these grades (about 50 percent) had at least one drink anywhere during the same period.
- There was an increase in the use of marijuana among students in grades 9 through 12 anywhere and on school property between 1993 and 1995, but no change between 1995, 1997, and 1999. About one-quarter (27 percent) of students in these grades reported using marijuana anywhere in the last 30 days in 1999, and 7 percent reported using marijuana on school property.
- In 1995, 1997, and 1999, about one-third of all students in grades 9 through 12 (between 30 and 32 percent) reported that someone had offered, sold, or given them an illegal drug on school property. This was an increase from 1993, when 24 percent of such students reported that illegal drugs were available to them on school property.

***Data sources:***

NCES: Schools and Staffing Survey (SASS), 1993–94, "Public School Teacher Questionnaire," "Private School Teacher Questionnaire," "Public School Questionnaire," and "Private School Questionnaire"; Fast Response Survey System, "Principal/School Disciplinarian Survey on School Violence," FRSS 63, 1997.

Bureau of Justice Statistics (BJS): National Crime Victimization Survey (NCVS), 1992–99 (annual).

Joint NCES and BJS: School Crime Supplement (SCS) to the National Crime Victimization Survey, 1989, 1995, and 1999.

Centers for Disease Control and Prevention (CDC): The National School-Based Youth Risk Behavior Survey (YRBS), 1993, 1995, 1997, and 1999; School-Associated Violent Death Study (SAVD), 1998–99; and Vital Statistics of the United States, 1998 and 1999.

Other: The FBI's 1998 and 1999 *Supplementary Homicide Reports* and the following article:

Kachur, S.P., et al. (1996). School-Associated Violent Deaths in the United States, 1992 to 1994. *Journal of the American Medical Association 275* (22): 1729–1733.

***For technical information,*** see the complete report:

Kaufman, P., Chen, X., Choy, S.P., Peter, K., Ruddy, S.A., Miller, A.K., Fleury, J.K., Chandler, K.A., Planty, M.G., and Rand, M.R. (2001). *Indicators of School Crime and Safety: 2001* (NCES 2002–113 or NCJ-190075).

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# Characteristics of the 100 Largest Public Elementary and Secondary School Districts in the United States: 1999–2000

*Beth Aronstamm Young*

***This article was originally published as the Discussion in the Statistical Analysis Report of the same name. The universe data are from the NCES Common Core of Data (CCD).***

## Introduction

This publication provides basic descriptive information about the 100 largest school districts (ranked by student membership) in the United States, Bureau of Indian Affairs, Department of Defense schools, and outlying areas (American Samoa, Guam, the Northern Marianas, Puerto Rico, and the Virgin Islands). For the sake of simplicity, when discussing characteristics, the term "nation" (or "United States") is used to refer to all 50 states, the District of Columbia, Bureau of Indian Affairs, Department of Defense schools, and outlying areas. This is different from most National Center for Education Statistics (NCES) reports, which only include the 50 states and the District of Columbia in U.S. totals.

Almost one in every four public school students in this nation is served by one of these 100 districts (table A). They are distinguished from smaller districts by characteristics in addition to sheer size, such as average and median school size, pupil/teacher ratios, number of high school graduates, number of pupils receiving special education services, and minority enrollment as a proportion of total enrollment.

The tables in this publication provide information about the characteristics cited above. To establish a context for the information on the 100 largest districts, national school district data are also included, as are basic data on the 500 largest school districts.

## Overview of the 100 Largest Districts

In the 1999–2000 school year, there were 16,850 public school districts, 94,090 schools, and 47.7 million students in public education in the United States. There were just under 3.0 million full-time-equivalent teachers in the 1999–2000 school year and more than 2.5 million high school completers in the 1998–99 school year. The 100 largest school districts make up less than 1 percent of all public school districts but serve 23 percent of the total number of public elementary and secondary school students (table A). The 100 largest school districts represent 17 percent of schools and employ 21 percent of all teachers. The 500 largest districts make up 3 percent of all school districts, represent 32 percent of schools, and serve 20.4 million students, or 43 percent of the total public elementary and secondary school student population in the United States (table A).

All of the 100 largest school districts have at least 45,000 students, and 26 of these school districts have over 100,000 students. The largest school district is the New York City Public Schools, with 1,075,710 students enrolled in 1,207 schools. As a comparison, the New York City Public Schools district has more students than the 6th- through 10th-largest school districts added together. The second largest school district is Los Angeles Unified, with 710,007 students in 655 schools (table B). The enrollment in each of these two largest school districts is greater than the enrollment in each of 27 individual states.[1]

Ninety-eight of the 100 largest districts reported staff by type for the 1999–2000 school year. At the national level, 52 percent of staff were teachers[1] compared to 53 percent among the 100 largest districts. Twenty of the 98 districts that reported staff by type had 1 percent or more of their staff assigned to district administration.

## Where Are the 100 Largest School Districts?

The District of Columbia, Hawaii, and Puerto Rico each have only one school district for the entire jurisdiction, and each is represented among the 100 largest school districts (table B). There are 33 states and jurisdictions that have at least one of the 100 largest school districts. Two states, Florida and Texas, each have 14 districts among the 100 largest; California has 11. Several other states have more than one district represented in the 100 largest: Georgia has 6; Maryland has 5; Louisiana, North Carolina, Tennessee, Utah, and Virginia each have 4; Ohio has 3; and Arizona, Colorado, Minnesota, Nevada, and New York each have 2. The following states each have one school district among the 100 largest: Alabama, Alaska, Illinois, Kansas, Kentucky, Massachusetts, Michigan, Missouri, New Mexico, Oregon, Pennsylvania, South Carolina, Washington, and Wisconsin.

[1]State enrollment and staff data can be found in *Public School Student, Staff, and Graduate Counts by State: School Year 1999–2000* (Bairu 2001). The national staff ratio does not include Bureau of Indian Affairs schools.

**Table A.—Selected statistics for the nation, the 100 largest, and the 500 largest school districts: School year 1999–2000**

| Data item | National total[1] | 100 largest districts[1] | | 500 largest districts[1] | |
|---|---|---|---|---|---|
| | | Total | Percentage of national total | Total | Percentage of national total |
| Districts | 16,850 | 100 | 0.6 | 500 | 3.0 |
| Schools | 94,090 | 15,563 | 16.5 | 29,879 | 31.8 |
| Students | 47,706,027 | 10,962,476 | 23.0 | 20,418,441 | 42.8 |
| Teachers | 2,959,944 | 627,436 | 21.2 | 1,180,737 | 39.9 |
| High school completers (1998–99)[2] | 2,561,357 | 490,045 | 19.1 | 972,835 | 38.0 |
| Pupil/teacher ratio | 16.1 | 17.5 | — | 17.3 | — |
| Average school size | 507.0 | 704.4 | — | 683.4 | — |
| High school completers as percentage of all students | 5.4 | 4.5 | — | 4.8 | — |

— Not applicable.

[1]Includes outlying areas, Bureau of Indian Affairs, and Department of Defense schools. The 500 largest school districts include 22 school districts that are some other configuration besides PK– or K–12, although all of the 100 largest school districts are PK– or K–12.

[2]Includes high school diploma recipients as well as other high school completers (i.e., certificate recipients).

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Local Education Agency Universe Survey," 1999–2000, and "State Nonfiscal Survey of Public Elementary/Secondary Education," 1999–2000.

As expected, these 100 largest districts tend to be in cities and counties with large populations, with administrative offices typically located in large cities and their environs. Many of the districts are in states where the school districts have the same boundaries as counties. Over 70 percent of the 100 largest districts are located in coastal and gulf coast states.

## How Do These Districts Compare With the Average School District?

### General characteristics

By definition, the 100 largest school districts are large, and when compared to the membership distribution of all school districts, they are considerably larger than most. In the 1999–2000 school year, 71 percent of all regular school districts[2] had fewer than 2,500 students while all of the 100 largest school districts had at least 45,000 students (tables B and C). Although 14 percent of regular school districts had 5,000 or more students, 68 percent of students (or 2 out of 3) were served by these districts (table C).

The average school district in the United States has 5.6 schools compared to the 100 largest school districts, which average 155.6 schools per district (derived from table A). Two of the largest school districts, New York City Public Schools and the Puerto Rico Department of Education, each have over 1,200 schools (table B). The 100 largest school districts, on average, serve considerably more students (109,625 compared to 2,831) and employ more teachers (6,274 compared to 176) per district than the average school district in the nation (derived from table A).

### School characteristics

The 100 largest school districts have more students per school than the average school district, 704 compared to 507 (table A). In fact, 11 of the 100 largest school districts have an average regular school[3] size of over 1,000 students. In addition to larger school sizes, the 100 largest school districts also have a higher mean pupil/teacher ratio, 17.5 to 1 compared to 16.1 to 1 for the average school district (table A). Across the 100 largest districts, Jefferson County, Kentucky, has the highest median[4] pupil/teacher ratio at 23.2 to 1, and St. Paul, Minnesota, has the lowest at 11.9 to 1.

The number of high school completers (diploma recipients and other high school completers) as a percentage of all

[2]A regular school district is an agency responsible for providing free public education for school-age children residing within its jurisdiction. This category excludes local supervisory unions that provide management services for a group of associated school districts; regional education service agencies that typically provide school districts with research, testing, and data processing services; state and federally operated school districts; and other agencies that do not fall into these groupings.

[3]A regular school is a public elementary/secondary school that does not focus primarily on vocational, special, or alternative education.

[4]If all the pupil/teacher ratios were listed in order, the midpoint on the list would be the median.

**Table B.—Selected statistics for the 100 largest school districts in the United States:[1] School year 1999–2000**

| Name of reporting district | City | State | County | Number of students[2] | Number of full-time-equivalent (FTE) teachers | Number of 1998–99 completers[3] | Number of schools |
|---|---|---|---|---|---|---|---|
| Total | | | | 10,962,476 | [4]627,436 | [5]490,045 | 15,563 |
| New York City Public Schools | New York | NY | Kings | 1,075,710 | 63,989 | 40,690 | 1,207 |
| Los Angeles Unified | Los Angeles | CA | Los Angeles | 710,007 | 33,754 | 26,968 | 655 |
| Puerto Rico Dept of Education | Hato Rey | PR | San Juan | 613,019 | 41,349 | 30,479 | 1,531 |
| City of Chicago School District | Chicago | IL | Cook | 431,750 | 23,455 | 16,195 | 597 |
| Dade County School District | Miami | FL | Dade | 360,136 | 18,104 | 14,951 | 350 |
| Broward County School District | Fort Lauderdale | FL | Broward | 241,094 | 11,322 | 9,948 | 234 |
| Clark County School District | Las Vegas | NV | Clark | 217,526 | 10,838 | 9,022 | 246 |
| Houston Independent School District | Houston | TX | Harris | 209,716 | 11,638 | 7,299 | 293 |
| Philadelphia City School District | Philadelphia | PA | Philadelphia | 205,199 | 11,423 | 9,789 | 259 |
| Hawaii Department of Education | Honolulu | HI | Honolulu | 185,860 | 10,866 | 10,418 | 256 |
| Detroit City School District | Detroit | MI | Wayne | 167,124 | 9,148 | 6,222 | 268 |
| Dallas Independent School District | Dallas | TX | Dallas | 160,477 | 9,957 | 5,509 | 218 |
| Hillsborough County School District | Tampa | FL | Hillsborough | 159,517 | 9,610 | 6,863 | 203 |
| Fairfax County Public Schools | Fairfax | VA | Fairfax | 152,952 | 10,491 | 9,714 | 197 |
| Palm Beach County School District | West Palm Beach | FL | Palm Beach | 149,665 | 8,138 | 6,707 | 175 |
| Orange County School District | Orlando | FL | Orange | 144,231 | 8,273 | 6,001 | 173 |
| San Diego City Unified | San Diego | CA | San Diego | 140,743 | 7,341 | 6,301 | 177 |
| Prince George's County Public Schools | Upper Marlboro | MD | Prince George's | 131,059 | 7,566 | 7,402 | 189 |
| Montgomery County Public Schools | Rockville | MD | Montgomery | 130,720 | 8,198 | 7,484 | 192 |
| Duval County School District | Jacksonville | FL | Duval | 126,362 | 6,423 | 4,709 | 177 |
| Memphis City School District | Memphis | TN | Shelby | 112,819 | 6,721 | 4,276 | 164 |
| Pinellas County School District | Largo | FL | Pinellas | 111,793 | 6,328 | 5,053 | 162 |
| Baltimore County Public Schools | Towson | MD | Baltimore | 106,465 | 6,642 | 6,378 | 168 |
| Gwinnett County School District | Lawrenceville | GA | Gwinnett | 104,552 | 6,664 | 5,030 | 84 |
| Baltimore City Public School System | Baltimore | MD | Baltimore | 103,000 | 5,921 | 3,937 | 184 |
| Charlotte-Mecklenburg Schools | Charlotte | NC | Mecklenburg | 100,553 | 6,418 | 4,732 | 135 |
| Milwaukee School District | Milwaukee | WI | Milwaukee | 99,729 | 5,992 | 3,398 | 202 |
| Jefferson (KY) County | Louisville | KY | Jefferson | 97,053 | 5,360 | 5,229 | 175 |
| De Kalb County School District | Decatur | GA | De Kalb | 95,283 | 5,885 | 4,427 | 120 |
| Wake County Schools | Raleigh | NC | Wake | 95,248 | 6,002 | 4,480 | 113 |
| Cobb County School District | Marietta | GA | Cobb | 93,657 | 5,815 | 5,022 | 93 |
| Long Beach Unified | Long Beach | CA | Los Angeles | 91,465 | 4,079 | 3,953 | 86 |
| Jefferson (CO) County | Golden | CO | Jefferson | 88,579 | 4,323 | 5,101 | 158 |
| Albuquerque Public Schools | Albuquerque | NM | Bernalillo | 85,381 | 5,236 | 4,696 | 126 |
| Orleans Parish School Board | New Orleans | LA | Orleans | 80,526 | 5,023 | 3,765 | 124 |
| Fresno Unified | Fresno | CA | Fresno | 78,766 | 3,847 | 3,302 | 95 |
| Polk County School District | Bartow | FL | Polk | 78,685 | 4,575 | 3,515 | 131 |
| Fort Worth Independent School District | Fort Worth | TX | Tarrant | 78,654 | 4,596 | 3,295 | 135 |
| Austin Independent School District | Austin | TX | Travis | 77,723 | 5,100 | 3,398 | 105 |
| Virginia Beach City Public Schools | Virginia Beach | VA | Virginia Beach City | 77,363 | 5,014 | 4,295 | 84 |
| Cleveland City School District | Cleveland | OH | Cuyahoga | 76,559 | 5,273 | 2,050 | 124 |
| Anne Arundel County Public Schools | Annapolis | MD | Anne Arundel | 74,663 | 4,225 | 4,128 | 118 |
| Jordan School District | Sandy | UT | Salt Lake | 73,111 | 3,164 | 5,207 | 81 |
| Granite School District | Salt Lake City | UT | Salt Lake | 72,170 | 3,231 | 4,480 | 96 |
| Mesa Unified School District | Mesa | AZ | Maricopa | 71,894 | 3,556 | 3,892 | 86 |
| District of Columbia Pub Schools | Washington | DC | District of Columbia | 70,762 | — | 2,805 | 162 |
| Nashville-Davidson County School District | Nashville | TN | Davidson | 70,176 | 4,544 | 2,802 | 127 |
| Denver County | Denver | CO | Denver | 69,693 | 4,010 | 2,899 | 124 |
| Brevard County School District | Melbourne | FL | Brevard | 69,661 | 3,765 | 3,352 | 103 |
| Fulton County School District | Atlanta | GA | Fulton | 67,025 | 4,306 | 3,065 | 66 |
| Columbus City School District | Columbus | OH | Franklin | 65,490 | 3,996 | 2,312 | 146 |
| Mobile County School District | Mobile | AL | Mobile | 65,067 | 4,089 | 3,482 | 105 |
| Boston School District | Boston | MA | Suffolk | 62,950 | 5,093 | 2,960 | 130 |
| Tucson Unified District | Tucson | AZ | Pima | 62,548 | 3,352 | — | 120 |
| Northside Independent School District | San Antonio | TX | Bexar | 62,536 | 4,136 | 3,492 | 84 |

See footnotes on second page of this table.

**Table B.—Selected statistics for the 100 largest school districts in the United States:[1] School year 1999–2000—Continued**

| Name of reporting district | City | State | County | Number of students[2] | Number of full-time-equivalent (FTE) teachers | Number of 1998–99 completers[3] | Number of schools |
|---|---|---|---|---|---|---|---|
| Guilford County Schools | Greensboro | NC | Guilford | 62,486 | 3,929 | 3,066 | 96 |
| El Paso Independent School District | El Paso | TX | El Paso | 62,306 | 3,785 | 3,458 | 85 |
| San Francisco Unified | San Francisco | CA | San Francisco | 60,896 | 3,188 | 3,506 | 116 |
| Volusia County School District | Deland | FL | Volusia | 60,688 | 3,637 | 2,899 | 91 |
| Cypress-Fairbanks ISD | Houston | TX | Harris | 60,370 | 3,812 | 3,223 | 50 |
| Davis School District | Farmington | UT | Davis | 59,486 | 2,614 | 4,209 | 82 |
| Atlanta City School District | Atlanta | GA | Fulton | 59,429 | 3,891 | 2,042 | 99 |
| Seminole County School District | Sanford | FL | Seminole | 59,326 | 3,132 | 2,972 | 65 |
| Greenville County School District | Greenville | SC | Greenville | 59,176 | 3,712 | 3,100 | 94 |
| Santa Ana Unified | Santa Ana | CA | Orange | 58,043 | 2,651 | 2,062 | 50 |
| San Antonio Independent School District | San Antonio | TX | Bexar | 57,565 | 3,582 | 2,499 | 105 |
| Arlington Independent School District | Arlington | TX | Tarrant | 56,773 | 3,613 | 2,680 | 69 |
| Lee County School District | Fort Myers | FL | Lee | 56,109 | 3,021 | 2,683 | 75 |
| East Baton Rouge Parish School Board | Baton Rouge | LA | East Baton Rouge | 55,652 | 3,768 | 2,760 | 104 |
| Oakland Unified | Oakland | CA | Alameda | 55,051 | 2,865 | 1,618 | 93 |
| Washoe County School District | Reno | NV | Washoe | 54,508 | 3,222 | 2,539 | 89 |
| Portland School District | Portland | OR | Multnomah | 53,587 | 2,948 | 2,427 | 109 |
| Knox County School District | Knoxville | TN | Knox | 52,840 | 3,492 | 2,686 | 86 |
| Fort Bend Independent School District | Sugar Land | TX | Fort Bend | 52,704 | 3,167 | 2,898 | 51 |
| Prince William County Public Schools | Manassas | VA | Prince William | 52,551 | 3,004 | 2,919 | 68 |
| Sacramento City Unified | Sacramento | CA | Sacramento | 51,898 | 2,440 | 2,346 | 77 |
| Jefferson Parish School Board | Harvey | LA | Jefferson | 51,835 | 3,397 | 2,591 | 84 |
| Cumberland County Schools | Fayetteville | NC | Cumberland | 51,300 | 3,078 | 2,428 | 78 |
| Aldine Independent School District | Houston | TX | Harris | 50,890 | 3,431 | 1,992 | 63 |
| Chesterfield County Public Schools | Chesterfield | VA | Chesterfield | 50,847 | 3,346 | 3,004 | 59 |
| San Bernardino City Unified | San Bernardino | CA | San Bernardino | 50,340 | 2,314 | 1,860 | 62 |
| Cincinnati City School District | Cincinnati | OH | Hamilton | 49,574 | 3,135 | 1,278 | 79 |
| Anchorage School District | Anchorage | AK | Anchorage | 49,382 | 2,764 | 2,609 | 93 |
| North East Independent School District | San Antonio | TX | Bexar | 49,197 | 3,260 | 2,762 | 64 |
| Shelby County School District | Memphis | TN | Shelby | 49,078 | 2,366 | 2,540 | 44 |
| Garland Independent School District | Garland | TX | Dallas | 49,036 | 2,971 | 2,295 | 65 |
| Minneapolis | Minneapolis | MN | Hennepin | 48,688 | 3,626 | 1,959 | 145 |
| San Juan Unified | Carmichael | CA | Sacramento | 48,052 | 2,149 | 2,904 | 84 |
| Garden Grove Unified | Garden Grove | CA | Orange | 48,031 | 2,056 | 2,562 | 65 |
| Seattle | Seattle | WA | King | 47,989 | 2,492 | 2,908 | 118 |
| Wichita | Wichita | KS | Sedgwich | 47,778 | 3,284 | 2,026 | 94 |
| Pasco County School District | Land O Lakes | FL | Pasco | 47,691 | 2,745 | 1,997 | 51 |
| Ysleta Independent School District | El Paso | TX | El Paso | 46,950 | 3,043 | 2,797 | 60 |
| Buffalo City School District | Buffalo | NY | Erie | 46,370 | 3,399 | 1,779 | 76 |
| Caddo Parish School Board | Shreveport | LA | Caddo | 46,222 | 2,976 | 2,283 | 74 |
| Alpine School District | American Fork | UT | Utah | 45,842 | 2,013 | 2,884 | 56 |
| St. Louis City | St. Louis | MO | St. Louis City | 45,658 | 3,252 | 1,263 | 115 |
| Escambia County School District | Pensacola | FL | Escambia | 45,297 | 2,612 | 2,129 | 82 |
| Clayton County School District | Jonesboro | GA | Clayton | 45,266 | 2,801 | 1,750 | 48 |
| St. Paul | St. Paul | MN | Ramsey | 45,253 | 3,290 | 1,974 | 137 |

— Data missing.

[1]Includes outlying areas, Bureau of Indian Affairs, and Department of Defense schools.

[2]Count of students receiving educational services from school district may differ somewhat from the counts in tables 3 and 5 of the complete report, which reflect the count of students from the schools aggregated up to the school district.

[3]Includes high school diploma recipients as well as other high school completers (i.e., certificate recipients).

[4]Total is missing the District of Columbia teacher counts.

[5]Total is missing the Tucson Unified District, AZ, graduate counts.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey," 1999–2000, and "Local Education Agency Universe Survey," 1999–2000. (Originally published as table 1 on p. 12 of the complete report from which this article is excerpted.)

**Table C.—Number and percentage of districts and students by district size for regular public elementary and secondary school districts in the nation:[1] School year 1999–2000**

| District size (number of students) | Districts | | | Students | | | Cumulative totals | |
|---|---|---|---|---|---|---|---|---|
| | Number | Percentage | Cumulative percentage | Number | Percentage | Cumulative percentage | Districts | Students |
| Total[2] | 13,156 | 100.0 | — | 45,479,377 | 100.0 | — | — | — |
| 100,000 or more | 26 | 0.2 | 0.2 | 6,352,049 | 14.0 | 14.0 | 26 | 6,352,049 |
| 25,000 to 99,999 | 214 | 1.6 | 1.8 | 9,180,557 | 20.2 | 34.2 | 240 | 15,532,606 |
| 10,000 to 24,999 | 573 | 4.4 | 6.2 | 8,580,658 | 18.9 | 53.0 | 813 | 24,113,264 |
| 7,500 to 9,999 | 314 | 2.4 | 8.6 | 2,709,758 | 6.0 | 59.0 | 1,127 | 26,823,022 |
| 5,000 to 7,499 | 701 | 5.3 | 13.9 | 4,275,921 | 9.4 | 68.4 | 1,828 | 31,098,943 |
| 2,500 to 4,999 | 1,977 | 15.0 | 28.9 | 6,947,875 | 15.3 | 83.7 | 3,805 | 38,046,818 |
| 2,000 to 2,499 | 745 | 5.7 | 34.6 | 1,668,009 | 3.7 | 87.3 | 4,550 | 39,714,827 |
| 1,500 to 1,999 | 957 | 7.3 | 41.9 | 1,660,530 | 3.7 | 91.0 | 5,507 | 41,375,357 |
| 1,000 to 1,499 | 1,318 | 10.0 | 51.9 | 1,630,681 | 3.6 | 94.6 | 6,825 | 43,006,038 |
| 800 to 999 | 711 | 5.4 | 57.3 | 639,968 | 1.4 | 96.0 | 7,536 | 43,646,006 |
| 600 to 799 | 888 | 6.7 | 64.0 | 617,732 | 1.4 | 97.3 | 8,424 | 44,263,738 |
| 450 to 599 | 828 | 6.3 | 70.3 | 431,333 | 0.9 | 98.3 | 9,252 | 44,695,071 |
| 300 to 449 | 1,052 | 8.0 | 78.3 | 390,660 | 0.9 | 99.1 | 10,304 | 45,085,731 |
| 150 to 299 | 1,323 | 10.1 | 88.4 | 291,707 | 0.6 | 99.8 | 11,627 | 45,377,438 |
| 1 to 149 | 1,316 | 10.0 | 98.4 | 101,939 | 0.2 | 100.0 | 12,943 | 45,479,377 |
| Zero[3] | 158 | 1.2 | 99.6 | 0 | 0.0 | 100.0 | 13,101 | 45,479,377 |
| Not reported | 55 | 0.4 | 100.0 | — | — | 100.0 | 13,156 | 45,479,377 |

—Not applicable.

[1]Includes outlying areas, Bureau of Indian Affairs, and Department of Defense schools.

[2]Not included in this table are local supervisory unions, regional education service agencies, and state and federally operated agencies. The number of regular districts represented in this table differs from the number of districts in table A, which represents all districts.

[3]Membership may be 0 in two situations: (1) where the school district does not operate schools but pays tuition for its students in a neighboring district, and (2) where the district provides services for students who are accounted for in some other district(s).

NOTE: Detail may not add to cumulative totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD) ,"Local Education Agency Universe Survey," 1999–2000. (Originally published as table B on p. 3 of the complete report from which this article is excerpted.)

students is lower in the 100 largest school districts than in the average school district: 4.5 percent of students are graduates in the 100 largest school districts compared to 5.4 percent for the average school district (table A).

Ninety of the 100 largest school districts reported data for Title I eligible schools for the 1999–2000 school year. The percentage of Title I eligible schools in the 90 districts varied widely, from 3.3 percent in De Kalb County School District, Georgia, to 100 percent in the Philadelphia City School District, Pennsylvania.

Among the 52 of the 100 largest school districts that either reported charter school data or were located in states that did not have charter schools in the 1999–2000 school year, the largest number of charter schools were in Puerto Rico (119), Los Angeles Unified (33), and the District of Columbia (27).

## Student body

The 100 largest school districts are not homogeneous, and certain student characteristics, such as race/ethnicity, poverty level, and disability status, vary across the districts.

The 100 largest districts, with 23 percent of the nation's public school students, serve 40 percent of the 18.5 million minority public school students.[5] In the 100 largest school districts, 68 percent of students are minority students compared to 40 percent of students nationally (table D). In

[5]For the 100 largest school districts, the numbers of students in different racial/ethnic categories are reported at the school level and are aggregated up to the school district level. The total number of minority students (18.5 million) was estimated by taking the percent of minority students among schools that reported race/ethnicity (97.3 percent) and applying this to the total number of public school students.

**Table D.—Percentage of students eligible for free or reduced-price lunch and percentage of minority enrollment in the 100 and 500 largest school districts, and in the nation:[1] School year 1999–2000**

| | 100 largest school districts | 500 largest school districts | All school districts |
|---|---|---|---|
| Percentage of schools reporting free and reduced-price lunch | 90.3 | 89.9 | 87.1 |
| Membership eligible for free or reduced-price lunch of those who reported free and reduced-price lunch | [2]53.6 | [2]47.3 | [2]38.9 |
| Percentage of schools reporting minority membership | 97.3 | 97.7 | 97.5 |
| Percentage minority enrollment | 68.0 | 57.7 | 39.6 |
| American Indian/Alaska Native | 0.5 | 0.7 | 1.3 |
| Asian/Pacific Islander | 6.8 | 6.1 | 4.2 |
| Hispanic | 30.8 | 25.9 | 17.1 |
| Black, non-Hispanic | 29.9 | 25.0 | 17.0 |
| Percentage White, non-Hispanic enrollment | 32.0 | 42.2 | 60.3 |

[1]Includes outlying areas, Bureau of Indian Affairs, and Department of Defense schools.

[2]These percentages should be interpreted with caution; four states (AZ, IL, TN, and WA) did not report free and reduced-price lunch eligibility and are not included in the national total. Also, states may not have reported students eligible for reduced-price meals, and a number of states reported participation instead of eligibility data, which may not be strictly comparable. Percentages are based on those schools that reported.

NOTE: Detail may not add 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," 1999–2000, and "Local Education Agency Universe Survey," 1999–2000. (Originally published as table C on p. 5 of the complete report from which this article is excerpted.)

fact, one-third (33) of the 96 districts where minority membership data are available have over 75 percent minority students. Eight of the 10 largest school districts have over 75 percent minority student membership.

Even with the relatively high minority membership in the 100 largest school districts, 40 of the 96 districts report 50 percent or more of their students as White, non-Hispanic. Of these 40 districts, 9 report minority representation of less than 25 percent of their student body. In 18 of the 100 largest districts, half or more of the membership is Black, non-Hispanic. Twelve districts report that the majority of students are Hispanic; 3 of these are among the 5 largest districts. In Hawaii, which is one district, and San Francisco Unified, California, the majority of the students are Asian/Pacific Islanders.

For the 1998–99 school year, 46 of the 100 largest school districts were in states that could report dropouts using the NCES definition of dropouts. The 9th- through 12th-grade dropout rate in those 46 districts ranged from 1 to 24 percent. Twenty-five of the districts had a 9th- through 12th-grade dropout rate between 3 and 10 percent.

The 100 largest school districts have a disproportionate percentage of students eligible for the free and reduced-price lunch program relative to all public school districts. Among schools that reported free and reduced-price lunch eligibility, 54 percent of students in the 100 largest school districts are eligible, compared to 39 percent of students in all districts (table D). Among the 92 of the 100 largest school districts that reported data on free lunch, 46 districts report over 50 percent of their students eligible for the free and reduced-price lunch program.

Twelve percent of students in the 100 largest school districts have Individualized Education Programs (IEPs) for students with disabilities. In the largest school district, New York City Public Schools, 14 percent, or 146,949 students, are reported to have IEPs. Less than 3 percent of schools in the 100 largest school districts are special education schools.

### Revenues and expenditures for fiscal year 1998[6]

In the 1997–98 school year (fiscal year 1998), $329 billion were collected for public elementary and secondary education in the 50 states, the District of Columbia, and outlying areas; 22 percent ($74 billion) of this revenue went to the 100 largest school districts. Of the $74 billion in revenue to the 100 largest school districts, a little less than one-third ($22 billion) was received by the 5 largest school districts (New York City Public Schools, Los Angeles Unified, Puerto Rico Department of Education, City of Chicago School District, and Dade County School District). The revenues from the federal government received by 99 of the 100 largest school districts comprised between 2 and 17 percent of all revenues to the district, the exception being the Puerto Rico Department of Education (27 percent).

The 100 largest school districts spent $64 billion (22 percent) of the $288 billion in current expenditures spent on the 50 states, the District of Columbia, and outlying areas in 1997–98. The two largest school districts, New York City Public Schools and Los Angeles Unified, spent one out of every five dollars expended by the 100 largest school districts. All but 2 of the 100 largest school districts devoted 50 percent or more of their current expenditures to instruction (Jefferson County, Colorado, spent 49.9 percent, while the District of Columbia spent 43.4 percent). Of the 100 largest school districts, New York City Public Schools spent the greatest proportion, 72 percent, on instruction.

[6]National revenue and expenditure data were calculated from the state-level "National Public Education Financial Survey" (NPEFS) and can be found in *Revenues and Expenditures for Public Elementary and Secondary Education: School Year 1997–98* (Johnson 2000). The percentage distribution is based on school district–level data found on the Census Bureau's "Annual Survey of Government Finances: School Systems" (F-33 survey). Department of Defense and Bureau of Indian Affairs schools are not included in these national totals.

The current expenditures per pupil were $6,189 for all districts in the 50 states and the District of Columbia, slightly higher than the $5,949 in the 100 largest school districts. Of the 100 largest school districts, 14 districts spent more than $7,000 per pupil (with Boston School District, Massachusetts, spending the most at $10,293 per pupil).

### Changes in the 100 largest school districts between 1989 and 1999

While there has been a lot of movement within the 100 largest school districts over time, between the 1989–90 and 1999–2000 school years, the 100 largest districts remained very similar. Only 10 of the 100 largest districts in the 1999–2000 school year were not in the 100 largest in the 1989–90 school year. Clark County School District, Nevada, was the only district to move into the 10 largest districts between these years (it moved from a rank of 15 in 1989–90 to 7 in 1999–2000) (table B). Clark County includes the Las Vegas metropolitan area, which was the fastest growing metropolitan area in the country between 1990 and 1998 (Bureau of the Census 2000).

The number of students in the 100 largest school districts increased by 16 percent between 1989–90 and 1999–2000, the number of teachers increased by 23 percent, and the number of schools increased by 10 percent. However, while the numbers of students, teachers, and schools in the 100 largest school districts have increased between these years, the proportion of the national total these numbers comprised was essentially unchanged. For example, the number of students in the 100 largest school districts went from 22.8 percent of all districts in 1989–90 to 23.0 percent in 1999–2000 (table E).

**Table E.—Number of students, teachers, and schools in the nation[1] and the 100 largest school districts in the United States in school years 1989–90 and 1999–2000**

| | 1989–90 | | | 1999–2000 | | |
|---|---|---|---|---|---|---|
| | All districts[2] | 100 largest districts | Percentage of national total | All districts[2] | 100 largest districts | Percentage of national total |
| Students | 41,447,425 | 9,450,085 | 22.8 | 47,706,027 | 10,962,476 | 23.0 |
| Full-time-equivalent (FTE) teachers | 2,331,468 | 508,228 | 21.8 | 2,959,944 | 627,436 | 21.2 |
| Schools | 85,130 | 14,153 | 16.6 | 94,090 | 15,563 | 16.5 |

[1]For 1999–2000, includes outlying areas, Bureau of Indian Affairs, and Department of Defense schools.

[2]The addition of the Bureau of Indian Affairs and Department of Defense schools accounts for 0.3 percent more students, 0.3 percent more teachers, and 0.4 percent more schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Local Education Agency Universe Survey," 1989–90 and 1999–2000, and "State Nonfiscal Survey of Public Elementary/Secondary Education," 1989–90 and 1999–2000. (Originally published as table D on p. 6 of the complete report from which this article is excerpted.)

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***For technical information,*** see the complete report:

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Policies Affecting Faculty

# Institutional Policies and Practices: Results From the 1999 National Study of Postsecondary Faculty, Institution Survey

*Andrea Berger, Rita Kirshstein, and Elizabeth Rowe*

***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 NCES National Study of Postsecondary Faculty (NSOPF).***

About 1.1 million faculty teach in our nation's approximately 3,400 degree-granting postsecondary institutions.[1] The role of faculty in these institutions is critical to the success of postsecondary education in the United States. The National Study of Postsecondary Faculty (NSOPF), conducted by the National Center for Education Statistics (NCES), includes both a survey of institutions that focuses on policies and practices affecting faculty and a survey of faculty themselves. This report presents findings from the "Institution Survey" of the 1999 NSOPF (NSOPF:99),[2] the third in the series. Institutions were asked about their policies and practices as of fall 1998.

## Faculty and Their Institutions

The distribution of faculty across U.S. degree-granting postsecondary institutions reflects the diversity of postsecondary education in the United States (table A). For example, public research institutions accounted for 3 percent of the nation's degree-granting postsecondary institutions, yet they employed 18 percent of the nation's faculty in fall 1998. In contrast, private liberal arts colleges constituted 21 percent of all degree-granting institutions, but employed about 9 percent of all faculty.

A large proportion of all faculty, about two-fifths, worked part time (table B). Some institutions relied on part-time faculty to a greater degree than others. Almost two-thirds (65 percent) of the faculty at public 2-year institutions held part-time appointments. At the other end of the spectrum, about one-fifth (21 percent) of the faculty at public research institutions worked part time.

Institutions also provided information about faculty union activity. Twenty-five percent of all institutions reported that some of their faculty were represented by a union.

## Teaching Assignments and Performance

Full-time faculty were responsible for teaching most of the undergraduate credit hours.[3] Based on percentages reported

[1]The term "faculty" refers to all employees who have faculty status, regardless of instructional responsibilities, and individuals with instructional responsibilities, regardless of faculty status.

[2]The NSOPF:99 "Institution Survey" included Title IV participating, degree-granting institutions; public and private not-for-profit institutions; institutions that offer 2-year or 4-year programs; institutions that offer associate's, bachelor's, or advanced degrees; and institutions located in the United States. Private for-profit and non–Title IV institutions were excluded from the survey.

[3]For this survey, credit hours were defined as the number of course credits or contact hours multiplied by the number of students enrolled.

### Table A.—Percentage distribution of degree-granting postsecondary education institutions, faculty, and enrolled students, by type and control of institution: Fall 1998

| Type and control of institution | Institutions | Faculty | | | Students enrolled[1] (fall 1997) |
|---|---|---|---|---|---|
| | | Total | Full-time | Part-time | |
| All institutions[2] | 100 | 100 | 100 | 100 | 100 |
| Public research | 3 | 18 | 24 | 9 | 16 |
| Private not-for-profit research | 1 | 7 | 8 | 5 | 4 |
| Public doctoral[3] | 3 | 8 | 10 | 5 | 7 |
| Private not-for-profit doctoral[3] | 2 | 4 | 3 | 4 | 2 |
| Public comprehensive | 8 | 12 | 14 | 11 | 15 |
| Private not-for-profit comprehensive | 9 | 7 | 6 | 8 | 6 |
| Private not-for-profit liberal arts | 21 | 9 | 10 | 8 | 7 |
| Public 2-year | 33 | 29 | 18 | 44 | 36 |
| Other[4] | 21 | 6 | 6 | 7 | 6 |

[1]Student enrollment data for the fall of 1997 were obtained from the Integrated Postsecondary Education Data System, "Fall Enrollment Survey" (IPEDS-EF:97). Fall 1997 data were missing for 119 of the approximately 3,200 institutions in the population.

[2]All public and private not-for-profit Title IV participating, degree-granting institutions in the 50 states and the District of Columbia.

[3]Includes institutions classified by the Carnegie Foundation as specialized medical schools and medical centers.

[4]Public liberal arts, private 2-year, and religious and other specialized institutions, except medical schools and medical centers.

NOTE: Percentages may not add to 100 because of rounding. Faculty includes all faculty and instructional staff.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty, "Institution Survey" (NSOPF:99) and the Integrated Postsecondary Education Data System, "Fall Enrollment Survey" (IPEDS-EF:97).

### Table B.—Percentage distribution of faculty, by employment status and by type and control of institution: Fall 1998

| Type and control of institution | Employment status | |
|---|---|---|
| | Full-time | Part-time |
| All institutions[1] | 57 | 43 |
| Public research | 79 | 21 |
| Private not-for-profit research | 69 | 31 |
| Public doctoral[2] | 72 | 28 |
| Private not-for-profit doctoral[2] | 49 | 51 |
| Public comprehensive | 64 | 36 |
| Private not-for-profit comprehensive | 50 | 50 |
| Private not-for-profit liberal arts | 63 | 37 |
| Public 2-year | 35 | 65 |
| Other[3] | 53 | 47 |

[1]All public and private not-for-profit Title IV participating, degree-granting institutions in the 50 states and the District of Columbia.

[2]Includes institutions classified by the Carnegie Foundation as specialized medical schools and medical centers.

[3]Public liberal arts, private 2-year, and religious and other specialized institutions, except medical schools and medical centers.

NOTE: Percentages may not add to 100 because of rounding. Faculty includes all faculty and instructional staff.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty, "Institution Survey" (NSOPF:99).

by individual institutions, full-time faculty covered an average of 71 percent of all undergraduate credit hours at their institution, part-time faculty covered an average of 27 percent of all undergraduate credit hours, and teaching assistants and other instructional staff each covered an average of about 1 percent of all undergraduate credit hours (figure A).[4] Public research institutions assigned more undergraduate credit hours to teaching assistants than any other institution type (14 percent).

Most institutions have policies for evaluating the quality of their faculty's instruction. Measures based on student inputs or results were used by most institutions, with 86 percent using at least one student-based measure to evaluate full-time faculty; institutions most commonly employed student evaluations of instructional quality (85 percent). Most institutions also used administrative-level evaluations, with 95 percent using at least one administrative-level measure to evaluate full-time faculty; two of the most common administrative-level measures were department chair evaluations (83 percent) and dean evaluations (77 percent).

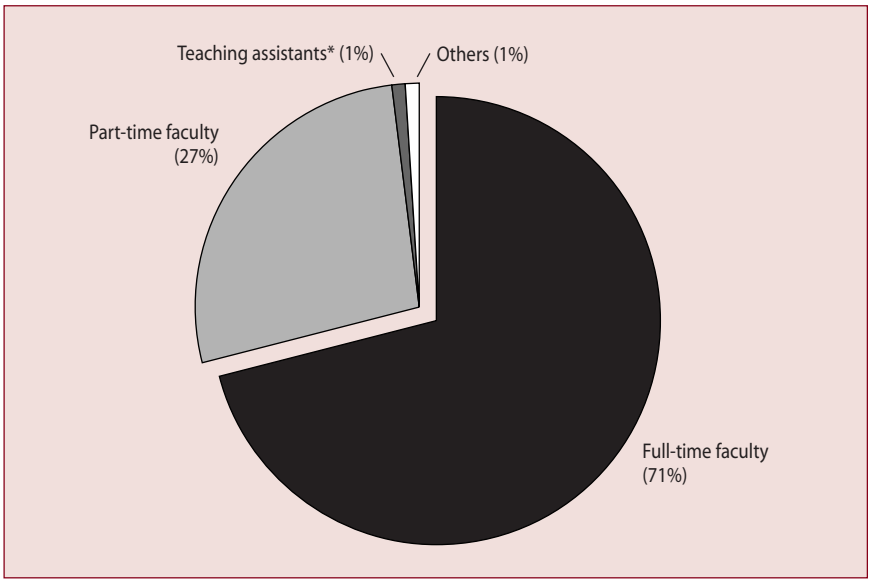
[4]These estimates are based on institution reports of assigned undergraduate credit hours. The actual amount of undergraduate credit hours taught by teaching assistants might be higher.

## Faculty Transitions

About two-fifths (44 percent) of institutions experienced average growth of 20 percent in the size of their faculty. Another two-fifths (44 percent) experienced no change in the number of full-time faculty from fall 1993 to fall 1998. The remaining 12 percent of institutions averaged a 9 percent decrease in the size of their faculty.

In fall 1998, 8 percent of all full-time faculty were new hires at their institution; a similar percentage of all full-time faculty left their positions between fall 1997 and fall 1998: 29 percent of those who left did so due to retirement and the remaining 71 percent left for a variety of other reasons. Some of these departures may have been related to actions taken by the

**Figure A.—Percentage distribution of undergraduate instructional credit hours assigned to various levels of staff: Fall 1998**




*These estimates are based on institution reports of assigned undergraduate credit hours. The actual amount of undergraduate credit hours taught by teaching assistants might be higher.

NOTE: Faculty includes all faculty and instructional staff. Credit hours were defined as the number of course credits or contact hours multiplied by the number of students enrolled. Institutional respondents reported the percentage of instructional credit hours covered by each type of instructor at their institution. For this report, these percentages were averaged within an institution category. Therefore, institutions of different sizes were given equal weight in the average and the percent reported might not reflect the actual percentage of all credit hours covered by each type of instructor.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty, "Institution Survey" (NSOPF:99).

institutions. Between 1993 and 1998, 40 percent of all institutions took at least one action to reduce the size of the full-time faculty. Some institutions (22 percent) accomplished this goal by replacing full-time faculty with part-time faculty.

## The Tenure System[5]

Most institutions (66 percent) had tenure systems in place in fall 1998. Approximately 100 percent of public research, private not-for-profit research, and public doctoral institutions had tenure systems. Tenure systems were less common at private comprehensive (58 percent), private liberal arts (66 percent), and public 2-year institutions (61 percent).

As of fall 1998, 48 percent of all full-time faculty had tenure at their respective institutions. Of the remaining faculty, 19 percent were on tenure track[6] and 20 percent were not on tenure track (figure B). Approximately 12 percent of all full-time faculty worked at institutions without tenure systems. Of the newly hired faculty, 39 percent were hired into tenure-track positions and 45 percent were hired into non-tenure-track positions.

In the 1997–98 academic year, 16 percent of the nation's nontenured, tenure-track faculty came up for tenure review. Overall, 81 percent of those reviewed received tenure. Public research institutions granted tenure to 90 percent of those reviewed. At the other end of the spectrum, private comprehensive institutions granted tenure to 65 percent of those reviewed. Most institutions (89 percent) limited the number of years that a faculty member may spend on tenure track. The most common limits were 6 years (34 percent) and 7 years (28 percent).

Between 1993 and 1998, 63 percent of all institutions took at least one action related to tenure. The most common action was to offer early or phased retirement to tenured faculty members (48 percent).

## Faculty Benefits

As part of compensation packages, institutions supported a variety of benefits for their faculty in fall 1998. Nearly all institutions (98 percent) contributed in some degree to benefits for full-time faculty and about one-half (53 percent) contributed for part-time faculty. Among those institutions that contributed, the value of benefits added an average of 26 percent to the salaries of full-time faculty and an average of 18 percent to the salaries of part-time faculty.[7]

Almost all institutions (99 percent) offered retirement plans to full-time faculty. Institutions primarily offered TIAA/CREF (72 percent).[8] Other 403(b) plans were also fairly common options, offered at 54 percent of all institutions.

Almost all institutions provided insurance benefits for their full-time faculty. Most institutions provided disability insurance (90 percent) and life insurance (94 percent), and many institutions provided these two benefits with a full subsidy (49 and 57 percent, respectively). Medical insurance or care (99 percent) and dental insurance or care (89 percent) were frequently part of institutions' benefits packages. However, these were usually not fully subsidized.

Institutions commonly provided some benefits to full-time faculty's family members. These included benefits directly for other family members (like tuition remission for a spouse or child; 67 percent for each) and benefits related to parenting (like paid maternity or paternity leave; 58 and 39 percent, respectively). Child care was sometimes provided by institutions (23 percent), although usually unsubsidized.

Other common additions to overall benefits packages for full-time faculty included paid sabbatical leave (76 percent), transportation or parking (56 percent), wellness or health programs (57 percent), and employee assistance programs (54 percent).

Many institutions provided the benefits listed above to part-time faculty. However, in almost every case, the

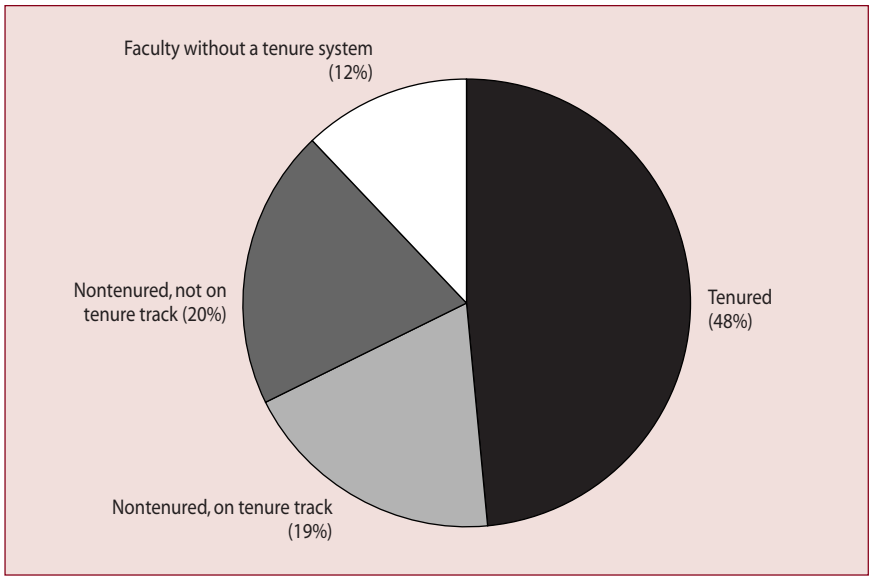
[5]"Tenure" refers to the status of a personnel position or a person occupying a position or occupation with respect to the permanence of position.

[6]Tenure-track positions lead to the consideration for tenure.

[7]The average percentage of income part-time faculty received in the form of benefits (18 percent) may mask some of the variability in institution policies. Some institutions may have reported the amount spent on benefits for part-time faculty as a percentage of the total amount paid to all part-time faculty. Other institutions may have reported the average percentage of the total salary contributed in benefits just for the part-time faculty receiving benefits.

[8]TIAA/CREF, Teachers Insurance and Annuity Association and College Retirement Equities Fund, offers a 403(b) retirement plan to not-for-profit colleges and universities and not-for-profit research organizations. There are other types of 403(b) plans as well that some colleges and universities offer. TIAA/CREF is a major provider of 403(b) plans to the education and research communities.

**Figure B.—Percentage distribution of full-time faculty, by tenure status: Fall 1998**




NOTE: Percentages may not add to 100 because of rounding. Faculty includes all faculty and instructional staff.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty, "Institution Survey" (NSOPF:99).

benefit was less commonly offered to part-time faculty than to full-time faculty. In addition, many institutions required that part-time faculty meet certain eligibility requirements before receiving benefits. Of those institutions that provided retirement plans to part-time faculty, 69 percent had eligibility requirements for retirement plans. Across all institutions with part-time faculty, 45 percent had eligibility requirements for other benefits provided to part-time faculty.

***Data source:*** The NCES 1999 National Study of Postsecondary Faculty, "Institution Survey" (NSOPF:99).

***For technical information,*** see the complete report:

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