

HB

384

ALASKA STATE LEGISLATURE

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REPRESENTATIVE WES KELLER DISTRICT 14 SPONSOR STATEMENT HB 384

“An Act requiring the Department of Education and Early Development to establish an electronic education records system and standards and requiring school districts to establish and maintain electronic education records systems; requiring learning plans for students; establishing the Merit Scholarship Task Force; and providing for an effective date.”

HB 384 puts the discussion of education outcomes on the table by bringing Alaska's education records into the 21st Century. The bill builds a structure for Electronic Education Records (EERs) for all students regardless of where they attend school in the state. More importantly, it expands student records to allow appropriately accessible information that is needed to do prescriptive teaching specific to the needs and gifts of each individual child. The objective of HB 384 is to incentivize an EER system that overcomes the limitations of distance and time to give an unprecedented advantage to Alaska's students, teachers, parents, and local school community.

HB 384 will provide the tools needed to create a customized education plan for each of our students whether that plan is pointed toward college or vocational postsecondary goals. It ensures that the educational goals are set at the family and local school district level to pre-empt federal imposition of external standards. The parent/student "ownership" of EER's (including customized learning plans) is solidly established in the bill. Districts will manage the EER's using technical standards established by the Alaska Department of Education and Early Development.

HB 384 also takes the first step toward implementing a purely merit-based scholarship program as an integral part of K-12. The intent of the scholarship program would be to provide an incentive for students aiming at college or vocational training who take four years each of preparatory courses, have a high grade point average, and a favorable post secondary entrance examination score. The bill simply establishes a task force to make recommendations regarding the amount of the scholarship and the 'height of the bar' based on review of successful models in other states.

Passage of HB 384 would be a statement that, "all students are special" and that "Alaska's K-12 students are worthy of high expectations and will respond well to clear goals and incentives.

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EDUCATION RECORDS Q & A

The following document is intended to be a guide. This document is not all-inclusive or exhaustive. For further details, consult the appropriate regulations or policies.

Laws, Regulations, Statutes and Policies Regarding Education Records

1. What are education records?

- Education records are files, documents, and materials containing information directly related to a student that are maintained by an educational agency or institution or by a person acting for the agency/institution, including part-time and contractual staff.

2. What special provisions govern education records?

- Laws and regulations that dictate access to and disclosure of education records include *The Family Educational Rights and Privacy Act (FERPA)*, *Individuals with Disabilities Education Act (IDEA)*, *General Education Provisions Act (GEPA)*, and state policies.

3. What is FERPA?

- The *Family Educational Rights and Privacy Act of 1974* is federal legislation that guarantees access to education records by parents and students while preventing the disclosure of records without consent. FERPA is also known as the Buckley Amendment, in honor of its original author.

4. Where are school records referenced in IDEA?

- Confidentiality of information is addressed in Sections 300.560 through 300.577 of 34 CFR 300.

5. How does the *Health Insurance Portability and Accountability Act (HIPAA)* impact education records?

- HIPAA guidelines govern medical records maintained by medical agencies and personnel. Once health records become a part of the education record maintained by the school district—for example, health records used for special education evaluation and programming purposes—the school district must follow IDEA and FERPA requirements for those records, not HIPAA. (This explanation is in the preamble to the regulations at page 82483 of the Federal Register for December 28, 2000, Volume 65, Number 250.)

Maintenance, Inspection, and Release of Education Records

6. What are the standards for maintenance, inspection, and release of education records?

- An agency official will assume responsibility for ensuring confidentiality of education records.
- All persons collecting or using education records must be trained on policies regarding confidentiality of records.
- Records will be maintained in a locked storage facility.
- Each agency will maintain a current listing of the names and positions of all employees who have access to special education records. This list will be available for public inspection.
- A log will be kept in each record indicating the names of the people accessing the record, the date the record was used, and the purpose for reviewing the record. This log must be kept for as long as the education record is kept.
- Under IDEA, agencies must provide parents with a list of the types and locations of education records, when requested.
- Systems must allow parents to inspect education records and, under certain circumstances, to receive copies of records. (See answers to questions #10 through #14 re: parents' rights to review and receive copies of records.)
- Requests from parents to review records will be complied within a reasonable amount of time, in no case to exceed 45 days.
- Parents must be allowed to identify records that might be inaccurate and to correct those records. The correction or attempt to correct records must be maintained for as long as the records are maintained.
- A school or agency may not distribute personally identifiable information without parental notice and/or consent, except under certain limited circumstances. (See question #9 for a listing of limited circumstances.)

7. How long must a school maintain or keep education records?

- IDEA says that a permanent record of a student's name, address, phone number, grades, attendance record, classes attended, grade level completed, and year completed may be maintained without time limitations.

- Generally, FERPA does not address retention and destruction of education records. Other federal laws, state laws, and professional standards guide retention and destruction of education records.
- A school or agency may not destroy an education record if there is an outstanding request by a parent to inspect and review the record.
- According to GEPA, schools and agencies that receive federal funds must keep records needed for monitoring program compliance and auditing expenditures. Records should be kept for three years after completing the funded activity.
- IEPs and evaluation reports are examples of documents that could be subject to GEPA record retention requirements.
- The Office of Special Education Programs (OSEP) indicates that state agencies and school districts must retain:
 1. records to show compliance with IDEA requirements;
 2. records to show how IDEA funds are used; and
 3. other records to facilitate an effective audit.

8 What does personally identifiable information mean?

- Personally identifiable information contained in education records includes, but is not limited to:
 1. the name of the student and the student's parent or other family members;
 2. the address of the student;
 3. a personal identifier, such as social security number or student number; or
 4. a list of personal characteristics or other information that would make it easy to identify the student.

9. What are the requirements for releasing records?

- A public agency will obtain written parental consent before releasing personally identifiable information from education records.
- Written consent must be signed and dated by the parents and must include:
 1. a list of the records to be disclosed;
 2. the purpose of disclosure; and
 3. identification of the parties receiving the information.
- Education records will be disclosed without written parental consent if the disclosure is made to:
 1. other school officials within the agency who have a legitimate educational interest;
 2. officials of another school, school district or other educational agency in which the child plans to enroll:
 - A. when the transfer of records is initiated by the parent; or

- B. when the school district includes a notice in its policies and procedures that it forwards education records on request to a school district or other educational agency in which a student enrolls; or
- C. after a reasonable attempt to notify the parent that the transfer of records has been made.

- When a disclosure is made under the limited circumstances listed above, the public agency will, upon request, provide a copy of the disclosed records to the parent.
- A school district may also release records without parental consent to comply with a subpoena or court order. In these circumstances, the school district should notify the parent that it intends to comply with the subpoena or court order so the parents have sufficient time to seek injunctive relief before the records are released.

Parental Rights

10. What rights do parents have to inspect and review education records?

- The parents may inspect and review any education records relating to their child that are collected, maintained or used by the participating agency providing education and related services.
- Under IDEA, parents may appoint representatives to review student records, although this is not allowed under FERPA. For students with disabilities, IDEA supersedes FERPA.

11. How can parents inspect electronic (computerized) education records that are not kept on paper?

- Parents have the right to inspect computerized records. In 1996, the FERPA definition of "record" was changed to include the term "computer media." The change was made to cover information stored by computer, including information stored on CD-ROM.
- Creating and printing hard copies of electronically stored records for parent review seem to be reasonable means of complying with this regulation.

12. What rights do parents have to request copies of education records?

- Parents have the right to request copies of records.

- If parents cannot otherwise exercise their right to inspect and review the records, then districts must provide copies of records.
- Parents are entitled to copies of the IEP.

13. Can a school district charge a parent a fee to search for, retrieve, or copy information?

- A school or agency may not charge a fee to search for or to retrieve education records.
- A school or agency may charge for copies, unless doing so prevents the parent from accessing and reviewing records, as in the case of a parent who cannot afford copies and who cannot otherwise access and review records.
- Parents are entitled to copies of the IEP at no cost.

14. What is the process that a school district follows when a parent requests to review education records?

- Verify that the person is a parent of the student and is entitled to review the records, or that the parent has signed consent for their representative to review the records.
- Verify that the documents are education records by definition. (See question #1.)
- Organize the requested records.
- Provide only information related to that student.
- Make arrangements for the parent to review the records.
- When review is not feasible, provide a copy of the requested records.
- Respond to reasonable requests for explanations of the contents of the records.
- Do not destroy records while a request for review is pending.
- Comply with the request within 45 days.

Destruction of Education Records

15. Must the school notify the parents of a student with a disability before destroying education records?

- IDEA requires parental notification when the school decides that personally identifiable information is no longer needed to provide educational services to the child.
- The parent has the option of requesting access to and/or copies of records prior to destruction.
- If the district chooses, records may be maintained indefinitely, unless the parent specifically asks that the records be destroyed.
- Upon parental request, education records will be destroyed, unless the district determines that the information could be needed to provide educational services in the future or is needed for auditing purposes.
- FERPA regulations do not require notification of parents prior to destruction of records. For students with disabilities, the IDEA regulations above supersede the FERPA regulations.

16. What is an acceptable method of destroying education records?

- Physical destruction of a record may be necessary so that the document no longer contains personally identifiable information.
- In some instances the district may choose to remove or otherwise obliterate all personally identifiable information while keeping the document on file.

Education Technology Policy Statement

NCSL approved unanimously in the fall of 2007 in Boston. Senators Davis, Ellis, French, Hoffman, Stevens, and Wielechowski and Representatives Buch, Crawford, Dahlstrom, Doll, Fairclough, Gardner, Gatto, Johanson, Johnson, Kawasaki, Keller, Lynn, Meyer, Olson, and Ramras were in attendance from Alaska.

Twenty First Century globalization, along with advances in technology, compel parents, educators, and policymakers to ensure that every child is equipped with the education necessary to compete in today's emerging global economy. Advances include new and exciting means for achieving these education goals.

Advances in technology expand teaching potential and efficiency that enable increased ability to customize and monitor each child's educational experience. These enhancements diminish the significance of geographic distance and makes possible access to students, records, assessments, remediation, and an unprecedented scope of information--- 24 hours per day, 7 days per week.

While education is primarily and properly a state responsibility, the federal government can play an important supporting role for applying technology to: increase personalized instruction; decrease student boredom and teacher burnout; stimulate discovery, innovation, and creativity; achieve NCLB requirements related to tutorial services, supplemental services, provision of highly qualified teachers, and meeting the reporting requirements; and to provide education equity for every student, regardless of location or economic status.

The federal Enhancing Education through Technology (EETT or "E2T2") block-grant program is the primary source of federal funding for school technology. In FY-06, EETT received \$275 million, down from \$496 million in FY-05. The administration has asked Congress to eliminate the program and EETT funding in each of the last three budget cycles, including the current budget proposal for FY-08.

The National Conference of State Legislatures believes that this an example of a critical program necessary to ensure that every child is equipped with the creative thinking, problem solving, and analytical skills needed to compete in today's global market place. Funding for EETT should be restored and enhanced because the program represents a national state-based educational partnership that can serve as a model of innovation and excellence.



EDUCATION ISSUES



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A Primer for Policymakers

How Education Technology Leads to Improved Student Achievement

By Heather Grinager

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Introduction

There is little doubt that information and communication technologies have changed the world in which we live. They have enabled us to communicate, learn, work and relate to one another differently. This transformed world poses new and interesting questions for legislators who are searching for strategies to positively influence student achievement and who are seeking to ensure that the educational system adequately prepares students for the 21st century and tomorrow's challenges.

As the representative body that is responsible for the states' purse strings, legislators also are demanding more rigorous evidence that education funding is increasing student achievement before they make significant additional investments. In particular, because technology is a relatively new tool in education, a high level of scrutiny often is placed on technology's effectiveness. Nevertheless, in a time when high-stakes testing and restricted resources are driving forces in the delivery of public education, it is crucial for policymakers to have a realistic understanding of the existing evidence of technology's effect in education and the role it plays in teaching and learning. This brief reviews how technology is used as a tool to support teaching and learning, and how technology affects student achievement.

Why is education technology important? The use of technology in education provides students with technology literacy, information literacy, capacity for life-long learning and other skills necessary for the 21st century workplace. Books such as *The World Is Flat* by Thomas Friedman and recent reports such as *Rising Above The Gathering Storm: Energizing and*

What Is Education Technology?

Education technology typically refers to the use of hardware, software and other digital technologies to advance learning, teaching and administration in K-12 and post-secondary education settings. The following is a partial list of the types of technologies found in educational settings.

Computers — Laptops, desktops, handheld devices, etc.

Enterprise Management Software and Classroom Administration — Allows automation of processes and more efficient delivery of services; also enables data to drive school and classroom management, among other purposes (e.g. student information systems, transportation, facilities management, human resources, professional development, grade books, accounting and procurement).

Instructional Software and Digital/Online Content — Provides engaging, interactive, adaptive instruction/curriculum that enables anytime and anywhere personalization of learning to meet an individual student's needs and pace.

Student Information Systems and Data Warehouses — Enable the collection, analysis and management of student data to inform instruction, facilitate school/state decision making, and support accountability. Also introduce increased potential for individualized learning plans.

Interactive Whiteboards and LCD Projectors — Replace chalkboards in classrooms.

Sound Enhancement — Speakers and microphones in classrooms to amplify and enhance the quality of teachers' and students' voices.

Smart Cards — Replaces lunch tickets and lunch cards.

Global Positioning Systems — Track school buses.

Televisions — Distance learning and supplemental instruction.

Telephones — Communication with parents and community.

Digital Cameras, Camera Microscopes

Internet Access

Employing America for a Brighter Economic Future, authored by the National Academies, have raised concerns that America is falling from its once prominent position as the world's leader in technology and science. Technology helps prepare students for a world where they will compete with the best and brightest individuals from every corner of the globe. In addition, some argue that today's students, surrounded by digital technology since infancy, differ fundamentally from previous generations of learners the U.S. educational system was designed to teach.¹ Further embedding technology in education at all levels uses the tools students are accustomed to using outside the classroom, further engaging students in the learning process.

How does education technology lead to improved student achievement? A growing body of evidence demonstrates that technology is an effective means for addressing educational needs, goals and requirements. Educators also have identified links between technology and intermediate goals that lead to high achievement, including improved student behavior, engagement and attendance; improved opportunities for educator professional development; increased efficiency in classroom administrative tasks; and improved communication among stakeholders, including parents, teachers, students and administrators. As with all educational interventions, results do vary, depending upon the specific technologies used, the match of technology to educational needs and goals, the effective implementation of that technology, and how achievement is defined and measured.

Legislators considering investing in education technology must understand that an investment in hardware and software alone is not enough to lead to improved student achievement. Effective implementation is as important as the technology itself, and there are certain conditions that support effective implementation. The purpose of using technology should be to meet already established educational goals, and must be accompanied by a teacher who is properly trained to integrate it into teaching and instruction, as well as strong school leadership that ensures effective deployment and implementation. Adequate technical support and the appropriate school infrastructure, including adequate access to computers and bandwidth, are also important conditions that will help ensure technology has a positive effect on student learning and achievement.

Essential Elements to Ensure Technologies Are Used to Support Real Gains in Educational Outcomes

1. Leadership around technology use that is anchored in solid educational objectives. Simply placing technologies in schools does little good. Effective technology use is always targeted at specific educational objectives.
2. Sustained and intensive professional development that takes place in the service of the core vision, not simply around technology for its own sake.
3. Adequate technology resources in the school, including hardware and technical support to ensure smooth operation.
4. Recognition that real change and lasting results take time.
5. Evaluations that enable school leaders and teachers to determine whether they are realizing their goals, and how to adjust if necessary.

Source: Testimony and Statement of Margaret Honey, vice president and director, Center for Children and Technology, before the Labor, Health and Human Services, and Education Appropriations Subcommittee, U.S. Senate, July 25, 2001.

Digital Natives vs. Digital Immigrants

As technology continues to advance into every aspect of our lives, some have pondered the effects it has on how students learn. The phrase "Digital Natives and Digital Immigrants" has emerged to describe the difference between young people who have spent their lives in a digital world and past generations who have incrementally adjusted to the proliferation of technology in society.

The current generation of students who are proceeding through K-12 education are digital natives, and some argue that, by spending their entire lives surrounded by and using computers, videogames, digital music players, video cams, cell phones, and other tools and devices of the digital age, they are fundamentally different from those who have adapted to use of these tools over time. Digital natives are accustomed to receiving information rapidly; can parallel process and multi-task; prefer viewing graphics before text; and function best when networked.² Some even argue that digital natives think differently. It is as though their cognitive structures are parallel, rather than sequential.³

This fundamental difference brings into question whether the current U.S. education system is designed to effectively teach digital natives. Educators may need to consider adjusting both teaching methodology and content to better engage digital natives in learning. Teachers will need to learn to communicate in the language and style of their students by going faster; using more parallel methods rather than going step-by-step. Although traditional content will remain central, it will be equally as important to present content that addresses technology issues, including understanding software, hardware, robotics, nanotechnology, and their ethics, politics, sociology and languages.⁴

Technology as a Tool for Learning and Teaching

When they are well implemented, instructional courseware, digital content and other electronic learning resources can help meet intermediary goals that can lead to improved student achievement, making technology an essential tool in teaching and learning in the 21st century. Quality electronic learning resources—in addition to being learner appropriate, aligned to state and local standards, and built around effective pedagogy and instructional design—can provide many educational benefits, including:

- Engaging students through multi-media, interactive content;
- Strengthening understanding and thinking skills through exploration, collaboration and creation;
- Adapting to support differentiated or personalized learning for students who have a specific learning style, pace or needs;
- Keeping knowledge current and information accurate;
- Enhancing accessibility for physical or learning disabled students through assistive technologies and presentation of content in alternative modalities; and
- Integrating testing and classroom management tools, thus allowing real-time tracking of student performance to inform instruction and provide accountability.

Education Technology and the Digital Divide

Education technology initiatives help bridge the digital divide. Embedding technology in education settings can help promote greater equity among students of different racial and socioeconomic backgrounds by increasing access to information and information technology for all groups. A report from the U.S. Department of Commerce found that minority and low-income students are much more likely to rely on their schools to provide access to computers and the Internet, and noted the "substantial equalizing effect of schools on both computer and Internet use as compared to use at home."⁵

Technology as a Tool for Learning

Numerous examples are available to illustrate how technology meets these goals. The late Dr. Jan Hawkins, former director of the Center for Children and Technology, suggests that technology is a powerful tool that gives teachers, students and others new ways to address problems such as shortages of materials, time and professional development.⁶ For instance, technology brings rich and diverse materials into the classroom. Hundreds of libraries and museums have recorded parts of their collections in digital form and distribute these sources through the Internet and as software. Through a project called CoVis, students learn about science, using some of the same research tools and datasets used by scientists in the field. Using sophisticated software, the students collect and examine data on the weather, temperature, barometric pressure and atmospheric chemistry and are able to display and view the information in color-coded maps and graphs that help them understand and allow them to learn in a deeper way.

Technology also has the ability to change the dynamics of time and space in schools. By helping students work more independently, technology gives teachers more time to work one-on-one or with small groups of students. Assessment technologies also help teachers more efficiently identify students' strengths and weaknesses to better target instruction. With digital record keeping, phones in the classroom, and access to local networks to communicate with parents, administrators and colleagues, teachers can spend more time teaching and less on paperwork. In addition, students can extend their learning if they can connect from home to their school's network and to other courses and resources.

Technology has allowed students and parents increased opportunities for individualizing, customizing and providing access to education through virtual or distance learning. Students who have struggled in traditional classrooms often find success in a virtual setting where the teacher and student communicate one-on-one through computer use and the student can proceed at his or her own pace. It also offers access to highly qualified teachers in hard-to-staff subjects or hard-to-staff urban and rural schools, giving all students the opportunity to take a rigorous curriculum, regardless of their school's ability to recruit and retain teachers. Thus, the traditional model of offering instruction only in dedicated, highly regulated facilities according to standard calendars and schedules is outdated, since "any time, any place, any path, any pace" learning that modern technologies make possible can open up the education system.⁷

When used effectively, technology applications can support higher-order thinking by engaging students in authentic, complex tasks within collaborative learning contexts.⁸ These important "learning skills" enable people to acquire new knowledge and skills, connect new information to existing knowledge, analyze, develop habits of learning and work with others to use information.¹⁰ Higher-order thinking and problem solving is an essential skill for all students as they face a future where they switch jobs far more frequently than past generations and will need to adapt and adjust to changing demands.

Education technology is increasingly important in light of the changed learning needs and styles of today's students. Today's students are growing up in a digital world and are masters of technology. They seamlessly integrate multiple technology tools and digital resources into their daily lives. Yet, too often, they are forced to leave these skills and aptitudes at the classroom door. As a result, students are increasingly disengaged in school and forced to adapt to a learning process and medium that contrasts significantly to that which is most comfortable

and successful for them. Therefore, technology that is carefully deployed in learning can engage and motivate students. For example, students say that, when they use the Internet, their motivation to learn and their academic performance improve. They complete their schoolwork more quickly, they are less likely to be stymied by material they do not understand, and their papers and projects are more likely to draw upon up-to-date sources and state-of-the-art knowledge. They also feel they are better at juggling their school assignments and extracurricular activities when aided by technology.¹¹

Technology as a Tool for Teachers and Teaching

Technology can assist with aspects of professional development that ultimately can lead to better teaching. For example, follow-up assistance for teachers after they return to the classroom is an essential part of professional development that often is skipped because of the expense. Telecommunications technologies, however, allow coaches and mentors to be offsite but still answer questions, conduct seminars and offer support via e-mail or teleconferencing. Telecommunications also allow teachers who often may be isolated, to discuss the issues that arise when they are making changes to their practice.¹² A project in Iowa that has used technology to build professional learning communities also is finding that students in classrooms taught by teachers who are participating in the project are raising their test scores and showing signs of narrowing the achievement gap.¹³

Picture It: How Technology Supports Data-Driven Decision Making

Imagine an afternoon when a teacher can access a stationary computer or mobile digital device and quickly sort through reams of data stored and organized electronically to plan lessons for the next day. She'll review attendance records and test scores, ranging from the students' first years in school up to that very day. She'll see the courses her students have taken and every grade they've received. She'll compare each student's achievement against state standards to decide who needs review and who is ready to move on. All the information will be available by clicking a mouse and keying in a few words here and there. After her planning period, the teacher will have prepared lessons to match the needs of the students she'll see in class the next day.¹⁴

Now imagine that a parent, sitting at his or her home computer, can see the same information on the child as the teacher. Maybe the parent is able to see the lesson plan for the next day and use it to help prepare the child for what's ahead or when the child misses a day of school. The parent is able to see grades received on assignments, truancy reports and absences, and can use the information to help track the child's progress. Biannual parent-teacher conferences are supplemented with regular e-mail communication, using the up-to-date information on the student found in secure student information systems.

This scenario already is possible, but is too rarely found in classrooms today. The data systems infrastructure needed to support such applications do not exist in many places. According to Education Week, only five states—Arkansas, Georgia, Louisiana, Ohio and Tennessee—have advanced data systems for both students and teachers and the ability to link information from these two systems.¹⁵

Costs and Benefits of Implementing the Schools Interoperability Framework

Interoperability defined: The ability of software and hardware on multiple machines from multiple vendors to communicate.¹⁶

Student achievement has increased in schools and districts that have ensured seamless integration of information systems using the Schools Interoperability Framework (SIF). SIF defines the rules for data movement between applications, setting the standards for integration. Case studies found that districts that are using SIF standards in their implementation of data-driven decision making:

- Increased student achievement by raising test scores 30 percent through differentiating instruction, or "customizing" lessons and time with students to target their specific needs.
- Reduced data entry time, while allowing improved reporting capability, avoiding a single hire despite the increased state and federal NCLB reporting requirements.
- Qualified for increased funding due to enhanced reporting and better data about students who are eligible for free and reduced-cost lunch.
- Improved student services in the library because the librarian can focus on serving students rather than on performing data entry.

The costs of implementing SIF standards can vary widely, depending on the nature of the solution and the kind of infrastructure, hardware and software the district already has in place.

Source: Schools Interoperability Framework, "Analysis of Costs and Benefits Associated with Implementing SIF" (Bellingham, Wash.: Educational Systemics Inc., June 5, 2006).

Technology is becoming a powerful tool in using data to make informed decisions. Although state accountability systems and the No Child Left Behind (NCLB) act have been the catalysts to encourage districts to establish student information systems and data warehouses—allowing them to track and analyze tests scores, grades, attendance, etc.—the underlying goal of data-driven decision making is to increase student achievement. It does so by allowing teachers, administrators, parents and policymakers—each of whom has an important role in ensuring student learning—access to timely and comprehensive information that tells a story about a student's progress, problems and strengths.

Technology is an effective tool to improve productivity and efficiency. For example, in a 2004 survey of school leaders, 74 percent say technology provides timely data for decision making; 71 percent say it improves support staff efficiency; 71 percent say it increases administrators' productivity; 70 percent say it improves communications among parents, teachers and the community; and 61 percent say it increases teacher productivity.¹⁷ Educator time is a scarce, costly and finite school resource. Technology helps maximize educational resources and impact.

Research on Technology's Effect on Student Achievement

Studies that isolate a particular technology to study its effect on some measure of student achievement find that well-implemented technology use can lead to improved student achievement. The following studies have been suggested by members of the NCSL Education Technology Partnership as studies that demonstrate increased student achievement as a result of using technology. Of course, as with all educational interventions and practices, a definitive relationship between computer use and student achievement is challenging to identify and

quantify since the link may depend on how the technology is used as well as on how achievement is defined and measured.¹⁸

Early studies sought to understand the effect of general computer use on student achievement. One large study conducted in 1994 found that, on average, students who used computer-based instruction scored at the 64th percentile on tests of achievement, compared to students in the control conditions without computers who scored at the 50th percentile. Although computers did not have a positive effect in every area in which they were studied, students who used them learned more in less time and reported enjoying their classes more.¹⁹

A similar study from 1998 found that both regular and special needs children in technology-rich environments experienced positive effects on achievement in all major subject areas in preschool through higher education. The research notes, however, that the level of effectiveness of educational technology is influenced by the specific student population, the software design, the educator's role, and the level of student access to the technology.²⁰

A review of the research literature by the Software & Information Industry Association revealed positive and consistent patterns when students were engaged in technology-rich environments, including significant academic gains and achievement in all subject areas, increased achievement in preschool through high school for both regular and special needs students, improved attitudes toward learning, and increased self-esteem.²⁶

States Show Improved Student Achievement with eMINTS

The Enhancing Missouri's Instructional Networked Teaching Strategies (eMINTS) program has been found to improve student achievement by improving the outcomes of students on test scores. Although it began in Missouri, the program has expanded to Illinois, Maine, Nevada and Utah. The program aims to inspire educators to use instructional strategies powered by technology, engage students in the excitement of learning, and enrich teaching to dramatically improve student performance. Extensive research and evaluation have demonstrated positive results on student achievement after implementation of this model.²¹

Test results show that, on most state tests, students enrolled in eMINTS classrooms score higher than students enrolled in non-eMINTS classrooms. In addition, low-income and special education students in eMINTS classes generally score higher than their non-eMINTS peers.²² These results are encouraging, and it is important to recognize the various components of the program that contribute to its success. All eMINTS classrooms receive a variety of tools and support. Each teacher is part of a cluster and a cluster instructional specialist (CIS) is assigned to work with them. The CIS is available for consultation, support, facilitation and assistance in designing inquiry-based instructional experiences enhanced by technology. In addition, eMINTS classrooms have teacher workstations, interactive whiteboards, a computer for every two students, and related peripherals and software. Technical support is ample, as is the instructional support to ensure efficient operation of the classroom technologies and integration of the technologies into the curriculum.

Maine Is Learning How Laptop Program Supports Learning Goals

Maine has been a pioneer in providing laptops for all seventh and eighth grade students and teachers in the state. Research and evaluation of the program is ongoing, but initial findings from opinion surveys of students and teachers are positive. The results of teacher, student and principal surveys indicate that student use of the laptops for completing class work is higher for students who can take the laptops home. More than 70 percent of the teachers surveyed reported that the laptops helped them to more effectively meet their curriculum goals and individualize their curriculum to meet particular student needs. More than 75 percent of teachers reported that having the laptops helped them better meet Maine's statewide learning standards. More than 80 percent of teachers surveyed reported that students are more engaged in their learning, more actively involved in their own learning, and produce better quality work.²³

More rigorous studies that evaluate the Maine laptop program's effect on student achievement are forthcoming.

The recent focus of the school improvement effort and NCLB has been on student achievement in reading and math. High-stakes testing and national and international comparisons often highlight these two content areas. There is now a gradual accumulation of evidence about the effect of technology on improving student performance in these areas.

Enhancing Sound in Classrooms to Benefit All Students

In 1977, the U.S. Department of Education began funding the initial investigation of what was to be a three-year investigation named the Mainstream Amplification Resource Room Study (MARRS Project). The results showed that all students, regardless of hearing ability, taught in sound enhanced rooms showed significant gains in academic achievement.²⁴ Most recently, *Technology and Learning Magazine* ranked providing sound field enhancements in classrooms one of the top return on investments schools can make with their technology funds.²⁵

A review of the research literature by the Software & Information Industry Association revealed positive and consistent patterns when students were engaged in technology-rich environments, including significant academic gains and achievement in all subject areas, increased achievement in preschool through high school for both regular and special needs students, improved attitudes toward learning, and increased self-esteem.

A study that controlled for both prior achievement and socioeconomic status found that fourth-grade students who reported greater frequency of technology use at school to edit papers were likely to have higher total English/language arts test scores and higher writing scores on fourth grade test scores on the Massachusetts Comprehensive Assessment Systems English/Language Arts test.²⁷

A study that compared student test scores on writing and essay tests found that those students who used a computer to take the test performed significantly better than those who took the test using paper and pencil. Nearly 70 percent of the students who took the computer-based test performed "adequately" compared to only 30 percent of students who took the test using paper and pencil. The authors suggest that, for students who have been accustomed to writing on a computer for only a year or two, estimates of student writing abilities based on responses written by hand may be substantial underestimates of their abilities to write when using a computer.²⁸

A study in the *Journal of Science Education and Technology* examined the relationship between computer use and students' science achievement based on data from a standardized assessment. It found it is not the computer use itself that has a positive or negative effect on achievement, but the way in which computers are used.²⁹ For example, an Educational Testing Service study found that using computers to teach low-order thinking skills such as drill and practice had a negative effect on academic achievement, while using computers to solve simulations significantly increased students math scores.³⁰

A 2002 study of Cognitive Tutor Algebra I on ninth grade students enrolled in algebra courses found that students who used the software tutor performed better than those who did not. This proved true for students across teachers, for male and female students, and for students of different ethnicity. Students who engaged with the software also were more likely to rate math as useful than students in a traditional class, and they were more likely to report that they were confident in math. Other studies of Cognitive Tutor have demonstrated that students participating in the program performed 85 percent better on average on assessments of complex math problem solving and thinking. In addition, students enrolled in Cognitive Tutor Algebra I have been shown to be 69 percent more likely to pass traditional geometry and 71 percent more likely to pass traditional algebra II.³¹ The U.S. Department of Education, in a review of literature on middle school math interventions, included Cognitive Tutor, as well as another software program called I CAN LEARN, to be among the only interventions that the department reviewed with rigorous evidence of improving student achievement.³²

When considering distance and virtual learning's effect on student achievement, it is important to recognize that this delivery method can transform education simply because it allows new and enhanced access to courses and curriculum that otherwise is often not available. In West Virginia, the Legislature required challenging courses for middle school students to prepare them for a rigorous high school program. Rural, isolated schools that had no access to a certified Spanish teacher and would not otherwise receive the course were offered Spanish I through a distance learning program. These students performed as well as those who had certified teachers in face-to-face instruction and, as the Spanish II teachers in high school report, they are equally accomplished and often are better prepared than those who had the traditional course.³³

Research findings have shown no significant difference between online learning and face-to-face instruction—an indication that learning outcomes can be accomplished without a direct encounter with an instructor.³⁴ In fact, the *International Journal of Educational Telecommunications* found a small positive effect in favor of distance education and more positive effects for distance education programs that combine an individualized approach with traditional classroom instruction.³⁵

Overall, research has established that properly implemented technology initiatives can improve student achievement, engage the digital native learner, and provide important technological skills to the future workforce. Most importantly, research reveals lessons learned about how to successfully use technology in education. As previously mentioned, this includes:

- Technology is best used as one component in a broad-based reform effort.
- Teachers must be adequately trained to use technology.
- Technological resources must be sufficient and accessible.
- Effective technology use requires long-term planning and support.
- Technology should be integrated into the curricular and instructional framework.³⁶

The above studies are a small sample of the research that examines technology's effect on student achievement. State policymakers are encouraged to contact NCSL with questions about implementation of a specific technology, policy strategies to ensure its effectiveness, and additional examples of successful schools and districts that have linked technology to improved student achievement.

Conclusion

Although research that seeks to understand technology's effect on student achievement will require ongoing effort, existing evidence is compelling that, with effective implementation, technology can lead to improved student outcomes. Policymakers may want to consider their own role in ensuring that education technology initiatives are sufficiently evaluated to draw lessons from emerging and developing strategies. Although the uniqueness of each school and classroom situation will always need to be considered, the accumulation of research evidence over time and across studies should provide consistent findings that enhance understanding of the role of teaching and learning with technology.⁸⁷

Additional Resources

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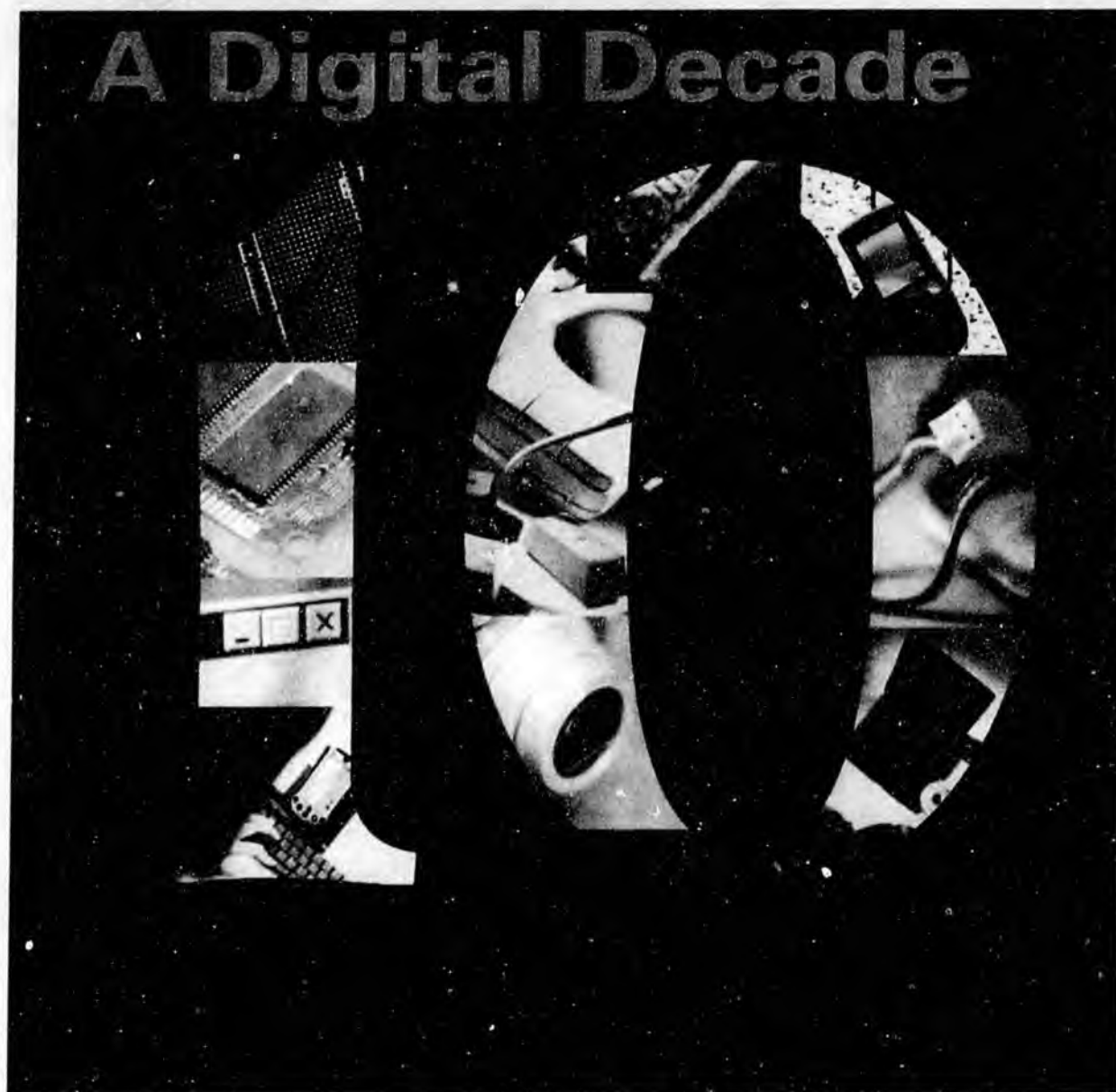
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Alaska

TECHNOLOGY COUNTS 2007



A Special State-Focused
Supplement to *Education Week's*
Technology Counts 2007



About This Report

This *State Technology Report* is a supplement to the 10th edition of *Technology Counts*, a joint project of *Education Week* and the Editorial Projects in Education Research Center. As in previous years, the EPE Research Center has surveyed the states to assess the status of K-12 educational technology across the nation. This state report assembles key findings from that survey and other sources in a format that allows readers to examine a particular state's performance on this year's indicators. For most indicators, national results are also provided as a benchmark against which the state can be measured. *Technology Counts 2007*, which explores developments in educational technology over the past decade, tracks data from the 50 states and the District of Columbia in several critical areas of technology policy and practice: access, use, and capacity. The report assigns grades to the states for their performance in those three categories. State grades are not comparable with those in last year's report because of changes in two access indicators and improvements in the scoring for indicators related to teacher and administrator licensure. The full *Technology Counts 2007* report can be accessed online at www.edweek.org/go/tc07.

STATE TECHNOLOGY REPORT CARD 2007

	Alaska	How did the average state score?
Access to technology	C	C
Use of technology	B-	C+
Capacity to use technology	B-	C
Overall grade	C+	C+

Grading the States

For *Technology Counts 2007*, the EPE Research Center awarded grades for technology leadership to the 50 states and the District of Columbia. Grading is based on 14 individual indicators spanning three core areas of state policy and practice: access to instructional technology, use of technology, and capacity to effectively use educational technology.

Information on technology use and capacity was obtained from a nationwide survey of state technology officials conducted by the EPE Research Center. Indicators related to educational technology access were derived from annual school surveys conducted by Market Data Retrieval, a research company that tracks the use of educational technology, and from background questionnaires administered as part of the 2005 National Assessment of Educational Progress.

The EPE Research Center evaluated each indicator, assigning a certain number of points to each. States received credit for the use and capacity indicators only if they could document that the respective policy or practice was in place. Points were tallied within each of the three technology categories, producing scores on a 100-point scale. To generate an overall score, the Research Center computed the average of the three category scores and then converted that total score to a letter grade.

Technology Counts Grading Breakdown

This table reports the detailed scoring behind the grades for the three major areas of state policy examined in *Technology Counts*.

Access to Technology	Alaska	U.S.	Capacity to Use Technology	Does state have policy?	Number of states with policy
<i>Percent of students with ...</i>			<i>State includes technology in its ...</i>		
Computer in classroom	41.5%	49.5%	Teacher standards	Yes	45
Computer in lab/media center	68.5%	77.0%	Administrator standards	Yes	36
<i>Number of students per ...</i>			Initial teacher-license requirements	No	19
Instructional computer	3.2	3.8	Initial administrator-license requirements	No	9
High-speed Internet-connected computer	3.3	3.7	Teacher-recertification requirements	Yes	9
			Administrator-recertification requirements	No	5
Use of Technology	Does state have policy?	Number of states with policy	Overall Technology Score	Alaska points awarded	Average state points awarded
Student standards include technology	Yes	48	Access to technology	73.5	76.0
State tests students on technology	No	4	Use of technology	79.5	78.7
State has established a virtual school	Yes	23	Capacity to use technology	79.5	75.5
State offers computer-based assessments	No	23	Total score (average of three categories)	77.5	76.7

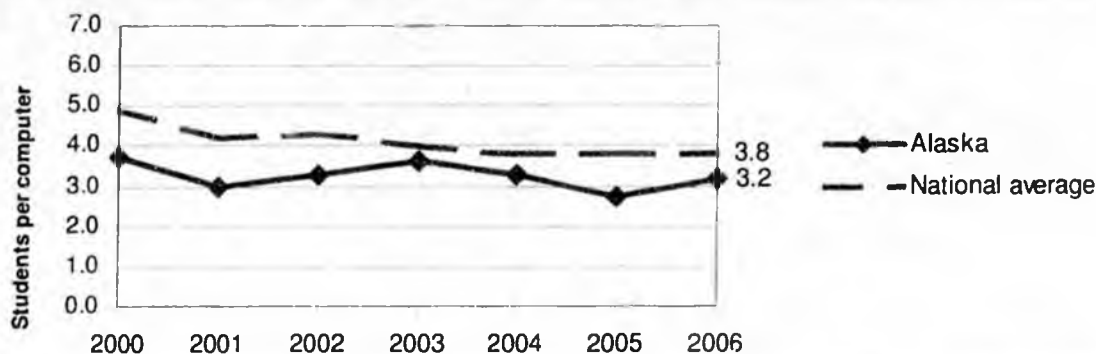
Grading Curve A (93-100), A- (90-92), B+ (87-89), B (83-86), B- (80-82), C+ (77-79), C (73-76), C- (70-72), D+ (67-69), D (63-66), D- (60-62), F (0-59)

Technology Access

Note: Indicators of access to technology capture the number of students who share computers used for instructional purposes. Lower values on these measures indicate greater levels of access.

Trends in access

This chart tracks student access to instructional computers over time.

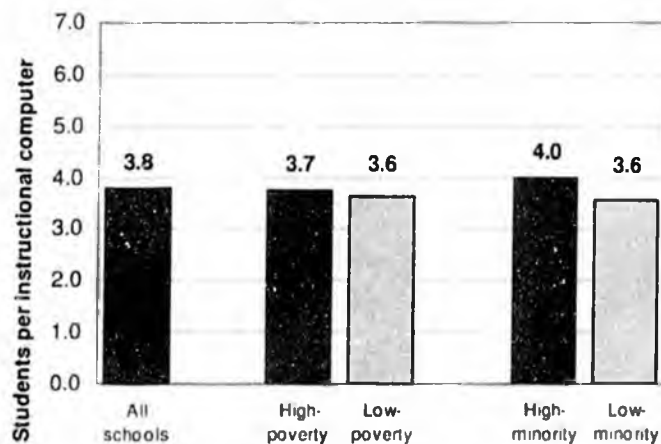
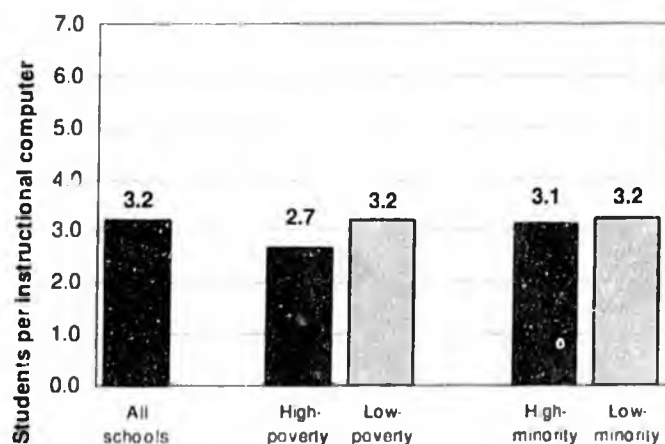


Students per instructional computer

These charts show the average number of students sharing access to each computer available for instructional purposes for public schools in this state and the nation as a whole during the 2005-06 school year.

Alaska

U.S. Average

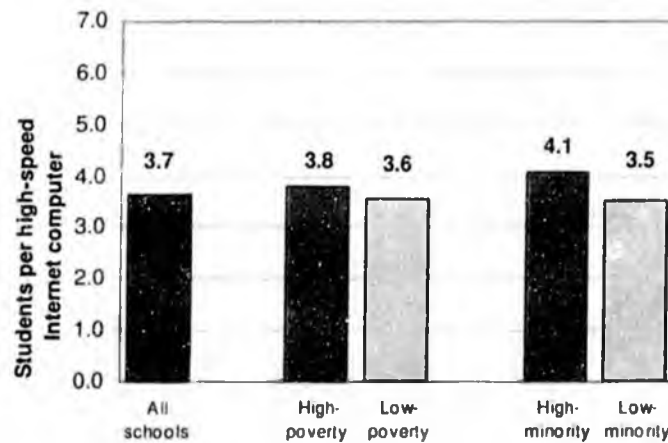
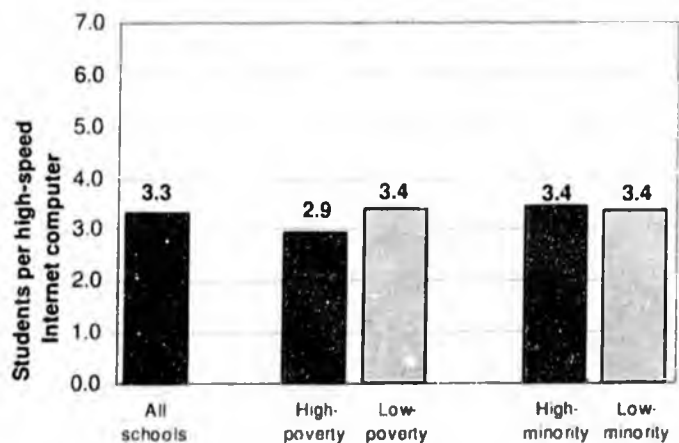


Students per high-speed Internet computer

These charts show the average number of students sharing access to each instructional computer with high-speed Internet access for public schools in your state and the nation as a whole during the 2005-06 school year.

Alaska

U.S. Average



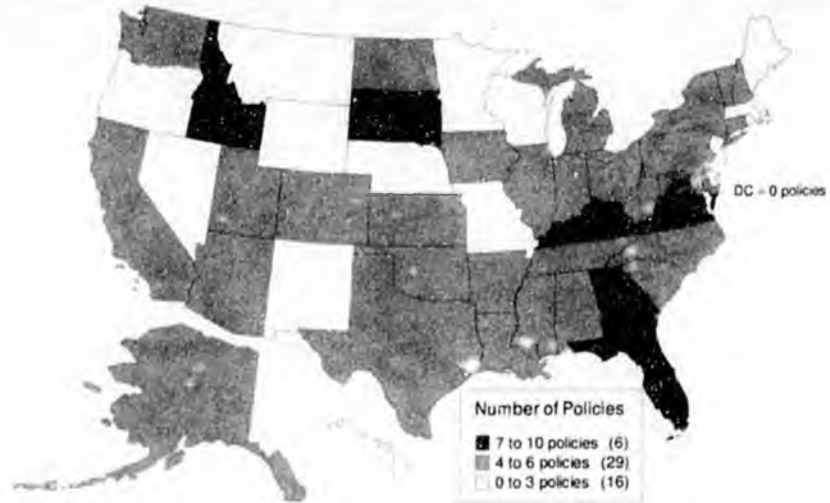
Technology Use and Capacity Policies

National Perspective

This map shows the number of technology use and capacity policies in place for the 2004-07 school year for each state and the District of Columbia.

The EPE Research Center has examined state technology use and capacity policies. Ten key policies, listed on the first page of this state report, are summarized in this map.

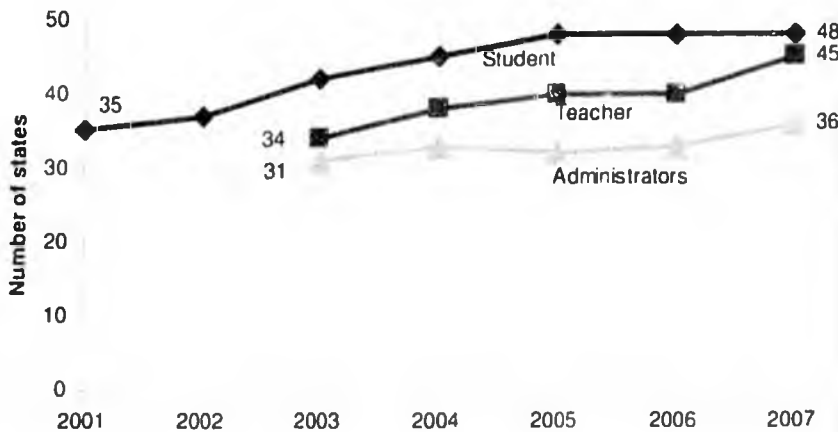
The states with the strongest use and capacity policies are Georgia (10 policies) and Kentucky (8 policies). At the other end of the spectrum, Montana and Nevada each have one policy, while the District of Columbia has adopted none of the policies.



Technology Standards

Past & Present

This chart tracks the number of states that have technology standards for students, teachers, and administrators.



The EPE Research Center has been tracking technology standards for students since 2001 and technology standards for teachers and administrators since 2003.

The vast majority of states (48) have embraced technology standards for students for the past few years. Almost as many states (45) now have such standards for teachers, while fewer states (36) have them for administrators. Overall, 2007 shows an increase in states endorsing teacher and administrator standards in technology.

Alaska Technology Standards	2001/ 2003	2007
Students	Yes	Yes
Teachers	No	Yes
Administrators	No	Yes

Extra Credit—Integrating Technology

Supporting Educators	Alaska	Nation
State facilitates access to online academic content and/or instructional software (CD or Web-based) through ...		
Group-purchasing program <i>Digital content available at lower prices because of state negotiations</i>	No	17 states
Collection of online resources from different academic areas <i>Digital content to supplement learning that can be accessed through a state Web site or portal</i>	Yes	26 states
Subscription services <i>Electronic resources, such as e-journals, online indexes, and full-text databases, available through a commercial provider</i>	No	29 states
State offers teachers online opportunities ...		
Professional development online, such as courses or virtual training <i>May include technology-related professional development or professional development in other areas</i>	Yes	39 states
State offers professional or financial incentives to use technology for ...		
Teachers	No	17 states
Administrators	No	13 states
Number of policies:	2	---

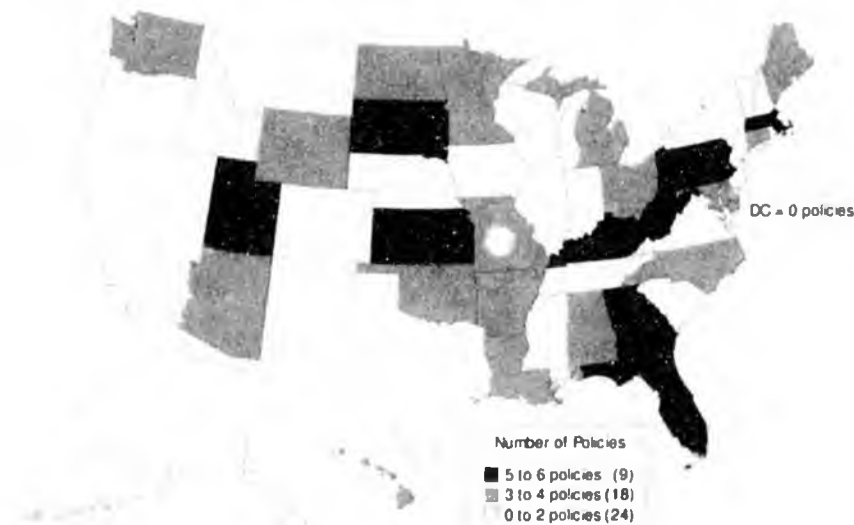
Educator Technology-Integration Policies

A National Perspective

This map shows the number of educator technology-integration policies (listed above) for each state.

Integration of digital resources in schools is not regular and comprehensive, according to anecdotal reports and research. For that reason, state policies to help educators—such as offering access to digital content, online professional development, and incentives—can help maximize the potential of educational technology.

Just two states (Kentucky and West Virginia) have all six technology-integration policies discussed above. Nearly half of states have two or fewer policies.



Sources and Notes

State Technology Indicators

Most of the state policy indicators reported in *Technology Counts* are obtained through an original policy survey conducted annually by the Editorial Projects in Education Research Center. The Research Center sent surveys to the chief state technology officers in all 50 states and to the superintendent of the District of Columbia public schools. Respondents provided information on policy indicators related to educational technology, and competencies of students and educators. Every state response was carefully verified using additional evidence provided by the state, such as documentation describing a state statute or administrative rule.

For some indicators on access to technology, the EPE Research Center obtained information from Market Data Retrieval, or MDR, a research organization in Shelton, Conn., that tracks trends in educational technology, and from the National Assessment of Educational Progress, conducted by the National Center for Education Statistics.

Grading the States

For *Technology Counts 2007*, the EPE Research Center graded state leadership in the areas of technology, access, use, and capacity, based on data compiled for 14 individual indicators of state policy and practice. Each indicator was evaluated and assigned a certain number of points, with some indicators receiving greater

weight than others. States were not awarded credit for an indicator unless they were able to document that the respective policy was in place.

The Research Center tallied points within each of the three policy categories on a 100-point scale. These three subscores were averaged to produce an overall technology score, which was then converted to a letter grade. A detailed explanation of the grading methodology can be found in the full edition of *Technology Counts 2007*.

Technology Access

Students per instructional computer: Market Data Retrieval, "2005-06 Public School Technology Survey" and unpublished tabulations from MDR's Public School Technology Surveys (2000-2005).

Students per high-speed Internet-connected computer: Ibid.

For the purposes of this report, high-poverty schools are those in which more than half of students are eligible for the federal free or reduced-price lunch program. High-minority schools are those in which more than half the students belong to minority racial or ethnic groups.

Percent of students with computer in classroom: National Assessment of Educational Progress, National Center for Education Statistics, U.S. Department of Education, 2005. This figure represents the percent of public school students in

grades 4 and 8 whose math teachers reported that at least one computer was available to students in their classrooms. Figures for grades 4 and 8 were averaged.

Percent of students with computer in lab/media center: Ibid. This figure represents the percent of public school students in grades 4 and 8 whose math teachers reported that at least one computer was available to students in a lab or media center. Figures for grades 4 and 8 were averaged.

Technology Use & Capacity

Editorial Projects in Education Research Center annual state technology survey, 2007. Survey respondents were asked about state policies that promote technology use and capacity. States received credit for an indicator only when they provided clear evidence that the respective policy or practice was currently in place.

Extra Credit

Editorial Projects in Education Research Center annual state technology survey, 2007. Survey respondents were asked about state policies that help teachers gain access to digital academic resources, and provide educators with incentives to use technology, as well as online professional-development opportunities. States received credit for an indicator only when they provided clear evidence that the respective policy or practice was currently in place.

About Editorial Projects in Education

Editorial Projects in Education (EPE) is a nonprofit, tax-exempt organization based in Bethesda, Md. Our primary mission is to help raise the level of awareness and understanding among professionals and the public of important issues in American education. We cover local, state, national, and international news and issues from preschool through the 12th grade. Editorial Projects in Education Inc. publishes *Education Week*, America's newspaper of record for precollegiate education, *Teacher Magazine*, edweek.org, and the Agent K-12 employment resource. We also produce periodic special reports on issues ranging from technology to textbooks, as well as books of special interest to educators.

The **EPE Research Center** conducts annual policy surveys, collects data, and performs analyses that appear in the *Quality Counts*, *Technology Counts*, and *Diplomas Count* annual reports. The center also produces independent research reports and contributes original data and analysis to special coverage in *Education Week*, *Teacher Magazine*, and edweek.org.