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

EDUCATION STATISTICS QUARTERLY

Purpose and goals

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

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

Content

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

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

A complete annual index of NCES publications will appear in the Winter issue (published each January). 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.

TABLE OF CONTENTS

Note From the Commissioner

Pascal D. Forgione, Jr. 5

An introduction to the first issue by the Commissioner of NCES, outlining how the *Quarterly* reflects his goals for the agency.

Featured Topic: Teacher Quality

Teacher Quality: A Report on the Preparation and Qualifications of Public School Teachers

Laurie Lewis, Basmat Parsad, Nancy Carey, Nicole Bartfai, Elizabeth Farris, and Becky Smerdon 7

The first in a biennial series of reports focusing specifically on teachers' preservice qualifications, continued learning, and workplace support. Also examines and provides a context for teachers' feelings of preparedness to meet new challenges posed by education reforms, technological changes, and increased student diversity.

Invited Commentary: Better Policies Leading to Improved Teaching

John F. Jennings, Director, Center on Education Policy, Washington, DC 12

Invited Commentary: Understanding the Problem of Teacher Quality in American Schools

Richard M. Ingersoll, Assistant Professor, Department of Sociology, University of Georgia 15

Early Childhood Education

Preprimary Education Enrollment

from The Condition of Education 1998 19

Presents preprimary enrollment rates for 3-, 4-, and 5-year-olds by student characteristics such as race-ethnicity, household income, and parents' highest education level.

Early Literacy Experiences in the Home

from The Condition of Education 1998 22

Provides percentages of children ages 3–5 who were read to, told a story, or taken to the library by a parent or other family member.

Elementary-Secondary Education

The NAEP 1998 Reading Report Card for the Nation

Patricia L. Donahue, Kristin E. Voelkl, Jay R. Campbell, and John Mazzeo 25

Presents results of the National Assessment of Educational Progress (NAEP) 1998 Reading Assessment for the nation. Includes average scores and achievement-level performance for the nation, comparisons with 1994 and 1992 results, and results for subgroups of students.

The NAEP 1997 Arts Report Card: Eighth-Grade Findings From the National Assessment of Educational Progress

Hilary R. Persky, Brent A. Sandene, and Janice M. Askew 29

Describes the National Assessment of Educational Progress (NAEP) 1997 Arts Assessment of music, theatre, visual arts, and dance. Presents results for the achievement of eighth-graders in music, theatre, and visual arts.

Do Gatekeeper Courses Expand Education Options?

Robert Atanda 33

Explores relationships among enrollment in algebra or a foreign language in eighth grade, level of math or foreign language courses taken in high school, and application to a 4-year college or university.

The Civic Development of 9th- Through 12th-Grade Students in the United States: 1996

Richard G. Niemi and Christopher Chapman 39

Explores relationships between the civic development of high school students and various factors, such as characteristics of students and their environment. Features five dimensions of civic development: political knowledge, attention to politics, political participation skills, political efficacy, and tolerance of diversity.

Indicators of School Crime and Safety, 1998

Phillip Kaufman, Xianglei Chen, Susan P. Choy, Kathryn A. Chandler, Christopher D. Chapman, Michael R. Rand, and Cheryl Ringel 42

Profiles school crime and student safety in the United States, as the first in a series of annual reports produced jointly by the Bureau of Justice Statistics and NCES. Includes data on student and teacher victimization, school crime and violence, violent deaths at school, and school environment.



Toward Better Teaching: Professional Development in 1993–94

Susan P. Choy and Xianglei Chen 46

Examines the content and formats of professional development activities. Presents teachers' rates of participation and time spent in activities on certain topics, school and district support of teachers' participation, and teachers' perceptions of the impact of the activities.

Status of Education Reform in Public Elementary and Secondary Schools: Teachers' Perspectives

Debbie Alexander, Sheila Heavyside, and Elizabeth Farris 50

Explores the extent to which teachers report understanding, feeling equipped to apply, and actually implementing standards-based education reforms. Also covers teachers' need for information about education reform activities and teachers' attempts to involve parents in student learning.

How Old Are America's Public Schools?

Cassandra Rowand 53

Presents average age of school buildings, date of last major building renovation, and relationship of building condition to Internet access.

Internet Access in Public and Private Schools

from The Condition of Education 1998 57

Provides percentages of public schools and instructional rooms with Internet access.

Overview of Public Elementary and Secondary Schools and Districts: School Year 1996–97

Lee Hoffman 59

Provides national and state information on the number, type, size, and location of schools and districts. Also includes student race-ethnicity, participation in the Free Lunch Program, and participation in special education services. Contains dropout data for selected states.

Postsecondary Education

American Indians and Alaska Natives in Postsecondary Education

D. Michael Pavel, Rebecca Rak Skinner, Elizabeth Farris, Margaret Cahalan, John Tippeconnic, and Wayne Stein 67

Presents a portrait of American Indians and Alaska Natives involved in all facets of higher education. Describes demographic characteristics, access to and enrollment in higher education, outcomes, financial aid, American Indian staff and faculty, and tribally controlled colleges.

Credit Production and Progress Toward the Bachelor's Degree: An Analysis of Postsecondary Transcripts for Beginning Students at 4-Year Institutions

Alexander C. McCormick 75

Explores relationships among the number of credits earned in the first and subsequent years of enrollment, the pace at which credits are earned, and bachelor's degree attainment.

Other Publications and Funding Opportunities

Customer Service

1997 Customer Satisfaction Survey Report

Lori Thurgood, Steven Fink, Rita Bureika, Julie Czarniecki Scott, and Sameena Salvucci 77

Cooperative Systems

Best Practices for Data Collectors and Data Providers

Melodie Christal, Renee Gernand, Mary Sapp, and Roslyn Korb 78

Conference-Related

Federal Forecasters Directory 1998

Debra Gerald (editor) 78

Funding Opportunities

Training 78

Grants 78

NOTE FROM THE COMMISSIONER

Pascal D. Forgione, Jr.

I am pleased and proud to announce the first issue of the NCES periodical, *Education Statistics Quarterly*, a product that represents the culmination of the efforts of many NCES staff members over a long period of time.

The *Quarterly* was developed to address the needs of policymakers, education advocates, and their staff. It will be released on a regular and timely basis, and will also be available on the NCES Web Site. We designed the *Quarterly* with the goal of providing users with a single comprehensive source of information about all NCES products.

Shortly after becoming the Commissioner of NCES, I summarized my goals for the agency in terms of four values: **quality**, **predictability**, **usefulness**, and **timeliness**. I believe that the *Quarterly* embodies these values and represents a major step forward in the NCES effort to communicate with its constituents and respond to their needs.

Quality

The *Quarterly* will present the results of carefully reviewed reports based on data from a large number and variety of surveys. NCES is proud of its record of producing data of the highest **quality**, and we believe that the resulting analyses reflect this in their relevance and contribution to education research. The *Quarterly* will enhance the impact of NCES products by helping to disseminate them to a wider audience.

Predictability

The *Quarterly* will appear on a **predictable** schedule. There will be four issues per year, appearing in Winter, Spring, Summer, and Fall. These four issues will cover all publications released by NCES during the year. Users will be aware of release cycles for upcoming issues and can plan accordingly.

Usefulness

The *Quarterly* is designed to be user-friendly and **useful** to the education statistics and policy communities. Each issue of the periodical will include a large number of important reports on a variety of topics related to education. The reports will be organized by subject matter, and an annual index will be provided to facilitate using the publication as a reference. Considerable effort has been expended on making the format and style of the reports readable. We believe that the overall design of each issue will make it easy for readers to find information of interest.

Timeliness

Finally, the *Quarterly* will be **timely**. Each issue will contain reports and publications that will have been released in the most recent quarter. We have stressed the importance of this feature of the publication and, as a result, the production schedule has been arranged so that each issue will appear as soon as possible after the end of the quarter.

NCES constantly strives to make its products available in format and language that are most suitable to our widely varied audience. We think that the *Education Statistics Quarterly* will become a major dissemination tool for the information and products coming out of NCES, and we hope that our users will find the *Quarterly* to be as user-friendly as it was meant to be.

FEATURED TOPIC: TEACHER QUALITY

Teacher Quality: A Report on the Preparation and Qualifications of Public School Teachers <i>Laurie Lewis, Basmat Parsad, Nancy Carey, Nicole Bartfai, Elizabeth Farris, and Becky Smerdon</i>	7
Invited Commentary: Better Policies Leading to Improved Teaching <i>John F Jennings, Director, Center on Education Policy, Washington, DC</i>	12
Invited Commentary: Understanding the Problem of Teacher Quality in American Schools <i>Richard M. Ingersoll, Assistant Professor, Department of Sociology, University of Georgia</i>	15

Teacher Quality

Teacher Quality: A Report on the Preparation and Qualifications of Public School Teachers

Laurie Lewis, Basmat Parsad, Nancy Carey, Nicole Bartfai, Elizabeth Farris, and Becky Smerdon

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 1998 Teacher Survey on Professional Development and Training, conducted through the NCES Fast Response Survey System (FRSS), and from the 1993–94 Schools and Staffing Survey (SASS).

Background

In his 1997 State of the Union Address, President Clinton issued a “Call to Action” that included as a priority improving the quality of teachers in every American classroom. President Clinton’s speech reflects growing concern over the condition of education and the nation’s need for excellent teachers. The nation’s educational system must provide our children with the knowledge, information, and skills needed to compete in a complex international marketplace. Good teachers are the hallmark of such an educational system; they are integral to children’s intellectual and social development.

In response to these concerns and expectations, this study, undertaken by the National Center for Education Statistics (NCES) using its Fast Response Survey System (FRSS), provides a profile of the quality of the nation’s teachers in 1998. The report also includes reanalysis of related data from the 1993–94 Schools and Staffing Survey (SASS).

Teacher quality is a complex phenomenon, and there is little consensus on what it is or how to measure it. For example, definitions range from those that focus on what should be taught and how knowledge should be imparted to the kinds of knowledge and training teachers should possess. There are, however, two broad elements that most observers agree characterize teacher quality: (1) teacher preparation and qualifications, and (2) teaching practices. The first refers to preservice learning (e.g., postsecondary education, certification) and continued learning (e.g., professional development, mentoring). The second refers to the actual behaviors and practices that teachers exhibit in their classrooms (Ingersoll 1996a). Of course, these elements of teacher quality are not independent; excellent teacher preparation and qualifications should lead to exemplary teaching behaviors and practices.

This report is based on current NCES efforts to collect data on the first of these elements (i.e., teacher preparation and

qualifications), using a nationally representative survey of full-time public school teachers whose main teaching assignment is in one of the five core fields (English–language arts, social studies–social sciences, foreign language, mathematics, or science) or who teach a self-contained classroom. Specifically, it includes indicators of preservice and continued learning (e.g., degrees held, certification, teaching assignment, professional development opportunities, and collaboration with other teachers). In addition, because schools and communities play an important role in shaping and maintaining high-quality teachers, this study examines the work environments in which educators teach (e.g., formal induction procedures for new teachers, parental support).

This report is timely in light of recent concerns over the quality of our educational system and our teachers. Teachers' professional preparation (as well as their work environment) has been identified as fundamental to improving elementary and secondary education (National Commission on Teaching and America's Future 1996). At the core of education reforms to raise standards, reshape curricula, and restructure the way schools operate is the call to reconceptualize the practice of teaching. Teachers are being asked to learn new methods of teaching, while at the same time they are facing the greater challenges of rapidly increasing technological changes and greater diversity in the classroom.

This FRSS survey, conducted in the spring of 1998, indicates that less than half of American teachers currently report feeling "very well prepared" to meet many of these challenges:

- Although many educators and policy analysts consider educational technology a vehicle for transforming education, relatively few teachers reported feeling very well prepared to integrate educational technology into classroom instruction (20 percent).
- While 54 percent of the teachers taught limited English proficient or culturally diverse students, and 71 percent taught students with disabilities, relatively few teachers who taught these students (about 20 percent) felt very well prepared to meet their needs. Teachers' feelings of preparedness did not differ by teaching experience.
- Only 28 percent of teachers felt very well prepared to use student performance assessment techniques, 41 percent reported feeling very well prepared to implement new teaching methods, and 36 percent reported feeling very well prepared to implement state or district curriculum and performance standards.

This national profile of teacher preparation, qualifications, and work environments provides a context for understanding why many teachers do not report feeling very well prepared to meet many of the challenges they currently face in their classrooms. Key findings are provided in three major areas: (1) preservice learning and teaching assignment, (2) continued learning, and (3) supportive work environment.

Key Findings

Preservice learning and teaching assignment

Growing concern that a number of the nation's teachers are underqualified to teach our children has focused attention on their preservice learning. For example, concern regarding preservice learning has been directed toward teachers' postsecondary degrees—that is, the idea that teachers, particularly secondary teachers, should have an academic major rather than a general education degree (Ravitch 1998). In addition, certification policies have drawn criticism—specifically, that a growing number of the nation's teachers are entering classrooms with emergency or temporary certification (Riley 1998). Finally, attention is increasingly directed toward teaching assignments—that is, teachers being assigned to teach subjects that do not match their training or education (Ingersoll 1996b). Results of this 1998 FRSS survey indicate that

- Virtually all teachers had a bachelor's degree, and nearly half (45 percent) had a master's degree. More high school teachers had an undergraduate or graduate major in an academic field (66 percent), compared with elementary school teachers (22 percent) and middle school teachers (44 percent).
- Most of the teachers (92 percent and 93 percent, respectively) were fully certified in the field of their main teaching assignment. However, emergency and temporary certification was higher among teachers with 3 or fewer years of experience than among teachers with more teaching experience. For example, 12 percent of general elementary classroom teachers

with 3 or fewer years of experience had emergency or temporary certification, whereas less than 1 percent of general elementary classroom teachers with 10 or more years of experience had emergency or temporary certification. The results are similar for departmentalized teachers.

- Despite the fact that the measure of out-of-field teaching used in this report is conservative—it only includes teachers’ main teaching assignments in core fields—the results indicate that a number of educators were teaching out of field. For example, the percentage of teachers in grades 9 through 12 who reported having an undergraduate or graduate major or minor in their main teaching assignment field was 90 percent for mathematics teachers, 94 percent for science teachers, and 96 percent for teachers in English–language arts, social studies–social sciences, and foreign language. This means that 10 percent of mathematics teachers, 6 percent of science teachers, and 4 percent of English–language arts, foreign language, and social studies–social science teachers in grades 9 through 12 were teaching out of field. Compared with teachers in grades 9 through 12, teachers in grades 7 through 12 were significantly less likely to report having an undergraduate or graduate major or minor in the field of their main teaching assignment for mathematics (82 percent), science (88 percent), English–language arts (86 percent), and social studies–social sciences (89 percent). These results indicate that teachers in grades 7 and 8 are less likely to be teaching in field than are teachers in grades 9 through 12.

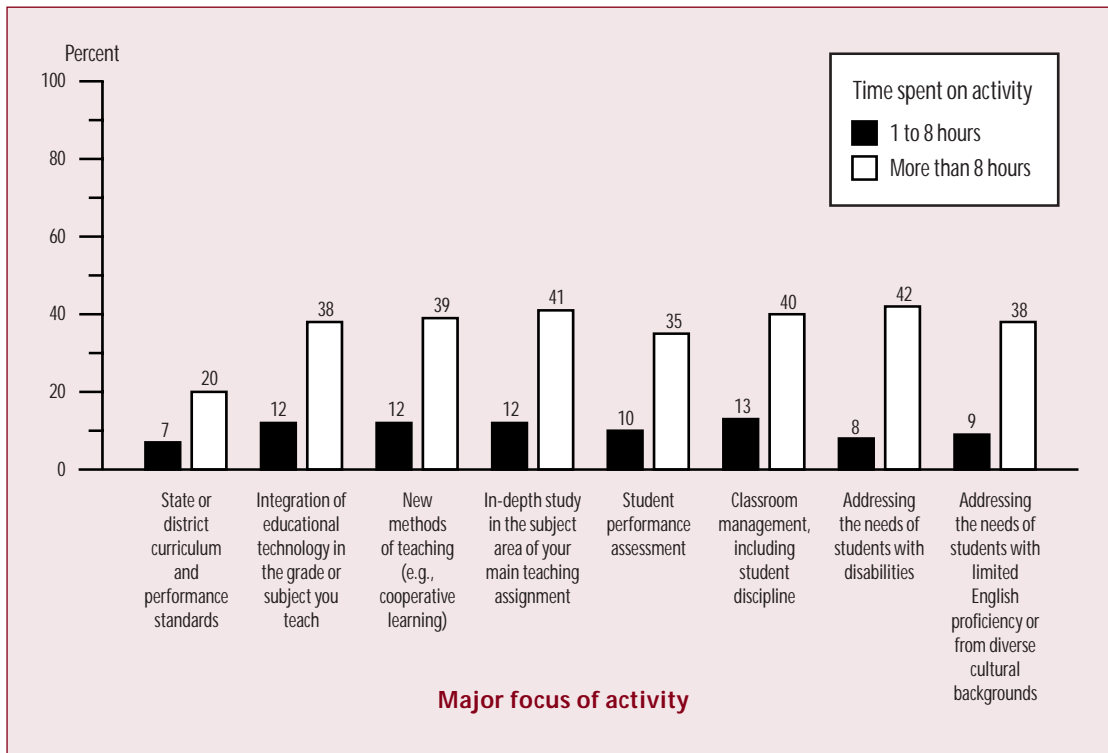
Continued learning: Professional development and teacher collaboration

In order to meet the changing demands of their jobs, high-quality teachers must be capable and willing to continuously learn and relearn their trade. Professional development and collaboration with other teachers are strategies for building educators’ capacity for effective teaching, particularly in a profession where demands are changing and expanding. However, traditional approaches to professional development (e.g., workshops, conferences) have been criticized for being relatively ineffective because they typically lack connection to the challenges teachers face in their classrooms, and they are usually short term.

Research suggests that unless professional development programs are carefully designed and implemented to provide continuity between what teachers learn and what goes on in their classrooms and schools, these activities are not likely to produce any long-lasting effects on either teacher competence or student outcomes (Fullan with Stiegelbauer 1991). In addition to quality professional development, peer collaboration has also been recognized as important for teachers’ continuous learning. The 1998 survey indicates that

- Virtually all teachers had participated in professional development activities (99 percent) and at least one collaborative activity (95 percent) in the last 12 months. Participation in professional development activities typically lasted from 1 to 8 hours, or the equivalent of 1 day or less of training. Teachers were most likely to participate in professional development activities focused on areas that reformers emphasize (e.g., implementing state or district curriculum and performance standards, integrating technology into the grade or subject taught, and using student performance assessment techniques).
- Nineteen percent of teachers had been mentored by another teacher in a formal relationship; 70 percent of teachers who were mentored at least once a week reported that it improved their teaching “a lot.”
- Increased time spent in professional development and collaborative activities was associated with the perception of significant improvements in teaching. For every content area of professional development, a larger proportion of teachers who participated for more than 8 hours believed it improved their teaching “a lot” compared with teachers who participated for 8 hours or less (figure A). For example, teachers who spent more than 8 hours in professional development on in-depth study in the subject area of their main teaching assignment were more likely than those who spent 1 to 8 hours to report that participation in the program improved their teaching a lot (41 percent versus 12 percent). Moreover, teachers who participated in common planning periods for team teachers at least once a week were more likely than those who participated a few times a year to report that participation improved their teaching a lot (52 percent versus 13 percent).

Figure A. — Among full-time public school teachers who participated in professional development activities in the last 12 months, the percentage believing that activities improved their teaching a lot, by major focus of activity and hours spent: 1998



SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Teacher Survey on Professional Development and Training," FRSS 65, 1998.

Supportive work environment

In addition to teacher learning, a key factor in understanding teacher quality is work environment—that is, what happens to teachers after they enter the workforce, including whether they receive support from the schools and communities in which they work and from the parents of the children they teach. The FRSS survey indicates that

- One-third of teachers had participated in an induction program when they first began teaching. However, newer teachers were more likely to have participated in some kind of induction program at the beginning of their teaching careers than were more experienced teachers (65 percent of teachers with 3 or fewer years of experience versus 14 percent of teachers with 20 or more years of experience). This survey did not elicit information regarding the intensity or usefulness of the induction programs.

- Teachers perceived relatively strong collegial support for their work; 63 percent strongly agreed that other teachers shared ideas with them that were helpful in their teaching. In addition, many teachers also felt supported by the school administration, with 55 percent agreeing strongly that the school administration supported them in their work and 47 percent agreeing strongly that goals and priorities for the school were clear.
- Teachers perceived somewhat less support from parents than from other teachers and the school administration. Only one-third of teachers agreed strongly that parents supported them in their efforts to educate their children.
- Collegial, school, and parental support varied by the instructional level of the school, with elementary school teachers perceiving stronger support than high school teachers.

Summary

This report provides a national profile of teacher quality, specifically focused on teachers' learning (both preservice and continued) and the environments in which they work. Included is important information regarding teachers' education, certification, teaching assignments, professional development, collaboration, and supportive work environment. In addition, comparisons by instructional level and poverty level of the school provide information about the distribution of teacher quality. This information provides a context for understanding why few teachers report feeling very well prepared to meet the challenges they face in their classrooms. This report is the first in a series of biennial reports that will be undertaken by NCES. Thus, the information provided here should serve as a benchmark for these important dimensions of teacher quality and preparation.

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Data sources: The Teacher Survey on Professional Development and Training, conducted through the NCES Fast Response Survey System (FRSS 65, 1998), and the 1993-94 Schools and Staffing Survey (SASS).

For technical information, see the complete report:

Lewis, L., Parsad, B., Carey, N., Bartfai, N., Farris, E., and Smerdon, B. (1999). *Teacher Quality: A Report on the Preparation and Qualifications of Public School Teachers* (NCES 1999-080).

For a detailed description of the 1993-94 SASS sample design, see

Abramson, R., Cole, C., Fondelier, S., Jackson, B., Parmer, R., and Kaufman, S. (1996). *1993-94 Schools and Staffing Survey: Sample Design and Estimation* (NCES 96-089).

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To obtain the complete report (NCES 1999-080), 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).

Better Policies

Invited Commentary: Better Policies Leading to Improved Teaching

John F. Jennings, Director, Center on Education Policy, Washington, DC

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

The featured report, a national profile of teacher quality in public elementary and secondary schools, could not have come at a more appropriate time. The President, Congress, governors, state legislatures, and many others are increasingly focused on how to improve the quality of the teaching occurring in America's classrooms.

As only one example, in 1998 the federal Higher Education Act was amended to include financial incentives for college students to become teachers and for institutions of higher education to produce better teachers. Also included in the new law is a controversial new accountability provision leading to the eventual cut-off of federal student aid to teacher preparation institutions with low rates of passage by their graduates on state certification and licensure assessments.

To better inform the debate on how to improve teaching, the National Center for Education Statistics has compiled the *Teacher Quality* report, a clear and readable summary of what teachers say about their preparation and qualifications, and about practices supporting improved teaching in their schools. But, it is important to know what this document is *not*. The report does not include information on the quality of training that institutions of higher education have given to new teachers, nor does it say anything about whether teachers are doing a good job in their classrooms. Evidence about those matters must come from other sources, such as from assessments of teachers' knowledge and of students' academic performance.

The good news in the report is that American public school teachers have many of the basic prerequisites for teaching: almost all have bachelor's degrees, nearly half have master's degrees, most are fully certified in the field of their main teaching assignment, most have their main teaching assignment in the field in which they had an undergraduate or graduate major or minor, almost all participated in professional development the previous year, almost all collaborated with other teachers in the previous year, and they work in supportive environments.

Additional good news comes from trends showing the effects of recently enacted or implemented reforms. Newer teachers are substantially more likely than senior colleagues

to have degrees in an academic field; more teachers than previously have their main teaching assignments in the field of their graduate or undergraduate major or minor; and more professional development is occurring regarding student academic standards and assessments, the use of educational technology, and the implementation of new teaching techniques. Moreover, newer teachers are far more likely to participate in induction programs than did their more senior colleagues, teachers believe that school administrators are more supportive of their work than was reported in the past, and schools have clearer goals and priorities than in the past.

Those are the facts, as teachers see them. In a way, it can be said that the basics for a good public educational system are in place. As nearly everyone knows, though, the bar has been raised: good is no longer good enough. In this report, teachers acknowledge this fact by admitting that, in many important regards, they do not feel themselves to be well prepared to teach. Less than half of teachers felt "very well prepared" to implement new teaching methods. About a third felt very well prepared to implement curriculum and performance standards, and fewer felt adept at using student performance assessment techniques. Only about a fifth of teachers felt very well prepared to integrate educational technology or to address the needs of students with disabilities, those with limited English proficiency, or those from diverse cultural backgrounds.

To address those shortcomings perceived by teachers themselves, the many recently initiated reforms of teacher preparation and practice must be accelerated. For example, teachers who are uncertified are mostly those who are new to the profession, and the number of teachers who leave teaching in their first years seems to be higher than in most other professions. Therefore, supportive activities for new teachers must be expanded. For instance, induction programs for new teachers, now affecting two-thirds of them, should be made available to all who wish to participate. Mentoring by more experienced teachers, which now involves less than a fifth of all teachers, must also be made more readily available. Further momentum is needed to increase the number of teachers who have majors in an academic field and who are teaching in the field of their undergraduate or graduate major or minor.

In addition to accelerating current reforms, this report clearly points to two areas needing much greater attention, if the country is to improve teaching in the public schools: teachers are not spending enough time on good practices to improve their teaching, and poor and minority children are not being afforded a fair chance to succeed in school.

In the report, teachers assert that the greater the amount of time invested in a practice to improve teaching, the greater are the benefits. This is common sense, but unfortunately what we do today in our schools does not always reflect what we intuitively may know.

Most professional development, for example, lasts one day or less (1 to 8 hours). Yet, teachers report that long-term professional development is far more effective in helping them to improve teaching in the classroom. In fact, there is a consistent progression of perceived effectiveness for all such activities as the number of hours increases. Eight percent of teachers believe that 1 to 8 hours of training addressing the needs of students with disabilities helps them “a lot” with classroom teaching, but 42 percent believe that more than 8 hours helps them a lot. With the integration of educational technology into teaching, the difference is between 12 percent and 38 percent.

Furthermore, practices within schools, such as common planning among teachers and mentoring of new teachers by more experienced ones, show the same pattern: some effect with a short time spent on the activity and progressively greater effects from longer periods of time devoted to it. For example, networking with teachers outside the school is perceived as helping “a lot” by 15 percent of teachers if done a few times a year, but 49 percent of teachers believe in its greater effectiveness if done at least once a week. Eleven percent of teachers being mentored believe it helps a lot if done a few times a year, but 70 percent of them so believe if done at least once a week.

In a nutshell, more time on task produces greater results—much greater. Teachers are implicitly asking in this report that policymakers ensure that they have enough time to learn how to teach better. Extended professional development, long-term mentoring, and extensive sessions for common planning among teachers are the ingredients that will result in better teaching for youngsters—according to teachers.

The question is whether states, local school districts, and unions will find ways to give teachers that time. Can the school day be reconfigured to allow greater time for teacher preparation? Will teachers themselves, as represented by their local unions, show enough flexibility in negotiations with school boards to implement changes so that they can be better prepared? Can states and school districts find financial resources to provide for in-depth preparation?

The other persistent theme that comes from these data is that poor and minority children face serious obstacles in getting a good education. This too is no surprise, but it is enlightening to see how teachers themselves report on the problems facing these children.

A stark example is that teachers who have master’s degrees are far more likely to be found in more affluent schools—57 percent of teachers in the lowest poverty schools have a master’s, compared with 37 percent in the poorest schools. In many subject areas, moreover, persons teaching in the field in which they received a major or minor are less likely to be found in central cities, in schools with high-minority enrollments, and in high-poverty schools.

Furthermore, the least-taken professional development activity is addressing the needs of students with limited English proficiency, of those who are from diverse cultural backgrounds, or of those who are disabled. Despite that discouraging fact, some hope arises because newer teachers, those in heavily minority schools, and those from the western region of the country are more likely to be involved in such professional development activities.

A further problem facing poor and minority children is the lack of parental support for their education. In general, teachers believe that parents of all children are not greatly supportive of their efforts to educate; but they see a great difference in the degree of support provided by parents from more affluent areas and that provided by parents from poor areas. Forty-one percent of teachers in schools with less than 15 percent of children eligible for free or reduced-price lunches strongly agree that parents support them, but the perceived level of support declines progressively as the level of poverty in the school increases. In the poorest schools, only 23 percent of teachers strongly agree that parents are supportive of their efforts to educate their children.

The United States is not going to be first in the world in education unless we deal better with those problems facing poor and minority children—a growing proportion of American students. Such youngsters are not only more likely to have less well qualified teachers in their classrooms, but students in the poorest schools also have less support from home to do well in school—at least in the opinion of their teachers.

Policymakers, such as state legislators, will find the *Teacher Quality* report very useful. For example, they will learn that recently initiated reforms of teacher preparation, certifica-

tion, licensure, and staff development are going in the right direction, but they must be accelerated. In the process of implementing such reforms, much greater attention must be given to the intensity of the effort; more time spent on the activity will achieve greater results.

Lastly, the needs of poor, minority, and disabled children must receive greater attention from the federal government, the states, and local school districts. We must recommit ourselves to bringing equal educational opportunity to all of America's children.

Understanding the Problem

Invited Commentary: Understanding the Problem of Teacher Quality in American Schools

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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.

Few educational problems have received more attention in recent times than the failure to ensure that our nation's elementary and secondary classrooms are all staffed with qualified teachers. Since the release of *A Nation at Risk* in 1983 by the National Commission on Excellence in Education, improving the quality of teachers has been the subject of a steady progression of blue ribbon panels, commissions, and national forums.

Such concern with the quality and qualifications of teachers is not surprising. Elementary and secondary schooling are mandatory, and it is into the custody of teachers that children—our children—are legally placed for a significant portion of their lives. The quality of teachers is undoubtedly among the most important factors shaping the learning and growth of students. Moreover, the largest single component of the cost of education in any country is teacher compensation. But despite a longstanding recognition of the importance of teacher quality, it is, surprisingly, among the least understood issues in education.

This recent upsurge of concern with teacher quality has, in turn, led to a rapidly expanding demand for data on the caliber of the nation's teaching force. However, it is very difficult to empirically assess, especially with large-scale data, the actual degree of quality teaching provided to students in classrooms (e.g., Haney, Madaus, and Kreitzer 1987; Haertel 1991). As with employees in many other service occupations, there is little consensus concerning both how to define and how to measure quality teacher performance (Ingersoll in press). Invariably, data collection efforts primarily focus on what can more readily be measured—teachers' qualifications. Although data on the qualifications of teachers, such as their coursework and degrees, are only indirect measures of the actual caliber of teaching, they are vital information because there is almost universal consensus concerning the importance of teacher education and training.¹

¹There is a large body of empirical research devoted to isolating and assessing the effects of teacher qualifications (e.g., education, training, experience) on student achievement. Although there are some inconsistent findings and considerable debate among researchers revolving around the methodological difficulties of statistically controlling for all the many factors affecting students' learning, in general this research has found that measures of teacher qualifications are important predictors

of both teaching quality and student learning. For reviews or examples of this research, see Darling-Hammond and Hudson (1990); Ferguson (1991); Hedges, Laine, and Greenwald (1994); National Commission on Teaching and America's Future (1997); and, for a recent empirical analysis using data from the National Education Longitudinal Study of 1988, see Goldhaber and Brewer (1997).

In order to provide these kinds of data on the nation's teaching force, the National Center for Education Statistics (NCES) released, beginning in the early 1990s, a major new data source—the Schools and Staffing Survey (SASS). Unlike most major large-scale education surveys, SASS does not focus on students, nor feature measures of student achievement. Instead, SASS focuses on teachers. Perhaps for this reason, SASS has been somewhat underutilized and underappreciated. This is unfortunate because SASS is the largest and most comprehensive source of information on teachers available. For instance, it dwarfs the widely cited and used National Survey of Science and Mathematics Education (NSSME).² NSSME focuses solely on math and science teachers and has a relatively limited sample—about 6,000 teachers from 1,200 public schools. SASS, in contrast, samples about 55,000 teachers of all types from 11,000 schools, both public and private.³

Accordingly, since the release of SASS, NCES has sponsored a number of projects profiling the quality and qualifications of the nation's elementary and secondary teachers (e.g., Choy et al. 1993; Henke et al. 1997), of which *Teacher Quality: A Report on the Preparation and Qualifications of Public School Teachers* is the latest effort and a highlight of this issue of the *Quarterly*. Like earlier reports, *Teacher Quality* takes advantage of the strengths of SASS by presenting a wide range of indicators of teachers' qualifications, preparation, and job conditions. It also nicely supplements 1993–94 SASS data with data from a more recent, but less comprehensive, source—the 1998 NCES Teacher Survey on Professional Development and Training.

²NSSME is a survey of science and mathematics educational practices in the United States conducted in 1977, 1985, and 1993 by Horizon Research with support from the National Science Foundation. Materials concerned with NSSME may be obtained from Iris Weiss, Horizon Research, Inc., 111 Cloister Court, Suite 220, Chapel Hill, NC 27514. For a widely cited report that uses NSSME data on teacher quality, see Oakes (1990).

³For detailed discussions of the rationale, conceptualization, and design of SASS, see the original Rand Corporation design report by Haggstrom, Darling-Hammond, and Grissmer (1988) or a more recent report by Ingersoll (1995b).

One of the most important contributions of SASS has been to provide accurate nationally representative data on the phenomenon known as out-of-field teaching. Out-of-field teaching is one of the most important but least understood sources of underqualified teaching in schools. Assessing the prevalence of out-of-field teaching is crucial because highly qualified teachers may, in actuality, become highly unqualified if they are assigned to teach subjects for which they have little training or education. Educators, of course, have long been aware of the existence of out-of-field teaching, but an absence of accurate statistics has kept this problem largely unknown to the public. With the publication of the SASS data on out-of-field teaching beginning in 1995, this situation has dramatically changed.⁴

Empirical measurement of the extent of out-of-field teaching faces a methodological obstacle—there is surprisingly little consensus on how to define a “qualified teacher.” While most agree that teachers ought to undergo some kind of training and preparation, there is little agreement concerning how many and which kinds of courses and credentials teachers ought to have to be considered adequately qualified (Haertel 1991).

Typically, those of us who use SASS data to assess out-of-field teaching skirt this debate by adopting a “conservative” and “minimalist” approach. The primary focus of most of our analyses is to show how many secondary school teachers do not have even minimal academic credentials—usually defined as neither a major nor a minor—in their teaching fields. A college minor certainly does not guarantee quality teaching, nor even a qualified teacher. Our operating assumption is that adequately qualified teachers, especially at the secondary school level and especially in the core academic fields, ought to have, as a minimum prerequisite, at least a college minor in the subjects they teach. In short, our assumption is that few parents would expect their teenagers to be taught, for example, 11th-grade trigonometry by a teacher who did not have at least a minor in math, no matter how bright the teacher. The data show, however, that this situation is all too commonly the case.

In the *Teacher Quality* report, for example, data from SASS and from the 1998 Teacher Survey on Professional Development and Training tell us that about one-fifth of

secondary (7th- through 12th-grade) teachers whose main teaching field is math have neither a major nor a minor in math or related fields, such as math education or engineering. SASS data that I have presented elsewhere (Ingersoll 1999) show similarly high numbers of teachers without teaching certificates in their assigned fields. Moreover, less conservative measures than those used in this report reveal an even bleaker picture. For instance, if we broaden the focus to include all those who teach math in secondary schools, regardless of whether it is their main field or not, the amount of out-of-field teaching jumps to one-third without at least a minor in the field. Likewise, if we upgrade the definition of a “qualified” teacher to include only those who hold *both* a college major and a teaching certificate in math, the amount of out-of-field teaching again substantially increases—only 55 percent of all public secondary math teachers have both a major and a certificate in math (Ingersoll 1999).

The negative implications of such high levels of out-of-field teaching are obvious. Is it any surprise, for example, that science achievement is so low given that, *even* at the 12th-grade level, 41 percent of public school students in physical science classes are not taught by someone with either a major or a minor in chemistry, physics, or earth science (Ingersoll 1999)?

Not surprisingly, our findings on out-of-field teaching have captured widespread interest. Over the past couple of years they have been widely reported in the national media and have been featured in numerous major education reports.⁵ As a result, the problem of out-of-field teaching has suddenly become a real and major issue in the realm of education policy. Despite this attention, however, out-of-field teaching has also been largely misunderstood. The source of the misunderstanding relates to the crucial question of *why* so many teachers are teaching subjects for which they have so little background.⁶

Many people assume that out-of-field teaching is a problem of poorly educated teachers and can be remedied by more rigorous standards for teacher education and training. Typically, those subscribing to this view assume that the source of the problem lies in a lack of academic coursework

⁴The major NCES reports on out-of-field teaching are *Teacher Supply, Teacher Qualifications, and Teacher Turnover* (Ingersoll 1995a); *Qualifications of the Public School Teacher Workforce: 1988–1991* (Bobbitt and McMillen 1995); and *Out-of-Field Teaching and Educational Equality* (Ingersoll 1996).

⁵Among these are *What Matters Most: Teaching for America's Future* and *Doing What Matters Most: Investing in Quality Teaching* (National Commission on Teaching and America's Future 1996 and 1997); *Quality Counts*, a special supplement to *Education Week* newsmagazine (1998); and *Education Watch* (Education Trust of the American Association for Higher Education 1996).

⁶For a more detailed presentation of my research on the causes of out-of-field teaching, see Ingersoll (1999).

on the part of teachers that can be remedied by requiring prospective teachers to complete a “real” undergraduate major in an academic discipline or specialty.

There is some truth to this view, and the training of teachers does leave much to be desired. As the *Teacher Quality* report shows, teachers themselves tell us that, for a number of key skills and domains, they do not feel very well prepared. This deficit is being recognized and, indeed, over the past decade many districts and states have mandated more rigorous academic and certification requirements for prospective teachers.

However, the SASS data also show that, though very worthwhile, these kinds of reforms will not eliminate out-of-field teaching assignments and, hence, will not alone solve the problem of underqualified teaching. The source of out-of-field teaching lies not only in the amount of education or training teachers have but in the lack of fit between teachers’ fields of preparation and their teaching assignments. In short, mandating more rigorous requirements for prospective teachers will help little if large numbers of such teachers continue to be assigned by their principals to teach classes that do not match the field of their degree, their certification, or both.

A second, and the most popular, explanation of the problem of out-of-field teaching blames teacher shortages. This view holds that shortfalls in the number of available teachers, caused by a combination of increasing student enrollments and a “graying” teaching force, have led many school systems to resort to lowering standards to fill teaching openings, the net effect of which is out-of-field teaching.

There is also some truth to this view. The SASS data show that since the late 1980s, some schools have had difficulty filling their teaching vacancies with qualified candidates. Most important, when faced with such difficulties, their administrators say they most commonly do three things: hire less qualified teachers; assign teachers trained in another field or grade level to teach in the understaffed area; and make extensive use of substitute teachers (Ingersoll 1999). Each of these coping strategies results in out-of-field teaching.

But there are several problems with the shortage explanation for out-of-field teaching. First, it cannot explain the high levels of out-of-field teaching that the data tell us exist in fields, such as English and social studies, that have long been known to have surpluses. Second, in recent years it is

only a minority of schools that actually have had any trouble filling their teaching vacancies with qualified candidates. For instance, in 1993–94 only 16 percent of secondary schools reported any difficulty filling their openings for math teachers. These difficulties cannot account for the SASS data showing that in that same year, almost one-third of all public secondary school math teachers were uncertified in math (Ingersoll 1999).

Finally, a third problem with the teacher-shortage explanation of out-of-field teaching is the assumption that the hiring difficulties that exist are due to a lack of able candidates willing to enter teaching. The demand for new teachers, and the subsequent difficulties that some schools face filling their positions, come about primarily because of teachers choosing to move from or leave their jobs at rates higher than in many other occupations. And while it is true that teacher retirements are increasing, teacher turnover appears to have little to do with a graying workforce. In contrast, analyses I have done using data from the SASS Teacher Followup Survey show that the high rates of teacher turnover plaguing schools are far more often a result of two related causes: teachers dissatisfied with teaching and teachers seeking to pursue another career (Ingersoll 1995a, 1997).

The implications of these findings for reform are crucial. Initiatives and programs designed to recruit new candidates into teaching, though worthwhile in many ways, will not solve the problem of underqualified teachers in classrooms if they do not also address the problem of teacher retention. In short, recruiting more teachers will help little if large numbers of such teachers then leave.

If deficits in the qualifications and quantity of teachers do not adequately account for the high levels of out-of-field teaching in the United States, what then is the cause? My own hypothesis, drawn from the sociology of organizations, occupations, and work as well as from my own experiences as a former high school teacher, is that understanding underqualified teaching requires a close examination of the way schools and teachers are managed. Out-of-field teaching is common, I believe, because it is not only legal but also more convenient, less expensive, and less time consuming than the alternatives.

For example, rather than find and hire a new science teacher to teach a newly state-mandated science curriculum, a school principal may find it more convenient to assign a couple of English and social studies teachers to

each “cover” a section or two in science. When faced with the choice between hiring a fully qualified candidate for an English position or hiring a lesser qualified candidate who is also willing to coach a major varsity sport, a principal may find it more convenient to do the latter. If a teacher suddenly leaves in the middle of a semester, a principal may find it faster and cheaper to hire a readily available, but not fully qualified, substitute teacher, rather than conduct a formal search for a new teacher.

The managerial choice to misassign teachers may save time and money for the school, and ultimately for taxpayers, but it is not cost free. As the best contemporary research has insightfully revealed, good teaching requires a great deal of expertise and skill, and good teachers are not like interchangeable blocks that can be placed in any empty slot regardless of their type of training (e.g., Shulman 1986).

Teachers do not operate in a vacuum. Ensuring quality teaching in classrooms requires more than recruiting and training able teachers. It also requires providing a well-managed workplace that treats teachers like professionals who have expertise in a specialty. The key issue for future research, then, is to begin to understand the social and organizational context surrounding teachers and to illuminate the ways it does or does not foster quality teaching.

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EARLY CHILDHOOD EDUCATION

Preprimary Education Enrollment from The Condition of Education 1998	19
Early Literacy Experiences in the Home from The Condition of Education 1998	22

Preprimary Enrollment

This article was originally published as an Indicator of the Month, taken from The Condition of Education 1998. The sample survey data are from the NCES National Household Education Survey (NHES).

Participating in early childhood programs such as Head Start, nursery school, prekindergarten, and kindergarten can better prepare a child to enter first grade. Many policymakers and educators believe that it is important to help all children start elementary school on an equal footing with other children. Involving students in preprimary programs beginning at earlier ages may provide these students with valuable experiences that will help them start elementary school better prepared to learn.

- Preprimary enrollment rates for 3-, 4-, and 5-year-olds were higher in 1996 than in 1991. In 1996, 37 percent of 3-year-olds, 58 percent of 4-year-olds, and 90 percent of 5-year-olds were enrolled in preprimary education.
- In 1996, similar percentages of white and black 3- and 4-year-olds were enrolled in center-based programs, while their Hispanic peers were less likely to be enrolled.
- Three- and 4-year-olds from families with incomes of more than \$50,000 were more likely than 3- and 4-year-olds from families with incomes of \$50,000 or less to be enrolled in preprimary education.
- There was a positive relationship between parents' educational attainment and the enrollment rates of 3- and 4-year-olds: as parents' educational attainment

increased, so did the preprimary enrollment rates of their children. However, enrollment rates of 5-year-olds were similar, regardless of their parents' educational attainment.

Data sources: The following components of the National Household Education Survey (NHES): Early Childhood Education (1991), School Readiness (1993), Early Childhood Program Participation (1995), and Parent and Family Involvement in Education (1996).

For technical information, see

Wirt, J., Snyder, T., Sable, J., Choy, S.P., Bae, Y., Stennett, J., Gruner, A., and Perie, M. (1998). *The Condition of Education 1998* (NCES 98-013).

For complete supplemental and standard error tables, see either

- the electronic version of *The Condition of Education 1998* (<http://nces.ed.gov/pubs98/condition98/index.html>), or
- volume 2 of the printed version (forthcoming): *The Condition of Education 1998 Supplemental and Standard Error Tables* (NCES 1999-025).

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Percentage of 3-, 4-, and 5-year-olds enrolled in center-based programs or kindergarten, by selected student characteristics: 1991, 1993, 1995, and 1996

Selected student characteristics	3-year-olds				4-year-olds				5-year-olds			
	1991	1993	1995	1996	1991	1993	1995	1996	1991	1993	1995	1996
Total	31.4	34.1	37.4	36.7	52.7	55.3	60.9	57.7	86.4	90.0	90.3	90.2
Race-ethnicity												
White	33.4	33.7	40.2	39.6	52.4	53.7	60.8	58.8	85.7	88.9	88.6	88.8
Black	31.6	41.9	41.1	40.5	57.4	62.9	68.2	67.8	92.3	93.2	93.7	94.1
Hispanic	19.8	27.2	21.2	22.1	47.5	48.9	49.0	45.3	85.3	91.4	93.4	90.4
Household income												
\$10,000 or less	25.4	32.7	26.2	36.0	43.3	52.6	54.3	52.7	86.1	89.2	90.9	92.7
10,001–20,000	23.2	21.6	27.0	28.0	45.0	47.2	52.3	45.3	84.6	90.4	89.7	87.6
20,001–35,000 ¹	21.3	22.2	27.7	30.8	48.0	47.8	49.7	50.6	85.1	86.8	90.7	87.8
35,001–50,000 ¹	33.4	37.9	38.1	42.2	52.3	57.2	59.5	58.2	87.3	90.6	88.5	89.7
50,001 or more	52.9	58.7	61.2	55.0	74.8	73.2	80.7	75.8	89.0	93.7	90.9	92.8
Parents' highest education level												
Less than high school diploma	17.3	17.1	16.0	² 22.0	33.1	42.8	² 42.4	² 47.3	85.5	79.9	92.5	90.3
High school diploma or GED	23.0	23.0	26.3	28.9	40.8	43.2	51.1	47.3	84.8	89.0	89.2	89.9
Some college, vocational, or technical	31.0	35.9	35.6	34.5	56.3	61.1	63.3	59.8	87.7	91.1	90.2	88.6
Bachelor's degree	41.5	41.1	51.7	49.6	67.2	64.1	70.7	62.6	88.1	92.5	91.6	92.6
Graduate or professional school	53.0	61.9	² 60.8	60.4	72.0	73.3	77.9	78.1	87.0	94.3	89.8	92.1
Family structure												
Two biological or adoptive parents	—	34.4	38.6	38.0	—	55.1	61.3	57.8	—	89.1	88.8	89.0
One biological or adoptive parent	—	33.8	36.9	37.3	—	57.2	63.0	58.4	—	92.1	94.0	91.9
One biological or adoptive and one step parent	—	² 32.7	² 23.1	² 14.7	—	² 49.5	² 46.9	² 45.8	—	87.3	89.4	93.2
Other relatives	—	² 34.8	² 20.8	² 23.1	—	² 52.2	² 61.3	² 55.9	—	² 92.6	² 88.0	96.5

— Not available.

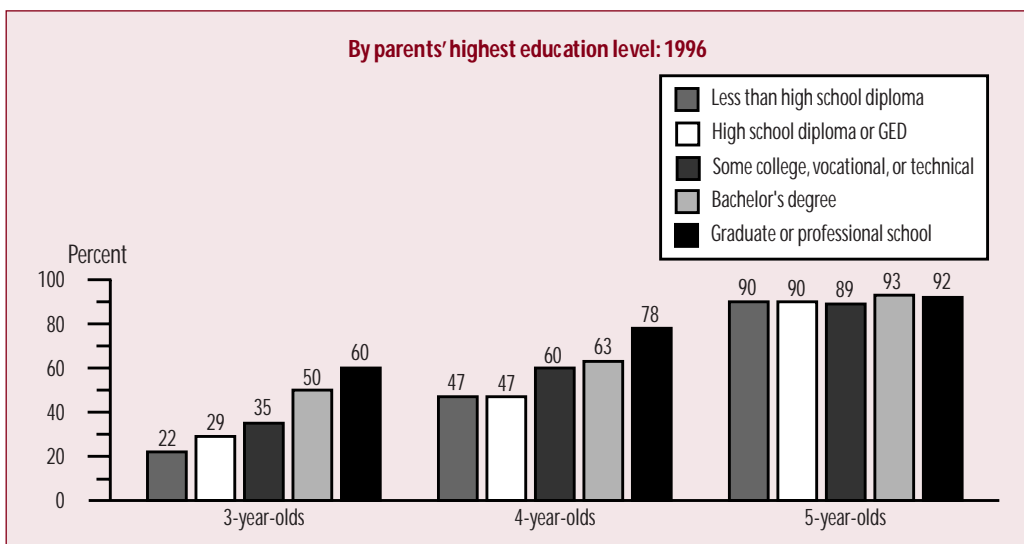
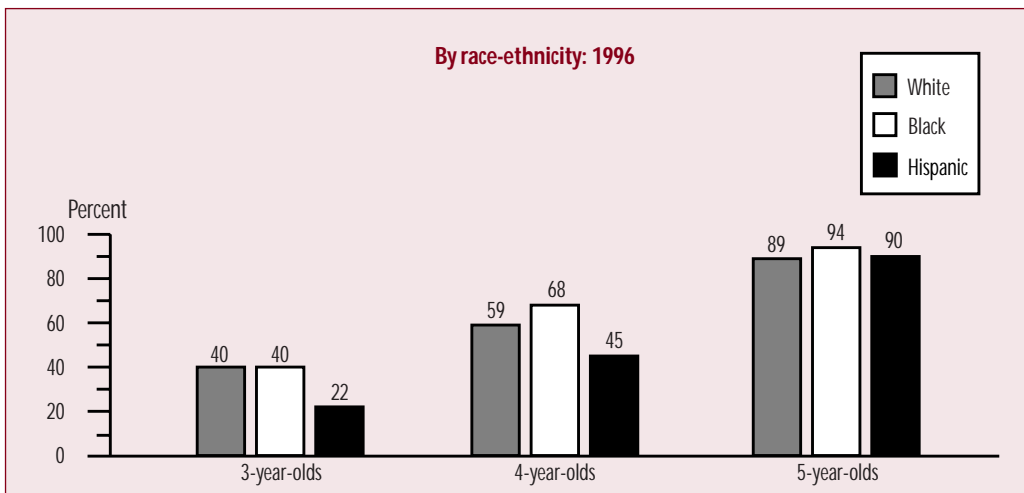
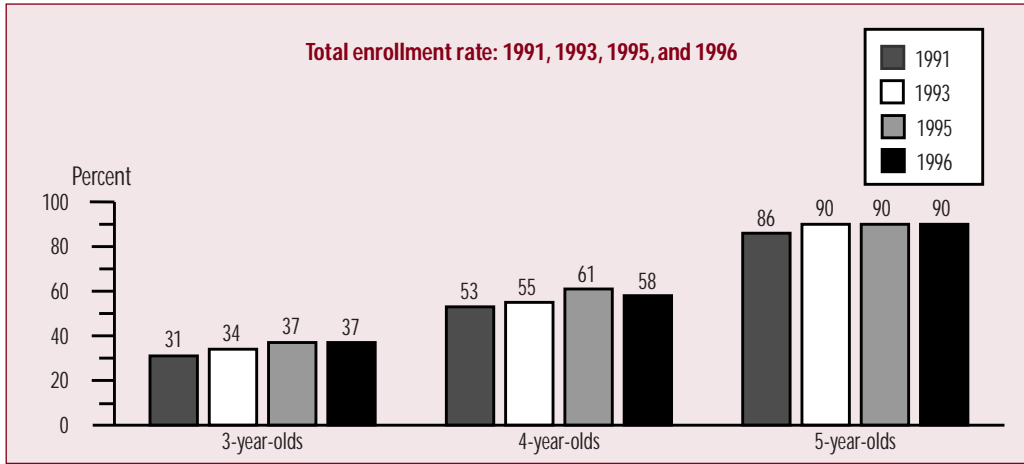
¹The middle two income ranges in 1991 were \$20,001–\$30,000 and \$30,001–\$50,000.

²Interpret with caution; standard errors are large due to small sample sizes.

NOTE: Included in the total but not shown separately are children from other racial-ethnic groups and other types of family structures. This analysis includes children ages 3–5 who were not enrolled in first grade. Age is as of December 31 of the prior year. Center-based programs include Head Start, nursery school, and prekindergarten.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), 1991 (Early Childhood Education File), 1993 (School Readiness File), 1995 (Early Childhood Program Participation File), and 1996 (Parent and Family Involvement in Education File).

Percentage of 3-, 4-, and 5-year-olds enrolled in center-based programs or kindergarten



NOTE: Included in the total but not shown separately are children from other racial-ethnic groups. This analysis includes children ages 3–5 who were not enrolled in first grade. Age is as of December 31 of the prior year.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), 1991 (Early Childhood Education File), 1993 (School Readiness File), 1995 (Early Childhood Program Participation File), and 1996 (Parent and Family Involvement in Education File).

Literacy Experiences

Early Literacy Experiences in the Home

This article was originally published as an Indicator of the Month, taken from *The Condition of Education 1998*. The sample survey data are from the *NCES National Household Education Survey (NHES)*.

Family participation in literacy activities provides valuable developmental experiences for young children. In addition to developing an interest in reading, children who are read to, told stories, and visit the library may start school better prepared to learn. Engaging young children in literacy activities at home also enables parents and other family members to become active participants in their children's education at an early age.

- In 1996, more than 80 percent of children ages 3–5 were read to three or more times or told a story in the past week by a parent or family member, while 38 percent had visited a library in the past month. The percentage of children who were read to or told a story increased between 1991 and 1996.
- Children ages 3–5 who were not enrolled in preprimary education were just as likely to have been told a story by a parent or family member in the past week as their peers who were enrolled in kindergarten in 1996. However, children ages 3–5 who were not enrolled in preprimary education were less likely to have been read to three or more times in the past week or to have visited a library in the past month than children who were enrolled in kindergarten.
- White children ages 3–5 were more likely to have been read to three or more times in the past week than their black or Hispanic counterparts in 1996. Additionally, white children were more likely to have

visited a library in the past month than their black and Hispanic peers.

- In 1996, children ages 3–5 whose parents' highest education level was a bachelor's degree or higher were more likely to have been read to at least three times in the past week or to have visited a library in the past month than children whose parents' highest education level was a high school diploma or GED.

Data sources: The following components of the National Household Education Survey (NHES): Early Childhood Education (1991), Early Childhood Program Participation (1995), and Parent and Family Involvement in Education (1996).

For technical information, see

Wirt, J., Snyder, T., Sable, J., Choy, S.P., Bae, Y., Stennett, J., Gruner, A., and Perie, M. (1998). *The Condition of Education 1998* (NCES 98–013).

For complete supplemental and standard error tables, see either

- the electronic version of *The Condition of Education 1998* (<http://nces.ed.gov/pubs98/condition98/index.html>), or
- volume 2 of the printed version (forthcoming): *The Condition of Education 1998 Supplemental and Standard Error Tables* (NCES 1999–025).

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To obtain this Indicator of the Month (NCES 1999–003), 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).

Percentage of children ages 3–5 who participated in various literacy activities with a parent or family member, by selected characteristics: 1991, 1995, and 1996

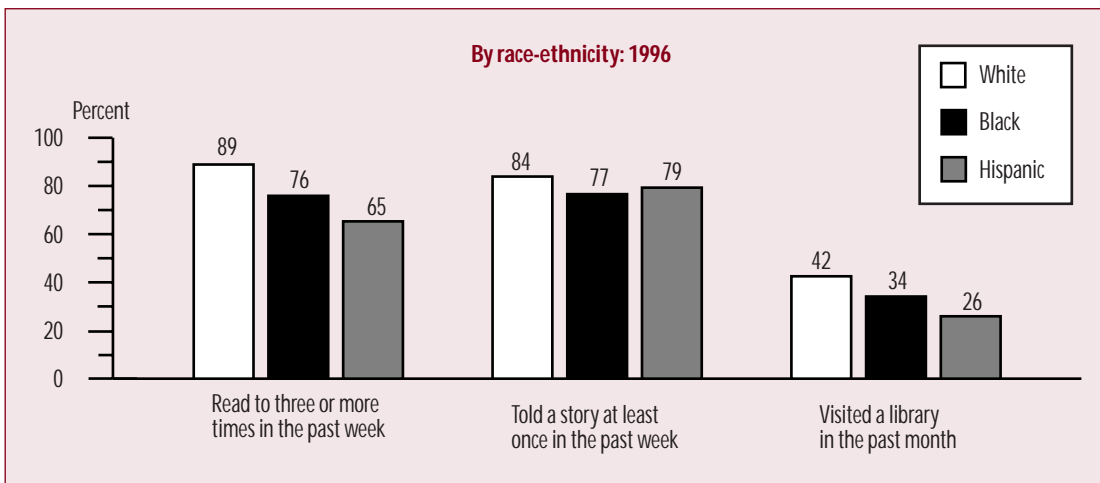
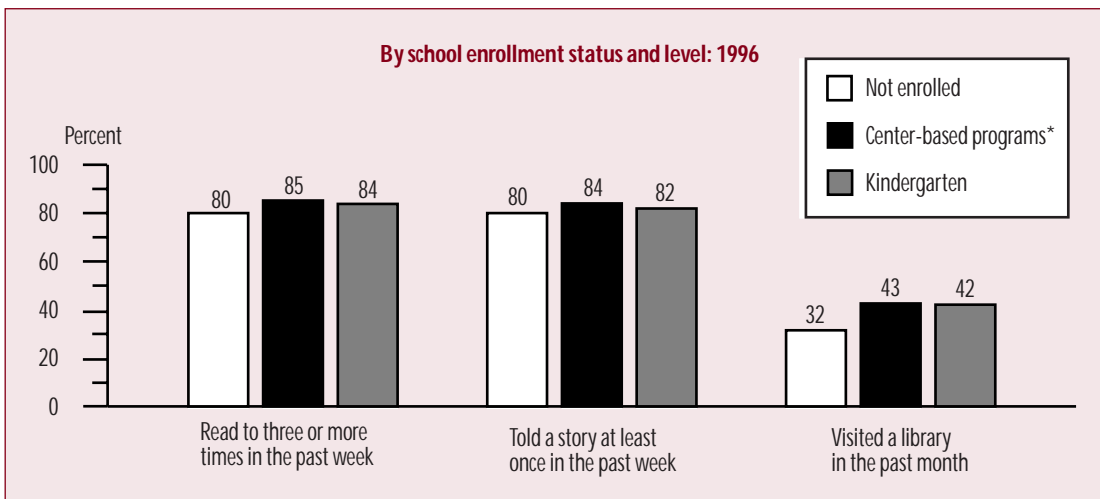
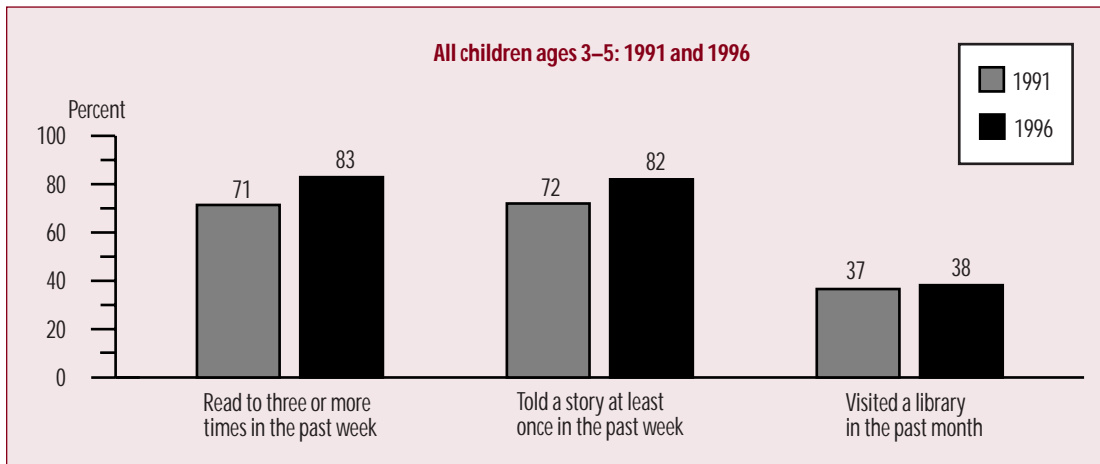
Selected characteristics	Read to three or more times in the past week			Told a story at least once in the past week			Visited a library in the past month		
	1991	1995	1996	1991	1995	1996	1991	1995	1996
Total	71.4	83.1	82.9	72.0	81.4	82.0	36.6	41.2	38.2
School enrollment status and level									
Not enrolled	68.8	81.5	80.0	72.3	80.3	80.0	30.5	32.0	31.5
Center-based programs*	75.2	85.8	85.2	74.1	82.7	84.0	41.0	46.3	42.6
Kindergarten	71.1	81.3	83.8	68.8	81.0	81.9	41.7	47.3	42.1
Race-ethnicity									
White	77.7	89.0	88.9	73.8	83.9	83.9	40.7	45.1	42.5
Black	59.0	73.7	75.9	66.0	74.4	76.6	27.8	34.1	34.1
Hispanic	53.0	61.5	65.3	68.4	75.1	79.3	24.5	28.0	25.9
Parents' highest education level									
Less than high school diploma	53.8	64.4	58.8	67.4	71.9	72.8	18.3	18.3	19.4
High school diploma or GED	63.5	77.9	77.4	68.2	77.6	79.9	26.0	31.5	30.1
Some college, vocational, or technical	74.0	85.3	86.5	74.2	82.9	84.6	38.5	40.9	37.1
Bachelor's degree	82.1	89.7	90.9	74.7	85.0	83.2	52.0	53.5	51.9
Graduate or professional school	88.3	94.0	96.1	78.4	88.2	85.8	59.1	62.8	59.5

*Center-based programs include Head Start, nursery school, and prekindergarten.

NOTE: This analysis includes children ages 3–5 who were not enrolled in first grade. Included in the total but not shown separately are children from other racial-ethnic groups.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), 1991 (Early Childhood Education File), 1995 (Early Childhood Program Participation File), and 1996 (Parent and Family Involvement in Education File).

Percentage of children ages 3–5 who participated in various literacy activities with a parent or family member



*Center-based programs include Head Start, nursery school, and prekindergarten.

NOTE: This analysis includes children ages 3–5 who were not enrolled in first grade.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Survey (NHES), 1991 (Early Childhood Education File) and 1996 (Parent and Family Involvement in Education File).

ELEMENTARY-SECONDARY EDUCATION

The NAEP 1998 Reading Report Card for the Nation <i>Patricia L. Donahue, Kristin E. Voelkl, Jay R. Campbell, and John Mazzeo</i>	25
The NAEP 1997 Arts Report Card: Eighth-Grade Findings From the National Assessment of Educational Progress <i>Hilary R. Persky, Brent A. Sandene, and Janice M. Askew</i>	29
Do Gatekeeper Courses Expand Education Options? <i>Robert Atanda</i>	33
The Civic Development of 9th- Through 12th-Grade Students in the United States: 1996 <i>Richard G. Niemi and Christopher Chapman</i>	39
Indicators of School Crime and Safety, 1998 <i>Phillip Kaufman, Xianglei Chen, Susan P. Choy, Kathryn A. Chandler, Christopher D. Chapman, Michael R. Rand, and Cheryl Ringel</i>	42
Toward Better Teaching: Professional Development in 1993–94 <i>Susan P. Choy and Xianglei Chen</i>	46
Status of Education Reform in Public Elementary and Secondary Schools: Teachers' Perspectives <i>Debbie Alexander, Sheila Heaviside, and Elizabeth Farris</i>	50
How Old Are America's Public Schools? <i>Cassandra Rowand</i>	53
Internet Access in Public and Private Schools <i>from The Condition of Education 1998</i>	57
Overview of Public Elementary and Secondary Schools and Districts: School Year 1996–97 <i>Lee Hoffman</i>	59

1998 Reading Report Card

The NAEP 1998 Reading Report Card for the Nation

— Patricia L. Donahue, Kristin E. Voelkl, Jay R. Campbell, and John Mazzeo

This article was originally published as the Executive Summary of the Report Card of the same name. The data are from the NAEP 1998 Reading Assessment.

The National Assessment of Educational Progress (NAEP) is the nation's only ongoing survey of what students know and can do in various academic subject areas. Authorized by Congress and administered by the National Center for Education Statistics 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 1998, NAEP conducted a national reading assessment of 4th-, 8th-, and 12th-grade students, and a state-by-state reading assessment of 4th- and 8th-grade students.

This report presents the results of the NAEP 1998 Reading Assessment for the nation. Results in 1998 are compared with those in 1994 and 1992. Students' performance on the assessment is described in terms of their average scores on a 0-to-500 scale and in terms of the percentage of students attaining three achievement levels: *Basic*, *Proficient*, and *Advanced*.

The achievement levels are performance standards, adopted by the National Assessment Governing Board

as part of its statutory requirements. The levels are collective judgments of what students should know and be able to do for each grade tested. They are based on recommendations by broadly representative panels of classroom teachers, education specialists, and members of the general public.

As provided by law, the 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 Commissioner and the Board believe that these performance standards are useful for understanding trends in student achievement. They have been widely used by national and state officials, including the National Education Goals Panel, as a common yardstick of academic performance.

In addition to providing average scores and achievement-level performance for the nation, this report provides results for subgroups of students defined by various background and contextual characteristics. A summary of major findings from the NAEP 1998 Reading Assessment is presented below.

Reading Scale-Score and Achievement-Level Results for the Nation

- Average reading scores increased for students in grades 4, 8, and 12. At the 4th and 12th grades, the national average score was higher in 1998 than in 1994. At the 8th grade, the national average score was higher in 1998 than in 1994 and 1992.
- While the national average reading score increased at all three grades in 1998, increased scores were not observed for all students. At grade 4, score increases were observed only among lower performing students. At grade 8, score increases were observed among lower and middle performing students. At grade 12, score increases were observed among middle and upper performing students; however, the score for lower performing 12th-graders was not as high in 1998 as it had been in 1992.
- Across the three grades (4, 8, and 12) in 1998, the percentages of students performing at or above the *Basic* level were 62, 74, and 77 percent; the percentages who performed at or above the *Proficient* level were 31, 33, and 40 percent; and the percentages who performed at the highest achievement level, *Advanced*, were 7, 3, and 6 percent.

- At grade 4, no significant changes since 1994 or 1992 were observed in the percentages of students attaining any of the achievement levels.
- At grade 8, a greater percentage of students performed at or above the *Basic* level and the *Proficient* level in 1998 compared with 1994 and 1992.
- At grade 12, a greater percentage of students performed at or above the *Proficient* level and the *Advanced* level in 1998 compared with 1994. The percentage of students at *Advanced* was also greater in 1998 than in 1992. Although the 1998 percentage of students at or above *Basic* was greater than that in 1994, it remained lower than the 1992 percentage.

Reading Results for Student Subgroups

Sex

- At all three grades in 1998, female students had higher average scale scores than their male peers, and the percentage of females attaining each of the reading achievement levels exceeded that of males.
- At grade 4, males had a higher average score in 1998 than in 1994; however, the average score of female fourth-graders remained unchanged. At grade 8, both male and female students had higher average scores in 1998 than in 1994 and 1992. At grade 12, an apparent increase was observed for both males and females between 1994 and 1998; however, the increase was not significant for male students. The average score for male 12th-graders in 1998 remained lower than that in 1992.

Race-ethnicity

- At all three grades in 1998, the average score for white students was higher than those for black, Hispanic, and American Indian students.
- At grade 4, the only significant increase among racial-ethnic groups was observed for black students, whose average score in 1998 was higher than in 1994. At grade 8, increases were evident for both white and black students; their average scores in 1998 were higher than in 1994 and 1992. At grade 12, increases were evident for both white and Hispanic students since 1994.

Parents' level of education

- Students in grades 8 and 12 were asked to indicate their parents' highest level of education. Consistent with past NAEP assessments, students in 1998 who

reported higher levels of parental education had higher average scale scores.

- The average score of eighth-graders who reported the highest level of parental education—graduated from college—was higher in 1998 than in both 1994 and 1992. The average score of 12th-graders who reported the lowest level of parental education—did not finish high school—was lower in 1998 than in 1992.

Regions of the country

- The 1998 results by region indicated that fourth- and eighth-graders in the Northeast and Central regions outperformed their counterparts in the Southeast and West. Among 12th-graders, students in the Southeast had lower scores than students in the other three regions. Also among 12th-graders, students in the Central region outperformed students in the West region.
- An examination of results for students within the four regions—Northeast, Southeast, Central, and West—reveals four changes across the assessment years. In the Northeast, the 1998 average score for eighth-graders was higher than in 1992, and fourth-graders showed an increase between 1994 and 1998. In the Southeast, eighth-graders had a higher average score in 1998 than in 1994 and 1992. And for 12th-graders in the Central region, the 1998 average score was higher than the 1994 average score.

Type of location

- In 1998, fourth- and eighth-graders in central city schools had lower average scores than their counterparts in rural or small town schools and urban fringe or large town schools. Also, eighth-graders in rural or small town schools had lower average scores than their counterparts in urban fringe or large town schools. No significant differences were observed among 12th-graders by type of location.
- Among students attending central city schools, eighth-graders had a higher average score in 1998 than in 1992. Among students attending schools in urban fringe or large town locations, 8th- and 12th-graders had higher average scores in 1998 than in 1994. In rural or small town schools, 12th-graders had a higher average score in 1998 than in 1994.

Free or reduced-price lunch program

- The NAEP 1998 Reading Assessment collected information on student eligibility for the federally funded free or reduced-price lunch program that provides children near or below the poverty line with nourishing meals. At all three grades, students who were eligible for the free or reduced-price lunch program had lower average reading scores than students who were not eligible for the program.

Type of school

- Consistent with past NAEP reading assessments, the 1998 results indicated that students attending nonpublic schools had higher average scale scores than their counterparts attending public schools.
- At grades 8 and 12, there was an increase between 1994 and 1998 in the average scores of students attending public schools. For eighth-grade public school students, the 1998 average was also higher than the 1992 average. While there was no significant change at any grade in the average score for all nonpublic schools, eighth-graders attending nonpublic Catholic schools had an average score in 1998 that was higher than in 1992.

School and Home Factors Related to Reading Performance

Pages read for school and homework

- In 1998, at all three grades assessed, students who reported reading more pages daily in school and for homework had higher average scale scores than students who reported reading fewer pages daily.
- The 1998 results indicated that students in grades 8 and 12 were reading more pages each day for school and for homework than in 1994.

Explain understanding and discuss interpretations

- Eighth- and 12th-grade students reported on how often they were asked to explain their understanding and discuss interpretations of their reading. At both grades, a positive relationship was observed between these instructional activities and student reading performance. Students who reported being asked by their teachers to explain their understanding or discuss interpretations at least once a week had higher average scores in 1998 than their classmates who reported doing so less than weekly.

- At grade 8, students' reports in 1998 indicated an increase in the frequency of both of these activities since 1994 and 1992. Twelfth-graders' reports indicated an increase since 1994 in the frequency of being asked to explain their understanding.

Writing long answers in response to reading

- At all three grades, a positive relationship between student reading performance and writing long answers to questions on tests and assignments that involved reading is generally supported by findings from the 1998 NAEP assessment. Students who reported engaging in this activity on a weekly or a monthly basis had higher average scores than students who reported doing so only once or twice a year, or hardly ever. At the 12th grade, students who reported doing such writing at least once or twice a week demonstrated the highest reading performance.
- Increases since 1994 in the frequency of this activity were indicated in the 1998 reports of fourth- and eighth-graders.

Reading self-selected books in school

- Fourth-grade students who reported that their teachers gave them time to read books of their own choosing on a daily basis had a higher average score than their peers who reported being given time to do so less often. However, at grades 8 and 12, this activity did not have a positive relationship with average scores.
- Students' reports in 1998 indicated an increase since 1994 in the frequency of this activity for 4th-graders, while the reports of 8th- and 12th-graders indicated an increase since 1992.

Discussing studies at home

- At all three grades in 1998, students who reported at least weekly home discussions about their studies had higher average scores than students who reported discussing their studies less frequently. At the 8th and 12th grades, having such discussions almost every day was associated with the highest average scores.

- Students' reports in 1998 indicated little change across assessment years in the percentages of students discussing their studies at home more or less frequently.

Talking about reading with family or friends

- At all three grades in 1998, students who reported talking about their reading activities with family or friends once or twice a week, or at least monthly, had higher average scores than students who reported doing so rarely or never.
- At grades 8 and 12, students' reports in 1998 indicated that they were talking about their reading activities less frequently in comparison to their reports in 1992.

Television viewing

- At all three grades in 1998, students who reported watching 3 or fewer hours of television each day had higher average scores than students who reported watching more television.
- Results of the 1998 assessment are encouraging in that they indicate decreases since 1994 in the amount of time students spend watching television each day.

Data source: The National Assessment of Educational Progress (NAEP) 1998 Reading Assessment.

For technical information, see the complete report:

Donahue, P.L., Voelkl, K.E., Campbell, J.R., and Mazzeo, J. (1999). *The NAEP 1998 Reading Report Card for the Nation* (NCES 1999-459).

For additional details about NAEP 1998 methodology, see

National Center for Education Statistics (forthcoming). *NAEP 1998 Technical Report*.

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To obtain the complete report (NCES 1999-459), 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).

1997 Arts Report Card

The NAEP 1997 Arts Report Card: Eighth-Grade Findings From the National Assessment of Educational Progress

Hilary R. Persky, Brent A. Sandene, and Janice M. Askew

This article was originally published as the Executive Summary of the Report Card of the same name. The sample survey data are from the NAEP 1997 Arts Assessment.

The last several years have seen a growing resolve among educators and policymakers to assure the place of a solid arts education in the nation's schools. There are many reasons for this resolve, but certainly among the most important is the contribution the arts make to the quality of education. As stated in the Improving America's Schools Act of 1994, "The Congress finds that the arts are forms of understanding and ways of knowing that are fundamentally important to education."¹

For more than 25 years, the National Assessment of Educational Progress (NAEP) has reported on the knowledge and skills of children in the United States. If policymakers, educators, and concerned citizens are to reform and improve the U.S. educational system to ensure that students receive a solid arts education, they need valid and reliable information about the arts skills and abilities of our nation's students. As the nation's only ongoing survey of students' educational progress, NAEP is an important resource for understanding what students know and can do. NAEP assessments have explored students' abilities in a range of subject areas, including reading, science, U.S. history, and mathematics. Based on assessment results, NAEP reports levels of student achievement and the instructional, institutional, and demographic variables associated with those levels of achievement.

In 1997, NAEP conducted a national assessment in the arts at grade 8. The assessment included the areas of music, theatre, and visual arts. (Though an assessment was developed for dance, it was not implemented because a statistically suitable sample could not be located.) For each of these arts areas, this *Report Card* describes the achievement of eighth-graders within the general population and in various subgroups. Taken with the information provided about instructional and institutional variables, this report gives readers a context for evaluating the status of students' learning in the arts.

Readers should note that this report is intended to be read with a CD-ROM (Persky, Sandene, and Askew 1999). The CD features the complete text of the report, as well as

more examples of student responses to assessment exercises.

The NAEP Arts Education Assessment Framework

The arts assessment was designed to measure the content specifications described in the NAEP *Arts Education Assessment Framework* (National Assessment Governing Board 1994). The central principle underlying the arts framework is that dance, music, theatre, and visual arts are crucial components of a complete education. The arts have a unique capacity to integrate intellect, emotions, and physical skills in the creation of meaning. According to the framework, the teaching of the arts will, at its best, emphasize Creating and Performing works of art as well as studying and analyzing existing works. Thus, meaningful arts assessments should be built around three arts processes: Creating, Performing, and Responding.

- *Creating* refers to expressing ideas and feelings in the form of an original work of art; for example, a dance, a piece of music, a dramatic improvisation, or a sculpture.
- *Performing* refers to performing an existing work, a process that calls upon the interpretive or re-creative skills of the student.
- *Responding* refers to observing, describing, analyzing, and evaluating works of art.

In order to capture the processes of Creating, Performing, and Responding, the arts assessment exercises included the following:

- Authentic tasks that assessed students' knowledge and skills in Creating and Performing music and theatre, and Creating in visual arts. Among other activities, students were to sing, create music, create and perform dances, act in theatrical improvisations, and work with various media to create works of visual art. Students were also to evaluate their own work in written form.
- Constructed-response and multiple-choice questions that explored students' abilities to describe, analyze, interpret, and evaluate works of art in written form.

¹Improving America's Schools Act of 1994, H.R. 6, 103rd Cong., 2nd Sess. (1994).

The Arts Assessment Student Samples

The NAEP 1997 Arts Assessment was conducted nationally at grade 8.² For music and visual arts, representative samples of public and nonpublic school students were assessed. A special sample was assessed for theatre.

The decision to assess a special sample of students for theatre was made based on the results of the 1995 NAEP field tests in all four arts at grades 4 and 8. Field-test data indicated that small percentages of students were exposed to comprehensive theatre programs in the nation's schools. (Eleven percent of students who were part of the random sample taking the 1997 visual arts assessment had some exposure to theatre education.)

To ensure rich results about what students who have been exposed to theatre in school know and can do, the National Center for Education Statistics (NCES), the National Assessment Governing Board (NAGB), members of the arts community, and Educational Testing Service (ETS) decided that a “targeted” sample of students should take the theatre assessment. Schools offering at least 44 classroom hours of a theatre course per semester, and offering courses including more than the history or literature of theatre, were identified. Students attending those schools who had accumulated 30 hours of theatre classes by the end of the 1996–97 school year were selected to take the theatre assessment.

In this *Report Card*, discussions of student performance on the theatre assessment refer to this special sample of students, not to the nationally representative sample of students who took the music and visual arts assessments.

Also based on the results of the 1995 arts field test, a decision was made to have a targeted sample of students take the dance assessment. (Results from the 1997 arts assessment indicate that 3 percent of students in the national random sample received dance instruction in school three or four times a week.) The NAEP staff responsible for drawing NAEP samples and obtaining

participation worked with the arts community to set criteria for the dance student sample and then to locate schools offering comprehensive dance programs.³ However, after considerable effort, a sample suitable in size and national distribution could not be found.

So that readers will have a picture of the performance assessment in dance that was developed based on the arts framework, the dance exercises that were intended for administration to students are included in this *Report Card*.

Student Achievement

In this report, student performance on the arts assessment is presented in several ways. Overall summaries of results for Creating, Performing, and Responding in terms of student- and school-reported background variables are featured. For theatre, student results are also discussed in terms of teacher-reported background variables.⁴

The overall summaries of results deal with Creating, Performing, and Responding separately. Responding results within music, theatre, and visual arts are grouped for summarization on three NAEP arts Responding scales, each of which ranges from 0 to 300. Average Responding scale-score results are presented by demographic and “opportunity to learn” variables—such as frequency of arts instruction, arts facilities, and classroom activities in the arts—based on student-, school-, and, in the case of theatre, teacher-reported background information. Creating and Performing results are not summarized using a standard NAEP scale. Instead, these results are presented as average percentages of the maximum possible score on exercises, in relation to demographic and opportunity-to-learn variables. (These average scores represent the overall mean percentage that students earned of the possible number of points for the components of Creating and Performing tasks.)

³Students who would have taken the dance assessment attended schools that offered at least 17 classroom hours of a dance course per semester. These students had to be currently enrolled in dance classes or had to have taken dance coursework in the last year. Coursework needed to include more than dance in athletic contexts—for example, dancersize or dance team—and more than aesthetics or criticism.

⁴A teacher questionnaire was administered only for the theatre assessment because of the special nature of the theatre sample. Students who took the music and visual arts assessments were a random national sample. These students attended schools where music and visual arts may be taught by itinerant teachers or part-time staff. By contrast, those who took the theatre assessment attended schools that featured theatre as a substantial part of the curricula. This increased the chance of teacher response to the questionnaire.

²The arts assessment was administered at grade 8 only because, due to budget constraints, NAEP could not comprehensively assess the arts at grades 4, 8, and 12. (This shortfall also affected other NAEP subjects, such as math and science.) The arts community was widely consulted and recommended that the assessment be administered at one grade, grade 8. In this way, a full assessment of the arts framework, with authentic Creating, Performing, and Responding exercises, could be administered in the different arts.

Major Findings in Music, Theatre, and Visual Arts for the Nation

Music

- *Responding.* Most students could select appropriate functional uses for different types of music and could partially justify their choices in writing. For example, 79 percent of students could identify an excerpt from Brahms' "Lullaby" as being suitable for putting a child to sleep and could provide some justification for their choice.
- *Responding.* Students showed some skills in critiquing simple music performances. For example, 45 percent of students were able to identify and describe two errors, and 16 percent of students were able to identify and describe three errors in a performance of "Michael Row the Boat Ashore."
- *Creating.* Students showed limited abilities in creating music. When asked to create a rhythmic embellishment based on the first two phrases of "Ode to Joy," 24 percent of students were able to perform music that was scored "Adequate" or above in overall appeal and interest.
- *Performing.* Students' singing abilities across various aspects of musical performance were mixed. When singing the song "America" with a taped accompaniment, 78 percent of students were able to sing the rhythms of the melody with generally acceptable rhythmic ensemble and accuracy. In contrast, 35 percent of the students sang almost all of the pitches of the melody accurately, and 24 percent sang with a tone quality considered appropriate in most sections of the music.

Theatre

- *Responding.* More students could describe feelings conveyed by actors in dramatic performances, or what actors did with their faces, voices, or bodies, than could explain how actors used their faces, voices, and bodies to convey character and feeling. For example, 41 percent of students could describe the voice used by an actor in a radio play. Fourteen percent were able to describe ways the actor's voice conveyed his character.
- *Responding.* Students showed some knowledge of the technical elements of theatre. Sixty-five percent of students could offer reasonably accurate plans

for how to create lighting effects for a scene in a Carson McCullers play. Fifty percent were able to draw ground plans for a set of that scene that showed some understanding of a theatre space. Seventeen percent of students were able to draw complete and essentially error-free ground plans.

- *Creating and Performing* (combined category). Students' abilities to combine dialogue, action, and expression to communicate meaning to an audience varied across Creating-Performing tasks. Sixty-seven percent of students demonstrated this ability most of the time in an improvisational task, and 2 percent did all the time. In a cold reading of a script, 30 percent of students demonstrated the ability to convey meaning (if only generally) most of the time, and 6 percent did all the time.

Visual arts

- *Responding.* Some students were able to accurately describe some aspects of artworks. For example, 29 percent of students could describe three ways in which Raphael created a sense of near and far in a Madonna and Child painting.
- *Responding.* Students' abilities to place artworks in historical or cultural contexts varied. For example, 55 percent of students could identify which of four works was a work of contemporary Western art, and 25 percent could identify which of four works contributed to Cubism.
- *Responding.* Generally, linking aesthetic features of artworks explicitly with meaning seemed challenging for students. Four percent of students could write a brief essay linking a full analysis of technical aspects of a Schiele self-portrait to an interpretation, while 24 percent were able either to link sparser technical analyses to interpretations or to analyze technical aspects without an interpretation.
- *Creating.* Students showed some ability to create specific, fully observed, and expressive two-dimensional artworks. One percent of students created expressive collages that showed a consistent awareness of qualities such as color, texture, and contrast. However, 42 percent were able to effectively use collage techniques in parts of their collages.
- *Creating.* Students seemed to find applying their knowledge and skills to three-dimensional tasks challenging. For example, 3 percent of students were

able to create freestanding sculptures out of plasticine and wire that skillfully combined shapes, details, and textures into an imaginative interpretation of kitchen utensils. Many more students (21 percent) created sculptures that were not freestanding, or showed some ability to realize an idea in an inventive, organized interpretation.

Major Findings for Students and Arts Learning in the Nation's Schools

- A large percentage of eighth-grade students attended schools in which music and visual arts were taught, in most cases by full-time or part-time specialists. Student access to theatre and dance instruction was more limited.
- Most students attended schools in which instruction following district or state curricula was offered in the subjects of music and visual arts, but not in theatre or dance.
- Most visual arts and music instruction took place in school facilities dedicated to that subject. Where available, dance was usually taught in gymnasiums. Where available, theatre instruction usually took place on a stage or in a room dedicated to theatre teaching.

Major Creating, Performing, and Responding Findings for Student Subgroups

- In the NAEP arts assessment, females consistently outperformed their male peers.
- White and (where sample sizes were large enough) Asian students had higher average scores in Creating, Performing, and Responding than did black or Hispanic students in some instances. However, music Creating scores of black and white students were comparable, as were music Creating and Performing scores among black, Hispanic, and Asian students.
- Consistent with past NAEP assessments, higher levels of parental education were associated with higher levels of student performance in the arts assessment.⁵

⁵Note that the student samples for music and visual arts differed from the theatre sample. While students who took the music and visual arts assessments were a random national sample, those that took the theatre assessment were selected from students who had some theatre education.

Cautions in Interpretations

The reader is cautioned against interpreting the relationships among subgroup averages or percentages as causal relationships. Average performance differences between two groups of students may result in part from socioeconomic and other factors. For example, differences among racial-ethnic subgroups are almost certainly associated with a broad range of socioeconomic and educational factors not discussed in this report.

Additionally, readers should avoid making comparisons in scores across arts areas. The scales in each subject are independent, and the same score in two arts areas may not mean the same things in terms of student achievement.

Finally, readers should note that NAEP administered assessments in music and visual arts in 1974 and 1978. However, the assessment results for 1997 examined in this report are not comparable with the results from the earlier assessments, because of considerable changes in the nature of the 1997 assessment, based on the recently created *Arts Education Assessment Framework*.

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To obtain the complete report (NCES 1999-486) or the CD-ROM version (NCES 1999-485), 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).

Gatekeeper Courses

Do Gatekeeper Courses Expand Education Options?

Robert Atanda

This article was originally published as a Statistics in Brief report of the same name. The sample survey data are from the National Education Longitudinal Study of 1988 (NELS:88). Technical notes, standard error tables, and definitions from the original report have been omitted.

Introduction

Enrollment in advanced-level math and foreign language courses while in high school is not always an option for most students. It requires advance planning by both students and parents. For example, parents who have high expectations for their children's education realize that many advanced-level courses require prerequisites. Thus, planning and enrolling in the necessary foundation courses, such as algebra and foreign language during eighth grade, can place a student higher in the math and foreign language pipelines and may eventually lead to decisions, such as applying to college, that are highly related to attending a college (Berkner and Chavez 1997). According to the U.S. Department of Education's white paper, "Mathematics Equals Opportunity," students who plan to take advanced mathematics courses during high school and begin to study algebra during middle school are at a clear advantage (U.S. Department of Education 1997). With this potential advantage in mind, this report examines the relationship between applying to a 4-year college or university and enrollment in algebra or a foreign language as an eighth-grader, in combination with high school course-taking patterns (math and foreign language). For this analysis, pipeline-level variables were created for math and foreign language based on high school coursework.

The data in this report were obtained from the base-year and second follow-up surveys of the National Education Longitudinal Study of 1988 (NELS:88). NELS:88 began with a sample of 1,052 schools and 24,599 eighth-graders. These eighth-grade cohort members were resurveyed in 1990 and 1992, while in high school, to determine their educational progress as well as their school, work, and community experiences. Data from the base-year (1988) and second follow-up (1992) surveys were used in this report. The results of this report—based on data from 12,053 of the students from the original cohort—apply to students who were eighth-graders in 1988 and graduated from high school in 1992.

Highlights include the following:

- *Enrollment in gatekeeper courses, such as algebra and foreign language, in eighth grade helps students reach higher levels in the mathematics and foreign language*

pipelines. For example, students who enrolled in algebra as eighth-graders were more likely to reach high-level math courses (e.g., algebra 3, trigonometry, or calculus) in high school than those students who did not enroll in algebra as eighth-graders.

- *Reaching higher levels in the mathematics and foreign language pipelines, combined with enrollment in eighth-grade algebra or eighth-grade foreign language, provides students with an advantage.* For example, students who enrolled in algebra as eighth-graders and completed a high-level math course during high school were more likely to apply to a 4-year college than those students who did *not* enroll in algebra as eighth-graders but who also completed a high-level math course during high school.

For many students, a college education can be very difficult to obtain. For others, though, the process is easier. They are able to apply, attend, and graduate with a postsecondary degree. Why is the process easier for these students? One explanation may be that these students receive an early start in core subjects, such as math and foreign language. Taking algebra or a foreign language in the eighth grade may help contribute to students enrolling in high-level math and foreign language courses during high school, which is associated with applying to a 4-year college. In the next two sections, this report examines the relationships between course-taking behavior in math and foreign language, and application to college.

Enrollment in Algebra and Foreign Language During Eighth Grade

In America's education system, math and foreign language are known as sequential subjects. Usually, students do not enroll in calculus before they complete algebra, geometry, trigonometry, or precalculus; nor do they complete French IV with a passing grade and then enroll in French I. It is typical for students to begin in the lower level courses before enrolling in the more advanced classes. Due to the sequential nature of the subjects, it is advantageous for students to initiate these course sequences before high school. Coursework in algebra and a foreign language during eighth grade enables students to reach higher levels in math and foreign language during high school.

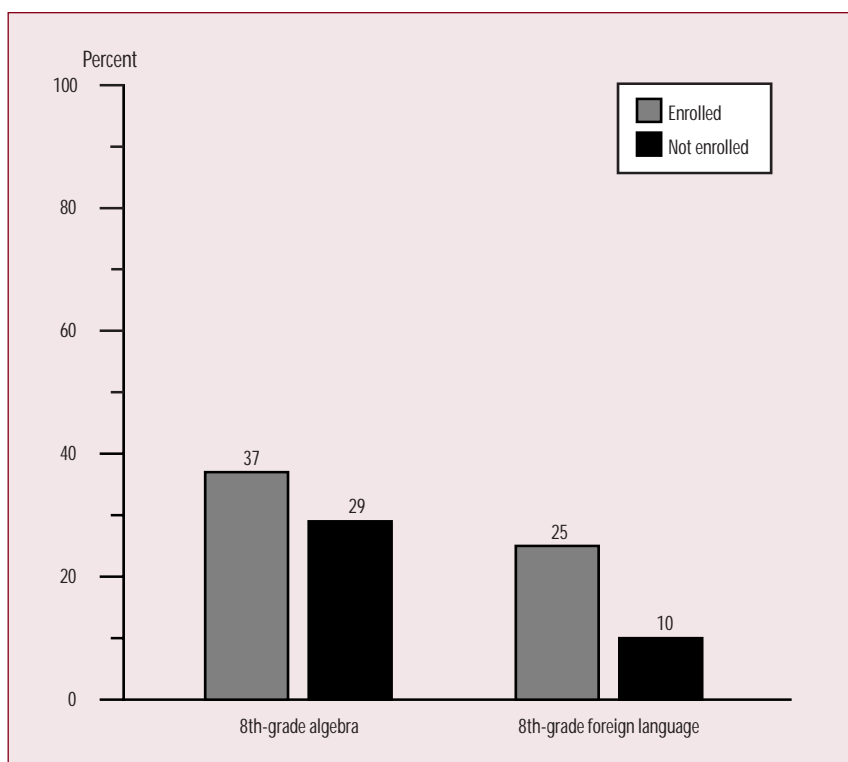
Figure 1 presents information about 1988 eighth-grade students who enrolled in an algebra course that met at least once a week. Thirty-seven percent of those 1988 eighth-grade students who enrolled in algebra completed a high-level math course (algebra 3, trigonometry, calculus, etc.) by 1992, compared with 29 percent of those eighth-grade students who did not take algebra. This same pattern is true for foreign language. Twenty-five percent of those 1988 eighth-graders who enrolled in a foreign language in eighth grade completed a high-level foreign language course

(at least .5 Carnegie unit of 12th-grade language)* by 1992, compared with 10 percent of those students who did not enroll in a foreign language as eighth-graders.

Enrolling in foreign language and math courses during eighth grade is only one step toward academic advancement; completing high-level classes in these courses is also an important step. Table 1 provides additional information about students at different levels in the math and foreign language pipelines.

*One Carnegie unit is equivalent to a 1-hour class that meets 5 days a week for 1 school year, and 12th-grade language is equivalent to the fourth level of a particular language (e.g., French IV).

Figure 1.—Percentage of 1992 high school graduates who completed high-level mathematics and foreign language courses, by enrollment status in algebra and foreign language as eighth-graders



NOTE: High-level math refers to any combination of one or more of the following subjects: trigonometry, algebra 3, statistics, calculus, probability, or analytical geometry. High-level foreign language indicates that the student completed at least .5 Carnegie unit of 12th-grade language.

SOURCE: National Education Longitudinal Study of 1988, base year (1988), second follow-up (1992), and transcript study.

Table 1. — Percentage of 1992 high school graduates at each level in the math and foreign language pipelines, by selected characteristics

	Math ¹			Foreign language ²		
	Low	Middle	High	Low	Middle	High
Total	22.6	46.1	31.3	27.9	58.4	13.7
Sex						
Male	24.4	44.6	31.0	32.0	56.5	11.4
Female	20.9	47.6	31.6	24.2	60.0	15.8
Race-ethnicity						
Asian	11.7	39.5	48.9	12.6	61.4	26.0
Hispanic	28.6	49.2	22.2	35.0	51.4	13.8
Black, non-Hispanic	32.2	48.1	19.8	38.6	55.9	5.6
White, non-Hispanic	20.2	45.5	34.3	26.0	59.4	14.5
Socioeconomic status (SES) ³						
Low	44.2	45.2	10.6	48.5	43.9	7.6
Middle	20.9	50.9	28.2	30.4	59.7	10.0
High	6.8	37.5	55.7	14.2	63.3	22.6
Enrolled in 8th-grade algebra						
Yes	18.8	43.9	37.3	31.8	61.6	6.7
No	23.7	47.2	29.1	39.1	50.6	10.4
Enrolled in 8th-grade language						
Yes	22.7	50.8	26.5	18.6	56.2	25.2
No	23.4	60.1	16.6	30.6	59.8	9.6
Males who enrolled in 8th-grade algebra						
Yes	11.3	41.7	47.1	20.0	62.8	17.2
No	14.7	50.0	35.3	30.0	60.7	9.4
Males who enrolled in 8th-grade language						
Yes	8.5	40.4	51.2	17.0	57.6	25.5
No	14.9	49.2	35.9	29.6	62.5	7.9
Females who enrolled in 8th-grade algebra						
Yes	8.1	46.6	45.3	15.8	62.0	22.1
No	11.0	51.7	37.3	21.3	64.2	14.5
Females who enrolled in 8th-grade language						
Yes	8.1	42.4	49.5	10.4	59.5	30.2
No	10.6	53.4	36.0	22.1	65.4	12.6
Low-level SES students who enrolled in 8th-grade algebra						
Yes	11.3	41.7	47.1	20.0	62.8	17.2
No	14.7	50.0	35.3	30.0	60.7	9.4
Middle-level SES students who enrolled in 8th-grade algebra						
Yes	11.2	49.5	39.3	20.3	67.0	12.7
No	12.3	55.4	32.3	28.3	62.2	9.4
High-level SES students who enrolled in 8th-grade algebra						
Yes	2.3	30.7	67.0	9.9	59.4	30.8
No	5.5	38.2	56.3	14.7	67.2	18.1
Low-level SES students who enrolled in 8th-grade language						
Yes	8.5	40.4	51.1	17.0	57.6	25.5
No	14.9	49.2	35.9	29.6	62.5	7.9
Middle-level SES students who enrolled in 8th-grade language						
Yes	10.3	53.4	36.3	18.4	64.7	17.0
No	12.4	53.2	34.4	27.3	63.8	9.0
High-level SES students who enrolled in 8th-grade language						
Yes	2.8	25.1	72.1	6.0	54.0	40.0
No	4.9	41.8	53.3	16.0	69.5	14.5

¹High-level math refers to trigonometry, algebra 3, statistics, calculus, probability, and analytical geometry. Middle-level math refers to algebra 1 and geometry. Low-level math refers to pre-algebra and informal geometry.

²High-level foreign language indicates student completed at least .5 Carnegie unit of 12th-grade language. Middle-level foreign language indicates student completed at least .5 Carnegie unit of 10th-grade language. Low-level foreign language indicates student completed anything less than .5 Carnegie unit of 10th-grade language.

³SES (F2SES1Q): low (quartile 1), middle (quartiles 2 and 3), high (quartile 4).

SOURCE: National Education Longitudinal Study of 1988, base year (1988), second follow-up (1992), and transcript study.

Applying to College

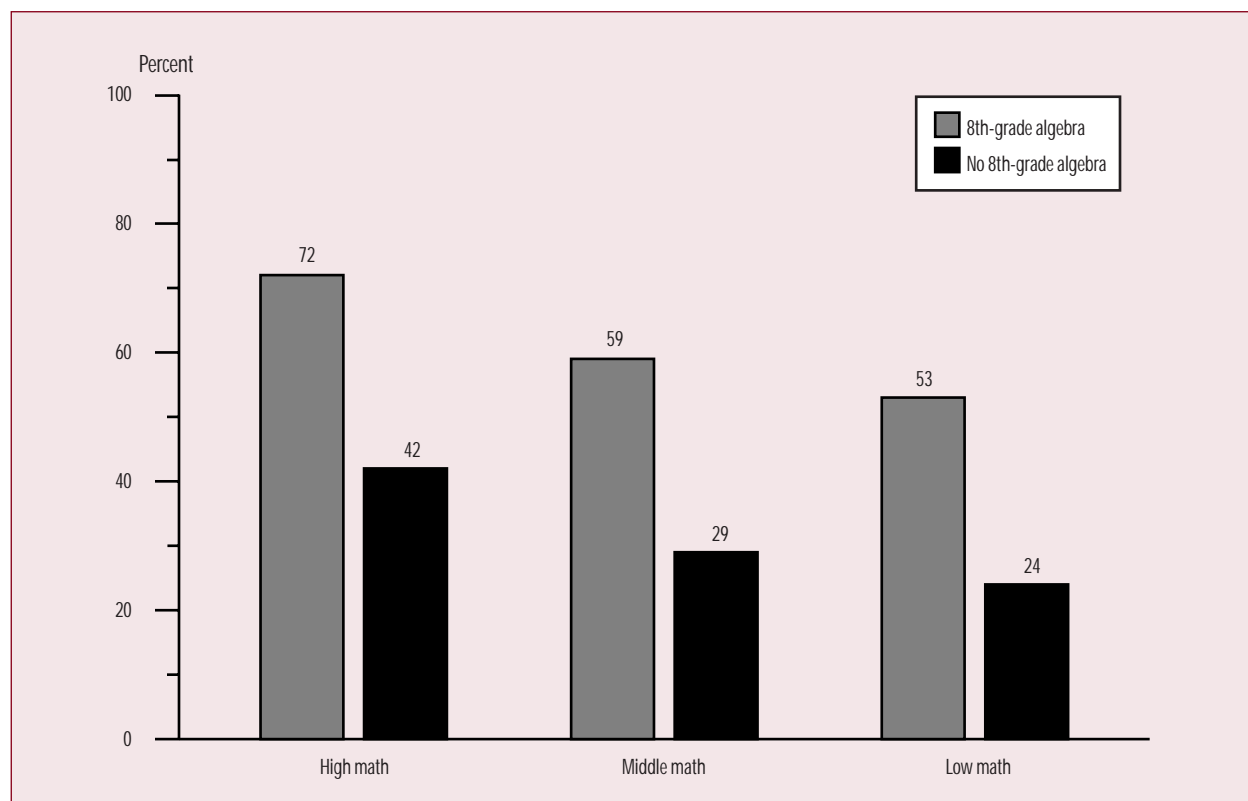
Generally, completing an application is a required step for admission and subsequent enrollment in a 4-year college or university. This section presents data showing that eighth-grade enrollment in algebra or foreign language is associated with postsecondary education even when controlling for high school course taking. Enrolling in algebra or a foreign language during eighth grade, in addition to completing higher levels in math or foreign language, is associated with this measure of academic success.

As shown in figure 2a, 12th-grade students who enrolled in algebra as eighth-graders were more likely to apply to a 4-year college at each level of high school math course taking (72 percent of students completing high-level math, 59 percent of those completing middle-level math, and 53 percent of those finishing low-level math) than their counterparts at each level who did not enroll in algebra in eighth grade (42, 29, and 24 percent, respectively). Algebra in eighth grade is also advantageous when one compares

those students who only completed a middle- or low-level math course with those who did not take eighth-grade algebra, but completed a high-level math course during high school. Twelfth-grade students who enrolled in algebra as eighth-graders and who only completed a middle- or low-level math course during high school were more likely to apply to a 4-year college (59 and 53 percent for middle- and low-level math, respectively) than those students who did not enroll in algebra as eighth-graders, but who completed a high-level math course during high school (42 percent).

The same patterns are evident with foreign language course taking. Figure 2b shows that 12th-grade students who enrolled in a foreign language in eighth grade were more likely to apply to a 4-year college at each level of high school foreign language course taking (78 percent of students completing high-level foreign language, 67 percent of those completing middle-level foreign language, and 50 percent of those finishing low-level foreign language)

Figure 2a. — Percentage of 1992 high school graduates who applied to a 4-year college, by enrollment in eighth-grade algebra and highest level of high school math completed



NOTE: High-level math refers to trigonometry, algebra 3, statistics, calculus, probability, and analytical geometry. Middle-level math refers to algebra 1 and geometry. Low-level math refers to pre-algebra and informal geometry.

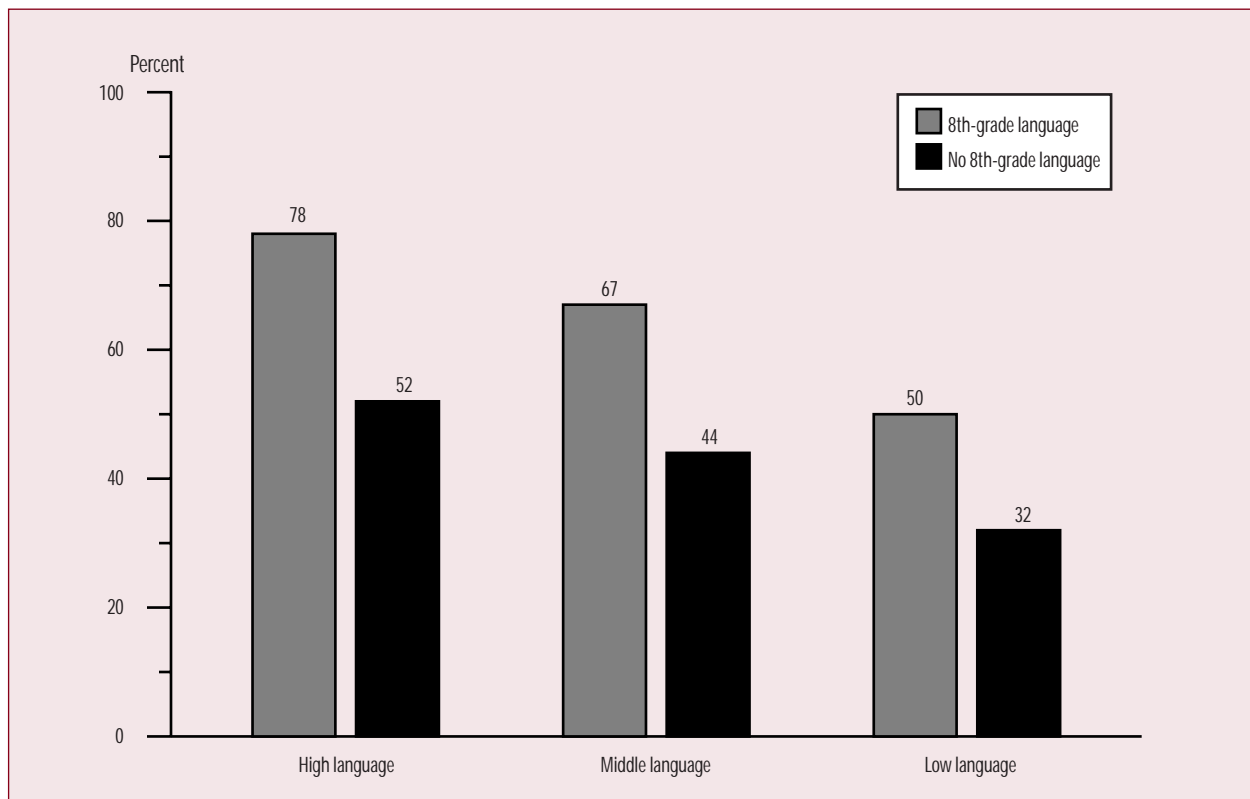
SOURCE: National Education Longitudinal Study of 1988, base year (1988), second follow-up (1992), and transcript study.

than their counterparts at each level who did not enroll in a foreign language in eighth grade (52, 44, and 32 percent, respectively). Moreover, 67 percent of 12th-grade students who enrolled in a foreign language as eighth-graders and completed a middle-level language course (at least .5 Carnegie unit of 10th-grade language) during high school applied to a 4-year college, compared with 52 percent of those students who did not enroll in a foreign language as eighth-graders, but who completed a high-level foreign language course during high school.

This section has emphasized the importance of enrolling in eighth-grade algebra or foreign language. Not only is it beneficial to reach high levels in math and foreign language during high school, but, as represented by the results, it is also important to start taking these courses before high school.

For those students who plan to attend a 4-year college, it is important to note that most 4-year postsecondary schools require students to meet basic requirements in both math and a foreign language during high school. The aforementioned results indicate that enrolling in either algebra or a foreign language in the eighth grade is beneficial to students applying to a 4-year college; however, those students who enroll in both eighth-grade algebra and a foreign language are at an even greater advantage. As shown in table 2, 12th-grade students who enrolled in both algebra and a foreign language as eighth-graders were more likely to apply to a 4-year college than those students who enrolled in only one or none of these courses during eighth grade (78 percent of students who enrolled in both algebra and a foreign language, 56 percent of students who enrolled in either algebra or a foreign language, and 29 percent of students who enrolled in neither algebra nor a foreign language).

Figure 2b.—Percentage of 1992 high school graduates who applied to a 4-year college, by enrollment in eighth-grade foreign language and highest level of high school foreign language completed



NOTE: High-level foreign language indicates student completed at least .5 Carnegie unit of 12th-grade language. Middle-level foreign language indicates student completed at least .5 Carnegie unit of 10th-grade language. Low-level foreign language indicates student completed anything less than .5 Carnegie unit of 10th-grade language.

SOURCE: National Education Longitudinal Study of 1988, base year (1988), second follow-up (1992), and transcript study.

Table 2. — Percentage of 1992 high school graduates who applied to a 4-year college, by levels reached in the math and foreign language pipelines and enrollment in eighth-grade foreign language or algebra

	Applied to 4-year college	
	No	Yes
Enrolled in 8th-grade algebra		
Math ¹		
Low	46.6	53.4
Middle	40.7	59.3
High	27.9	72.1
Did not enroll in 8th-grade algebra		
Math		
Low	75.7	24.3
Middle	70.7	29.3
High	58.4	41.6
Enrolled in 8th-grade language		
Foreign language ²		
Low	49.6	50.4
Middle	32.8	67.2
High	21.5	78.5
Did not enroll in 8th-grade language		
Foreign language		
Low	68.1	31.9
Middle	56.3	43.7
High	48.1	51.9
Enrolled in 8th-grade language and algebra	22.0	78.0
Enrolled in 8th-grade algebra, but not language OR		
Enrolled in 8th-grade language, but not algebra	44.3	55.7
Did not enroll in 8th-grade language or algebra	70.6	29.4

¹High-level math refers to trigonometry, algebra 3, statistics, calculus, probability, and analytical geometry. Middle-level math refers to algebra 1 and geometry. Low-level math refers to pre-algebra and informal geometry.

²High-level foreign language indicates student completed at least .5 Carnegie unit of 12th-grade language. Middle-level foreign language indicates student completed at least .5 Carnegie unit of 10th-grade language. Low-level foreign language indicates student completed anything less than .5 Carnegie unit of 10th-grade language.

SOURCE: National Education Longitudinal Study of 1988, base year (1988), second follow-up (1992), and transcript study.

Conclusion

Not all students who take higher level math or foreign language courses in high school apply to 4-year colleges or universities during their senior year in high school. However, students who enroll in algebra or a foreign language during eighth grade are more likely to pursue a 4-year postsecondary education at the end of high school. This is true regardless of the level of math or foreign language attained by these students. For any student who aspires to obtain a postsecondary degree, it is useful for the planning process to commence as early as eighth grade or even before. The results of this study are useful for students who plan to attend college and their parents in determining some of the factors that are associated with attaining academic success.

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Data sources: The National Education Longitudinal Study of 1988 (NELS:88), base year (1988), second follow-up (1992), and transcript study.

For technical information, see the complete Statistics in Brief:

Atanda, R., *Do Gatekeeper Courses Expand Education Options?* (NCES 1999-303).

For additional details about NELS second follow-up methodology, see

Ingels, S.J., Dowd, K.L., Baldrige, J.D., Stipe, J.L., Bartot, V.H., and Frankel, M.R. (1994). *National Education Longitudinal Study of 1988, Second Follow-Up: Student Component Data File User's Manual* (NCES 94-374).

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The Civic Development of 9th- Through 12th-Grade Students in the United States: 1996

Richard G. Niemi and Christopher Chapman

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The data are from the 1996 National Household Education Survey (NHES).

This report provides an extensive picture of factors often thought to be associated with promoting good citizenship among youth. In particular, it focuses on the civic development of 9th- through 12th-grade students. Broadly speaking, student characteristics, family influences, the role of schools, media factors, and the possible benefits of participation in community service activities are related to civic development. Initial analyses study how these factors relate to civic development in isolation from one another, while the latter part of the report studies their relationship to civic development in conjunction with one another.

Civic development, as defined in this report, consists of five dimensions: political knowledge, attention to politics, political participation skills, political efficacy, and tolerance of diversity. Information about civic development was collected from a nationally representative sample of 4,212 9th- through 12th-grade students and their parents and is based on responses to more than a dozen questions. Both the students and their parents were given a short political knowledge quiz. They were also asked how often they paid attention to politics through various news media and how often they interacted with one another on political issues garnered from news media. Political participation skills were tapped through questions asking how confident respondents felt about writing letters to officials or speaking at public meetings. Responses to questions about how well respondents understood politics and how much say their families had in government were used to tap political efficacy. Tolerance of diversity was studied based on answers to questions about tolerating controversial books in public libraries and allowing speech against religion. The data were collected from January through April 1996 as part of the National Household Education Survey.

Some of the more important questions and relevant results presented in the report are summarized below.

Do Students and Their Parents Differ on Key Dimensions of Civic Development?

The answer to this question is yes for two of the dimensions of civic development under study. Parents tend to know more about politics than do students. For instance,

17 percent of parents were able to answer all five of the political knowledge questions correctly while only 8 percent of the students could do so. The knowledge disparity may be due in part to the fact that parents are more likely than students to pay attention to politics. More than one-third of parents, compared with only 1 in 10 students, read about the news almost every day; and parents are also more likely than students to watch or listen to the news.

The disparity in political knowledge scores is reflected in one of the political efficacy questions. Approximately 61 percent of parents believe they understand politics, compared with 55 percent of students. However, students are more likely to believe that their families have a say in government than are parents. There are no notable differences between parents and youth in terms of political participation skills or tolerance of diversity; 57 percent of both groups would allow a controversial book to be included in a public library.

Are Grade Level or Other Student Characteristics Related to Civic Development?

As students progress through the education system, they tend to have better civic development scores. A student's grade in school—controlling for other factors such as the student's race-ethnicity, activities, and family and school characteristics—is positively related to all dimensions of civic development. Students in higher grades are more likely to be knowledgeable about politics, pay attention to politics, trust their participatory skills, be politically efficacious, and be tolerant of diversity than are students in lower grades.

Other student characteristics tend to present a less consistent picture. For instance, when controlling for other factors, white students are generally more knowledgeable about politics than are minority students and are more tolerant of diversity in terms of allowing controversial books in a public library. Minority students are about as likely to trust in their participation skills as are white students and are more efficacious in terms of believing that their families have a say in what government does.

Does Attention to Politics Translate Into Higher Levels of Civic Development?

For the most part, the answer is yes. Those students who pay more attention to politics through the print media or television and radio tend to be more knowledgeable about politics. They also tend to have greater trust in their political participation skills and tend to be more efficacious, at least in terms of feeling as though they understand politics. One dimension of civic development not associated with attention to politics, however, is tolerance of diversity.

The relationships between attention to politics and civic development hold even after controlling for a large number of student characteristics, other student activities, and various family and school traits. Apart from suggesting that students should be encouraged to pay attention to politics, these results also suggest that the media may have a positive role to play in civic development.

What Types of Student Activities Are Associated With Higher Levels of Civic Development?

Both participation in student government and regular participation in community service activities are related to a number of dimensions of civic development. Those students who participate in student government tend to be more knowledgeable about politics, more confident in their participation skills, more confident that they understand politics, and more tolerant of public libraries carrying controversial books than students who do not participate in student government. These results hold even after controlling for student characteristics, other kinds of student activities, and family and school characteristics.

Many of the same relationships are found between civic development and regular participation in community service (35 hours or more during the school year). Generally, regular participants have higher levels of civic development than do students who participate less often or not at all. The only exceptions are that regular participants, while more likely than other students to have confidence in their ability to make statements at public meetings, are not more likely to have confidence in their ability to write the government nor more likely to tolerate controversial books in public libraries.

What Role Does the Family Play in Student Civic Development?

Much of the research of the 1960s and 1970s suggested that the family, or at least parents, had only limited influence on the civic development of students. Findings in this report provide a somewhat different picture. After controlling for a large number of other potential factors, parents' responses to given questions about civic development are positively related to students' responses to the same questions in almost every instance. Students of parents with high political knowledge scores tend to have high political knowledge scores, students of parents who regularly read the news also tend to read the news on a regular basis, and so forth. The only exception is for the question about writing to a government official.

Do Students at Public and Private Schools Have Similar Levels of Civic Development?

Of the 11 indicators of civic development used in the report, private school students score notably better on 4 indicators. After controlling for a host of other factors described above, private school students tend to have higher political knowledge scores, are more likely to have confidence in their ability to speak at public meetings, are more likely to feel as though they understand politics, and are more likely to accept the presence of controversial books in public libraries than are public school students. On the other indicators of civic development, no notable differences emerged between public and private school students.

Summary

This report fills a number of voids in research focusing on younger Americans and their civic development. Perhaps the biggest is simply the time lag between a series of studies conducted in the 1960s and early 1970s and the present. There have been few extensive studies of youth civic development since that time. Findings in this report suggest that the current generation of American youth may have different correlates of civic development than the youth of the 1960s and 1970s. For instance, earlier research suggests that parents play only a very limited role in youth civic development, but this report indicates that parents may now have a stronger influence on the civic development of youth.

Some of the differences that appear to exist between earlier research and this report on such issues as the relationship between parents and youth civic development may in part be due to the fact that this report focuses on students in grades 9 through 12. Much of the earlier research focused solely on 12th-grade or college students. However, results presented here indicate that there are important differences between students in higher and lower grades that deserve more attention.

The report also looks at the possible relationships between community service activity and civic development. While there have been many benefits accredited to community service, including higher levels of civic development, little research has been done to study the relationship between the two. Community service activity does appear to be associated with some components of civic development, such as increased political knowledge, increased confidence in the ability to speak at public meetings, and a stronger sense of understanding politics. It should be kept in mind, however, that community service in general does not seem to promote several factors associated with good citizenship.

For instance, there does not appear to be a correlation between community service per se and tolerance of diversity. It is important to explore the relationship between community service and civic development further, since data collected for this report do not allow for an analysis of different types of community service. If such factors as the type of activity the service entailed, who was assisted, who sponsored the service, and so on, are taken into account, community service might be more closely related to other dimensions of civic development.

Research on the topic of youth civic development has pointed to a number of agents that are typically related to civic development. These agents include the family, schools, and the media. Apart from these agents, student characteristics and activities have also been studied. Seldom have all of these agents, characteristics, and activities been studied at the same time. By simultaneously analyzing these factors, this report helps sort out their relative roles in the civic development of American youth.

Data sources: The following components of the 1996 National Household Education Survey (NHES): Youth Civic Involvement, and Parent and Family Involvement in Education and Civic Involvement.

For technical information, see the complete report:

Niemi, R.G., and Chapman, C. (1998). *The Civic Development of 9th- Through 12th-Grade Students in the United States: 1996* (NCES 1999-131).

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To obtain the complete report (NCES 1999-131), 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).

School Crime

Indicators of School Crime and Safety, 1998

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This article was originally published as the Highlights section 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.

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. Recent efforts by schools, local authorities, and the state and federal governments have prompted the nation to focus on improving the safety of American schools. It is the hope that all children will be able to go to and from school and be at school without fearing for their safety or the safety of their friends and teachers. Judging progress toward providing safer schools requires establishing good indicators on the current state of school crime and safety, and periodically monitoring and updating these indicators.

This report, the first 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 provides a profile of school crime and safety in the United States and describes the characteristics of school crime victims. It is organized as a series of indicators that present data on different aspects of school crime and safety.

The indicators rely on data collected by a variety of federal departments and agencies, including BJS, NCES, the National Center for Health Statistics, and the Centers for Disease Control and Prevention. Because the report relies on so many different data sets, the age groups and the time periods 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.

There are five sections to the report: Nonfatal Student Victimization—Student Reports; Violence and Crime at School—Public School Principal/Disciplinarian Reports; Violent Deaths at School; Nonfatal Teacher Victimization at School—Teacher Reports; and School Environment. Each section contains a set of indicators that, taken as a whole,

describe a distinct aspect of school crime and safety. Some of the key findings from each section are summarized below.

Nonfatal Student Victimization—Student Reports

In 1996, students ages 12 through 18 were victims of about 255,000 incidents of nonfatal serious violent crime at school and about 671,000 incidents away from school. These numbers indicate that when students were away from school they were more likely to be victims of nonfatal serious violent crime—including rape, sexual assault, robbery, and aggravated assault—than when they were at school.

- The percentages of 12th-graders who have been injured (with or without a weapon) at school have not changed notably over the past 20 years, although the percentages who have been threatened with injury (with or without a weapon) show a very slight overall upward trend.
- In 1996, 5 percent of all 12th-graders reported that they had been injured with a weapon such as a knife, gun, or club during the past 12 months while they were at school (that is, inside or outside the school building or on a school bus). Twelve percent reported that they had been injured on purpose without a weapon while at school.
- Students were differentially affected by crime according to where they lived. In 1996, 12- through 18-year-old students living in urban areas were more vulnerable to serious violent crime than were students in suburban and rural areas, both at and away from school. However, student vulnerability to theft in 1996 was similar in urban, suburban, and rural areas, both at and away from school.

Violence and Crime at School—Public School Principal or Disciplinarian Reports

In the 1996–97 school year, 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 a 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 or larceny, and vandalism. The remaining 43 percent of public schools did not report any of these crimes to the police.

- Elementary schools were much less likely than either middle or high schools to report any type of crime in 1996–97. They were much more likely to report vandalism (31 percent of elementary schools) than any of the other crimes (19 percent or less; figure A).
- 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 and 8 per 1,000 students, respectively). Theft or larceny was more common at the high school than the middle school level (6 versus 4 per 1,000 students).

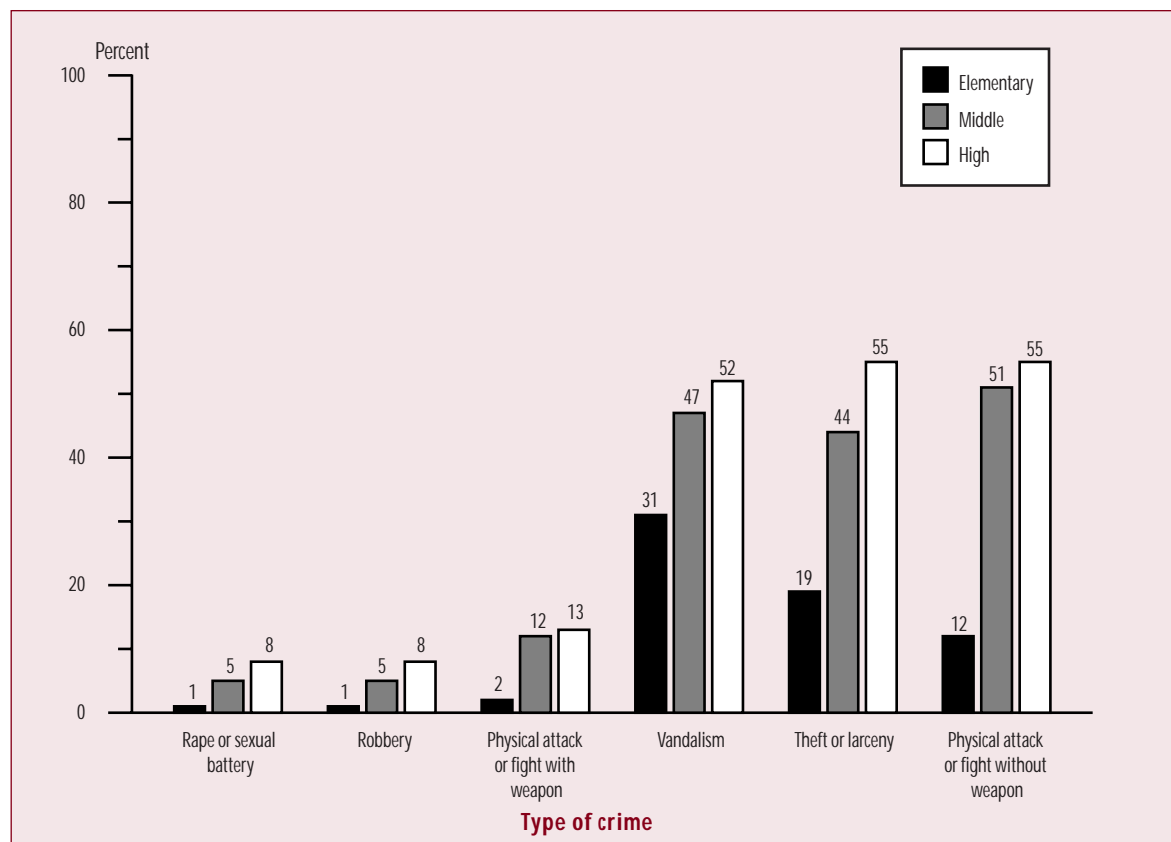
Violent Deaths at School

Seventy-six students were murdered or committed suicide at school¹ during the combined 1992–93 and 1993–94 school years (the latest period for which data are available). Non-student violent deaths also occurred at school. During this period, there were 105 violent deaths at school, 29 of which involved nonstudents.

- Most murders and suicides among young people occurred while they were away from school. During the combined 1992 and 1993 calendar years, a total of 7,357 young people ages 5 through 19 were murdered in all locations, and 4,366 committed suicide.
- Students in urban schools had a higher risk of violent death at school than their peers in suburban or rural schools. The estimated rate of school-associated violent death for students in urban schools was nine

¹For this indicator, "at school" includes on school property, on the way to or from school, and while attending or traveling to or from an official school-sponsored event.

Figure A.—Percentage of public schools reporting one or more criminal incidents to police, by type of crime and instructional level: 1996–97



NOTE: Examples of weapons are guns, knives, sharp-edged or pointed objects, baseball bats, frying pans, sticks, rocks, and bottles. Schools were asked to report crimes that took place in school buildings, on school buses, on school grounds, and at places holding school-sponsored events.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Principal/School Disciplinary Survey on School Violence," FRSS 63, 1997. (Originally published as figure 7.1 on p. 16 of the complete report from which this article is excerpted.)

times greater than the rate for students in rural schools and two times greater than that for students in suburban schools during the combined 1992–93 and 1993–94 school years.

Nonfatal Teacher Victimization at School—Teacher Reports

During the 5-year period from 1992 to 1996, teachers were victims of 1,581,000 nonfatal crimes at school, including 962,000 thefts and 619,000 violent crimes (rape or sexual assault, robbery, and aggravated and simple assault). This translates into about 316,000 nonfatal crimes per year during this period.

- In the period from 1992 to 1996, middle and junior high school teachers were more likely to be victims of violent crime (most of which were simple assaults) than senior high school teachers, who in turn were more likely to be victims of violent crime than elementary school teachers.
- In the 1993–94 school year, 12 percent of all elementary and secondary school teachers were threatened

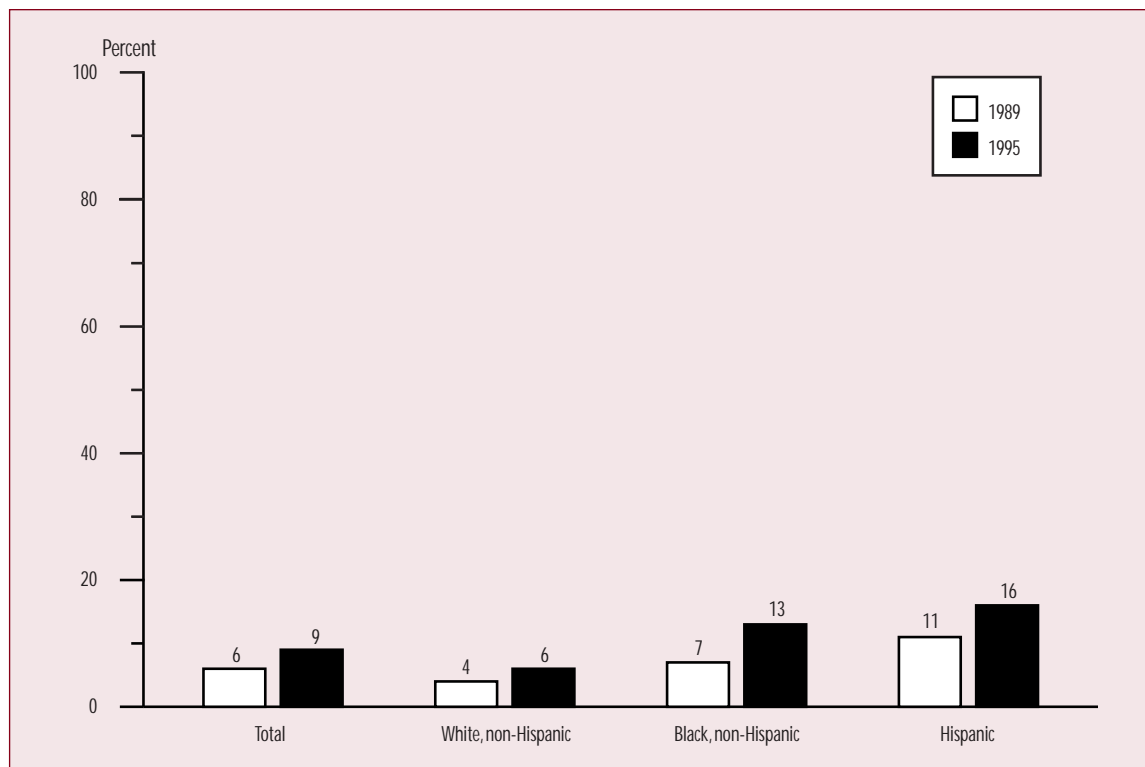
with injury by a student, and 4 percent were physically attacked by a student. This represents about 341,000 teachers who were victims of threats of injury by students and 120,000 teachers who were victims of attacks by students that year.

School Environment

Between 1989 and 1995, there were increases in the percentages of students feeling unsafe while they were at school and while they were going to and from school. In 1989, 6 percent of students ages 12 through 19 sometimes or most of the time feared they were going to be attacked or harmed at school. By 1995, this percentage had risen to 9 percent (figure B). During the same period, the percentage of students fearing they would be attacked while traveling to and from school rose from 4 percent to 7 percent.

- Between 1989 and 1995, the percentage of students ages 12 through 19 who avoided one or more places at school for fear of their own safety increased, from 5 percent to 9 percent. In 1995, this percentage represented 2.1 million students.

Figure B.—Percentage of students ages 12 through 19 who reported fearing being attacked or harmed at school, by race-ethnicity: 1989 and 1995



NOTE: Includes students who reported that they sometimes or most of the time feared being victimized in this way. "At school" means in the school building, on the school grounds, or on a school bus.

SOURCE: U.S. Department of Justice, Bureau of Justice Statistics, School Crime Supplement to the National Crime Victimization Survey, 1989 and 1995. (Originally published as figure 12.1 on p. 30 of the complete report from which this article is excerpted.)

- Between 1989 and 1995, the percentage of students who reported that street gangs were present at their schools increased. In 1989, 15 percent of students reported gangs being present at their schools. By 1995, this percentage had risen to 28 percent.
- There was a decline between 1993 and 1996 in the percentage of male high school seniors who reported carrying a weapon to school at least 1 day within the 4 weeks before the survey, from 14 percent in 1993 to 9 percent in 1996. However, there was little change in the percentage of female students who reported doing so (from 2 to 3 percent).
- Although 12th-graders were less likely to use alcohol at school than at home or at parties, in 1996 about 8 percent of 12th-graders had consumed alcohol at school in the past 12 months.
- The percentage of 12th-graders who had taken various illegal drugs at school in the previous 12 months declined between 1976 and 1992. However, since 1992, use of marijuana and stimulants at school has increased.

Data sources:

NCES: The School Safety and Discipline component of the 1993 National Household Education Survey (NHES); the Teacher Questionnaire from the 1993–94 Schools and Staffing Survey (SASS); and the Principal/School Disciplinarian Survey on School Violence, conducted through the Fast Response Survey System (FRSS 63, 1997).

Bureau of Justice Statistics (BJS): The 1992–96 (annual) National Crime Victimization Survey (NCVS).

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

Other: The 1993, 1995, and 1997 National School-Based Youth Risk Behavior Survey (the Centers for Disease Control and Prevention [CDC]); the 1976–96 (annual) Monitoring the Future Survey (the University of Michigan's Institute for Social Research); the FBI's 1992 and 1993 *Supplementary Homicide Reports*; the CDC's 1992 and 1993 *Vital Statistics of the United States*; 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., Chandler, K.A., Chapman, C.D., Rand, M.R., and Ringel, C. (1998). *Indicators of School Crime and Safety, 1998* (NCES 98–251 or NCJ 172215).

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To obtain the complete report (NCES 98–251 or NCJ 172215), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (<http://nces.ed.gov>), or contact the BJS Clearinghouse at 1–800–732–3277.

Professional Development

Toward Better Teaching: Professional Development in 1993–94

Susan P. Choy and 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 1993–94 Schools and Staffing Survey (SASS).

Teachers' professional development has become a major focus of school reform initiatives as many policymakers, researchers, and other members of the education community have come to believe that further gains in teacher effectiveness and student achievement require significant changes in teachers' knowledge and teaching practices. Teachers' professional development traditionally has been viewed as a local responsibility, but in recent years, the federal government and many state governments have assumed a more active role than in the past. At the federal level, a National Goal has been added, a set of principles for effective professional development has been articulated by the U.S. Department of Education, and funding for professional development activities has been provided through a variety of mechanisms. States' involvement with professional development has traditionally focused on funding, mandating the amount of inservice time, and regulating recertification. Now, many states are taking a more active role in influencing the focus, scope, and quality of professional development as well.

In the context of these changes, this report uses the 1993–94 Schools and Staffing Survey (SASS) to examine who determines the content of professional development programs, the formats in which professional development activities are provided, the rate of participation and amount of time teachers are engaged in activities on certain topics, the ways in which schools or districts support teachers' participation in professional development activities, and teachers' perceptions of the impact of the activities.

Determining the Content of Professional Development Programs

Responsibility for determining the content of inservice professional development was shared in 1993–94. When asked how much influence they thought various groups had in determining the content of inservice programs in their schools, 72 percent of public school principals thought that they had a great deal of influence, 71 percent thought that teachers had a great deal of influence, and 66 percent

thought that school district staff had a great deal of influence. Smaller percentages thought that state departments of education and school boards had a great deal of influence (21 percent in each case). Principals in states that mandated specific amounts of time for professional development and required districts to have professional development plans were among those most likely to ascribe a great deal of influence to the state department of education. Teachers were less likely than principals to think that teachers had a great deal of influence: about three-quarters of all teachers thought that they had at least some influence over the content of inservice professional development programs, with 31 percent thinking they had a great deal of influence.

Format of Professional Development

Participation in formal teacher induction programs is increasing in the public sector: 56 percent of public school teachers in their first 3 years of teaching reported having participated in such a program, compared with 44 percent of those with 4 to 9 years of experience and 17 percent of those with 10 to 19 years of experience. Private school teachers in their first 3 years of teaching were less likely to have participated in a formal teacher induction program (28 percent), but assistance to new teachers in private schools, which tend to be smaller than public schools, may be more informal.

In 1993–94, almost all teachers (96 percent of public school teachers and 91 percent of private school teachers) reported having participated in some professional development activity since the end of the last school year. Participation in district- and school-sponsored workshops and other inservice programs was particularly high, reflecting the mandatory nature of much of this type of professional development (table A).

Participation rates varied somewhat with teacher characteristics, but the differences were relatively small. In the public sector, full-time teachers appear to rely more on

their schools and part-time teachers more on professional associations for professional development, a pattern that may reflect the opportunities available to them. In both the public and private sectors, teachers with 10 or more years of experience were more likely than new teachers to participate in school- or district- (or affiliation-) sponsored programs and in professional growth activities sponsored by professional associations. New teachers, on the other hand, were more likely than experienced teachers to enroll in college courses in their subject fields, suggesting that they are focusing their professional development time on earning advanced degrees or credentials or, if they are not fully certified, taking courses they need for certification.

Content and Duration of Professional Development Activities

Since the end of the last school year, approximately one-half of all teachers had participated in professional development programs on at least one of three topics associated with recent school reform efforts: uses of educational technology for instruction, student assessment, and cooperative learning in the classroom. In addition, almost two-thirds had participated in professional development programs on methods of teaching in their fields, and 29 percent had undertaken in-depth study in their subjects (table B). Most of these programs lasted one day or less.

Table A.—Percentage of teachers who had participated in various types of professional development activities since the end of the last school year, by sector: 1993–94

	Total	Public	Private
Workshops or inservice programs sponsored by districts (or affiliated organizations for private schools)	85.3	87.5	70.3
School-sponsored workshops or inservice programs	80.3	81.3	73.4
University extension or adult education courses	24.7	25.2	21.2
College courses in their subject field	24.7	25.4	19.9
Growth activities sponsored by professional associations	50.3	51.4	43.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey: 1993–94 (Teacher Questionnaire).

Table B.—Percentage of teachers who had participated in an inservice or professional development program that focused on various topics since the end of the last school year, by sector: 1993–94

	Total	Public	Private
Uses of educational technology for instruction	47.2	49.4	32.5
Methods of teaching in their field	62.8	64.0	54.8
In-depth study in their subject	29.3	30.0	24.2
Student assessment	49.5	51.4	36.4
Cooperative learning in the classroom	49.2	50.9	38.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, Schools and Staffing Survey: 1993–94 (Teacher Questionnaire).

Rates of participation in professional development programs reflect a variety of factors, including teachers' need for help, availability of resources, the priority that schools and districts give to professional development, the extent to which training is voluntary or mandatory, and teachers' motivation to participate voluntarily. SASS data show some variation by school and teacher characteristics. For example, in both public and private schools, teachers with at least 10 years of experience, who are less likely to have learned computer skills while in college, were more likely than teachers in their first 3 years of teaching to have participated in professional development on the uses of educational technology for instruction. In the public sector, state variation was evident as well, with some of this variation appearing to be related to specific initiatives that some states have implemented. For example, rates of participation by public school teachers in professional development programs on student assessment were particularly high in a few of the states that were developing or implementing new student assessment initiatives.

Support for Professional Development

Effective professional development is dependent to a large extent upon institutional and financial support of teachers' professional development and a school culture that nurtures teacher learning. SASS asked teachers whether they had received various types of support for professional development activities in their main assignment fields. The most common types of support were release time from teaching (received by 47 percent of all teachers) and time for professional development built into their schedules (received by 40 percent). In addition, since the end of the previous school year, 24 percent of all teachers had been reimbursed for travel expenses, 24 percent had their tuition and fees paid, and 31 percent had received professional growth credits for professional development activities related to their main assignment fields. However, 23 percent of all teachers had received none of these types of support. The percentages of teachers receiving various types of support varied by sector and by school and district characteristics. In the

public sector, the percentages also varied by state, reflecting varying state involvement in professional development.

Recently developed principles for effective professional development emphasize the importance of a collaborative environment where teachers and administrators develop common goals, share ideas, and work together to achieve their goals. Eleven percent of all teachers strongly agreed that their principal talked with them frequently about instructional practices, 37 percent strongly agreed that there was a great deal of cooperative effort among staff members, and 39 percent strongly agreed that they made a conscious effort to coordinate their courses with other teachers.

Impact of Professional Development Activities

Despite the widespread criticism of the current state of professional development by researchers and policymakers, teachers held generally positive views about the impact of professional development on their teaching practices. Eighty-five percent of teachers who participated in any professional development programs on the use of technology, teaching methods in their fields, student assessment, or cooperative learning, or who undertook in-depth study in their subject fields, reported that those programs provided them with new information. Sixty-two percent reported that the programs caused them to seek further information or training, 65 percent reported that they caused them to change their teaching practices, and 42 percent reported that they caused them to change their views on teaching. Ten percent thought that the programs had wasted their time. The greater the intensity of the participation, the more likely teachers were to think that their professional development experiences had an impact. There was also an association between participation in the various types of professional development and the use of certain instructional practices generally linked to contemporary teaching practices or new pedagogical approaches that are thought to be especially effective.

Conclusion

The 1993–94 data provide important information on professional development as practiced during the mid-1990s. Although the conception and practice of professional development is changing as school reform strategies have increasingly focused on improving professional development, it will take some time for the impact of the policies and programs currently being developed to be evident at the school level. During the past few years, the federal government, state governments, and a wide range of professional associations and other organizations have initiated a host of serious efforts to improve teaching practices. The next administration of SASS, in 1999–2000, will provide an opportunity to determine the extent to which reforms now being planned and implemented have started to influence schools and teachers.

Data sources: The following components of the 1993–94 Schools and Staffing Survey (SASS): Principal Questionnaire, Teacher Questionnaire, School Questionnaire, and Teacher Demand and Shortage Questionnaire. (Available on CD-ROM, NCES 98–312.)

For technical information, see the complete report:

Choy, S.P., and Chen, X. (1998). *Toward Better Teaching: Professional Development in 1993–94* (NCES 98–230).

For a detailed description of the 1993–94 SASS sample design, see

Abramson, R., Cole, C., Fondelier, S., Jackson, B., Parmer, R., and Kaufman, S. (1996). *1993–94 Schools and Staffing Survey: Sample Design and Estimation* (NCES 96–089).

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To obtain the complete report (NCES 98–230), 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).

Education Reform

Status of Education Reform in Public Elementary and Secondary Schools: Teachers' Perspectives

Debbie Alexander, Sheila Heaviside, and Elizabeth Farris

This article is a summary based on the Statistical Analysis Report of the same name. The sample survey data are from the Public School Teacher Survey on Education Reform, conducted through the NCES Fast Response Survey System (FRSS).

Increasingly, national initiatives are directed toward finding ways to improve the quality of education for all students. Key to many reform initiatives is the application of higher standards for student achievement. The Public School Teacher Survey on Education Reform was conducted to provide nationally representative data on teachers' understanding and implementation of standards-based education reforms. Because of the importance of parental involvement to children's school performance (e.g., U.S. Department of Education 1994), the survey also asked about teachers' efforts to involve parents in student learning. In addition, the survey attempted to identify information and assistance needed by teachers.

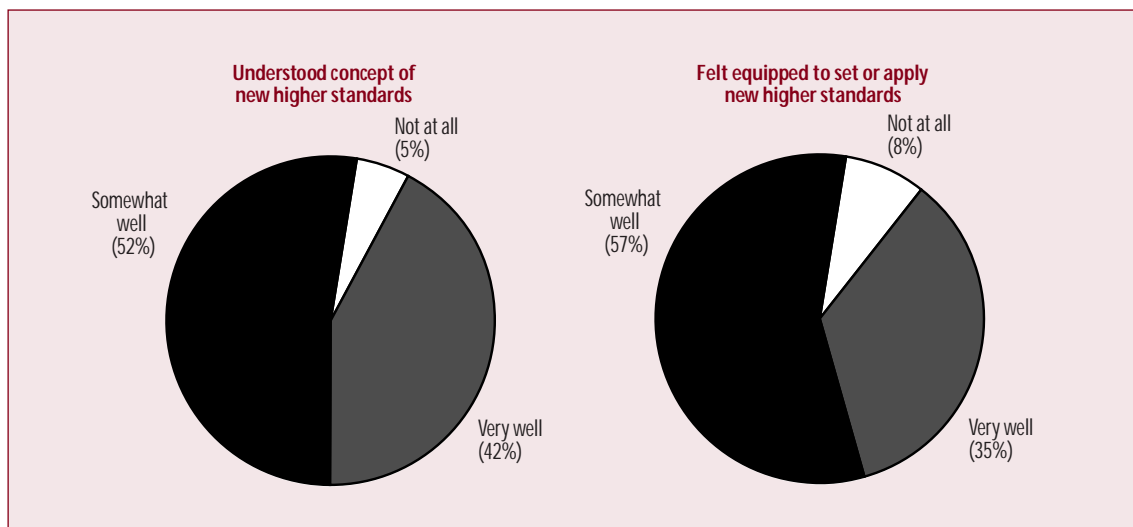
The data provided here represent findings from one of two related studies about reform efforts in U.S. public elementary

and secondary schools. This study asked teachers about their individual efforts toward education reform, while the other study asked principals about school-wide efforts. Principals' responses are presented in a separate report (Celebuski and Farris 1998).

Understanding and Feeling Equipped to Apply High Standards

Almost all elementary and secondary public school teachers reported having some understanding of the concept of new higher standards for student achievement, and almost all felt at least somewhat equipped to set or apply new higher standards (figure A). However, 42 percent reported understanding the concept very well, and 35 percent reported feeling very well equipped to set or apply new higher standards for their students.

Figure A.—Percentage of public school teachers reporting the extent to which they understood the concept of new higher standards and the percentage reporting the extent to which they felt equipped to set or apply new higher standards: 1996



NOTE: Percentages may not add to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Public School Teacher Survey on Education Reform," FRSS 55, 1996. (Originally published as figure 1 on p. 4 of the complete report from which this article is excerpted.)

Implementing Education Reform Activities

Types of activities that teachers reported implementing in their classes

The survey asked teachers to report the extent to which they were implementing seven specific activities associated with education reform (table A). Two of these activities were frequently cited by teachers as being incorporated into their classes to a great extent: using instructional strategies aligned with high standards (56 percent) and assisting all students to achieve to high standards (52 percent). Elementary school teachers (61 percent) were more likely than middle school teachers (49 percent) and high school teachers (44 percent) to report assisting all students to achieve to high standards to a great extent.

The smallest percentage of teachers (7 percent; table A) reported incorporating innovative technologies such as the Internet and telecommunications-supported instruction to a great extent. Teachers were, however, likely to report a need for more information about this activity. Thus, 79 percent of teachers identified innovative technologies as one of the three areas for which they most needed information.

Subject areas in which teachers reported implementing reform activities

The survey asked teachers to report their use of the seven reform activities in four core subject areas: English–language arts, history–social studies, mathematics, and science. In all four subject areas, teachers reported the use of innovative technologies least often, when compared with the use of other reform activities (less than 30 percent). There were some significant differences by subject areas in teachers' reports of the use of authentic student assessments, such as portfolios, that measure performance against high standards. According to teachers, authentic student assessments were more likely to be used in English–language arts (64 percent) than in mathematics (51 percent), science (42 percent), and history–social studies (38 percent).

Extent to which teachers reported applying high standards to special-needs students

For new standards to be fully applied, they must be incorporated into the curriculum for all students, including those with special needs. Fifty-six percent of teachers reported having students with limited English proficiency

Table A.—Percentage of public school teachers reporting the extent to which various reform activities were being implemented in their classes and areas for which information was most needed: 1996

Reform activity	Extent to which activity was implemented in class ¹		Information most needed ²
	Great extent	Moderate extent	
Using instructional strategies aligned with high standards	56	35	34
Assisting all students to achieve to high standards	52	39	28
Using curricula aligned with high standards	38	45	31
Using textbooks or other instructional materials aligned with high standards	36	43	30
Providing students or parents with examples of work that meets high standards	30	42	33
Using authentic student assessments, such as portfolios, that measure performance against high standards	20	33	53
Using innovative technologies such as the Internet and telecommunications-supported instruction	7	20	79

¹Percentages do not add to 100 because this table does not show the third response category—small extent—that was included on the questionnaire.

²Teachers could select up to three activities for information.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Public School Teacher Survey on Education Reform," FRSS 55, 1996. (Originally published as table 2 on p. 6 of the complete report from which this article is excerpted.)

enrolled in their classes, and 79 percent reported having students with disabilities. Thirty-three percent of such teachers reported applying, to a great extent, the same high standards of performance used for other students to students with limited English proficiency, as did 28 percent for students with disabilities.

Involving Parents in Student Learning

About one-fourth of all teachers reported that they provided information or advice to parents to a great extent to help them create supportive learning environments at home, and a similar proportion of teachers said they shared responsibility with parents for the academic performance of their children to a great extent (28 percent and 26 percent, respectively).

Elementary school teachers were more likely to report engaging parents in parental involvement activities, to a great extent, than middle and high school teachers. For example, while 46 percent of elementary school teachers reported providing information or advice to parents to a great extent to help create a more supportive learning environment at home, 20 percent of middle school teachers and 10 percent of high school teachers did so. Similarly, 17 percent of elementary school teachers reported involving parents in classroom activities to a great extent, compared with 5 percent of middle school teachers and 3 percent of high school teachers. Finally, 35 percent of elementary school teachers reported sharing responsibility with parents for the academic performance of their children to a great extent, compared with 25 and 15 percent, respectively, of middle and high school teachers.

Attending Professional Development Activities

Because education reform requires continued professional growth among teachers, the survey asked teachers about their professional development activities. Ninety-four percent of teachers reported attending an average of 42 hours of professional development activities such as professional meetings, inservice workshops, and conferences during the period September 1, 1994, through August 31, 1995.

Fifty-six percent of public school teachers participating in professional development reported attending activities in which information on high standards was a major focus. Teachers who reported that they implemented larger numbers of reform activities in their classrooms were more likely to report attending professional development activities

with a major focus on higher standards. Among teachers who reported implementing three or more reform activities to a great extent, 65 percent reported attending professional development activities that had a major focus on higher standards. Among teachers who reported that they had not implemented any reform activities to a great extent, 39 percent reported attending such activities.

Getting Information or Assistance With Reform Strategies

At least 90 percent of teachers reported using other teachers, inservice training, school administrators, institutes or workshops, and the school district to help them understand or use comprehensive reform strategies.* Among teachers who used various sources of information, one-third or more reported that other teachers (39 percent), inservice training (37 percent), and institutes or workshops (38 percent) were very effective resources. U.S. Department of Education resources were considered very effective sources of information on comprehensive reform strategies by 4 to 11 percent of teachers consulting these sources.

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Data source: The Public School Teacher Survey on Education Reform, conducted through the NCES Fast Response Survey System (FRSS 55, 1996).

For technical information, see the complete report:

Alexander, D., Heaviside, S., and Farris, E. (1998). *Status of Education Reform in Public Elementary and Secondary Schools: Teachers' Perspectives* (NCES 1999-045).

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To obtain the complete report (NCES 1999-045), 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).

*Data were collected prior to the Obey-Porter legislation and do not report information about the Comprehensive School Reform Demonstration Program created under that legislation and initiated in fall 1997. "Comprehensive reform" would have been interpreted broadly as referring to a variety of school reform activities.

Age of Schools

How Old Are America's Public Schools?

Cassandra Rowand

This article was originally published as an Issue Brief. The sample survey data are from three surveys conducted through the NCES Fast Response Survey System (FRSS). The surveys are listed at the end of the article.

The condition of America's public school facilities is an issue of great concern to educators and administrators (Honeyman 1994; Kowalski 1995). In 1989, the Education Writers Association reported that nearly half of the public school buildings in America were obsolete and contained environmental hazards (Lewis 1989). The state of America's school facilities continues to be a problem today. In his 1997 State of the Union Address, President Clinton remarked, "We cannot expect our children to raise themselves up in schools that are literally falling down. With the student population at an all-time high, and record numbers of school buildings falling into disrepair, this has now become a serious national concern" (Clinton 1997).

How old are America's public schools? How recently have public schools been renovated? Data from the National Center for Education Statistics (NCES) Fast Response Survey System (FRSS) can help answer these questions. In 1994, 1995, and 1996, FRSS surveys queried U.S.

public school administrators about the age of their school buildings. The combined data from these 3 years can be used to help determine the average age of public schools, where the older and newer public schools are located, and whether school age is related to other school characteristics. Data from 1995, which include the date of each school building's last major renovation, make it possible to explore school condition and Internet accessibility.

The increase in the construction of schools between 1950 and 1969 corresponds to the years during which the Baby Boom generation was going to school.

In 1998, the average public school building in the United States was 42 years old. The mean age ranged from 46 years in the Northeast and Central states to 37 years in the Southeast (table 1). On average, schools located in the Northeast and Central regions of the country were older than those located in the Southeast and the West. Many of

Table 1.—Percentage of public schools constructed in various years and mean age of schools as of 1998, by school characteristics

School characteristics	Year built (percentage of schools)				Mean age
	Before 1950	1950–1969	1970–1984	1985 or after	
All public schools	28	45	17	10	42
Instructional level					
Elementary	29	46	15	11	43
Secondary	24	46	23	8	40
Size of enrollment					
Less than 300	40	39	14	8	48
300–999	24	48	17	11	40
1,000 or more	23	44	22	11	39
Locale					
City	34	44	13	9	46
Urban fringe	20	53	17	10	40
Town	24	47	20	9	40
Rural	32	38	17	12	42
Region					
Northeast	30	49	15	6	46
Southeast	23	43	20	14	37
Central	33	46	14	8	46
West	25	44	19	13	39
Percentage of students eligible for free or reduced-price school lunch					
Less than 20 percent	20	48	20	11	39
20–49 percent	29	44	16	11	41
50 percent or more	34	42	14	10	44

NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K–12," FRSS 51, 1994; "Survey on Advanced Telecommunications in U.S. Public Schools, K–12," FRSS 57, 1995; "Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1996," FRSS 61, 1996.

America's schools may be at an age where frequent repairs are necessary. According to Ornstein (1994), when a school is 20 to 30 years old, frequent replacement of equipment is needed. Between 30 and 40 years old, the original equipment should have been replaced, including the roof and electrical equipment. After 40 years, a school building begins to deteriorate rapidly, and after 60 years most schools are abandoned.

About one-fourth (28 percent) of all public schools were built before 1950, and 45 percent of all public schools were built between 1950 and 1969 (table 1). Seventeen percent of public schools were built between 1970 and 1984, and 10 percent were built after 1984. The increase in the construction of schools between 1950 and 1969 corresponds to the years during which the Baby Boom generation was going to school.

America's oldest schools have a higher proportion of children in poverty (table 1). Among schools with less than 20 percent of children eligible for free or reduced-price school lunch, 20 percent were built before 1950. Schools with larger percentages of children eligible for free and reduced-price lunch were more likely to have been built before 1950 (29 percent of schools with 20 to 49 percent of children eligible, and 34 percent of schools with 50 percent or more of children eligible). The age of a school and its size are also related. While 40 percent of small schools (enrollments of less than 300) were built before 1950, 23 percent of large schools (enrollments of 1,000 or more) were built before 1950.

Seventy-three percent of public schools report having undergone at least one major renovation.

In 1995, FRSS also collected data on the year that schools underwent their last major renovation. About three-fourths (73 percent) of schools reported having undergone at least one major renovation: 17 percent reported last undergoing a major renovation prior to 1980, 17 percent reported the last major renovation between 1980 and 1989, and 39 percent reported the last major renovation between 1990 and 1995 (table 2). Unlike the age of school buildings, the year since the last major renovation is not significantly related to the enrollment size, locale, or region (data not shown). Of the school buildings that had never undergone a major renovation, 50 percent were at least 25 years old in 1995.

A measure combining age of school and year of renovation represents a rough approximation of the "condition" of schools in 1995, assuming that all other building conditions were equal. Thus, schools built before 1970 and either never renovated or renovated prior to 1980 would be in the "oldest condition"—29 percent of all public schools fell into this category. Those schools built before 1970 and renovated in 1980 or later, or built between 1970 and 1984, may be considered to be in "moderate condition"—61 percent of all schools were in this category. The remaining schools, those built after 1984, are in the "newest condition"—10 percent of America's public schools fell into this category in 1995 (table 2).

Table 2.— Percentage of schools in oldest, moderate, and newest condition, by the year built and last major building renovation: 1995

Year of last major renovation	Total	Year built			
		Before 1950	1950–1969	1970–1984	1985 or after
Total	100	26	46	19	10
Never	27	2	12	8	6
Before 1980	17	9	7	1	—
1980–1989	17	5	8	3	1
1990–1995	39	10	19	7	2

□ Schools in the "oldest" condition.

■ Schools in the "newest" condition.

— Not applicable.

NOTE: Percentages may not sum to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K–12," FRSS 57, 1995.

The percentage of schools in the “oldest” condition (i.e., the 29 percent that were more than 25 years old and had not been renovated during the past 15 years) is of concern to educators and policymakers. While newer schools are more likely to be built with convenient connections to the Internet, there is reason for concern that schools in the “oldest” condition may be lagging behind in the nationwide push to connect all schools to the Internet by the year 2000. In fact, of schools in the “oldest” condition, 42 percent were connected to the Internet in 1995, whereas of schools in the “newest” condition, 59 percent were connected to the Internet (data not shown).

The condition of school buildings is related to both locale and region. Schools located in urban fringes were more likely to be in the “oldest” condition than schools located in towns (36 percent compared with 22 percent; table 3). Schools in the Central region of the country were more likely to be in the “oldest” condition than those in the Southeast region (36 percent and 21 percent, respectively). In contrast, schools in the West region were more likely to be in the “newest” condition than schools located in the Northeast and Central regions (15 percent compared with 5 and 6 percent, respectively). No differences were found among schools in the likelihood of being in the “oldest” and “newest” condition in terms of the percentage of students eligible for free or reduced-price lunch.

Table 3. — Percentage of schools in oldest, moderate, and newest condition, by school characteristics: 1995

School characteristics	Condition of school		
	Oldest	Moderate	Newest
All public schools	29	61	10
Instructional level			
Elementary	30	60	10
Secondary	28	65	7
Size of enrollment			
Less than 300	36	58	6
300–999	27	62	11
1,000 or more	25	64	12
Locale			
City	32	57	11
Urban fringe	36	54	10
Town	22	71	7
Rural	28	61	11
Region			
Northeast	33	62	5
Southeast	21	68	11
Central	36	57	6
West	25	59	15
Percentage of students eligible for free or reduced-price school lunch			
Less than 20 percent	28	61	11
20–49 percent	31	59	10
50 percent or more	29	63	7

NOTE: Percentages may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, “Survey on Advanced Telecommunications in U.S. Public Schools, K–12,” FRSS 57, 1995.

Summary

A number of important findings regarding the age of school buildings were gleaned from the FRSS surveys:

- In 1998, the average age of public school buildings in the United States was 42 years.
- Almost half (45 percent) of U.S. public schools were built between 1950 and 1969.
- About three-fourths (73 percent) of school buildings reported having had at least one major renovation by 1995.
- In 1995, 59 percent of schools built after 1984 were connected to the Internet, compared with 42 percent of schools built before 1970 and renovated either before 1980 or not at all.

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For technical information, see the following reports:

Carpenter, J. *Advanced Telecommunications in U.S. Public Elementary and Secondary Schools, 1995* (NCES 96-854);

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Heavside, S., Riggins, T., and Farris, E. *Advanced Telecommunications in U.S. Public Elementary and Secondary Schools, Fall 1996* (NCES 97-944).

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Internet Access

Internet Access in Public and Private Schools

This article was originally published as an Indicator of the Month, taken from *The Condition of Education 1998*. The sample survey data are from several surveys—listed at the end of this article—on advanced telecommunications in U.S. schools. The surveys were conducted through the NCES Fast Response Survey System (FRSS).

The Internet, with its vast array of information, can broaden the learning resources available through schools by providing teachers and students with connections to remote libraries, schools, and government agencies. Information found on the Internet can broaden students' knowledge base, and having Internet access can prepare students for an increasingly technological workplace. Examining patterns of Internet access in schools may help determine how many students will be prepared to use this technology effectively in the future.

- Between fall 1994 and 1997, Internet access in public schools increased from 35 to 78 percent. However, in fall 1997, 27 percent of instructional rooms had Internet access.
- In fall 1995, public schools were more likely to have Internet access than private schools (50 versus 25 percent). Additionally, public schools had a higher percentage of instructional rooms with Internet access than private schools (8 versus 5 percent).
- Public schools with a high percentage of low-income students (71 percent or more of students eligible for free or reduced-price lunch) were less likely than schools with a low percentage of low-income students (less than 11 percent of students eligible for free or reduced-price lunch) to have Internet access in fall 1997.
- In fall 1997, public schools with a high minority enrollment (50 percent or more) had a lower rate of Internet access than public schools with a low minority enrollment (less than 6 percent). Moreover, public schools with a high minority enrollment had a smaller percentage of instructional rooms with Internet access than public schools with a low minority enrollment.
- In both public and private schools with Internet access, teachers were more likely than students in these schools to have access to e-mail, news groups, resource location services, and the World Wide Web.

Percentage of public schools and instructional rooms with Internet access, by selected school characteristics: Fall 1994–97

School characteristics	Percentage of schools with Internet access				Percentage of instructional rooms with Internet access ¹			
	1994	1995	1996	1997	1994	1995	1996	1997
Total	35	50	65	78	3	8	14	27
Level of school ²								
Elementary	30	46	61	75	3	8	13	24
Secondary	49	65	77	89	4	8	16	32
Percentage of students eligible for free or reduced-price lunch								
Less than 11	—	62	78	88	—	9	18	36
11–30	—	59	72	83	—	10	16	32
31–70	—	47	58	78	—	7	14	27
71 or more	—	31	53	63	—	3	7	14
Percentage of minority students enrolled								
Less than 6	—	52	65	84	—	9	18	37
6–20	—	58	72	87	—	10	18	35
21–49	—	54	65	73	—	9	12	22
50 or more	—	40	56	63	—	3	5	13

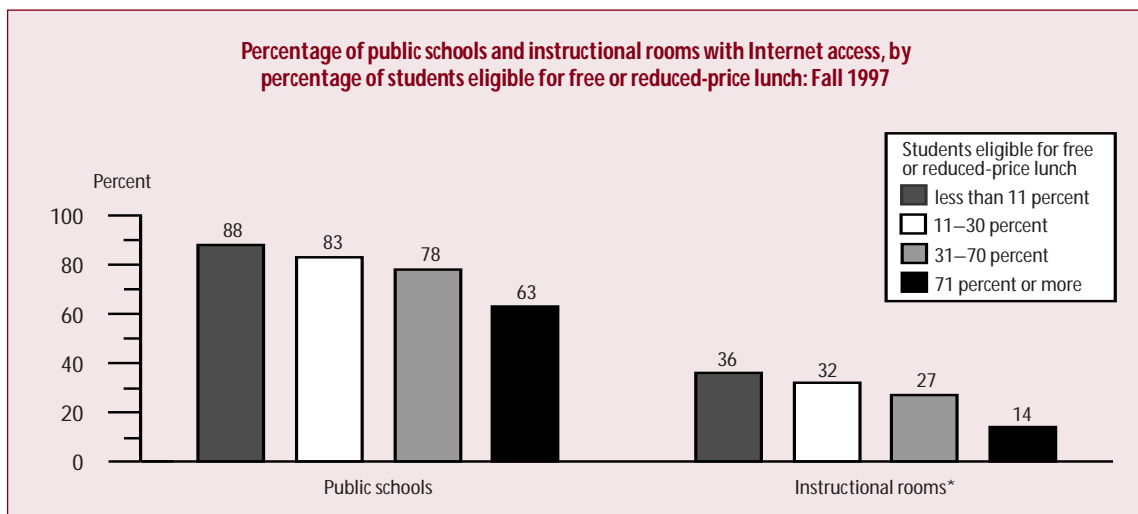
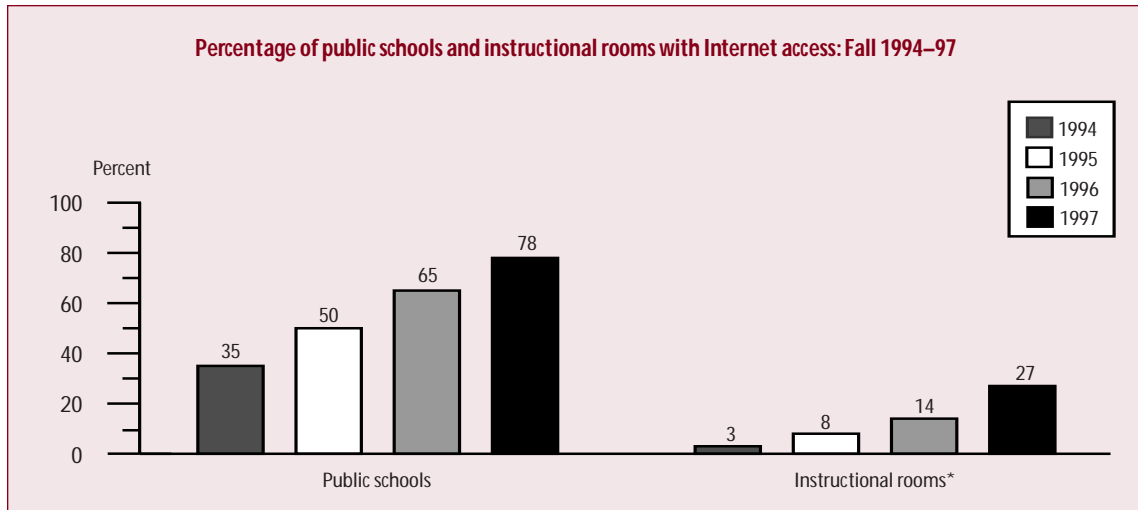
— Not available.

¹Based on the total number of instructional rooms in regular public schools.

²Data for combined schools are not reported as a separate level of school because there are too few sample observations for reliable estimates. Data for combined schools are included in the totals.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K–12," FRSS 51, 1994; "Survey on Advanced Telecommunications in U.S. Public Schools, K–12," FRSS 57, 1995; "Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1996," FRSS 61, 1996; and "Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1997," FRSS 64, 1997. As published (in part) in *Internet Access in Public Schools* (NCES 98–031), table 1, p. 1; and *Advanced Telecommunications in U.S. Public Elementary and Secondary Schools, Fall 1996* (NCES 97–944), table 1, p. 3.

Internet access in public schools



*Based on the total number of instructional rooms in regular public schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K–12," FRSS 51, 1994; "Survey on Advanced Telecommunications in U.S. Public Schools, K–12," FRSS 57, 1995; "Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1996," FRSS 61, 1996; and "Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1997," FRSS 64, 1997. As published (in part) in *Internet Access in Public Schools* (NCES 98–031), table 1, p. 1; and *Advanced Telecommunications in U.S. Public Elementary and Secondary Schools, Fall 1996* (NCES 97–944), table 1, p. 3.

Data sources: The following surveys, all conducted through the NCES Fast Response Survey System (FRSS): Survey on Advanced Telecommunications in U.S. Public Schools, K–12 (FRSS 51, 1994); Survey on Advanced Telecommunications in U.S. Private Schools, K–12 (FRSS 56, 1995); Survey on Advanced Telecommunications in U.S. Public Schools, K–12 (FRSS 57, 1995); Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1996 (FRSS 61, 1996); and Survey on Advanced Telecommunications in U.S. Public Schools, Fall 1997 (FRSS 64, 1997).

For technical information, see

Wirt, J., Snyder, T., Sable, J., Choy, S.P., Bae, Y., Stennett, J., Gruner, A., and Perie, M. (1998). *The Condition of Education 1998* (NCES 98–013).

For complete supplemental and standard error tables, see either

- the electronic version of *The Condition of Education 1998* (<http://nces.ed.gov/pubs98/condition98/index.html>), or
- volume 2 of the printed version (forthcoming): *The Condition of Education 1998 Supplemental and Standard Error Tables* (NCES 1999–025).

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Schools & Districts

Overview of Public Elementary and Secondary Schools and Districts: School Year 1996–97

Lee Hoffman

This article, originally published as a Statistics in Brief report, is an analysis of universe data from the NCES Common Core of Data (CCD). Technical notes and definitions from the original report have been omitted.

Types of Public Schools

In the 1996–97 school year, 86,058 public schools provided instruction to 45.6 million students in the United States (table 1).¹ This was an increase of 1.7 percent over the previous year for students and 1.1 percent in the number of schools.² Most of these institutions were regular schools (81,163). Regular schools often provide a range of special, vocational, and alternative programs in addition to their traditional curriculum offerings; however, in 1996–97 there were 4,895 schools that offered these specialized programs as their primary function. Among this group were 1,686 schools whose major function was to provide special education for students with disabilities and 335 schools identified as vocational. Some 2,874 schools were reported to offer other alternative programs.

The great majority of public school students, 98.2 percent, were enrolled in regular schools. An additional 0.5 percent were in special education schools, 0.4 percent in vocational schools, and 0.9 percent in alternative schools. These distributions were unchanged from the previous year. Georgia, Mississippi, and North Dakota reported no special schools. With 7.7 percent of its pupils enrolled in nonregular schools, Delaware had the greatest proportion of students in these specialized settings.

Schools and Community Size

Table 2 shows that while one in eight schools was located in a large city, one in six students attended large city schools. There were about the same number of schools in rural areas and the urban fringes of large cities: about one in four. However, urban fringes of large cities accounted for twice as many students as did rural schools.

Primary, Middle, and High Schools

Among the 86,058 public schools with students in membership during the 1996–97 school year, 59.1 percent spanned the traditional primary grades, typically beginning with prekindergarten or kindergarten and going no higher than grade 8 (table 3). About half (50.5 percent) of the nation's public school students were enrolled in these schools. An additional 17.2 percent of the schools covered the upper elementary and middle grades and offered instruction to 19.5 percent of public school students.

High schools represented 18.8 percent of the schools reported and enrolled 26.9 percent of the total number of students. About 4.9 percent of schools followed some other grade configuration, including schools that spanned all of grades kindergarten through 12 and those that were ungraded.

School District Grade Spans

In 1996–97, there were 14,990 public education agencies providing education services directly to students in the United States. Some of these were operated directly by states or federal agencies, or had a primary role other than that of administering regular education services. However, the majority of public education agencies (14,422) were regular school districts providing education to children within their jurisdiction (table 4).

States vary in the organization of their regular education agencies. Hawaii and the District of Columbia each consist of a single school district. Sixteen other states reported 100 percent of their students in comprehensive K–12 districts. On the other hand, Arizona, Illinois, Montana, and Vermont reported less than two-thirds of their students in comprehensive school districts.

¹Although the outlying areas and the Department of Defense Dependents Schools (overseas) are included in the tables, national totals are limited to the 50 states and the District of Columbia.

²Comparisons are based on the previous edition of this Statistics in Brief, which covered the 1995–96 school year: *Overview of Public Elementary and Secondary Schools and Districts: School Year 1995–96* (NCES 98–206).

Table 1.—Number of public elementary and secondary schools with membership and percentage of students in membership, by type of school and by state: School year 1996–97

State	Schools having membership	Total students	Type of school							
			Regular		Special education		Vocational education		Alternative education	
			Number of schools	Percentage of students	Number of schools	Percentage of students	Number of schools	Percentage of students	Number of schools	Percentage of students
United States	86,058	45,592,213	81,163	98.2	1,686	0.5	335	0.4	2,874	0.9
Alabama	1,340	748,156	1,306	99.7	17	0.1	3	0.0	14	0.1
Alaska	482	129,919	451	96.2	2	0.3	3	0.4	26	3.1
Arizona	1,297	799,250	1,227	98.2	13	0.1	3	0.4	54	1.3
Arkansas	1,104	457,349	1,103	99.6	0	0.0	1	0.4	0	0.0
California	7,981	5,687,901	7,095	96.6	127	0.6	0	0.0	759	2.8
Colorado	1,468	673,438	1,400	98.9	8	0.0	3	0.1	57	1.0
Connecticut	1,023	527,129	952	96.8	23	0.6	17	1.8	31	0.8
Delaware	183	110,549	147	92.2	28	2.6	5	4.9	3	0.2
District of Columbia	184	78,648	166	96.8	10	2.1	0	0.0	8	1.0
Florida	2,790	2,242,212	2,379	97.6	101	1.0	45	0.2	265	1.3
Georgia	1,798	1,346,761	1,798	100.0	0	0.0	0	0.0	0	0.0
Hawaii	249	187,653	244	99.9	4	0.0	0	0.0	1	0.1
Idaho	624	245,252	560	98.6	16	0.2	0	0.0	48	1.2
Illinois	4,171	1,973,040	3,836	97.4	240	1.2	26	0.6	69	0.8
Indiana	1,868	983,415	1,818	99.5	24	0.2	1	0.0	25	0.3
Iowa	1,547	502,941	1,501	99.0	14	0.2	0	0.0	32	0.8
Kansas	1,463	466,293	1,448	99.7	1	0.0	0	0.0	14	0.3
Kentucky	1,341	656,089	1,281	99.6	8	0.1	1	0.1	51	0.2
Louisiana	1,475	793,296	1,374	97.0	37	0.4	11	0.3	53	2.3
Maine	691	213,593	690	100.0	1	0.0	0	0.0	0	0.0
Maryland	1,284	818,583	1,201	97.4	48	1.0	10	1.1	25	0.6
Massachusetts	1,840	933,898	1,767	96.1	1	0.0	43	3.4	29	0.5
Michigan	3,470	1,684,386	3,286	98.3	97	0.8	12	0.2	75	0.6
Minnesota	1,786	847,204	1,406	96.4	62	0.3	2	0.0	316	3.3
Mississippi	876	503,967	876	100.0	0	0.0	0	0.0	0	0.0
Missouri	2,120	900,042	2,076	98.9	18	0.6	7	0.4	19	0.1
Montana	892	164,627	887	99.9	2	0.0	0	0.0	3	0.1
Nebraska	1,379	291,967	1,318	99.6	61	0.4	0	0.0	0	0.0
Nevada	436	282,131	402	98.1	11	0.4	2	0.7	21	0.9
New Hampshire	512	198,308	511	99.8	1	0.2	0	0.0	0	0.0
New Jersey	2,278	1,208,179	2,156	97.6	78	0.8	44	1.6	0	0.0
New Mexico	731	332,632	688	98.4	17	0.6	0	0.0	26	0.9
New York	4,166	2,843,131	3,986	97.0	88	0.7	25	1.3	67	1.0
North Carolina	1,997	1,210,108	1,922	99.4	24	0.3	4	0.0	47	0.4
North Dakota	569	120,123	569	100.0	0	0.0	0	0.0	0	0.0
Ohio	3,725	1,844,389	3,672	99.5	23	0.2	13	0.2	17	0.1
Oklahoma	1,819	620,695	1,807	99.7	12	0.3	0	0.0	0	0.0
Oregon	1,222	537,854	1,167	98.9	14	0.1	0	0.0	41	1.0
Pennsylvania	3,110	1,804,256	3,074	98.4	11	1.0	14	0.6	11	0.1
Rhode Island	316	151,324	306	98.6	4	0.5	3	0.5	3	0.4
South Carolina	1,047	653,011	1,022	99.5	10	0.1	0	0.0	15	0.4
South Dakota	820	143,331	802	99.1	11	0.4	0	0.0	7	0.4
Tennessee	1,512	905,089	1,487	99.6	14	0.3	4	0.1	7	0.0
Texas	6,875	3,828,975	6,247	98.5	221	0.5	24	0.1	383	0.9
Utah	742	481,812	675	97.9	23	0.5	2	0.1	42	1.5
Vermont	363	106,341	320	98.4	42	1.5	0	0.0	1	0.0
Virginia	1,792	1,096,093	1,725	99.4	29	0.2	0	0.0	38	0.4
Washington	1,971	974,504	1,782	98.1	67	0.3	3	0.1	119	1.6
West Virginia	829	304,052	809	99.6	7	0.2	3	0.0	10	0.2
Wisconsin	2,092	879,259	2,045	99.6	13	0.1	0	0.0	34	0.4
Wyoming	408	99,058	396	98.9	3	0.2	1	0.3	8	0.6
Outlying areas										
DOD Dependents	165	80,715	165	100.0	0	0.0	0	0.0	0	0.0
American Samoa	31	14,766	29	97.6	1	0.5	1	1.9	0	0.0
Guam	35	33,393	35	100.0	0	0.0	0	0.0	0	0.0
Northern Marianas	26	9,041	26	100.0	0	0.0	0	0.0	0	0.0
Puerto Rico	1,533	618,861	1,495	98.3	21	0.2	16	1.5	1	0.0
Virgin Islands	34	22,385	33	99.8	0	0.0	0	0.0	1	0.2

NOTE: Table excludes 2,165 schools for which no students were reported in membership. U.S. totals exclude outlying areas. New Jersey data are estimated. Percentages are rounded to the nearest tenth and may not add to 100. Percentages of less than 0.05 are rounded to 0.0. Number of students in membership reported on the State Nonfiscal Survey.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, School Universe and State Nonfiscal Survey, 1996–97.

Table 2.—Number and percentage of schools with membership and percentage of students in membership by community type: School year 1996–97

Community type	Number of schools	Percentage of schools	Percentage of students
United States	86,058	100.0	100.0
Large city	10,945	12.7	17.3
Midsized city	12,451	14.5	16.2
Urban fringe, large city	21,032	24.4	29.8
Urban fringe, midsized city	7,688	8.9	9.7
Large town	1,469	1.7	1.7
Small town	10,998	12.8	11.0
Rural	21,475	25.0	14.4

NOTE: Community types classify the location of a school relative to populous areas. Table includes the 50 states and the District of Columbia. New Jersey data are estimated. Percentages are rounded to the nearest tenth and may not add to 100.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, School Universe, 1996–97.

Among the 14,422 regular school districts with pupils in membership, 3,161 were responsible for only the elementary grades, beginning with grades prekindergarten, kindergarten, or 1 and ending at grade 8 or below (table 4). These districts enrolled 5.9 percent of the nation's public school students. An additional 548 agencies could be characterized as secondary school districts, with a low grade of 7 or higher and a high grade of 12. Some 2.3 percent of all students attended schools in these districts. An additional 171 districts had some other configuration. However, almost three out of four districts (10,542) provided instruction from the beginning of school through graduation. Fully 91.6 percent of all students were enrolled in these comprehensive school districts.

School District Size

School districts varied greatly in size, as measured by the number of students in membership. A very few districts (24) enrolled 100,000 or more students, while a larger number (1,725) reported fewer than 150 students (table 5). While small in number, the largest districts served a considerable portion of America's public school students. Although only 1.6 percent of districts served 25,000 or more students, fully 31.1 percent of students received their education in these largest districts. To show the contrast from a different perspective, almost half of the school districts in the United States had fewer than 1,000 students in 1996–97. At the same time, almost half of the public school students in this country attended schools in districts of 10,000 students or more.

Table 3. — Percentage of public elementary and secondary schools providing instruction and percentage of students in membership, by specified level of instruction and by state: School year 1996–97

State	Number of schools having membership	Percentage by instructional level							
		Primary		Middle		High		Other	
		Schools	Students	Schools	Students	Schools	Students	Schools	Students
United States	86,058	59.1	50.5	17.2	19.5	18.8	26.9	4.9	3.1
Alabama	1,340	50.9	43.7	16.8	17.0	19.2	24.9	13.1	14.4
Alaska	482	36.3	47.0	6.8	13.2	13.5	24.1	43.4	15.7
Arizona	1,297	61.8	55.7	16.3	17.6	15.7	24.9	6.2	1.8
Arkansas	1,104	52.3	48.0	16.2	19.5	29.0	27.5	2.5	4.9
California	7,981	63.7	53.7	14.6	17.7	17.5	26.3	4.2	2.2
Colorado	1,468	59.2	50.4	17.8	21.1	19.8	26.2	3.3	2.2
Connecticut	1,023	61.9	52.0	17.6	20.7	16.7	26.1	3.8	1.2
Delaware	183	48.1	40.2	23.0	28.4	18.0	29.2	10.9	2.2
District of Columbia	184	63.0	61.9	14.7	15.0	12.0	18.3	10.3	4.9
Florida	2,790	56.7	50.3	15.5	20.3	13.4	21.3	14.4	8.0
Georgia	1,798	62.0	51.0	18.5	20.2	15.6	24.8	3.9	3.9
Hawaii	249	69.1	55.2	11.6	13.3	13.3	26.7	6.0	4.8
Idaho	624	53.2	47.5	16.7	21.9	25.0	28.1	5.1	2.5
Illinois	4,171	61.9	55.4	16.9	15.0	17.5	27.3	3.7	2.2
Indiana	1,868	62.9	49.7	16.5	18.1	18.5	30.6	2.1	1.6
Iowa	1,547	54.8	46.6	18.7	19.5	24.2	31.0	2.2	2.8
Kansas	1,463	58.0	50.4	16.9	19.6	24.5	29.5	0.6	0.5
Kentucky	1,341	58.9	48.8	16.9	20.1	21.3	30.6	3.0	0.5
Louisiana	1,475	53.6	47.8	19.3	19.7	17.2	26.0	10.0	6.5
Maine	691	64.3	49.5	17.9	21.6	15.8	27.2	2.0	1.7
Maryland	1,284	66.0	52.3	17.4	20.5	14.1	25.7	2.5	1.5
Massachusetts	1,840	65.8	52.4	16.4	19.0	15.7	25.6	2.2	3.0
Michigan	3,470	59.3	49.8	17.2	20.0	18.1	27.3	5.4	2.8
Minnesota	1,786	53.4	48.6	12.4	18.0	28.5	31.6	5.7	1.8
Mississippi	876	50.3	44.0	18.8	18.9	20.2	25.1	10.6	12.0
Missouri	2,120	56.9	49.3	16.3	19.6	23.4	29.1	3.3	2.0
Montana	892	53.6	49.0	26.5	20.4	19.6	30.0	0.3	0.6
Nebraska	1,379	67.5	51.3	7.9	15.1	22.9	33.0	1.7	0.6
Nevada	436	64.9	52.1	13.8	20.8	18.1	25.9	3.2	1.3
New Hampshire	512	67.0	50.5	18.0	22.7	15.0	26.8	0.0	0.0
New Jersey	2,278	63.6	53.1	17.1	17.7	13.4	26.0	5.8	3.2
New Mexico	731	59.1	48.9	20.5	22.7	18.1	27.4	2.3	1.0
New York	4,166	58.8	50.1	16.6	18.6	18.0	27.1	6.6	4.2
North Carolina	1,997	60.0	51.5	20.3	21.3	16.6	25.8	3.1	1.4
North Dakota	569	58.3	50.9	6.5	12.1	33.9	34.4	1.2	2.6
Ohio	3,725	59.3	48.5	19.2	20.3	18.6	29.4	2.9	1.9
Oklahoma	1,819	54.5	51.5	18.9	21.3	25.5	24.7	1.2	2.6
Oregon	1,222	61.4	48.5	16.9	21.2	17.3	28.6	4.5	1.7
Pennsylvania	3,110	62.3	48.4	16.9	19.5	19.3	29.9	1.4	2.2
Rhode Island	316	67.7	50.1	17.1	22.2	13.3	27.5	1.9	0.3
South Carolina	1,047	56.3	46.4	23.2	24.4	18.1	28.1	2.4	1.1
South Dakota	820	51.6	47.7	23.8	21.2	23.3	30.9	1.3	0.2
Tennessee	1,512	62.0	52.3	16.2	17.0	17.9	27.2	3.9	3.4
Texas	6,875	51.4	48.8	20.9	23.0	19.4	25.4	8.3	2.8
Utah	742	59.3	49.9	16.2	22.0	19.1	25.8	5.4	2.3
Vermont	363	70.0	53.8	6.1	8.7	13.5	30.0	10.5	7.5
Virginia	1,792	61.9	48.9	18.2	21.6	16.5	28.2	3.5	1.3
Washington	1,971	57.1	49.7	16.5	20.3	19.7	27.0	6.7	3.0
West Virginia	829	64.5	48.4	16.6	20.2	15.1	28.1	3.7	3.3
Wisconsin	2,092	58.7	48.6	17.6	19.3	21.6	30.8	2.0	1.2
Wyoming	408	57.6	47.0	22.5	24.2	18.6	28.0	1.2	0.8
Outlying areas									
DOD Dependents	165	57.6	59.7	10.3	10.9	23.0	21.1	9.1	8.2
American Samoa	31	74.2	72.5	3.2	4.4	19.4	22.7	3.2	0.5
Guam	35	68.6	53.9	17.1	21.6	14.3	24.5	0.0	0.0
Northern Marianas	26	84.6	64.7	3.8	11.5	11.5	23.8	0.0	0.0
Puerto Rico	1,533	60.1	46.1	14.4	17.0	11.0	20.3	14.5	16.6
Virgin Islands	34	67.6	52.9	17.6	17.0	11.8	28.5	2.9	1.6

NOTE: Instructional levels are primary (low grade prekindergarten to 3, high grade up to 8); middle (low grade 4 to 7, high grade 4 to 9); high (low grade 7 to 12, high grade 12 only); other (any configuration not falling within the previous three, including ungraded schools). Table excludes 2,188 schools for which no students were reported in membership. U.S. totals exclude outlying areas. New Jersey data are estimated. Percentages are rounded to the nearest tenth and may not add to 100.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, School Universe, 1996–97.

Table 4. — Number of regular public elementary and secondary school districts providing instruction and percentage of students in membership, by grade span and by state: School year 1996–97

State	Total districts	Grade span							
		Pre-K, K, 1 to 8 or below		Pre-K, K, 1 to 9–12		7, 8, 9 to 7–12		Other	
		Number of districts	Percentage of students	Number of districts	Percentage of students	Number of districts	Percentage of students	Number of districts	Percentage of students
United States	14,422	3,161	5.9	10,542	91.6	548	2.3	171	0.2
Alabama	127	0	0.0	127	100.0	0	0.0	0	0.0
Alaska	53	0	0.0	53	100.0	0	0.0	0	0.0
Arizona	290	139	28.8	101	61.7	30	9.1	20	0.4
Arkansas	311	0	0.0	311	100.0	0	0.0	0	0.0
California	999	590	21.6	303	68.9	103	9.3	3	0.2
Colorado	176	1	0.0	175	100.0	0	0.0	0	0.0
Connecticut	166	45	4.8	113	93.8	8	1.5	0	0.0
Delaware	19	0	0.0	15	94.3	4	5.7	0	0.0
District of Columbia	1	0	0.0	1	100.0	0	0.0	0	0.0
Florida	67	0	0.0	67	100.0	0	0.0	0	0.0
Georgia	180	7	0.2	173	99.8	0	0.0	0	0.0
Hawaii	1	0	0.0	1	100.0	0	0.0	0	0.0
Idaho	112	5	0.1	106	99.9	0	0.0	1	0.0
Illinois	921	394	25.8	406	63.5	114	10.7	7	0.1
Indiana	292	1	0.0	291	100.0	0	0.0	0	0.0
Iowa	378	25	1.0	353	99.0	0	0.0	0	0.0
Kansas	304	2	0.0	302	100.0	0	0.0	0	0.0
Kentucky	176	6	1.0	169	98.8	1	0.2	0	0.0
Louisiana	66	0	0.0	66	100.0	0	0.0	0	0.0
Maine	227	108	12.2	112	86.7	5	1.1	2	0.0
Maryland	24	0	0.0	24	100.0	0	0.0	0	0.0
Massachusetts	247	67	5.0	176	94.5	2	0.2	2	0.3
Michigan	628	63	0.4	527	99.1	8	0.1	30	0.4
Minnesota	352	27	0.6	312	97.5	9	0.2	4	1.7
Mississippi	153	0	0.0	149	99.7	3	0.2	1	0.1
Missouri	523	73	1.3	450	98.7	0	0.0	0	0.0
Montana	463	287	62.2	47	10.9	119	26.8	10	0.1
Nebraska	645	320	4.0	267	94.3	23	1.7	35	0.1
Nevada	17	1	0.0	16	100.0	0	0.0	0	0.0
New Hampshire	162	88	19.2	66	77.8	7	2.4	1	0.6
New Jersey	582	294	19.3	207	72.2	51	6.6	30	1.9
New Mexico	89	1	2.0	88	98.0	0	0.0	0	0.0
New York	706	43	1.0	645	98.3	8	0.6	10	0.1
North Carolina	118	0	0.0	118	100.0	0	0.0	0	0.0
North Dakota	234	45	2.4	177	96.8	6	0.5	6	0.3
Ohio	611	0	0.0	610	100.0	0	0.0	1	0.0
Oklahoma	549	117	3.4	431	96.5	0	0.0	1	0.0
Oregon	219	34	1.3	178	97.8	5	0.9	2	0.0
Pennsylvania	500	2	0.0	498	100.0	0	0.0	0	0.0
Rhode Island	36	4	1.5	31	97.5	0	0.0	1	1.0
South Carolina	95	2	0.1	91	99.6	1	0.1	1	0.2
South Dakota	173	7	0.9	166	99.1	0	0.0	0	0.0
Tennessee	138	14	2.4	124	97.6	0	0.0	0	0.0
Texas	1,043	67	0.3	975	99.7	0	0.0	1	0.1
Utah	40	0	0.0	40	100.0	0	0.0	0	0.0
Vermont	251	185	44.1	35	31.4	30	22.7	1	1.8
Virginia	132	1	0.0	131	100.0	0	0.0	0	0.0
Washington	296	47	1.0	248	99.0	0	0.0	1	0.0
West Virginia	55	0	0.0	55	100.0	0	0.0	0	0.0
Wisconsin	426	47	2.6	368	96.2	11	1.2	0	0.0
Wyoming	49	2	0.6	47	99.4	0	0.0	0	0.0
Outlying areas									
DOD Dependents	12	0	0.0	12	100.0	0	0.0	0	0.0
American Samoa	1	0	0.0	1	100.0	0	0.0	0	0.0
Guam	1	0	0.0	1	100.0	0	0.0	0	0.0
Northern Marianas	1	0	0.0	1	100.0	0	0.0	0	0.0
Puerto Rico	1	0	0.0	1	100.0	0	0.0	0	0.0
Virgin Islands	1	0	0.0	1	100.0	0	0.0	0	0.0

NOTE: Grade span is determined by the highest and lowest grades for which student membership is reported among all schools associated with the district. Other includes all grade configurations not represented in the other categories and includes ungraded districts. Table excludes 419 regular school districts for which no students were reported in membership. Department of Defense school districts are classified as regular districts. U.S. totals exclude the outlying areas. New Jersey data are estimated. Percentages are rounded to the nearest tenth and may not add to 100. Percentages of less than 0.05 are rounded to 0.0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, Agency and School Universes, 1996–97.

Table 5.—Distribution of regular public elementary and secondary school districts and students, by district membership size: School year 1996–97

District membership size	Number of districts	Percentage of districts	Percentage of students
United States	14,422	100.0	100.0
100,000 or more	24	0.2	12.1
25,000 to 99,999	202	1.4	19.0
10,000 to 24,999	571	4.0	18.7
7,500 to 9,999	322	2.2	6.1
5,000 to 7,499	700	4.9	9.4
2,500 to 4,999	2,070	14.4	15.9
2,000 to 2,499	849	5.9	4.2
1,500 to 1,999	1,110	7.7	4.2
1,000 to 1,499	1,580	11.0	4.3
800 to 999	834	5.8	1.6
600 to 799	939	6.5	1.4
450 to 599	941	6.5	1.1
300 to 449	1,121	7.8	0.9
150 to 299	1,434	9.9	0.7
1 to 149	1,725	12.0	0.3

NOTE: Table includes the 50 states and the District of Columbia, and excludes 419 regular school districts for which no students were reported in membership. Percentages are rounded to the nearest tenth and may not add to 100. New Jersey data are estimated.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, Agency Universe, 1996–97.

Student Characteristics

Because participation in the Free Lunch Program depends on income, eligibility for this program is often used to estimate student needs. Eight states did not report free lunch eligibility data for at least 70 percent of their schools, so national totals could not be calculated. Within those states and schools that did provide this information, the proportion of students who were reported as eligible to receive free lunch ranged from a low of 12.4 percent in New Hampshire to a high of 69.3 percent in the District of Columbia. In all, eight states reported that 40 percent or more of their public school students were eligible for free lunch (table 6).

Two states did not report the number of students with individual education programs (IEPs), who participate in special education services. Among the states for which this

information was available, the percentage of students with IEPs ranged from less than 5 percent in Michigan and Ohio to 15 percent or more in Massachusetts, Missouri, Rhode Island, and West Virginia.

About two-thirds of the public school students in the United States in 1996–97 were white, non-Hispanic, and about one-sixth were black, non-Hispanic. American Indian–Alaska Native students constituted about one-fourth of the student membership in Alaska, while almost two-thirds of the students in Hawaii were in the Asian–Pacific Islander category. About one in seven students nationwide was Hispanic. More than one-third of the students were Hispanic in California, New Mexico, and Texas. Over half of the students were black, non-Hispanic in the District of Columbia (87.3 percent) and Mississippi (50.9 percent). White, non-Hispanic students made up less than half of the

Table 6.— Selected characteristics of public elementary and secondary school membership as a percentage of school membership by state: School year 1996–97

State	Eligible for free lunch	With individual education program	American Indian—Alaska Native	Asian—Pacific Islander	Hispanic	Black, Non-Hispanic	White, Non-Hispanic
United States	—	—	1.2	3.7	14.1	17.0	64.0
Alabama	38.8	13.1	0.7	0.6	0.7	36.6	61.4
Alaska	24.6	13.8	24.8	4.5	2.9	4.7	63.1
Arizona	—	9.7	7.2	1.8	30.2	4.3	56.6
Arkansas	36.4	10.4	0.4	0.7	1.8	23.7	73.3
California	47.8	10.5	0.9	11.2	39.7	8.7	39.5
Colorado	22.4	9.9	1.1	2.6	18.8	5.5	72.0
Connecticut	20.3	14.6	0.3	2.6	11.9	13.5	71.8
Delaware	29.9	12.0	0.2	1.8	4.3	29.9	63.9
District of Columbia	69.3	8.5	0.1	1.4	7.2	87.3	3.9
Florida	37.1	13.4	0.2	1.8	15.9	25.4	56.7
Georgia	42.8	10.3	0.1	1.7	2.6	37.6	57.9
Hawaii	29.7	8.5	0.4	63.9	8.8	2.9	24.0
Idaho	23.6	10.2	1.3	1.2	7.8	0.6	89.1
Illinois	—	11.6	0.1	3.1	12.7	21.1	63.0
Indiana	22.1	14.0	0.2	0.8	2.4	11.2	85.4
Iowa	20.4	12.9	0.5	1.6	2.3	3.4	92.2
Kansas	31.5	11.7	1.1	1.9	6.5	8.6	81.9
Kentucky	40.3	—	0.1	0.6	0.5	10.0	88.8
Louisiana	49.2	11.1	0.6	1.3	1.2	46.4	50.6
Maine	24.5	14.0	0.6	0.9	0.4	0.9	97.2
Maryland	25.6	12.7	0.3	3.9	3.5	35.6	56.7
Massachusetts	—	17.0	0.2	4.0	9.6	8.4	77.9
Michigan	26.5	4.0	1.0	1.6	2.8	18.9	75.7
Minnesota	19.4	12.4	2.0	4.2	2.2	5.2	86.4
Mississippi	55.5	13.2	0.5	0.6	0.4	50.9	47.7
Missouri	28.0	15.2	0.3	1.0	1.1	16.7	80.9
Montana	23.9	11.6	9.9	0.8	1.5	0.5	87.2
Nebraska	21.0	13.9	1.4	1.3	4.9	6.0	86.4
Nevada	25.4	10.6	1.9	4.6	18.8	9.6	65.1
New Hampshire	12.4	13.5	0.2	1.1	1.3	1.0	96.4
New Jersey	—	—	0.2	5.3	13.5	18.5	62.5
New Mexico	—	13.8	10.5	1.0	47.5	2.4	38.7
New York	38.4	12.9	0.5	5.2	17.6	20.3	56.4
North Carolina	30.4	12.6	1.5	1.5	2.3	30.8	63.9
North Dakota	21.2	10.6	8.1	0.7	1.1	0.9	89.1
Ohio	24.7	3.7	0.1	1.0	1.4	15.4	82.0
Oklahoma	36.7	11.4	15.1	1.3	4.3	10.5	68.8
Oregon	24.4	11.0	2.1	3.4	7.4	2.5	84.6
Pennsylvania	—	10.6	0.1	1.8	3.7	14.2	80.2
Rhode Island	28.0	17.3	0.5	3.3	10.7	7.3	78.3
South Carolina	40.0	11.7	0.2	0.8	0.8	41.6	56.6
South Dakota	25.1	11.0	13.8	0.8	0.8	1.0	83.7
Tennessee	—	14.0	0.3	1.2	1.0	23.5	74.0
Texas	39.9	11.8	0.3	2.4	37.4	14.3	45.6
Utah	18.8	11.2	1.5	2.4	6.0	0.7	89.4
Vermont	19.9	10.1	0.6	1.0	0.4	0.8	97.3
Virginia	25.6	13.1	0.2	3.6	3.4	26.8	66.0
Washington	—	11.1	2.7	6.7	8.3	4.8	77.5
West Virginia	40.6	15.6	0.1	0.3	0.5	4.0	95.2
Wisconsin	20.2	12.5	1.3	2.9	3.5	9.6	82.6
Wyoming	20.0	11.8	2.8	0.8	6.2	1.2	89.0
Outlying areas							
DOD Dependents	—	8.5	1.0	10.0	8.6	21.6	58.8
American Samoa	94.9	2.5	0.0	100.0	0.0	0.0	0.0
Guam	23.3	6.5	0.1	92.6	0.9	1.2	5.3
Northern Marianas	37.6	4.0	0.0	99.2	0.0	0.0	0.8
Puerto Rico	82.3	6.8	0.0	0.0	100.0	0.0	0.0
Virgin Islands	63.6	4.7	0.0	0.2	14.0	84.6	1.1

NOTE: Data are shown as — if reported for less than 70 percent of schools or agencies. Percentages are based on schools and agencies reporting. National percentages were not imputed if data were missing for one or more states. New Jersey data are estimated. U.S. totals exclude outlying areas. Percentages are rounded to the nearest tenth and may not add to 100. Percentages of less than 0.05 are rounded to 0.0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, School and Agency Universes, 1996–97.

Table 7.— Number and percentage of students dropping out of grades 9 through 12, and percentage who were male or minority among reporting states: School year 1995–96

State	Among grade 9–12 students		Among grade 9–12 dropouts	
	Number of dropouts	Percent dropping out	Percent male	Percent minority
Alabama	11,573	5.6	57.3	40.3
Arkansas	5,305	4.1	57.9	37.3
California	58,150	3.9	55.3	74.4
Connecticut	6,152	4.8	57.0	52.3
Delaware	1,404	4.5	59.8	40.6
Georgia	29,284	8.5	59.0	46.8
Hawaii	2,406	4.7	60.1	66.4
Indiana	10,232	3.5	57.2	20.4
Iowa	4,791	3.1	57.9	16.4
Kansas	6,335	4.7	56.5	30.3
Louisiana	24,986	11.6	56.9	53.9
Maine	1,805	3.1	61.5	2.9
Massachusetts	8,079	3.3	58.1	36.3
Minnesota	12,434	5.3	58.0	30.7
Mississippi	8,487	6.2	59.3	56.5
Missouri	16,753	6.6	58.1	28.2
Montana	2,697	5.6	58.2	18.5
Nebraska	3,924	4.5	57.5	29.8
Nevada	6,647	9.6	55.6	41.5
New York	29,169	3.7	55.9	64.7
North Dakota	916	2.5	60.4	29.8
Ohio	29,264	5.4	60.2	33.8
Oregon	10,318	7.0	56.0	22.5
Pennsylvania	20,776	4.0	57.7	42.5
Rhode Island	1,849	4.6	58.2	31.8
South Carolina	5,297	2.9	60.1	50.1
Utah	6,546	4.4	54.3	22.7
West Virginia	3,641	3.8	57.7	4.9
Wyoming	1,752	5.7	57.2	17.5
Outlying areas				
Puerto Rico	2,509	1.5	49.0	100.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data, Agency Universe, 1996–97.

student membership in six states, but represented 90 percent or more of the students in five other states. At the national level, none of the racial-ethnic groups changed by as much as 1 percent over the previous year.

Dropouts

Twenty-nine states and Puerto Rico reported dropout statistics in agreement with the required definition (table 7).³ Among these jurisdictions, Louisiana reported that more than 10 percent of students in grades 9 through 12 had dropped out during the preceding school year. North Dakota, South Carolina, and Puerto Rico reported dropout rates among these grades at less than 3 percent. Fourteen states had dropout rates somewhere between 4 and 6

percent. Dropouts were more likely to be male than female. In fact, only in Utah were less than 55 percent of the grade 9–12 dropouts male. In seven states, half or more of the dropouts were minority students, that is, other than white, non-Hispanic.

Data sources: The following components of the NCES 1996–97 Common Core of Data (CCD): Public School Universe, Local Education Agency Universe, and State Aggregate Nonfiscal Report.

For technical information, see the complete Statistics in Brief: Hoffman, L. (1998). *Overview of Public Elementary and Secondary Schools and Districts: School Year 1996–97* (NCES 98–204).

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To obtain the Statistics in Brief (NCES 98–204), 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).

³A dropout was defined as a student who was enrolled at any time during 1995–96, was not enrolled at the beginning of 1996–97, and had not graduated or transferred to another school.

POSTSECONDARY EDUCATION

American Indians and Alaska Natives in Postsecondary Education <i>D. Michael Pavel, Rebecca Rak Skinner, Elizabeth Farris, Margaret Cahalan, John Tippeconnic, and Wayne Stein</i>	67
Credit Production and Progress Toward the Bachelor's Degree: An Analysis of Postsecondary Transcripts for Beginning Students at 4-Year Institutions <i>Alexander C. McCormick</i>	75

Native Americans

American Indians and Alaska Natives in Postsecondary Education

*D. Michael Pavel, Rebecca Rak Skinner, Elizabeth Farris,
Margaret Cahalan, John Tippeconnic, and Wayne Stein*

This article is a summary based on the report of the same name. The numerous data sources are listed at the end of this article.

Data on Native Americans in postsecondary education can be hard to find. Part of the problem lies in the relatively small size of the Native American population, which leads to special difficulties in collecting and analyzing data. Compounding these problems is the fact that respondents may not answer consistently each time they are asked to identify their racial-ethnic group. Research has indicated that Native Americans make up the least stable racial-ethnic group in terms of self-identification.

This report provides a comprehensive compilation of data on Native American participation in postsecondary education. By pulling together and discussing data from many sources, the report presents a portrait of American Indians and Alaska Natives involved in all facets of higher education—as undergraduate students, graduate students, and faculty. The focus is on Native American involvement at 4-year and 2-year colleges and universities. Concluding the report is a detailed discussion of tribally controlled colleges, which play an important role in Native American higher education.

Demographic Background

Tremendous growth in population

Between 1900 and 1990, the number of Native Americans¹ recorded in the decennial census increased from about 237,000 people to slightly less than 2 million, and their proportion of the total U.S. population increased from 0.3 percent to 0.8 percent. Most of this tremendous growth occurred from 1970 to 1990, with an increase of 1.2 million people. Some of the growth is due to more self-identification by individuals with their Native American heritage.

Differences from overall U.S. population

Compared with the overall population, Native Americans in 1990 were

- more likely to be under the age of 18 (36 percent of Native Americans, compared with 26 percent of the total population);
- more likely to live in the western United States (48 percent of Native Americans, compared with 21 percent of the total population);

¹The terms "Native American" and "American Indian and Alaska Native" are used interchangeably throughout this article.

- less likely to live in urban areas (56 percent, compared with 75 percent of the total population);
- more likely to have lower family incomes (\$21,750 median family income among all Native American families, compared with \$35,225 among all families nationwide);
- more likely to live in poverty (17 percent of married-couple families among Native Americans, for example, compared with 6 percent of married-couple families overall); and
- more likely to have lower levels of educational attainment, despite recent gains.

Continuing gap in educational attainment

Between 1980 and 1990, Native Americans improved their overall level of educational attainment. For example, the percentage of Native Americans 25 years and older who had completed high school increased from 56 percent to 66 percent. Despite recent improvements, however, Native American educational attainment continued to lag behind that of the total population. In 1990, 66 percent of Native Americans had completed high school, compared with 75 percent of the total population. Among Native Americans, 9 percent had attained a bachelor's degree or higher, compared with 20 percent among the general population. Only 3 percent of Native Americans held graduate or professional degrees, compared with 7 percent of the total population.

Variation in attainment across tribes

Educational attainment varied widely across tribes, with the high school completion rate ranging from 94 percent for the Coos tribe to 29 percent for the Miccosukee tribe. Among Native Americans 25 years or older living on Indian reservations, 54 percent had earned a high school diploma by 1990.

Access to Higher Education

Probable growth in college enrollment

An improved rate of high school completion, coupled with the large proportion of Native Americans under the age of 18, suggests that an increasing number of American Indians and Alaska Natives will be eligible for college enrollment in the coming years.

Graduation and college application at BIA-tribal schools

In 1993–94, nearly half a million (491,939) Native American students were enrolled in public elementary

and secondary schools. About 9 percent of these students attended BIA-tribal schools, which are funded by the Bureau of Indian Affairs, operated by either that agency or a tribal organization, and attended almost exclusively by Native Americans. An additional 38 percent of Native American students attended schools with “high Indian enrollment” (at least 25 percent Native American).

At BIA-tribal schools, the percentage of high school seniors who graduated increased slightly between 1989–90 and 1992–93, from 82 percent to 86 percent. The graduation rate at high Indian enrollment and low Indian enrollment schools was 91 percent for 1992–93 seniors.

From 1990–91 to 1993–94, the percentage of high school seniors applying to college rose at BIA-tribal schools. While about one-third of seniors at BIA-tribal schools applied to college in 1990–91, the percentage applying to college had increased to almost one-half (47 percent) by 1993–94. High Indian enrollment schools had a 1993–94 application rate of 45 percent, while low Indian enrollment schools had an application rate of 58 percent.

Progress on admissions criteria

College admissions officers often consider criteria such as applicants' high school coursework and grade point average, scores on a standardized entrance exam (SAT or ACT), and extracurricular activities. While Native Americans continue to lag behind national averages in each of these measures, they have made improvements in many areas since the 1970s.

In 1983, the National Commission on Excellence in Education recommended that all high school students complete a core curriculum of 4 units of English; 3 units each of science, social studies, and mathematics; and 0.5 units of computer science. From 1982 to 1992, completion of a recommended precollege curriculum² increased from 6 percent to 31 percent among Native American high school graduates. During the same period, completion of the recommended precollege curriculum increased from 13 percent to 47 percent among all high school graduates.

Average SAT scores among American Indians and Alaska Natives electing to take the exam have increased over the past 20 years. In 1976, Native Americans had an average combined verbal and mathematics score of 808 on the SAT

²The recommended precollege curriculum is the same as the core curriculum, except that it does not include 0.5 units of computer science and does include 2 units of foreign language.

exam. By 1995, the average score had reached 850, an increase of 42 points over 1976. In 1995, the national average SAT score was 910, an increase of only 7 points over 1976 scores. Native American ACT scores have also improved in recent years.

Continuing gap in competitiveness

Analysis of a sample of 1992 college-bound high school graduates revealed that the Native American students were, on average, less competitive for the college admissions process than the overall sample. For example, among the college-bound Native American high school graduates

- only 2 percent had a combined SAT score of 1,100 or higher, compared with 22 percent of all college-bound graduates;
- only 24 percent had completed a precollege curriculum,³ compared with 56 percent of all college-bound graduates; and
- only 5 percent had at least a 3.5 grade point average. Nationwide, 19 percent of college-bound graduates had at least a 3.5 grade point average.

Enrollment in Higher Education

Increased enrollment, especially by women

From 1976 to 1994, the number of Native Americans enrolled in institutions of higher education (IHEs)⁴ jumped from 76,000 to 127,000, an increase of 67 percent. During the same period, overall enrollment in IHEs increased 30 percent.

Increased enrollment by women was the main reason for substantial gains in enrollment levels from 1976 to 1994. Among Native American women, enrollment increased 98 percent, from 37,600 to 74,400. Overall enrollment by women increased 52 percent. During the same period, Native American male enrollment rose only 38 percent and total male enrollment rose only 10 percent. As a result of these changes, by 1994 women composed the majority of both Native American enrollment (58 percent) and overall enrollment (59 percent).

Continuing concentration in 2-year and public institutions

From 1976 to 1994, Native American enrollment at 4-year institutions increased at a higher rate (75 percent) than at

2-year institutions (61 percent). For students overall, the enrollment pattern was the opposite, with greater increases at 2-year institutions. The increased rate of Native American enrollment at the 4-year level did not, however, result in a significant increase in the proportion of Native American students attending 4-year institutions (46 percent in 1976 and 48 percent in 1994). Among the general student population, the majority attended 4-year colleges in both years (65 percent in 1976 and 61 percent in 1994).

From 1976 to 1994, Native American enrollment increased 93 percent at private institutions and 64 percent at public institutions. However, these percentage increases resulted in a gain of only 8,000 Native American students at private schools, versus a gain of 43,200 at public schools. Among the general student population, private school enrollment increased by 34 percent (800,500 students), while public school enrollment increased by 29 percent (2.5 million students).

In 1994, Native American students continued to attend public institutions at a higher rate than students overall (87 percent of Native American students, compared with 78 percent of all students). This difference could be driven by the fact that the majority of Native Americans attended 2-year institutions, which are generally public institutions.

Concentration in associate's degree programs

During the 1992–93 academic year, 51 percent of Native American undergraduates were enrolled in associate's degree programs, compared with only 39 percent of undergraduates overall. Native Americans were less likely to enroll in bachelor's degree programs. Thus, only 31 percent of Native Americans were enrolled in bachelor's degree programs, compared with 43 percent of all undergraduates.

Greater representation as undergraduates than in total population

Between 1976 and 1994, Native American enrollment at all degree levels increased by larger percentages than did overall enrollment. Due to these increases, Native American students have moved closer to achieving the same level of representation at the graduate and first-professional degree levels as they have in the total population. At the undergraduate level, American Indians and Alaska Natives have exceeded their representation in the population—1 percent of undergraduate enrollment and 0.8 percent of the total population.

³This analysis is limited to college-bound high school graduates.

⁴IHEs are postsecondary institutions that are accredited at the college level by an agency recognized by the U.S. Department of Education.

Concentration of enrollment in areas with large Native American populations

In 1994, the five IHEs enrolling the largest numbers of Native Americans were located in three states—New Mexico, Oklahoma, and Arizona. Each of these states ranked among the top four in terms of total Native American population.

Five states—Arizona, California, Oklahoma, New Mexico, and Washington—had statewide enrollments of more than 5,000 Native American postsecondary students in 1994. Native Americans exceeded 5 percent of total postsecondary enrollment in six states—Alaska, Montana, New Mexico, North Dakota, Oklahoma, and South Dakota.

Degrees Conferred and Recipient Characteristics

Increase in degrees, especially for women

From 1976–77 to 1993–94, the number of degrees that IHEs awarded to Native Americans jumped from 7,082 to 13,366, an increase of 89 percent (table A). During the same period, the overall number of IHE degrees rose from 1.7 million to 2.2 million, an increase of 27 percent. Among Native Americans and all degree recipients, the rate of increase was higher for women than for men. By 1986–87, consequently, women constituted the majority of IHE degree recipients both among Native Americans and overall. By 1993–94, women received 59 percent of IHE degrees awarded to Native Americans and 55 percent of all IHE degrees.

At all degree levels, the percentage increase in degrees awarded between 1976–77 and 1993–94 was larger for Native Americans than for total IHE recipients. Thus, the number of associate's degrees conferred increased by 95 percent for Native Americans, compared with 31 percent for all recipients. The number of bachelor's degrees increased by 86 percent for Native Americans, compared with 27 percent for degree recipients overall.

At the graduate level, the number of master's degrees and first-professional degrees awarded to Native Americans increased by 76 percent and 89 percent, respectively, compared with increases of 22 percent and 18 percent for all degree recipients. The 41 percent increase in Native American doctoral degree recipients was more similar to the 30 percent increase experienced by the nation.

At all degree levels, the percentage increase in degrees awarded between 1976–77 and 1993–94 was larger for women than for men. This pattern held for Native American degree recipients as well as all IHE degree recipients. Among Native Americans, for example, the rate of increase in bachelor's degrees was 135 percent for women and 45 percent for men. By 1993–94, Native American women were awarded 58 percent of all bachelor's degrees earned by Native Americans. Native American women also earned the majority of associate's, master's, and doctor's degrees. Their share of first-professional degrees increased from 19 percent in 1976–77 to 40 percent in 1993–94.

Continuing gap in share of degrees above associate's level

Native Americans received 13,366, or about 0.6 percent, of the 2.2 million degrees awarded by IHEs in 1993–94 (table A). This represents an increase from the 0.4 percent of all degrees that were earned by American Indians and Alaska Natives in 1976–77. While some increase occurred in Native Americans' share of each degree type, the smallest increase occurred among doctor's degrees (from 0.29 percent in 1976–77 to 0.31 percent in 1993–94). The greatest share increase was in associate's degrees (from 0.6 percent in 1976–77 to 0.9 percent in 1993–94).

Native American increases in degree attainment, while consistent with rising shares of American Indian and Alaska Native enrollment, do not yet match enrollment shares. Attainment increases have also failed to keep pace with Native American population growth. By 1994, Native Americans composed 1 percent of all Americans 20 to 24 years old, the ages when college graduation typically occurs. Native Americans matched this population representation only in their share of associate's degrees (0.9 percent). At all other degree levels, they did not attain a share of degrees equal to their share of the population aged 20 to 24.

Considering all degrees taken together, Native Americans were somewhat more likely to receive associate's degrees and less likely to obtain bachelor's, master's, or doctor's degrees than all students in IHEs. Among American Indian and Alaska Native recipients in 1993–94, 47 percent received bachelor's degrees; 37 percent, associate's degrees; 13 percent, master's; and 1 percent, doctor's degrees. Among all degree recipients, the majority (53 percent) received bachelor's degrees; 24 percent received associate's degrees; 18 percent, master's degrees; and 2 percent, doctor's degrees.

Table A. — Total degrees awarded to American Indian and Alaska Native degree recipients and total degree recipients in institutions of higher education, by degree level: 1976–77 and 1993–94

Degree level	1976–77			1993–94		
	Total	American Indian and Alaska Native Total	Percent	Total	American Indian and Alaska Native Total	Percent
Total	1,736,537	7,082	0.4	2,210,882	13,366	0.6
Associate's degrees	404,956	2,498	0.6	529,106	4,871	0.9
Bachelor's degrees	917,900	3,326	0.4	1,165,973	6,189	0.5
Master's degrees	316,602	967	0.3	385,419	1,697	0.4
Doctor's degrees	33,126	95	0.3	43,149	134	0.3
First-professional degrees	63,953	196	0.3	75,418	371	0.5

SOURCE: U.S. Department of Education, National Center for Education Statistics, Higher Education General Information Survey (HEGIS), "Degrees and Other Formal Awards Conferred" survey, 1976–77; and Integrated Postsecondary Education Data System (IPEDS), "Completions" survey, 1993–94. As published in *Digest of Education Statistics: 1996* (NCES 96–133), tables 256, 259, 262, 265, and 268, pp. 283, 286, 289, 292, and 295; and *Digest of Education Statistics: 1997* (NCES 98–015), tables 262, 265, 268, 271, and 274, pp. 292, 298, 301, and 304.

Concentration of conferrals in areas where many Native Americans live

Considering all higher education degrees (associate's, bachelor's, master's, and doctor's), the five institutions awarding the most degrees to American Indians and Alaska Natives in 1993–94 were located in two states, Oklahoma and Arizona. These states also ranked first and third, respectively, in total American Indian and Alaska Native population. In terms of bachelor's degrees awarded to Native Americans, the three top colleges were all in Oklahoma.

A large proportion of American Indian and Alaska Native degree recipients were also found in California, New Mexico, and Washington, all of which have large Native American populations. Reflecting the small number of American Indian and Alaska Native degree recipients nationwide, only 31 colleges and universities awarded more than 50 degrees to Native Americans in 1993–94.

Bachelor's degree recipients—characteristics and outcomes

Characteristics. Thirty-one percent of Native American recipients in 1992–93 began their studies at a 2-year institution, and 73 percent attended more than one institution before graduating. Additionally,

- 82 percent of 1992–93 Native American bachelor's degree recipients graduated from a public institution, and 65 percent of all bachelor's degree recipients graduated from a public institution;
- 41 percent of Native American bachelor's degree recipients graduated from a doctoral-granting

institution, and 55 percent of all bachelor's degree recipients graduated from a doctoral-granting institution; and

- 9 percent of Native American bachelor's degree recipients were enrolled full time 1 year after bachelor's degree completion, and 12 percent of all bachelor's degree recipients were enrolled full time 1 year after degree completion.

Outcomes. Profiles of bachelor's degree recipients indicate that American Indian and Alaska Natives have employment and educational outcomes that are quite similar to those for the total population. For example, 87 percent of both Native American and all bachelor's degree recipients were employed 1 year after graduation. In 1994, the average annual salary of 1992–93 bachelor's degree recipients was \$24,400 for Native Americans and \$24,200 for all graduates.

Financial Aid

Aid to undergraduates

During the 1992–93 academic year, about 62 percent of American Indian and Alaska Native undergraduates needed financial assistance to attend postsecondary institutions. Most of these students received some form of financial assistance in the form of grants, loans, or work-study. The percentage of all undergraduates who needed and received financial aid in 1992–93 was similar.

The federal government is the most common source of aid for Native American undergraduates, with 34 percent

receiving some type of federal financial aid. The most common type of federal aid awarded to Native American undergraduates came in the form of grants, followed by a combination of grants and loans.

Sources of federal aid

The Office of Postsecondary Education is the main provider of federal aid for both Native American undergraduates and undergraduates overall. The federal government also offers several grant and scholarship programs designed specifically to provide aid to Native American students at both the undergraduate and graduate levels. These programs are administered by the Bureau of Indian Affairs and the Indian Health Service. Each of the programs encourages Native American students to pursue post-secondary degrees, but most stipulate specific fields in which study must occur.

Doctorate funding and debt

Among 1994 doctorate recipients, more than half (55 percent) of Native Americans paid for their education using personal funds, compared with 46 percent of all U.S. citizen doctorate recipients. Native Americans also tended, however, to earn degrees in fields where all racial-ethnic groups had a greater reliance on personal funding, such as social sciences, humanities, and education.

Among Native American doctorate recipients, 61 percent graduated owing money for their education and 28 percent owed more than \$15,000. Among all U.S. citizen doctorate recipients, 55 percent graduated with debt and 20 percent owed more than \$15,000.

Staff and Faculty

Increase in staff, especially women

From 1983 to 1993, the number of Native Americans employed as full-time staff at IHEs grew from 6,735 to 9,229, an increase of 37 percent. Full-time employment among all IHE staff increased by about 12 percent during the same period. Among Native Americans and all staff, the rate of increase was higher for women than for men. Thus, the number of full-time staff increased 77 percent for Native American women and 20 percent for women overall. For men, the increase was 9 percent for Native Americans and 5 percent overall. By 1993, Native American women held 53 percent of all full-time IHE positions held by Native Americans.

In each higher education occupational category, employment among Native Americans grew faster than among the overall population from 1983 to 1993. Positions classified as professional experienced the most growth among both populations, although the rates of growth were higher for Native Americans. For example, full-time professional (support and service) staff increased by 78 percent among Native Americans, compared with 39 percent overall. Full-time executive, administrative, and managerial staff increased by 69 percent among Native Americans, compared with 17 percent overall. Despite these gains, Native Americans' 1993 share of professional positions remained lower than their share of other positions at IHEs (table B).

Table B.—Distribution of Native American and total full-time staff in institutions of higher education, by primary occupation: Fall 1993

Primary occupation	Total	American Indian and Alaska Native	
		Total	Percent
All staff	1,783,510	9,229	0.5
Professional staff			
Executive, administrative, and managerial	137,834	726	0.5
Faculty	545,706	1,997	0.4
Professional (support and service)	355,554	1,723	0.5
Nonprofessional staff			
Technical and paraprofessional	142,846	842	0.6
Clerical and secretarial	351,962	2,026	0.6
Skilled crafts	60,926	474	0.8
Service and maintenance	188,682	1,441	0.8

NOTE: Instruction and research assistants are defined as part time only.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), "Fall Staff" survey, 1993. As published in *Fall Staff in Postsecondary Institutions, 1993* (NCES 96-323), tables 5 and B-1f, pp. 18 and 72.

Increase in faculty, especially women

From 1983 to 1993, full-time faculty positions grew by 53 percent among Native Americans, compared with 12 percent overall. As with other higher education occupations, the rate of growth was greater for women, both among Native Americans and overall. For example, the number of full-time faculty increased 112 percent for Native American women and 41 percent for women overall. The increase was 30 percent for Native American men and 2 percent for men overall. By 1993, women made up 38 percent of American Indian and Alaska Native full-time faculty and 33 percent of the total IHE full-time faculty.

Full-time and part-time faculty

In 1993, about the same proportion of faculty were employed full time among Native Americans and overall (59 and 60 percent, respectively). At 2-year institutions, however, Native American faculty were somewhat more likely than overall faculty to be employed full time (47 percent and 36 percent, respectively).

Concentration of faculty in 2-year and public institutions

American Indian and Alaska Native faculty were more likely than overall faculty to be employed in public and 2-year institutions. About 84 percent of all (full- and part-time) Native American faculty were employed in public institutions, compared with about 71 percent of total faculty. Among all American Indian and Alaska Native faculty, about 49 percent were in 2-year institutions, compared with 32 percent of total faculty. Among full-time faculty, 39 percent of Native Americans, compared with 19 percent of total faculty, were employed in 2-year institutions.

Disparities in salary, rank, and tenure status

In 1993, the median 9- to 10-month full-time contract salary for American Indians and Alaska Natives was \$39,118, compared with \$43,205 for total full-time faculty. Thus, median salaries for Native American full-time faculty were 91 percent of median salaries for full-time faculty overall. The smallest differences were in 2-year institutions, where Native American median salaries were 98 percent of those earned by total full-time faculty. The largest differences were in private institutions, where Native American salaries were 82 percent of those for all full-time faculty.

About 29 percent of the total IHE full-time faculty were full professors in 1993, compared with 18 percent of Native Americans. The largest percentage of American Indians and Alaska Natives held the rank of lecturer or instructor (33 percent). The rank distribution of Native American and Alaska Native faculty showed little change over time, with Native Americans making up 0.2 percent of full professors in both 1981 and 1993. The largest increase in Native Americans as a proportion of total faculty occurred in the rank of instructor (from 0.4 percent in 1981 to 0.9 percent in 1993).

In 1993, American Indian and Alaska Native faculty were the least likely to have tenure of any racial-ethnic group. Among Native Americans, about 38 percent of full-time faculty had tenure, compared with about 51 percent of all full-time faculty.

Concentration of faculty in areas with large Native American populations

In general, faculty tended to be located in the same areas where large numbers of Native Americans resided and attended IHEs. The largest numbers of American Indian and Alaska Native faculty were found in California (690), Oklahoma (257), and Texas (210), all of which have large Native American populations.

The largest percentage of American Indian and Alaska Native faculty were employed in four tribally controlled colleges, each with predominantly Native American enrollment.

Tribally Controlled Colleges

In 1968, Diné, Inc., an organization established by Native American political and education leaders, founded Navajo Community College, the first tribally controlled college to be created on a Native American reservation. The establishment of Navajo Community College encouraged a number of other tribes to found their own colleges, and the number of tribal colleges has steadily increased over the past 30 years. Today, there are 32 tribally controlled colleges in the United States. Generally located on or near Indian reservations, these institutions aim to preserve and communicate traditional culture, provide higher education and technical opportunities to tribal members, enhance economic opportunities within the reservation community, and promote tribal self-determination.

In 1972, the tribal colleges organized the American Indian Higher Education Consortium (AIHEC) to unify and strengthen the tribal college movement and to lobby for legislation and funding with the federal and state governments. The Tribally Controlled Community College Act of 1978, which provides partial funding for the tribal colleges, was one result of AIHEC's efforts.

Enrollment at tribal colleges

In the fall of 1994, tribal college enrollment reached almost 12,400 students. At 23 of the 25 tribal colleges reporting enrollment data by race-ethnicity in 1994, the majority of students were Native Americans. Altogether, Native American students accounted for more than 80 percent of tribal college enrollment (10,160 students). About 8 percent of all the Native American postsecondary students in the United States were enrolled at tribal colleges.

In 1994, Navajo Community College enrolled 1,899 Native American students—more than twice as many as any other tribal college. Among all IHEs, Navajo Community College tied for second in total number of Native Americans enrolled.

Degrees conferred at tribal colleges

In 1994, tribal colleges awarded 996 associate's degrees, 68 bachelor's degrees, and 9 master's degrees. About 77 percent of the associate's degrees, 81 percent of the bachelor's degrees, and 67 percent of the master's degrees were awarded to Native Americans.

Most tribal colleges continue to be community colleges, although some have expanded to 4-year institutions. Three tribal colleges awarded degrees at the bachelor's level or higher in 1994, and five were offering bachelor's degree programs by 1995.

Outcomes at tribal colleges

A 1983 AIHEC survey found a 75 percent greater completion rate among Indian students who completed a course of study at a tribal college before going on to a 4-year degree program at a nontribal institution than among Indian students who went directly to 4-year institutions. In addition, about 85 percent of tribal college graduates who stayed on the reservation were employed. These reservations historically have had unemployment rates of 45 to 80 percent.

Faculty at tribal colleges

In 1993, tribal colleges employed a total of 781 faculty, about 237 (or 30 percent) of whom were American Indians or Alaska Natives. At four tribal colleges, more than half the full-time faculty were Native Americans. About 7 percent of all Native American faculty in the United States, and about 8 percent of full-time Native American faculty, worked at tribal colleges in 1993.

Faculty at tribal colleges earn less, on average, than faculty at public community colleges. In 1995–96, for example, the average salary for faculty at tribal colleges was 71 percent of the average salary at 2-year public institutions (\$27,401 as opposed to \$38,573).

References

For an extensive bibliography, see appendices D and E of the complete report.

Data sources:

NCES: Baccalaureate and Beyond (B&B) Longitudinal Study; High School and Beyond (HS&B) Study; Higher Education General Information Survey (HEGIS; before 1986); Integrated Postsecondary Education Data System (IPEDS); National Education Longitudinal Study of 1988 (NELS:88); National Assessment of Educational Progress (NAEP); National Postsecondary Student Aid Survey (NPSAS); National Study of Postsecondary Faculty (NSOPF); Schools and Staffing Survey (SASS).

Other: ACT scores (American College Testing Program); decennial censuses (U.S. Bureau of the Census); EEO-6 Higher Education Staff Information survey (Equal Employment Opportunity Commission; before 1993); Persistence and Graduation surveys (National Collegiate Athletic Association); SAT scores (College Entrance Examination Board); Survey of Earned Doctorates (jointly sponsored by the National Science Foundation, U.S. Department of Education, National Endowment for the Humanities, U.S. Department of Agriculture, and National Institutes of Health).

For technical information, see the complete report:

Pavel, D.M., Skinner, R.R., Farris, E., Cahalan, M., Tippeconnic, J., and Stein, W. (1998). *American Indians and Alaska Natives in Postsecondary Education* (NCES 98–291).

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To obtain the complete report (NCES 98–291), 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).

Credit Production and Progress Toward the Bachelor's Degree: An Analysis of Postsecondary Transcripts for Beginning Students at 4-Year Institutions

Alexander C. McCormick

This article was originally published as the Highlights section of the Statistical Analysis Report of the same name. The data are from the High School and Beyond Longitudinal Study (HS&B).

Except as noted, all findings reported below apply to a restricted population: high school graduates from the class of 1982 who expected to complete a bachelor's degree or higher, first enrolled at a 4-year institution, and had completed at least 10 semester credits at 2- and 4-year institutions by September 1993.¹ This group accounts for 59 percent of 1980 high school sophomores who had attended a 4-year institution by September 1993 and 68 percent of those who had completed a bachelor's degree.²

Earned credits reported in this section exclude credits completed while in high school, credits on transcripts at the General Education Development (GED) level, credits by examination, credits earned at less-than-2-year institutions, credit equivalents for clock-hour courses, and credits completed after the bachelor's degree.

First-Year Credit Production

On average, students in the target population completed about 27 semester credits in their first year. Fifty-five percent of students who enrolled at private, not-for-profit institutions completed at least 30 credits, as did 39 percent of those who enrolled at public institutions.

Students' academic preparation and test scores were related to the number of credits they completed in the first year, as was their academic performance in the first year. For example, about half of those who scored in the top quartile on the High School and Beyond (HS&B) cognitive test completed at least 30 credits, compared with one-third of those with scores in the middle quartiles and one-fifth of those who scored in the bottom quartile.

¹The 10-credit criterion excludes about 3 percent of students who were otherwise eligible for inclusion. A small number of included students graduated in a year other than 1982, but all were high school sophomores in 1980.

²U.S. Department of Education, National Center for Education Statistics, High School and Beyond Longitudinal Study, Fourth Follow-up (HS&B:80-92).

Credit Thresholds

The number of years students take to cross selected credit thresholds (30, 60, 90, and 120 credits) can be used to infer the minimum number of years that students may need to complete a 120-credit bachelor's degree (exclusive of other degree requirements). This information opens a window on enrolled time needed to attain a degree.

Almost all students in the analysis (95 percent) earned at least 30 credits. Forty-three percent did so in the first year, and about half (49 percent) earned their 30th credit in the second year. Relatively few (4 percent) took more than 2 years to complete 30 credits.

The percentage sustaining a 4-year pace was highest at the 30-credit threshold (43 percent), and then remained relatively stable for the subsequent thresholds at 36-38 percent. For each of the 60-, 90-, and 120-credit thresholds, attrition was at least four times more likely among students who reached the previous threshold at a 5-year or slower pace than among those who achieved the previous threshold at a 4-year pace.

Students who began at public institutions were more likely than their counterparts who began at private, not-for-profit institutions to cross each threshold at a pace implying at least 5 years for degree completion.

Credit and Degree Attainment Outcomes

Three out of four students in the analysis (76 percent) completed a bachelor's degree (averaging 132 credits). The remaining students were evenly split between those who completed fewer than 60 credits (averaging 37 credits) and those who completed 60 credits or more (averaging 91 credits).

Academic performance in the first year was strongly correlated with degree completion: the higher a student's first-year GPA, the more likely that student was to have received a bachelor's degree.

First-year credit production was positively related to total credit production: students who completed fewer than 20 credits in the first year (but at least 10 credits over the period of study) averaged 86 credits overall, while those who completed at least 30 credits in the first year averaged 128 credits over the full period studied. These differences are also reflected in the proportion of students who completed a bachelor's degree—from 45 percent among those with fewer than 20 credits in the first year to 91 percent among those who completed at least 30 credits in the first year.

Students who interrupted their enrollment (defined as those whose enrollment history includes a gap of two or more semesters, 19 percent of students in the analysis) were half as likely to complete a bachelor's degree as those who were continuously enrolled. Timing of the interruption also made a difference: students who interrupted during or immediately after the first year were least likely to have completed the degree (27 percent), while those who interrupted during or after the third year were most likely to have done so (43 percent).

Credit Production Among Bachelor's Degree Completers³

On average, bachelor's degree attainers completed 133 credits. Students who attended only 4-year institutions averaged 131 credits, while those who combined attendance at 4-year and less-than-4-year institutions averaged 140 credits. Students who received an associate's degree before their bachelor's degree completed an average of 148 credits, compared with 132 credits for those who did not first complete an associate's degree.

Students who majored in the humanities, social sciences, mathematics and computer science, and business completed fewer credits than average (125–130 credits).

³Findings reported in this section are limited to high school graduates who expected to complete a bachelor's degree, but include students who first enrolled at less-than-4-year institutions.

Those who majored in engineering and architecture and those who majored in health sciences and services completed more credits than average (145 and 142 credits, respectively).

Analysis of Credit Production After Controlling for Selected Characteristics

Multiple regression analysis suggests that, after controlling for a list of variables used in this report, socioeconomic background, test scores, first-year grades, first-year credit production, and summer-term enrollment are all positively related to overall credit production, while initial part-time enrollment and enrollment interruptions are negatively related to credit production.

Differences in credit production between students who began at public and at private, not-for-profit institutions appear to be related to differences in student characteristics rather than inherent differences between public and private, not-for-profit institutions.

Delayed entry into higher education does not appear to be related to credit production after controlling for a range of student and enrollment characteristics.

Data sources: The 1980–92 High School and Beyond Longitudinal Study (HS&B), Sophomore Cohort and Postsecondary Education Transcript Study (PETS).

For technical information, see the complete report:

McCormick, A.C. (1999). *Credit Production and Progress Toward the Bachelor's Degree: An Analysis of Postsecondary Transcripts for Beginning Students at 4-Year Institutions* (NCES 1999–179).

For details on HS&B fourth follow-up methodology, see

Zahs, D., Pedlow, S., Morrissey, M., Marnell, P., and Nichols, B. (1995). *High School and Beyond Fourth Follow-up Methodology Report* (NCES 95–426).

For details on the HS&B PETS data, see

Adelman, C. (1995). *The New College Course Map and Transcript Files*. U.S. Department of Education. Washington, DC: U.S. Government Printing Office.

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For questions about content, contact Aurora D'Amico (Aurora_D'Amico@ed.gov).

To obtain the complete report (NCES 1999–179), 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).

OTHER PUBLICATIONS AND FUNDING OPPORTUNITIES

CUSTOMER SERVICE	
1997 Customer Satisfaction Survey Report <i>Lori Thurgood, Steven Fink, Rita Bureika, Julie Czarnecki Scott, and Sameena Salvucci</i>	77
COOPERATIVE SYSTEMS	
Best Practices for Data Collectors and Data Providers <i>Melodie Christal, Renee Gernand, Mary Sapp, and Roslyn Korb</i>	78
CONFERENCE-RELATED	
Federal Forecasters Directory 1998 <i>Debra Gerald (editor)</i>	78
FUNDING OPPORTUNITIES	
Training	78
Grants	78

Customer Service

1997 Customer Satisfaction Survey Report

*Lori Thurgood, Steven Fink, Rita Bureika,
Julie Czarnecki Scott, and Sameena Salvucci*

Customer surveys are one part of a larger National Center for Education Statistics (NCES) customer feedback system developed in response to the requirements of the Government Performance and Results Act, enacted in 1993. This report summarizes the results of the 1997 Customer Satisfaction Survey, which surveyed a sample of key NCES customers to determine their levels of satisfaction and needs related to NCES publications and reports, data files, and services. The survey also asked benchmarking questions about other organizations from which customers obtained education data.

Unlike the 1996 survey, which surveyed known customers across all categories of NCES customers, the

1997 survey targeted two important segments of the overall NCES customer base—education policymakers and researchers. The target population was divided into four groups: federal policymakers, state policymakers, local policymakers (who constituted 92 percent of the target population), and academic researchers. There were 2,948 eligible individuals in the sample; 84 percent (2,465) responded. The body of the report analyzes the responses to survey questions; appendices contain the survey itself and examine the survey methodology.

Author affiliations: The authors are affiliated with Synectics for Management Decisions, Inc.

For questions about this report, contact Arnold Goldstein (Arnold_Goldstein@ed.gov).

To obtain this report (NCES 1999-451), 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).

Cooperative Systems

Best Practices for Data Collectors and Data Providers

Melodie Christal, Renee Germand, Mary Sapp, and Roslyn Korb

This report, prepared for the National Postsecondary Education Cooperative (NPEC) by members of its Better Coordination of Data Working Group, addresses how to better coordinate data definitions and surveys on a national basis in order to achieve greater comparability and relieve institutional data burden. The best practices in this report have been endorsed by the board of directors of the Association for Institutional Research.

The report is divided into two sections. Section I, Best Practices for Data Collectors, covers the following topics: responsibilities of data collectors, designing and distributing data collection instruments, explanatory information, survey followup, and reporting and publication. In Section II, Best Practices for Data Providers, these topics are addressed: responsibilities of data providers, tips for providing consistent data, filling out the survey, and submitting and checking the survey. Appendices provide information about the NCES Integrated Postsecondary Education Data System (IPEDS), selected sources of postsecondary data definitions, a number of major higher education data sources, and selected references for designing and implementing surveys.

Author affiliations: M. Christal is affiliated with the State Higher Education Executive Officers; R. Germand, with The College Board; M. Sapp, with the University of Miami; and R. Korb, with NCES.

For questions about this report, contact Roslyn Korb (Roslyn_Korb@ed.gov).

To obtain this report (NCES 1999-191), 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).

forecasting issues. One of the conference's objectives is to build a core network of forecasters whose cooperation furthers the use of forecasting as an important tool in the 21st century. The current directory lists forecasters from both federal agencies and the private sector as of October 1, 1998.

Editor affiliation: D. Gerald is affiliated with NCES.

For questions about this directory, contact Debra Gerald (Debra_Gerald@ed.gov).

To obtain this directory (NCES 1999-023), 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).

Funding Opportunities

Training

NCES is planning to conduct seminars on the following topics this year: (1) the analysis of National Assessment of Educational Progress (NAEP) databases, (2) the National Education Longitudinal Study of 1988 (NELS:88) and Early Childhood Longitudinal Study (ECLS) databases, and (3) the use of NCES analysis tools. In these seminars, participants will learn how to access and analyze the selected databases and gain further understanding about the nature and potential of the databases.

These seminars are open to faculty members and graduate students, as well as researchers and analysts from state and local education agencies and professional associations. Seminar dates and application procedures will be posted on the NCES Web Site this coming summer. Applicants who are selected to participate will receive travel expenses from NCES.

For more information, contact Samuel Peng (Samuel_Peng@ed.gov).

Conference-Related

Federal Forecasters Directory 1998

Debra Gerald (editor)

This directory is a publication of the Federal Forecasters Conference. The conference, a collaborative effort of forecasters from federal agencies in the U.S. government, provides a forum for sharing information on

Grants

The AERA Grants Program

Jointly funded by the National Science Foundation (NSF), NCES, and the Office of Educational Research and Improvement (OERI), this training and research program is administered by the American Educational Research Association (AERA). The program has four major elements: a research grants program, a dissertation grants program, a fellows program, and a training

institute. The program is intended to enhance the capability of the U.S. research community to use large-scale data sets, specifically those of the NSF and NCES, to conduct studies that are relevant to educational policy and practice, and to strengthen communications between the educational research community and government staff.

Applications for this program may be submitted at any time. The application review board meets three times per year.

For more information, contact Edith McArthur (Edith_McArthur@ed.gov).

The NAEP Secondary Analysis Grant Program

The NAEP Secondary Analysis Grant Program was developed to encourage educational researchers to conduct secondary analysis studies using data from the National Assessment of Educational Progress (NAEP) and the NAEP High School Transcript Studies. This program is open to all public or private organizations and consortia of organizations. The program is typically announced annually, in the late fall, in the *Federal Register*. Grants awarded under this program run from 12 to 18 months and awards range from \$15,000 to \$100,000.

For more information, contact Alex Sedlacek (Alex_Sedlacek@ed.gov).

