

## Part D — Enhancing Education Through Technology

### SEC. 2402. PURPOSES AND GOALS.

(a) **PURPOSES-** The purposes of this part are the following:

- (1) To provide assistance for the implementation and support of a comprehensive system that effectively **uses technology in elementary schools and secondary schools to improve student academic achievement.**
- (2) To encourage the establishment or expansion of initiatives, including initiatives involving public-private partnerships, designed **to increase access to technology**, particularly in schools served by high-need local educational agencies.
- (3) To assist in the acquisition, development, interconnection, implementation, improvement, and maintenance of an effective educational technology infrastructure in a manner that expands **access to technology for students** (particularly for disadvantaged students) and teachers.
- (4) To promote initiatives **that provide school teachers, principals, and administrators with the capacity to integrate technology effectively into curricula and instruction** that are aligned with challenging academic content and student academic achievement standards, through such means as high-quality professional development programs.
- (5) To **enhance the ongoing professional development** of teachers, principals, and administrators by providing constant access to training and updated research in teaching and learning through electronic means.
- (6) To support the **development and utilization of electronic networks** and other innovative methods, such as distance learning, of delivering specialized or rigorous academic courses and curricula for students in areas that would not otherwise have access to such courses and curricula, particularly in geographically isolated regions.
- (7) To support the **rigorous evaluation of programs funded** under this part, particularly regarding the impact of such programs on student academic achievement, and ensure that timely information on the results of such evaluations is widely accessible through electronic means.
- (8) To support local efforts **using technology to promote parent and family involvement** in education and communication among students, parents, teachers, principals, and administrators.

(b) **GOALS-**

- (1) **PRIMARY GOAL-** The primary goal of this part is to **improve student academic achievement through the use of technology in elementary schools and secondary schools.**
- (2) **ADDITIONAL GOALS-** The additional goals of this part are the following:
  - (A) **To assist every student in crossing the digital divide by ensuring that every student is technologically literate by the time the student finishes the eighth grade**, regardless of the student's race, ethnicity, gender, family income, geographic location, or disability.

**(B) To encourage the effective integration of technology resources and systems with teacher training and curriculum development to establish research-based instructional methods** that can be widely implemented as best practices by State educational agencies and local educational agencies.

**Comparison of National Education Technology Plan to Broward Technology Plans and Initiatives**  
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<b>National Education Technology Plan</b>	<b>Broward Information Technology Plan (IT Blue Print)</b>	<b>Broward Instructional Technology Plan</b>	<b>Other Broward Programs</b>
<p><b>Strengthen Leadership:</b> 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.</p> <p><b>Recommendations</b></p> <ul style="list-style-type: none"> <li>• Invest in leadership development <i>programs</i> to develop a new generation of tech-savvy leaders at every level.</li> <li>• <b>Retool</b> administrator education programs to provide training in technology decision-making and organizational change.</li> <li>• Develop <i>partnerships</i> between schools, higher education and the community.</li> <li>• Encourage creative technology partnerships with the business community.</li> <li>• Empower <i>students</i>' participation in the planning process.</li> </ul>	<p><b>Partnerships:</b></p> <ul style="list-style-type: none"> <li>• Technology Advisory Committee</li> <li>• Broward County Educational Consortium</li> </ul>	<p><b>Programs:</b></p> <ul style="list-style-type: none"> <li>• Digital Education Teacher Academies: <ul style="list-style-type: none"> <li>○ DETA for Administrator</li> <li>○ DETA One</li> <li>○ DETA Two</li> </ul> </li> </ul> <p><b>Retool:</b></p> <ul style="list-style-type: none"> <li>• Integration with HRD Leadership Development Programs: <ul style="list-style-type: none"> <li>○ Intern Principal</li> <li>○ Assistant Principals</li> <li>○ Lead Teacher</li> <li>○ Prelude Teachers</li> </ul> </li> </ul> <p><b>Partnership</b></p> <ul style="list-style-type: none"> <li>• DETA</li> </ul> <p><b>Student Participation:</b></p> <ul style="list-style-type: none"> <li>• DLES Study</li> </ul>	<p><b>Programs:</b></p> <ul style="list-style-type: none"> <li>• e-Agenda</li> <li>• Classroom Walk Through</li> </ul> <p><b>Partnership:</b></p> <ul style="list-style-type: none"> <li>• Teaching &amp; Leadership Center at FAU</li> </ul>

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<p><b>Consider Innovative Budgeting:</b>            Needed technology often can be successfully funded through innovative restructuring and reallocation of existing budgets to realize efficiencies and cost savings. The new focus begins with the educational objective and <i>evaluates funding requests</i> – for technology or other programs – in terms of how they support student learning. Today, every program in <i>No Child Left Behind</i> is an opportunity for technology funding—but the focus is on how the funding will help attain specific educational goals</p> <ul style="list-style-type: none"> <li>• Determine the <i>total costs</i> for technology as a percentage of total spending.</li> <li>• Consider a systemic <i>restructuring of budgets</i> to realize efficiencies, cost savings and reallocation. This can include reallocations in expenditures on textbooks, instructional supplies, and space and computer labs.</li> <li>• Consider <i>leasing</i> with 3-5 year <i>refresh</i> cycles.</li> <li>• Create a technology innovation fund to <i>carry</i> funds <i>over</i> yearly budget cycles.</li> </ul>	<p><i>Total Costs</i></p> <ul style="list-style-type: none"> <li>• Funding Plan</li> <li>• TCO Model</li> </ul> <p><i>Restructure Budget</i></p> <ul style="list-style-type: none"> <li>• Funding Plan</li> <li>• Capital Budget Plan</li> </ul> <p><i>Leasing:</i></p> <ul style="list-style-type: none"> <li>• Leasing Option in Plan</li> </ul> <p><i>Refresh:</i></p> <ul style="list-style-type: none"> <li>• 3-5 Year Refresh</li> </ul> <p><i>Carry Over:</i></p> <ul style="list-style-type: none"> <li>• PSTF funds</li> </ul>	<p><i>Restructure Budget:</i></p> <ul style="list-style-type: none"> <li>• Grants</li> </ul> <p><i>Leasing:</i></p> <ul style="list-style-type: none"> <li>• Lease vs. Purchase of Computers</li> </ul>	<p><i>Evaluating funding requests</i></p> <ul style="list-style-type: none"> <li>• Budget Forecasting Committee</li> <li>• Grants Review Council</li> </ul>

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<p><b>Improve Teacher Training:</b> Teachers have more resources available through technology than ever before, but 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 <i>staff development to learn best practices</i>.</p> <ul style="list-style-type: none"> <li>• Improve the preparation of <i>new teachers</i> in the use of technology.</li> <li>• Ensure that every teacher has the opportunity to take <i>online</i> learning courses.</li> <li>• Improve the quality and consistency of <i>teacher education</i> through measurement, accountability and increased technology resources.</li> <li>• Ensure that every teacher knows <i>how to use data</i> to personalize instruction. <ul style="list-style-type: none"> <li>○ 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.</li> </ul> </li> </ul>	<p><i>How to Use Data:</i></p> <ul style="list-style-type: none"> <li>• Data Warehouse</li> <li>• Virtual Counselor</li> </ul>	<p><i>Staff Development to Learn Best Practices:</i></p> <ul style="list-style-type: none"> <li>• DETA One</li> <li>• DETA Two</li> <li>• DETA Learning Community</li> </ul> <p><i>Online:</i></p> <ul style="list-style-type: none"> <li>• Broward Virtual University</li> </ul> <p><i>Teacher Education:</i></p> <ul style="list-style-type: none"> <li>• DETA One</li> <li>• DETA Two</li> <li>• DETA Learning Community</li> <li>• Peer Coaching</li> </ul> <p><i>How to Use Data:</i></p> <ul style="list-style-type: none"> <li>• BEEP</li> <li>• DETA Two</li> </ul>	<p><i>Staff Development Needs Assessment:</i></p> <ul style="list-style-type: none"> <li>• Electronic PGP</li> </ul> <p><i>New Teachers:</i></p> <ul style="list-style-type: none"> <li>• Teaching and Leadership Center @ FAU</li> <li>• New Teacher Academy</li> <li>• Prelude Teachers</li> </ul> <p><i>Online:</i></p> <ul style="list-style-type: none"> <li>• Broward Virtual University</li> </ul> <p><i>Teacher Education:</i></p> <ul style="list-style-type: none"> <li>• Teaching and Leadership Center @ FAU</li> </ul> <p><i>How to Use Data:</i></p> <ul style="list-style-type: none"> <li>• Electronic AIP</li> </ul> <p><i>New Project:</i></p> <ul style="list-style-type: none"> <li>• e-Classroom</li> </ul>

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<p><b>Support E-Learning and Virtual Schools</b> In the past five years there has been an explosive 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</p> <ul style="list-style-type: none"> <li>• Provide every <i>student</i> access to <i>e-learning</i>.</li> <li>• Enable every <i>teacher</i> to participate in <i>e-learning</i> training.</li> <li>• Encourage the use of e-learning options to meet <i>No Child Left Behind</i> requirements for <i>highly qualified teachers</i>, supplemental services and parental choice.</li> <li>• Explore creative ways to fund e-learning opportunities.</li> <li>• Develop <i>quality measures and accreditation standards</i> for e-learning that mirror those required for course credit.</li> </ul>	<p><b><i>Student e-learning</i></b></p> <ul style="list-style-type: none"> <li>• Electronic Textbook resources/e-books</li> <li>• Broward Virtual School</li> <li>• (BeVD)</li> <li>• BECON/ Video Conferencing</li> </ul> <p><b><i>Teacher e-Learning</i></b></p> <ul style="list-style-type: none"> <li>• Electronic Textbook resources/e-books</li> <li>• BECON/Video Conferencing</li> </ul>	<p><b><i>Student e-learning</i></b></p> <ul style="list-style-type: none"> <li>• Standard Curriculum Resources: Electronic Textbook resources/e-books</li> </ul> <p><b><i>Teacher e-Learning</i></b></p> <ul style="list-style-type: none"> <li>• Standard Curriculum Resources: Electronic Textbook resources/e-books</li> <li>• DETA</li> </ul> <p><b><i>Highly qualified teachers</i></b></p> <ul style="list-style-type: none"> <li>• DETA</li> </ul> <p><b><i>Quality measures and accreditation standards</i></b></p> <ul style="list-style-type: none"> <li>• DETA –college credit</li> </ul>	<p><b><i>Student e-learning</i></b></p> <ul style="list-style-type: none"> <li>• Broward Virtual Middle School</li> </ul> <p><b><i>Teacher e-Learning</i></b></p> <ul style="list-style-type: none"> <li>• Broward Virtual University</li> </ul> <p><b><i>Highly qualified teachers</i></b></p> <ul style="list-style-type: none"> <li>• Broward Virtual University – certification courses</li> </ul> <p><b><i>Quality measures and accreditation standards</i></b></p> <ul style="list-style-type: none"> <li>• Broward Virtual University – certification courses</li> </ul>

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<p><b>Encourage Broadband Access</b> 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.</p> <ul style="list-style-type: none"> <li>• Thoroughly evaluate existing <i>technology infrastructure</i> and access to <i>broadband</i> to determine current capacities and explore ways to ensure its reliability.</li> <li>• Encourage that <i>broadband</i> 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.</li> <li>• Encourage the availability of <i>adequate technical support</i> to manage and maintain computer networks, maximize educational uptime and plan for future needs</li> </ul>	<p><i>Technology infrastructure</i></p> <ul style="list-style-type: none"> <li>• Short Term &amp; Long Term Goals</li> </ul> <p><i>Adequate technical support</i></p> <ul style="list-style-type: none"> <li>• Technology Liaison</li> <li>• Contact Program</li> <li>• Technology Support Certification Program</li> <li>• Education Technology Services Help Desk</li> <li>• CRM</li> </ul>	<p><i>Technology infrastructure</i></p> <ul style="list-style-type: none"> <li>• Wireless Technology in the Classroom</li> </ul> <p><i>Adequate technical support</i></p> <ul style="list-style-type: none"> <li>• Purchase of 24/7 web resources for teachers (ex. Atomic Learning)</li> </ul>	<p><i>Broadband:</i></p> <ul style="list-style-type: none"> <li>• BECON</li> <li>• One Broward Initiative</li> </ul>

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<p><b>Move to Digital Content</b> 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.</p> <ul style="list-style-type: none"> <li>• Ensure that teachers and students are adequately trained in the use of <i>online content</i>.</li> <li>• Encourage ubiquitous <i>access</i> to computers and connectivity for each student.</li> <li>• Consider the costs and benefits of online content, aligned with rigorous state academic standards, as part of a <i>systemic approach</i> to creating resources for students to customize learning to their individual needs.</li> </ul>	<p><i>Teacher use of online content</i></p> <ul style="list-style-type: none"> <li>• Broward Virtual University</li> </ul> <p><i>Access</i> Plan 4</p>	<p><i>Teacher use of online content</i></p> <ul style="list-style-type: none"> <li>• DETA One</li> <li>• DETA Two</li> <li>• DETA Learning Community</li> </ul> <p><i>Student use of online content</i> Digital Learning Environment Study</p> <p><i>Access</i></p> <ul style="list-style-type: none"> <li>• Digital Learning Environment Study</li> <li>• Home Access to Technology</li> </ul> <p><i>Systemic approach</i></p> <ul style="list-style-type: none"> <li>• BEEP</li> <li>• DETA Learning Community</li> </ul>	<p><i>Student use of online content</i></p> <ul style="list-style-type: none"> <li>• Broward Virtual School (BeVD)</li> </ul> <p><i>Systemic approach</i> SBBC policy on Instructional Materials (electronic textbooks)</p>



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<p><b>Integrate Data Systems</b> 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.</p> <ul style="list-style-type: none"> <li>• Establish a plan to <i>integrate data systems</i> so that administrators and educators have the information they need to increase efficiency and improve student learning.</li> <li>• <i>Use data</i> from both administrative and instructional systems to understand relationships between decisions, allocation of resources and student achievement.</li> <li>• Ensure <i>interoperability</i>. For example, consider School Interoperability Framework (SIF) Compliance Certification as a requirement in all RFPs and purchasing decisions.</li> <li>• <i>Use assessment results</i> to inform and differentiate instruction for every child.</li> </ul>	<p><i>Integrate data systems</i></p> <ul style="list-style-type: none"> <li>• Data Warehouse</li> <li>• Virtual Counselor</li> </ul> <p><i>Use data</i></p> <ul style="list-style-type: none"> <li>• CELT Report</li> </ul> <p><i>Interoperability</i></p> <ul style="list-style-type: none"> <li>• Purchasing Guidelines</li> </ul> <p><i>Use assessment results</i></p> <ul style="list-style-type: none"> <li>• Data Warehouse</li> <li>• Virtual Counselor</li> </ul>	<p><i>Integrate data systems</i></p> <ul style="list-style-type: none"> <li>• BEEP</li> </ul> <p><i>Use data</i></p> <ul style="list-style-type: none"> <li>• Impact study of DETA</li> <li>• DLES</li> </ul> <p><i>Use assessment results</i></p> <ul style="list-style-type: none"> <li>• DETA Two</li> </ul>	<p><i>Use assessment results</i></p> <ul style="list-style-type: none"> <li>• Electronic AIP</li> </ul>

# EDUCATIONAL TECHNOLOGY

www.ed.gov/TECHNOLOGY



**“Information and Communications Technologies can provide a powerful platform to help transform and strengthen education to meet the workforce needs of the 21<sup>st</sup> century.**

**U.S. Department of Education  
Secretary Margaret Spellings**



*The Office of Educational Technology developed School 2.0 to assist School Districts in thinking comprehensively about using technology*

<http://www.school2-o.org/>

## Technology and No Child Left Behind

Online learning is becoming an important facet of K12 education in meeting the requirements for highly qualified teachers in every classroom, in providing professional development for teachers and school choice and in tutoring options to students and parents.

- There were an estimated 328,000 K12 students enrolled in distance education courses during the 2001-02 school year.
- Thirty-six percent of school districts and 9% of all schools have students enrolled in distance education courses.
- A greater proportion of districts located in rural areas (46%) had students enrolled in distance education courses than in suburban (28%) or urban areas (23%).
- Forty-two percent of districts that have students enrolled in distance education courses are high poverty districts.
- In 2005-06, 22 States had established virtual schools and 16 States had established at least one cyber charter school.

### USED Initiatives

- The Department provided a \$5 million grant to Catapult Learning, LLC to develop a pilot program to deliver online supplemental education services to students in rural and remote areas.
- The Department supports online professional development for teachers, through the Ready-to-Teach grant, which funds the PBS Teacherline, and the Teacher-to-Teacher program.
- The Office of Educational Technology is exploring ways to evaluate and document promising practices in online learning.

**Comprehensive data systems are essential for States to track individual student achievement and prescribe improvement strategies to schools.**

- It is imperative that States, districts and schools use data to drive instruction, professional development, fiscal decisions, to maximize student achievement, ensuring all students reach proficiency in reading and math by 2014.

### USED Initiatives

- The Institute for Education Sciences administers the State Grant for Longitudinal Data Systems, which provides funding for States to develop comprehensive technologies to track individual student achievement.
- The Office of Educational Technology produced [Helping Practitioners Meet the Goals of No Child Left Behind](#), a guide for educators considering using technologies to meet various requirements of the law.

## Ensuring Academic Competitiveness

**Providing access to rigorous coursework in high schools with limited resources helps to improve the competitiveness of American students – distance learning is helping to reach that goal.**

- Eighty percent of districts offering online courses said that offering courses not available at their schools is one of the most important reasons for having distance education.
- The proportion of all distance education enrollments that are in Advanced Placement (AP) or college-level distance education courses is greater in small districts (24%)

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**Fifty-six percent of all 2-year and 4-year...institutions offered distance education courses, with 127,400 students enrolling in online courses.**

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- Half of the districts offering online courses cited distance learning as very important in making AP or college-level courses available to all students.
- Fourteen percent of enrollments in distance education were AP or college-level courses.
- Nearly 70% of distance courses are in high school classrooms.

**USED Initiatives**

- In 2005, the Secretary published a national long-range technology plan, based on an assessment of the continuing and future needs of the nation's schools in effectively using technology to provide all students the opportunity to meet challenging State academic standards. The plan highlights seven action steps that States, districts and schools can take to evaluate their use of technology to improve student achievement. To access the plan, please visit <http://www.nationaledtechplan.org/>

## Technology in Higher Education

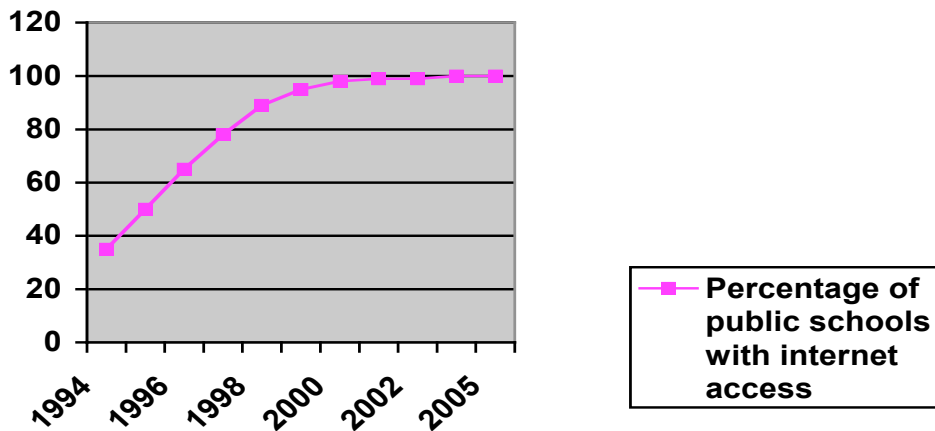
**Online learning continues to be a valuable instructional tool in higher education.**

- In 2000-01, 56% of all 2-year and 4-year Title IV-eligible, degree-granting institutions offered distance education courses for any level or audience.
- An estimated 127,400 online courses were offered in 2000-01.
- There were an estimated 3,077,000 enrollments in all distance education courses offered by 2-year and 4-year institutions.



## Technology Statistics

Percentage of public schools with Internet access:



\*No data were collected in 2004. Data from 2003 and 2005 are rounded to 100 percent.  
 Source: Internet Access in U.S. Public Schools and Classrooms: 1994-2005. National Center for Education Statistics.

- In 2003, 10 percent of all public schools provided a handheld computer to students or teachers.
- The gender divide in computer use has been essentially eliminated, as there is no overall difference between boys and girls in overall use of computers. However, girls are slightly more likely than boys to use home computers for e-mail, word processing and completing school assignments than playing games.

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**Sources:** [Distance Education Courses for Public Elementary and Secondary School Students: 2002-03](#)

[Dual Credit and Exam-Based Courses in U.S. Public High Schools: 2002-03](#)

[Internet Access in U.S. Public Schools and Classrooms: 1993-2005](#)

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