

## EDUCATION WEEK

TECHNOLOGY COUNTS  
A Digital Decade '07

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## Tracking U.S. Trends

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For the past decade, *Education Week's* report on the state of technology in K-12 education has tracked policies and practices in the 50 states and the District of Columbia. *Technology Counts 2007* continues that tradition by offering a look at where states now stand with an eye to where they have come over the past 10 years.

Continuing a feature introduced last year, the report issues letter grades to the states on leadership in three core policy areas: access, use, and capacity.

Leading the nation this year is Georgia, which receives a score of 96 and earns the only A. South Dakota and Virginia also receive high marks, with A-minus grades.

At the opposite end of the spectrum is the bottom-ranked District of Columbia, with a score of 63 and a D, a grade also received by Nevada, Rhode Island, and Oregon.

For the most part, though, states continue to receive average marks for performance in technology. The typical state earns a C-plus, with an average score of 77 points on a 100-point grading scale. Thirty states, a majority, fall in the C range.

### Online Course Offerings

In 2005, public schools in rural areas were more likely than other localities to provide students with access to online distance learning for courses that would not be available otherwise.

\*Click image to see the full chart.

### STATE ANALYSIS

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- How *Education Week* Graded the States
- Sources and Notes

#### Features Stories Executive Summary

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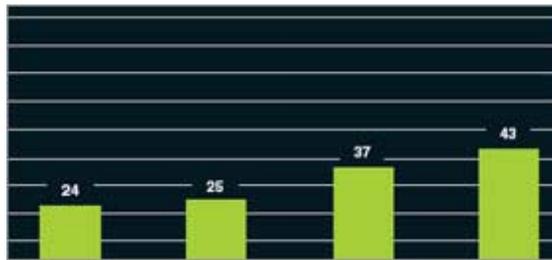
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To arrive at the final state grades and scores, the Editorial Projects in Education Research Center evaluated 14 indicators derived from the center's 2007 state technology survey, the federally sponsored National Assessment of Educational Progress, and Market Data Retrieval (MDR), a research company based in Shelton, Conn.

Two measures of technology access have changed since last year, as have the center's procedures for evaluating several policy indicators. As a result, this year's grades are not directly comparable with those in *Technology*



SOURCE: National Center for Education Statistics, 2006

*Counts 2006.*

### Access Remains Stable

Tracking access to technology, including the availability of computers in school, has been a constant of *Technology Counts*.

NAEP data show that about half of 4th and 8th grade students had access to computers in their mathematics classrooms in 2005, the most recent year for which data are available. More than three-quarters of students could access computers in a lab or media center, the data show.

Another way to measure access is through the number of students sharing each instructional computer. After years of sharp declines, that ratio leveled off around 2002, and stood at 3.8 students per computer nationwide in 2006, down from 6.3 in 1998, according to data from MDR. The ratio of students to computers with a high-speed Internet connection was 3.7, a slight improvement over the previous year.

Considerable variation in access exists among states. In the leading states, Maine and South Dakota, fewer than two students on average share each high-speed Internet-connected computer. Both states have financed laptop programs, with Maine providing a laptop computer to all 7th and 8th graders in public schools.

At the other end of the continuum, roughly five students typically share each high-speed Internet-connected computer in Utah, California, and Mississippi.

With new instructional technologies regularly finding their way into classrooms, the term “access” is not confined to the availability of computers. And, once again, considerable variation in access to digital tools exists across the states.

The percentage of schools using digital whiteboards, for instance, ranges from 70 percent in Missouri to just 4 percent in the District of Columbia, MDR data show. In only eight states did the majority of schools use such technology. Similarly, videostreaming, which makes possible the nearly instantaneous viewing of digital video on computers, is in use in about 45 percent of schools nationwide. That percentage ranges from a high of 80 percent in Virginia to a low of just 14 percent in Hawaii.

The “digital divide” in access between disadvantaged students and their better-off peers has been an issue of concern for most of the past decade. Perhaps nothing more clearly underscores the progress that public schools have made in closing that gap than comparing access at school with access at home.

Student access to computers has become the norm at school, regardless of students’ race, ethnicity, or economic background. The same cannot be said for the

### Textbook Adoption and Technology

Of the 21 states with textbook-adoption policies, 17 allow funding to be used for digital resources such as instructional software and online academic content. Four states do not specifically include digital resources in their definitions of textbooks.

\*Click image to see the full map.



SOURCE: EPE Research Center, 2007

### Training Teachers

Although the vast majority of public schools

home, though, where wide disparities in computer access remain.

Data from the National Center for Education Statistics show that, while computer use at school varies little by family income, a gap of more than 50 percentage points exists in computer use at home between students from families with the lowest and highest incomes. Similarly, disparities in computer use between students of various racial and ethnic groups are much larger at home than in school.

### Opportunities for Students

In addition to providing technology at school, states work to ensure that students can take academic advantage of such access. All but two states—Iowa and Mississippi—and the District of Columbia currently have standards detailing what students should know about and be able to do with technology.

Of the states with such standards, 32 have adopted technology standards that are distinct from those in other subjects, while 16 integrate technology with the standards of other core subjects.

still use traditional face-to-face methods for professional development, online training for educators is relatively common. In 2006-07, 39 states provide some form of professional development to educators over the Internet.

\*Click image to see the full map.



SOURCE: EPE Research Center, 2007

### Computer-based Testing

As of 2006-07, 23 states are offering computer-based assessments. Only nine of those states make at least one statewide assessment available on the computer to all students.

\*Click image to see the full map.



SOURCE: EPE Research Center, 2007

Despite the prevalence of standards, only four states actually test students on their knowledge of technology through a required, state-administered assessment.

Meanwhile, the number of states that offer computerized statewide assessments is relatively small, with 14 states making that opportunity available on a limited basis, such as within certain districts, or for students retaking pencil-and-paper tests. And only nine states offer computer-based testing to all students.

At a time of rapid growth in online coursetaking, states are steadily expanding their involvement in virtual education. As of the 2006-07 school year, 23 states had established or financed statewide virtual schools, up by seven states since 2003. Cyber charter schools, now in operation in 20 states, are less common, but have seen

similar growth in recent years.

According to data from the NCES, access to online courses that would otherwise be unavailable is much more common in rural locales than urban areas.

Still, research suggests that such opportunities are limited overall, with only about 20 percent of public schools offering some sort of distance-learning program during the 2005-06 school year, according to MDR data.

Students in South Dakota had the most opportunity to avail themselves of distance-learning programs, with 45 percent of schools offering them, compared with just 7 percent of schools in Tennessee.

#### Data Table Download

Technology Leaders:  
Grading the States [PDF](#) [Excel](#)

## Educator Competence

States can take various steps to ensure the technology competence of educators. Those include adoption of standards, measurement of competence, requirements tied to licensure and recertification, ongoing professional development, and incentives.

State progress in establishing technology standards for educators has lagged behind efforts to put in place similar standards for students. In recent years, however, an increasing number of states have adopted such standards. Forty-five states currently have technology standards for teachers, and 36 have put them in place for administrators, up from 34 states and 31 states, respectively, since 2003.

Although standards for educators are on the rise, requirements to ensure technology competence through the licensure and recertification process have remained relatively constant in recent years. Nineteen states currently require teachers to complete technology coursework or testing prior to initial licensure, and just nine states have similar requirements for administrators.

Technology requirements for recertification are even less common than those associated with initial licensure. Nine states require teachers to demonstrate technology competence or complete technology-related professional development to be recertified, and five states have comparable requirements for administrators.

Overall, 25 states have requirements to help ensure that teachers are competent in the use of technology, either at the time of initial licensure or for recertification, while 13 states have similar requirements for administrators.

States are increasingly implementing policies or programs that encourage, rather than require, educators to be familiar with technology.

In the 2006-07 school year, 39 states offer online professional-development opportunities for educators. And 40 states facilitate access to online academic content and instructional software through at least one of the options tracked in the EPE Research Center's annual state technology survey: group-purchasing programs, subscription services, or online resources from various content areas housed on state portals or Web sites.

One third of states offer teachers incentives to use technology in the classroom or complete technology training. And of the 21 states with textbook-adoption programs, 17 cover digital resources under their definitions of textbooks.

States' recognition of the importance of technology in education has yielded significant successes, including much broader access to digital resources in schools and greater equity in their availability to students from different demographic backgrounds.

How states grapple with evolving demands for student and educator competency, for virtual-learning opportunities, and for improved integration of cutting-edge technology into instruction remains to be seen.

## Computers at Home and School

Students' access to computers in school varies relatively little among various racial and ethnic groups, with differences of no more than 6 percentage points in the rate at which they use computers in school. Much larger gaps exist among the same groups, however, in the degree to which they use computers at home, according to 2003 data. Overall, 83 percent of students use computers at school, while 68 percent of students have computer access at home.

\*Click image to see the full chart.



SOURCE: National Center for Education Statistics, 2006

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