

**HOW THE INTERNET, THE LAW AND TODAY'S STUDENTS  
ARE REVOLUTIONIZING EXPECTATIONS  
National Education Technology Plan 2004  
U.S. DEPARTMENT OF EDUCATION**

***EXCERPTS FROM THIS REPORT - QUOTED***

This report was undertaken by the staff of the U.S. Department of Education in response to a request from Congress for an update on the status of educational technology. As the fieldwork progressed, it became obvious that while the development of educational technology was thriving, its application in our schools often was not. Over the past 10 years, 99 percent of our schools have been connected to the Internet with a 5:1 student to computer ratio.

Yet, we have not realized the promise of technology in education. Essentially, providing the hardware without adequate training in its use – and in its endless possibilities for enriching the learning experience – meant that the great promise of Internet technology was frequently unrealized. Computers, instead of transforming education, were often shunted to a “computer room,” where they were little used and poorly maintained. Students mastered the wonders of the Internet at home, not in school. Today’s students, of almost any age, are far ahead of their teachers in computer literacy. They prefer to access subject information on the Internet, where it is more abundant, more accessible and more up-to-date.

Progressive teachers, principals and superintendents understand this. As examples cited in this report demonstrate, they have successfully adapted the endless opportunities presented by computer technology and married them in creative and challenging ways to the high-level technical capabilities and motivation of their students. Students and teachers become partners in the exploration of this new universe.

**STUDENTS SAY...**

- 49 percent say they may be interested in pursuing a career in technology, 47 percent in business, 41 percent in medicine, 35 percent in law, 34 percent in entertainment and 33 percent in teaching.
- 74 percent say they get along with their parents extremely well or very well.
- 70 percent participate in community service or volunteer work.
- 76 percent want to learn more about the world.
- 28 percent of high school students access foreign news sources via the Internet.
- 90 percent of children between ages 5 and 17 use computers.
- Teens spend more time online using the Internet than watching television.
- 94 percent of online teens use the Internet for school-related research.
- 24 percent have created their own web pages.
- 16 percent of teens are shareholders in the stock market.
- Teens and college students combined spend nearly \$400 billion a year.

Millennials’ use of information and communications technology reaches to the youngest

ages. The largest group of new users of the Internet from 2000-2002 were 2-5 year olds.

### **Today's Students**

- *96 percent say that doing well in school is important to their lives.*
- *88 percent say going to college is critical.*
- *70 percent participate in community service or volunteer work.*
- *28 percent of high school students access foreign news sources via the Internet.*
- *90 percent of children between ages 5 and 17 use computers.*
- *94 percent of online teens use the Internet for school-related research.*
- *Teens and college students combined spend nearly \$400 billion a year.*

### **Results of an online survey as part of its first Speak Up Day for Students.**

In March 2004, these findings were issued in a national report partially funded by the U.S. Department of Education, entitled *Voices and Views of Today's Tech-Savvy Students*, to support the inclusion of students' perspectives in the development of the National Education Technology Plan.

### **Major themes emerged from the students' comments:**

- Today's students are very technology-savvy, feel strongly about the positive value of technology and rely upon technology as an essential and preferred component of every aspect of their lives.
- Students are not just using technology differently today but are approaching their lives and their daily activities differently because of the technology.
- As students get older, their use of technology becomes more sophisticated, but, comparatively, the younger students are on a fast track to becoming greater technology users and advocates.
- The access point for technology use, particularly for older students, is home-focused, not school-focused.
- Today's students are ultra-communicators.

### **Student comments from the survey of grades 6-12:**

"We would like to have one computer per student, possibly a wireless laptop. Software needs to be updated, as well as hardware. Infrastructure should be improved to accommodate these upgrades. Access is vital, with before and after school hours open for use."

"Hire people to keep the computers running, give us more bandwidth and less firewall, enable hookups from home, give the teachers more training and give us more computer classes. We're also interested in ITV and online classes." "I would like them to let us kids sign laptops out of the library and there would be enough for everyone in the school. Or they could give us a laptop for the year."

"Students should be allowed to have free access to online tutoring."

**Student comments from grades 3-6:**

“I think that teachers should be required to go to a technology course and extra classes should be available to kids who need help working with computers, want to learn more about technology, or who just want to have fun.”

“Teachers could show more videos and web sites to show kids more information in social studies and science.”

“I think that students should have laptops to do everything in class. We can type our homework, schoolwork, copy notes and things like that. We should not have to carry heavy books all day long and bring all of our books home.”

“I think that we (schools) could give technology classes to students and teachers because our teachers are falling behind the students, as they aren’t good with computer programs and software.”

“I think the teachers could use technology better by learning more about it. I think if they learn more about it they could help the students better and help them do projects and stories.”

“I really think that we should go to computer lab more often so that we can learn more about the world around us and what’s going on.”

**Tear Down Those Walls:**

Walls – both physical and philosophical – have held back new, more creative and more effective uses of the Internet in schools. Virtually every public school has access to the Internet. Yet in most schools, it is business as usual. Computers are enclosed in computer rooms rather than being a central part of the learning experience. Internet-savvy students are frustrated, as is well documented in the 2002 report, *The Digital Disconnect: The Widening Gap Between Internet-Savvy Students and Their Schools*. The problem is not necessarily lack of funds, but lack of adequate training and lack of understanding of how computers can be used to enrich the learning experience. The good news is that things are changing. States, localities and schools are creatively using existing resources to restructure money within their existing budgets to align technology with improved learning.

**The Explosion in E-Learning and Virtual Schools**

Over the past five years there has been an explosive growth in online and multimedia instruction (e-learning) and “virtual schools.” At least 15 states now provide some form of virtual schooling to supplement regular classes or provide for special needs. Hundreds of thousands of students are taking advantage of e-learning this school year. About 25 percent of all K-12 public schools now offer some form of e-learning or virtual school instruction. Within the next decade every state and most schools will be doing so. E-

learning and virtual schooling are essentially the same product: they provide individual online instruction. They are the 21<sup>st</sup> century version of distance-learning through correspondence courses by mail. But through today's technology they are more immediate and, for students, far more enriching.

E-learning offers flexibility in the time, place, and pace of instruction. It provides teachers the opportunity to create an instructional environment that adapts to students wherever and however they need to learn, at home or in school. It gives parents a significant choice of providers and educators an alternative means of meeting their student's academic needs. In higher education, some 90 percent of four-year public institutions and more than half of four-year private institutions offer some form of online education. Virtual Schools are complete educational organizations that deliver courses primarily online. They may be run by state agencies (Florida, Illinois, West Virginia), regional agencies and consortia (Virtual High School in Massachusetts), universities (University of California), local public school districts (Houston Virtual School), and more than 80 schools (cyber-charter schools) that received a charter from a local district, state board or other sponsor.

A good example of the impact of virtual schooling is the Florida Virtual School (FLVS). Founded in 1997, the FLVS is a national leader in providing online, distance education solutions for K-12 students. Most of its 13,000 students in the 2003-2004 school year enrolled for only 1 or 2 courses for a total of 21,270 course enrollments. In addition to designing and monitoring the online instruction, FLVS teachers communicate with students and parents on a regular basis by phone, e-mail, online chats, instant messaging and discussion forums. A full 90 percent of its enrollees complete and pass FLVS classes. For most students, FLVS courses add to what is available in their local schools. An online GED preparation course, developed by FLVS, is available to working adults through The Florida Adult and Technical Distance Education Consortium. Certified instructors teach more than 80 courses delivered over the Internet to students from Florida, more than 30 other states and even foreign countries. Partnering with FLVS, rural or smaller school districts can offer a selection of Advanced Placement courses or language study for which they would not otherwise have the resources. As one teacher from a small, rural Florida district has noted: "Online learning 'evens the playing field' for rural students." With more choices available, traditional schools are turning to distance education to expand offerings for students and increase professional development opportunities for teachers.

## **Technology Plan: The Future Is Now**

### **Seven Major Action Steps and Recommendations**

#### ***1. Strengthen Leadership***

For public education to benefit from the rapidly evolving development of information and communication technology, leaders at every level – school, district and state – must not only supervise, but provide informed, creative and ultimately transformative leadership for systemic change.

Recommendations for states, districts and individual schools include:

- a. Invest in leadership development programs to develop a new generation of tech-savvy leaders at every level.
- b. Retool administrator education programs to provide training in technology decision making and organizational change.
- c. Develop partnerships between schools, higher education and the community.
- d. Encourage creative technology partnerships with the business community.
- e. Empower students' participation in the planning process.

## ***2. Consider Innovative Budgeting***

Needed technology often can be funded successfully through innovative restructuring and reallocation of existing budgets to realize efficiencies and cost savings. The new focus begins with the educational objective and evaluates funding requests – for technology or other programs – in terms of how they support student learning. Today, every program in *No Child Left Behind* is an opportunity for technology funding – but the focus is on how the funding will help attain specific educational goals.

Funding and budgetary recommendations for states, schools and districts include:

- a. Determine the total costs for technology as a percentage of total spending.
- b. Consider a systemic restructuring of budgets to realize efficiencies, cost savings and reallocation. This can include reallocations in expenditures on textbooks, instructional supplies, space and computer labs.
- c. Consider leasing with 3-5 year refresh cycles.
- d. Create a technology innovation fund to carry funds over yearly budget cycles.

## ***3. Improve Teacher Training***

Teachers have more resources available through technology than ever before, but some have not received sufficient training in the effective use of technology to enhance learning. Teachers need access to research, examples and innovations as well as staff development to learn best practices. The U.S. Department of Education is currently funding research studies to evaluate the effective use of technology for teaching and learning. The National Science Foundation also provides major support for educational research.

Recommendations for states, districts and individual schools include:

- a. Improve the preparation of new teachers in the use of technology.
- b. Ensure that every teacher has the opportunity to take online learning courses.
- c. Improve the quality and consistency of teacher education through measurement, accountability and increased technology resources.
- d. Ensure that every teacher knows how to use data to personalize instruction. This is marked by the ability to interpret data to understand student progress and challenges, drive daily decisions and design instructional interventions to customize instruction for every student's unique needs.

#### ***4. Support E-Learning and Virtual Schools***

In the past five years there has been significant growth in organized online instruction (e-learning) and “virtual” schools, making it possible for students at all levels to receive high quality supplemental or full courses of instruction personalized to their needs.

Traditional schools are turning to these services to expand opportunities and choices for students and professional development for teachers.

Recommendations for states, districts and schools include:

- a. Provide every student access to e-learning.
- b. Enable every teacher to participate in e-learning training.
- c. Encourage the use of e-learning options to meet *No Child Left Behind* requirements for highly qualified teachers, supplemental services and parental choice.
- d. Explore creative ways to fund e-learning opportunities.
- e. Develop quality measures and accreditation standards for e-learning that mirror those required for course credit.

#### ***5. Encourage Broadband Access***

Most public schools, colleges and universities now have access to high-speed, high-capacity broadband communications. However, broadband access 24 hours a day, seven days a week, 365 days a year could help teachers and students to realize the full potential of this technology and broadband technology needs to be properly maintained.

Recommendations to states, districts and schools include:

- a. Thoroughly evaluate existing technology infrastructure and access to broadband to determine current capacities and explore ways to ensure its reliability.
- b. Encourage that broadband is available all the way to the end-user for data management, online and technology-based assessments, e-learning, and accessing high-quality digital content.
- c. Encourage the availability of adequate technical support to manage and maintain computer networks, maximize educational uptime and plan for future needs.

#### ***6. Move Toward Digital Content***

A perennial problem for schools, teachers and students is that textbooks are increasingly expensive, quickly outdated and physically cumbersome. A move away from reliance on textbooks to the use of multimedia or online information (digital content) offers many advantages, including cost savings, increased efficiency, improved accessibility, and enhancing learning opportunities in a format that engages today’s web-savvy students.

Recommendations to states and districts include:

- a. Ensure that teachers and students are adequately trained in the use of online content.
- b. Encourage ubiquitous access to computers and connectivity for each student.
- c. Consider the costs and benefits of online content, aligned with rigorous state academic standards, as part of a systemic approach to creating resources for students to customize learning to their individual needs.

## ***7. Integrate Data Systems***

Integrated, interoperable data systems are the key to better allocation of resources, greater management efficiency, and online and technology-based assessments of student performance that empower educators to transform teaching and personalize instruction.

Recommendations to states, districts and schools include:

- a. Establish a plan to integrate data systems so that administrators and educators have the information they need to increase efficiency and improve student learning.
- b. Use data from both administrative and instructional systems to understand relationships between decisions, allocation of resources and student achievement.
- c. Ensure interoperability. For example, consider School Interoperability Framework (SIF) Compliance Certification as a requirement in all RFPs and purchasing decisions.
- d. Use assessment results to inform and differentiate instruction for every child.

## **Conclusions**

- a. There is no dispute over the need for America's students to have the knowledge and competence to compete in an increasingly technology-driven world economy.
- b. This need demands new models of education facilitated by educational technology.
- c. In the realm of technology, the educational community is playing catch-up. Industry is far ahead of education, and tech-savvy high school students often are far ahead of their teachers.
- d. This "digital disconnect" is a major cause of frustration among today's students.
- e. Public schools that do not adapt to the technology needs of students risk becoming increasingly irrelevant. Students will seek other options.
- f. Some of the most promising new educational approaches are being developed outside the traditional educational system, through e-learning and virtual schools.
- g. Reforms within the system will require strong leadership and a willingness to restructure the learning environment in fundamental ways.
- h. Today's technology-literate middle and high school students will also be drivers of reform, creating a new student-teacher partnership.
- i. The current ferment within the education community will lead to major changes in the way we teach, learn and manage public education.
- j. With the benefits of technology, highly trained teachers, a motivated student body and the requirements of *No Child Left Behind*, the next 10 years could see a spectacular rise in achievement – and may usher in a new golden age for American education.
- k. This is an exciting, creative and transforming era for students, teachers, administrators, policymakers and parents. Systemic change is being shepherded through the efforts of dedicated teachers, administrators, parents and students. Technology ignites opportunities for learning, engages today's students as active learners and participants in decision-making on their own educational futures and prepares our nation for the demands of a global society in the 21st century.

Name: \_\_\_\_\_

1. What did you learn about teens and technology by reading this article that will help you work more effectively with adolescents?
2. What is e-learning? What is a virtual school?
3. Review the section on recommendations and write a couple of comments or questions you wish to raise in large group.
4. How do you interpret this phrase on the last page?  
*“This digital disconnect is a major cause of frustration among today’s students.”*