

SENATE STAFF ANALYSIS AND ECONOMIC IMPACT STATEMENT

(This document is based only on the provisions contained in the legislation as of the latest date listed below.)

Date: February 11, 1998 Revised: \_\_\_\_\_

Subject: Education Technology/Upgrades

	<u>Analyst</u>	<u>Staff Director</u>	<u>Reference</u>	<u>Action</u>
1.	<u>Chasteen</u>	<u>O'Farrell</u>	<u>ED</u>	<u>Favorable</u>
2.	_____	_____	<u>RC</u>	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____

**I. Summary:**

This bill creates a technological development forecasting conference modeled after Florida's revenue estimating conference. The conference will be comprised of a board of nationally recognized experts in the research and development areas of technology hardware and/or basic operating system software. They will meet once a year, at least, and initially set and then update standards which will be used to create a minimum technological foundation standard for all schools. Additionally, they will set planning benchmarks for educational technology purchases. The standards will represent a "best guess" regarding the kind of technological resources which will be available within the next 5 years. The standards will aim at uniformity, flexibility, capacity, and expandability.

The minimum technological foundation will be a rolling standard based on an X+5 formula, with X representing the technology available in the first year and 5 representing what will be available 5 years in the future. The bill requires that all new schools be designed using certain design considerations and to accommodate technology updates and upgrades, and that, as much as possible, all technology retrofits of existing schools be designed to permit ease in future updating and upgrading. All newly purchased software and hardware will have to be capable of being upgraded within the X+5 standard in place when it is purchased. Cost of goods and services for retrofitting and or upgrading will be allowable capital expenditures.

The Department of Education (DOE) Office of Educational Technology will consult with the districts and develop a 5-year plan to bring the wiring infrastructure and processing equipment for all Florida schools up to the minimum foundation; will pursue funding for upgrading schools and will assist districts and schools to pursue such funding; will secure any available funds from the Universal Service Order Program of the Federal Communications Commission (FCC); and will

develop information and learning programs for delivery via technology to venues outside traditional classrooms.

The State Board of Education with the technological development forecasting conference will establish a Technology Services and Products Bank, whose chief job will be to collect data on software and technology services and disseminate the information through the Internet. Additionally, as an aid to avoiding duplication of projects undertaken using tax monies, the bank will serve as an information clearinghouse. Groups or organizations requesting public funds will consult with the bank to determine if similar or identical projects exist and report any produced products.

This bill creates an unspecified section of the Florida Statutes.

## **II. Present Situation:**

*A Report on Distance Learning* prepared by the staff of the Senate Higher Education Committee in November, 1996, states that explosive new developments in the telecommunications and computer industries are occurring so rapidly that the education community is hard pressed to keep pace.

Two types of technology affect school districts. These would be applicable to public schools, but not necessarily *all* schools in the state, which would include private schools.

The first type is associated with learning in the classroom through the use of personal computers, laptop/notebook computers, interactive multi-media, laser disks, local area networks, distance learning, CAD, VCRs, and satellite links. The Internet didn't exist for popular purposes three years ago and now it is a major information resource for students from elementary school through graduate school. Other innovations like e-mail, teleconferencing, and CD-ROMS are continuously changing to provide exciting new challenges and opportunities for the delivery of instructional services.

The second type of available technology is the use of computers for controlling HVAC systems, building communications, security systems, and numerous applications in school and district business offices. Making the most of both types of technology raises issues about the infrastructure, hardware, and software needed to accommodate the services, and the capability, willingness, and extent of educational providers and facilities to furnish and pay for the desired services and equipment. School buildings which are more than 30 years old were designed and constructed in the pre-computer age without much forethought regarding the types of technology likely to be used in the future.

Whether retrofitting an existing building through remodeling or renovation of building a new facility, a major part of the challenge is to project what technology will be used several years from now. Technology is developing so rapidly and becoming so widespread that some educators think it could evolve in ways that may not meet the state's needs unless the state takes a major role in

shaping it. A policy established now could be inadequate in two years. When purchasing computers for the classroom, schools generally try to plan for approximately a two or three year life span.

### **Statutory Authority**

Technology relating to education is mentioned in several locations in the Florida Statutes. In addition to establishing state policy, the functions and responsibilities relating to technology are stated for various entities in the state, including the commissioner, the department, the school districts, and the state board of education. Statutes include s. 228.041, F.S., under the definitions for librarians/media specialists, special education services; s. 228.0855, F.S., relating to the Florida Model School Consortia; s. 228.086, F.S., authorizing grants for DOE to award to establish regional centers of excellence in technology; ss. 229.053(2)(1) and 229.52, F.S., assigning power to the state board of education to identify future training needs for high technology industry; s. 229.57, F.S., charging the commissioner to develop improved methods of using technology to administer tests; s. 229.601, F.S., defining high technology needs for career education programs; s. 229.603, F.S., establishing instructional technology grant program; and s. 231.613, F.S., relating to in-service training.

One of the policies of the state in the State Comprehensive Plan is to increase the use of technology in education to make instruction more effective, pursuant to s. 187.201(b)16.j., F.S. Additionally, the state policy regarding educational technology is stated in s. 229.8041, F.S. Public schools are to use computers and related technology:

- To make instruction and learning more effective and efficient;
- To make educational programs more relevant to contemporary society; and
- To reduce the paperwork and data collection requirements placed on classroom teachers.

To implement the policy, DOE is authorized and encouraged to assist school districts to make appropriate use of computing. Several technology initiatives which are being implemented are the school year 2000 model, public school technology grants, the Florida Information Resource Network (FIRN), library equipment automation grant program, acquisition of instructional technology, long distance learning satellite transponder, and the Florida Distance Learning Network (FDLN).

### **Office of Education Technology of Department of Education**

The Florida DOE Office of Education Technology coordinates statewide technology training, and manages grants and statewide technology centers related to production, training, and use of technology. It provides technical support to school districts with infrastructure needs; assistance to districts for distance learning delivery and programming; and classroom technology integration through initiatives such as district technology planning and review, state contracts for software

and hardware acquisition, co-development of instructional technology resources, training, technical support for consortiums, telecommunications instructional applications, state planning, and support for assistive/adaptive technology for physically impaired students.

### *School Year 2000*

School Year 2000 is a technology-based model based on design principles derived from research in a variety of fields. The initiative established co-development agreements to design and develop electronic systems and software to implement the model. The DOE Office of Educational Technology has the responsibility for management of these contracts.

### *Educational Technology Grant Program*

The Educational Technology Grant Program was authorized in s. 364.514, F.S. School districts are among the entities that are eligible to receive the grant awards. Although funds were not appropriated to FDLN to establish the grant program for 1995-1996, DOE set up a Distance Learning Grant Program in partnership with Tallahassee Community College and sought the assistance of the FDLN in developing the criteria for a Request for Proposal (RFP) for distance learning initiatives. A total of \$1.8 million dollars was given in grant awards to the top fifteen grant applications. Among the recipients were the following public schools and districts:

- Dade County Public Schools - Distance learning Program: A teacher education delivery model that uses distance learning methodologies to make quality training opportunities consistent and available district wide; and to support project based curriculum supplemented by telecommunications.
- School District of Lee County in cooperation with the school districts of Hendry and Glades Counties, Edison Community College, and Florida Gulf Coast University - Southwest Florida Regional Distance Learning Project, Phase One Mathematics: The primary goal of this project is to improve the K-12 student performance in algebra through the development of distance learning programming.
- Santa Rosa District Schools - *Going the Distance*: A distance learning partnership program emphasizing core content areas and in collaboration with the Northwest Florida Education Consortium, the University of West Florida, Wireless One, Southern Bell, and Pensacola Junior College.
- School Board of Orange County - In collaboration with Sea World, a proposal to design, develop, and distribute a curriculum package that will include both printed support materials and a series of 18 locally produced, interactive satellite television broadcasts focusing on Florida's environment, and on-line research and follow-up resources.

- Duval County Public Schools - Development of Partnership Network Project to become a district prototype that bridges the gap between traditional classroom practices and the demands of the future classroom.
- School District of Hillsborough County - *Writing Out Loud*, a distance education project for teachers and students which will introduce teachers to distance learning to target teachers in grades K-12 and middle and high school students.

The 1996 Legislature appropriated funds for the administrative purposes of the FDLN but did not appropriate funds for the grant program administered by the FDLN for the 1996-1997 fiscal year. The 1996 Legislature strengthened the coordinating role of the FDLN by requiring that entity plans receive approval from the FDLN prior to their receipt of certain 1997 technology appropriations. Each district is required to submit a technology plan based on established components and technology specifications.

#### *Florida Information Resource Network (FIRN)*

The Florida Information Resource Network (FIRN) provides Florida's educators with access to the computing resources serving public education. The goals of the network are the implementation of a statewide interactive network and the reduction of the data burden on teachers and other personnel. Universities, community colleges, and school districts are connected to a comprehensive data communications network. FIRN operates in two areas: networking and instructional support. The networking includes the data communications facility electronically linking public education entities. This includes statewide electronic mail free for educators. Instructional support refers to the development of and access to software that provides support for public education administration, instruction and research. DOE is continuing to upgrade FIRN and assist districts in connecting students and teachers to the Internet and the statewide programs delivered through the Internet. The Legislature appropriated \$6,316,473 of general revenue to support FIRN in fiscal year 1997-1998. FIRN is a contracted service with funds flowing through the DOE.

#### *Library Equipment Automation Grant Program*

The library equipment automation grant program assists schools in obtaining necessary CD-ROM equipment for effective use of SUNLINK, the statewide uniform library data base. The SUNLINK Task Force established criteria that schools must meet to receive funds for purchase of a CD-ROM workstation. Fund distribution is based on the order of the schools' acceptance into the project and the completion of their records for inclusion in the SUNLINK database. Schools that met the criteria and were selected to receive funds were awarded \$2,000 each. The funds may only be used for purposes related to the CD-ROM workstation configuration and adding SUNLINK to an existing local area network. The Legislature appropriated \$1 million of general revenue funds for fiscal year 1997-1998.

### *Acquisition of Instructional Technology*

DOE negotiates state contracts for schools to purchase educational software products at substantial discounts. Specific benefits of this project include lower prices for individual schools and small districts with limited purchasing volume and the elimination of internal bid costs for larger districts on the titles included.

### *Long Distance Learning Satellite Transponder*

DOE purchased a satellite transponder (located on TELSTAR) and required encoders with a \$12,750,000 appropriation in December 1994. The transponder was used for instruction at all levels of education, as well as in-service training and continuing education classes. AT&T declared Telstar 401 permanently out of service in January 1997 due to a power failure. The Department has begun negotiating with several satellite vendors for a replacement transponder. Permanent service is dependent on the successful launch of an additional satellite. Meanwhile, interim service allows transmission of legislative coverage on the Florida Channel.

### **Education Facilities Infrastructure Improvement Act**

Part II of chapter 364, F.S., entitled the *Education Facilities Infrastructure Improvement Act*, was enacted to “establish a coordinated system for cost efficient advanced telecommunications services and distance education” to increase student access to education, maximize the use of advanced telecommunications services and their application to provide affordable distance education, promote interagency cooperation and partnerships, secure federal and private funds, and coordinate all advanced telecommunications services and distance education resources.

### *Florida Distance Learning Network (FDLN)*

In order to implement the 1995 act in ss. 364.506–364.516, F.S., the Legislature created the Florida Distance Learning Network (FDLN) in s. 364.509, F.S., and gave it the authority to coordinate distance learning for all levels of public education, libraries, and teaching and rural hospitals. The FDLN’s mission is to improve student learning, achievement and instructional techniques (strategies) through increased access to distance learning in the most cost effective manner. Distance learning is one way to bridge the time, distance, and resource barriers to providing quality education to all students and to give public school students more access to specialized courses not available in their local schools.

Two of the tasks of the FDLN are developing a needs assessment report and developing and maintaining a plan for using technology to improve the delivery of and access to education, pursuant to s. 364.510(8) and (9), F.S. The needs assessment and technology plan required of FDLN lay the groundwork for eligible facilities to submit their technology-needs requests to the Department of Management Services.

*Needs Assessment Report*

In September, 1995, the Center for Educational Leadership and Technology (CELТ), a non-profit research corporation, was contracted to assist the FDLN board of Directors to conduct a legislatively required distance learning needs assessment. The DOE Office of Educational Technology assisted CELТ in collecting and assimilating data. The report was presented to the Legislature and Governor on March 1, 1996, as Phase I in an on-going assessment process by FDLN.

The needs assessment report, dated December 22, 1995, revealed that many of the 2,800 public schools and over 80,000 classrooms in Florida 67 school districts were providing video programming to classrooms through instructional technology fixed service (ITFS), cable TV, fiber, and other systems. However, the report also revealed that many K-12 schools lacked the necessary infrastructure to take advantage of advanced telecommunications services for distance learning programs and that there was a lack of state and local funding for technology resources to be employed in distance learning.

*Technical Task Force Report*

The FDLN Technical Task Force Report released December 1, 1996, addresses important cost and funding issues associated with initial purchases, upgrades of existing systems, infrastructure requirements, and recurring service and support expenses. One of the summarized issues in this report is that planning must emphasize the educational benefits and not be driven by technology. In other words, the educational goals and missions of the state, district, and school must be recognized. The report recommends that adequate funding be provided to support infrastructure, procurement of equipment and software, repair, maintenance, support and training, personnel, and recurring service charges. The executive summary states that it is important to remember that the report and subsequent reports reflect the positioning of the telecommunications industry and existing standards at the time of publication.

**State Funding**

To promote and support the effective use of technology in Florida's K-12 schools, the Florida Legislature has provided \$55 million in school technology incentive funds to school districts each year for the 1993-94, 1994-95, and 1995-96 school years and \$65 million in public school technology funds in 1996-97. Thirty percent of the funds for the first three years were required to be used for training in the use of instructional technology in the classroom. Funds appropriated for 1994-95 provided an average award amount of \$24,446; 84 percent of all schools received grant awards. Seventy-two percent of all equipment purchases were for computers and courseware. Training services were provided by the district and school board trainers, private industry vendors, community colleges, universities and regional consortia. The delivery of training was supported by providing substitute teachers, teacher stipends and purchase of training materials.

Instructional technology appropriations in 1995-96 in the amount of \$7,200,000 was allocated as follows: \$3,800,000 for School Year 2000; \$1,830,000 for staff development activities at the University of South Florida, the University of Central Florida, the Okaloosa COASTAL Center, the Miami Museum of Science, Tallahassee Community College, the Panhandle Area Education Consortium and the North East Florida Education Consortium; \$800,000 for co-development of multi-media instructional technology products; \$300,000 for assistive technology for exceptional students; \$300,000 for instructional television acquisition; and \$170,000 for administrative activities.

To be eligible for state technology funds, Florida requires a school board approved plan for each school in the district. To facilitate standards for the use of technology and to take advantage of economies of scale, the districts are updating their technology plans. Florida is also eligible for the first federal funds to support school technology.

For 1997-1998 the public school technology appropriation is \$79,000,000 to enhance the learning environment for students through the use of technology. The funds are distributed equitably based on the number of students in the district. The 1997 Legislature provided school districts with flexibility in spending these funds and provided additional funds for other purposes that could be used for technology. Categorical funds for public school technology (\$79 million), grades K-8 summer school (\$83 million), class size reduction (\$100 million) and full service schools (\$11 million) may be used for any of these four purposes in amounts that school boards determine will best meet the needs of students. These funds may also be used to assist students achieve the performance levels required for proficiency in reading, writing and mathematics, pursuant to ch. 97-309, L.O.F. Funds to support this program are appropriated as aid to local government funds; thus, they go to the school district. However, the Department does spend some of its funds for staff to review and approve the technology plans.

The Legislature appropriated \$6,316,473 of general revenue to support FIRN in fiscal year 1997-1998. An additional \$1 million is provided for school library technology called SUNLINK.

### **Summary of Recent Progress**

With criteria and grants developed by DOE and funds allocated by the Legislature, senior, middle, and junior high developmental research schools science facilities were upgraded and expanded through renovation, remodeling, or expansion of existing facilities or new construction of these facilities.

Grants from DOE have also been used to renovate existing public schools and developmental research schools to accommodate emerging educational technology.

Legislatively allocated funds were used to purchase a satellite transponder for long distance learning for all levels of education. Funds have also been used to convert industrial arts laboratories in high schools, middle schools, and junior high schools to technology education labs through remodeling, renovation, and new construction.



DOE has established joint ventures with private corporations to co-develop instructional products for Florida schools at no cost and to receive royalties on all sales outside Florida.

### **“Virtual” High School**

One of Florida’s pilot projects is a “virtual” high school, a project of DOE and the Orange and Alachua districts. It does not have a conventional building; courses are on-line. According to testimony at the House Education Innovation Committee meeting on September 7, 1997, on-line connections include course work and communications between students and their teachers.

### **DOE Sponsored NetDay**

The NetDay initiative involved school districts, schools, businesses and parents in wiring (retrofitting) schools for technology to establish the needed infrastructure for local area networks, Internet connections, and access to statewide electronic mail. As a result, many schools are now directly wired for access at the classroom level.

### **Federal Funds**

On May 7, 1997, the Federal Communications Commission (FCC) adopted a plan to promote access to the Internet for eligible schools, libraries and rural health care providers. A \$2.25 billion fund is available for payouts to help provide telecommunications services and wire schools and libraries for Internet access. Payouts will begin on January 1, 1998.

### **Technology and Student Achievement**

National research indicates that technology has a positive link to student achievement. Two projects of the Florida Department of Education, the *Model Technology School* and *Successful Schools Project*, more specifically tie technology to successful student learning and successful schools. Some conclusions drawn from these programs are:

- Technology is a strong motivator for students
- Average attendance rates in model technology schools increases
- Technology improves access to information
- Student scores on standardized tests increase
- Classroom management improves when technology is used
- Conditions known to affect student learning - enthusiasm, improved time on task, and collaborative behavior - are more evident with greater use of computers

- Technology is not a stand alone, but works best when integrated within the total instructional program
- Electronic access to student progress needs to be easily available to staff needing that information
- Successful schools and teachers use a variety of technology for teaching and learning

### **Florida's Progress National Ranking**

According to a ranking done by *Education Week* magazine, Florida is recognized as 13th in the nation in classroom access to the Internet. The same report indicates that Florida has more computers in classrooms, more teacher training, and a better organized statewide computer network than most states. The number of districts and schools in Florida using computers for classroom instruction has steadily increased from 107,238 computers in Florida public schools in 1989-90 to 326,661 in use in 1995-96. Accordingly the student to computer ratio has decreased from one computer for every 17 students in 1989-90 to one for every 7 students in 1995-96. This is better than the national ratio which is one for every 10 students. Additionally, Florida ranks seventh in teacher training in technology. Twenty percent of Florida's teachers have had at least nine hours of technology training as compared to the national average of 15 percent.

### **Remaining Challenges**

Some of the challenges which schools face to continue to use technology as an instructional tool include:

- New technology is often bought and layered on an "old" school model, primarily because schools purchases are based on available money.
- Older schools often need to be retrofitted to accommodate networking and advanced technologies.
- Schools need life-cycle planning for technology acquisition and replacement although they are attempting to phase out or re-deploy dated equipment.
- More teacher training is needed to successfully integrate technology into the classroom.
- More methods need to be developed to measure the longitudinal effectiveness of technology on student achievement.

### **III. Effect of Proposed Changes:**

A minimum technological foundation standard will be established for school districts. A board of nationally recognized experts in the research and development areas of the technological hardware

or basic operating system software industries will meet once a year, at least, and initially set and then update standards and planning benchmarks for educational technology purchases. The standards will aim at uniformity, flexibility, capacity, and expandability. The standard will represent a “best guess” regarding the kind of technological resources which will be available within the next 5 years. The technological development forecasting conference will be modeled after Florida’s revenue estimating conference.

The DOE Office of Educational Technology will consult with the districts and develop a 5-year plan to bring the wiring infrastructure and processing equipment for all Florida schools up to the minimum foundation. However, the bill does not mandate that the plan be implemented.

All newly purchased software and hardware is to be capable of being upgraded within the X+5 standard which is in place when it is purchased. Preference may be given to vendors who will upgrade at no, or a nominal, cost. The bill does not state a specific time period for which leases or license contracts or obligations are to be made. It states that all lease or license contracts or obligations will be made for relatively short time periods so adjustments or new vendors can be implemented more quickly. The determination for a relative short time period is left to the interpretation of the purchasing, leasing, or contracting entities.

All new schools will be designed using certain design considerations and to accommodate wiring infrastructure updates and upgrades; and all technological retrofits of existing schools, to the maximum extent possible, are to be performed to provide for ease of future updating and upgrading.

Costs for wiring infrastructure, processing equipment hardware, upgrading and retrofitting in Florida schools will be allowable capital expenditures.

The DOE Office of Educational Technology will pursue federal and other funding for upgrading schools to the standard and will assist districts and schools to pursue such funding. Additionally, they will secure any available funds from the Universal Service Order Program of the FCC.

Although the DOE Office of Educational Technology will pursue and secure funding, the bill requires the State Board of Education, in conjunction with the technological development forecasting conference, to establish a Technology Services and Products Bank, which will collect information on software and technology services and disseminate the information through the Internet. The information collected may include more than information that is applicable to educational applications. Additionally, the bank will serve as an information clearinghouse for software research and development project proposals. Capabilities exist that will enable the information to be collected electronically.

Groups or organizations requesting public funds will consult with the bank to determine if similar or identical projects exist and report the bank’s findings to the funding entity. Recipients will inform the bank of produced products resulting from publicly funded research. The bank will add this information to their database.

The DOE Office of Educational Technology will develop a plan providing information and learning programs for delivery via technology to venues outside traditional classrooms. The plan will encourage the use of home-based, public, and semipublic settings.

All educational technology related statutes will be consolidated into one location in the Florida Statutes. The same type of consolidation will be done for the State Board of Education rules and the Florida Administrative Code. The bill does not specify the exact process nor who will be responsible for accomplishing this task. One way to accomplish this task is for the DOE to review existing statutes and recommend the order and statutory organization of the consolidation to the Legislature. The rules do not need legislative approval to be consolidated or reorganized.

#### **IV. Constitutional Issues:**

##### **A. Municipality/County Mandates Restrictions:**

None.

##### **B. Public Records/Open Meetings Issues:**

None.

##### **C. Trust Funds Restrictions:**

None.

#### **V. Economic Impact and Fiscal Note:**

##### **A. Tax/Fee Issues:**

None.

##### **B. Private Sector Impact:**

Indeterminate.

##### **C. Government Sector Impact:**

Indeterminate. The costs associated with implementation of this bill may be substantial. The fiscal impact to the state will depend on the availability of federal grants.

#### **VI. Technical Deficiencies:**

None.

**VII. Related Issues:**

None.

**VIII. Amendments:**

None.

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This Senate staff analysis does not reflect the intent or official position of the bill's sponsor or the Florida Senate.

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