CONSIDERATIONS FOR ENHANCING EDUCATION THROUGH TECHNOLOGY
NOVEMBER 2004

TECHNOLOGY IN EDUCATION TASK FORCE REPORT TO THE JOINT COMMITTEE ON EDUCATIONAL FACILITIES

Table of Contents

Introduction

This report has been prepared by the Technology in Education Task Force at the request of the Arkansas Legislative Joint Committee on Educational Facilities. It contains needs and options to consider for enhancing education in Arkansas through the improved use of technology. This report represents the results of work done by the Task Force and collaborating organizations from September 2003 through August 2004. More than 100 knowledgeable people and more than eighteen (18) state, federal and private organizations supported and/or made contributions to produce this report.

The Arkansas Technology in Education Task Force was chaired by the Office of the Executive Chief Information Officer and is made up of leaders in education, business, and government. The Task Force membership is a diverse group that shares the common interest of improving the quality and accessibility of education for our children. The complete Task Force membership list is located in Section 6, page 59.

The Joint Committee on Educational Facilities charged the Task Force with a critical assignment concerning the application of technology as an enabler of education. The scope of the Task Force mission includes: technology integration with curriculum content, technology resources for teachers, students, and parents, enhanced parental involvement, staff development, and program management and administration. The Task Force identified the needs and then identified options for meeting these stated needs with technology solutions.

Several years ago our state created a network that provides a high quality, reliable way to enable our schools to connect to each other; to our institutions of higher learning; and, through the Internet, to the world. The Task Force concluded that now is the time for our state to take the next steps and to provide the tools, the content, and the resources that will enable all students to obtain a high-quality 21st century education. We anticipate that this report will provide the necessary information and incentives to expedite such actions.

The Technology in Education Task Force was also tasked with assisting the Facilities Task Force in the areas of technology which included: a) facilitating the implementation of the School Facility Internet Mapping System; b) establishing what technology components will be part of the assessment; c) developing the technology assessment self-assessment instrument; d) being represented on their Executive Committee; e) establishing the technology standards for the Arkansas School Facility Manual; f) working with the School Facility contractors (i.e., DeJong and Magellan) to help ensure that the state receives adequate facilities data that can be useful in the future; and g) developing the technology maintenance standards for school districts which are part of the Arkansas School Facility Manual.

Project funding was provided by the Arkansas Department of Education, Department of Workforce Education, and the following partners: Alltel, Apple, Cisco, IBM, Gateway, Plato, and SBC. The majority of Task Force meeting accommodations were provided in the classrooms located at the Arkansas State Police Headquarters.

Purpose of the Report

The purpose of this Report is to help state decision makers understand how technology is currently being used to enhance the educational experiences of students, parents, and school staff and aid in the efficiencies of school administration tasks. Most importantly, this Task Force Report delivers to legislative and executive leadership options for utilizing technology as an education enabler across the state.

Our goal has been to find ways to make better use of technology as a teaching and a learning tool, giving us the opportunity to:

- Make more resources available to teachers to do their jobs in a more effective way, with less time having to be spent seeking out resources on their own;
- Advance and expand educational opportunities for our students by providing access to the necessary tools, resources and enriched courses;

- Offer parents tools and resources that will enable them to become more directly involved in their child's education;

- Avoid expensive duplicate efforts within school districts while exploring new uses of technology in the classroom.

In summary, this report presents the current state of technology programs, the observed technology needs, the potential technology solutions that will meet the current needs, and the processes used to develop this data.

Appendices are included for those interested in more details on the information presented in the Report.

Section 1

The Current State of Technology Enabled Programs

Arkansas has a strong foundation upon which to build new technology programs. Arkansas is recognized nationally for its early efforts to connect every school campus in the state with Internet access and an integrated student and school finance information system. The current status of the State Network and the Arkansas Public School Computer Network (APSCN) has not been achieved in many states.

Phase 1 of the Task Force's work involved identifying and analyzing the current Arkansas educational environment and its technology assets, digital learning programs, and related resources. Some of these included the State Network infrastructure, the Federal E-rate funding mechanism, distance learning, and other learning resources available to Arkansas public schools. Several of the most important assets (examined by the Task Force) are briefly described below, with additional information following the summary table.

Also, refer to Section 4 of this Report (page 41) which describes Phase 1 and the other Phases of the process used by the Task Force.

A Summary of State Technology Programs Examined by the Task Force		
Program	Description	Availability (2003-2004)
The State Network	Internet connection	1,101 of 1,139 campuses w/ T1 connection or better
State Distance Learning Network	Interactive video and online instruction	45 campuses w/video 3,000 students w/ service 1/3 of campuses some form of distance education
ADE Distance Learning Center	Provider of interactive video and online instruction	Districts where teacher availability is limited
EAST Initiative	Students produce service projects using the latest advanced technology applications	Located in 136 locations throughout the state
Horace Mann and Joe T. Robinson - EAST Student Projects	Weather Station - Teachers Technology Assistance - Veteran DVD documentary	Horace Mann Arts/Science Magnet Middle School – Joe T. Robinson High School
ASMSA Center for Distance Education	Develops curricula, instructional resources, and delivers distance education courses.	Available to Students Statewide
Arkansas Virtual High School (AVHS)	Online high school courses via the web-based instruction	Statewide

A Summary of State Technology Programs Examined by the Task Force		
Program	**Description**	**Availability (2003-2004)**
AETN Education Department	Statewide video on demand system - Online professional development courses - Arkansas Technology Institute	Statewide
Arkansas Educational Service Cooperatives	Technology support and professional development	To the School Districts in Fifteen Regions of the State
Arkansas State University "NETmobile," a two-year program	Delivers information technology services for utilization of technology	Impoverished Regions of the State
Greenland Charter School	Students access online curriculum which also allows teachers to check individuals' progress	Greenland School District
MarcoPolo Program	Providing Arkansas teachers with standards-based on-line lesson plans and resources that cover every core K-12 subject and grade level	All Arkansas Schools
Arkansas E-Rate Work Group	Providing schools and libraries assistance in the E-rate application process	All Arkansas Schools

The programs listed above are described in detail on the following pages.

The State Network

The State Network has provided an Internet connection to 1,101 school campuses. A high speed connection (T1) is now available anywhere in the state within 30 to 60 days from the date of request by the school district.

The state provides the wide area network infrastructure and the districts determine the best use of the bandwidth and are responsible for the local area network design, installation, and maintenance inside their district. In the Spring of 2004, all but 38 of the 1,139 school campuses had access to a T1 connection or better. Currently connection bandwidth from the state is evaluated based on school need. Much of the current state and local district networks had been provided with funding by the Federal E-rate Discount Program.

Distance Learning Network

Currently, 45 school campuses and educational cooperatives have interactive video locations and services being provided and 3,000 students are being served by some form of online instruction for course credit. Currently, at least one-third of our school campuses do some form of distance learning.

Arkansas Department of Education Distance Learning Center

The Arkansas Department of Education (ADE) Distance Learning Center (DLC) supports the delivery of quality distance learning courses to areas in Arkansas where teacher availability is limited. Classes that are required by Arkansas State standards — as well as many non-required courses — are offered at various times to facilitate increased student flexibility in course scheduling. Courses are currently being offered through the following technologies:

- Compressed Interactive Video

- Enhanced AudioGraphics

- Web-based Technologies

For additional information on the Arkansas Distance Learning Center, refer to Appendix 1, page 63.

Environmental and Spatial Technology (EAST) Initiative

EAST is a model of engaging students in self-directed learning and teamwork to complete community-based service projects using the latest advanced technology applications available in the business workplace. EAST students experience an individualized self-directed, service-oriented, project-based curriculum that provides value to the local schools and communities. Students are exposed to strategies that help them move from the traditional self-centered approaches of learning into a interdependent environment that stresses understanding, collaboration, and team approaches to problem resolution. More than 23,000 students from seven states across the nation have participated in the EAST program, which originated in our state. Arkansas is currently home to 136 EAST programs that cover every part of the state. EAST programs have been primarily established

at a high school level. However, middle school programs are quickly appearing in both the state and national arena.

For additional information on EAST, refer to Appendix 1, page 64.

EAST Initiative Models: Horace Mann Arts/Science Magnet Middle School and Joe T. Robinson EAST Students

EAST students from Horace Mann Arts/Science Magnet Middle School and Joe T. Robinson High School in Little Rock have developed an impressive array of projects in their EAST programs. Their projects include:

- A weather station in place at the school

- Horace Mann's Helping Hands - a technology assistance program for teachers

- The Robinson RAVE (Reliving American Veterans' Experiences) Project - A DVD documentary revealing the experiences of veterans of foreign wars through student interviews with veterans.

For additional information about the Horace Mann Arts/Science Magnet Middle School and Joe T. Robinson High programs, refer to Appendix 1, page 64-65.

Arkansas School for Mathematics, Sciences and the Arts: Distance Learning Services

The Arkansas School for Mathematics, Sciences and the Arts (ASMSA) is a residential high school for academically advanced juniors and seniors. The institution develops curricula and instructional resources for all Arkansas schools. One of the key offerings at ASMSA is their center for distance education. The Distance Learning program has approximately 1,700 students participating during the 2003 – '04 school year. This represents a 90% growth from the year before. ASMSA is involved with Henderson State University in developing three graduate level courses for middle school Mathematics and Science teachers.

For additional information about ASMSA, refer to Appendix 1, page 65.

Arkansas Virtual High School Established at the Arch Ford Educational Cooperative

The Arkansas Virtual High School (AVHS) provides an online alternative learning environment for the students of Arkansas' public schools who need assistance in completing coursework that may be difficult to receive due schedule conflicts or other extenuating circumstances that might impede a high school student's progress. The course offerings through AVHS are online courses via the Internet and are designed around the Arkansas State Curriculum Frameworks that meet Arkansas standards. Any student enrolled in an Arkansas public/private school in Grades 9 to 12 may participate. The affiliate school must grant permission and students must have access to a computer with an Internet connection during the school day and/or at home. Twenty-five of the 38 core courses required to meet Arkansas standards are available online. These courses cover the disciplines of mathematics, science, social studies, language arts, foreign language, computer applications, and health and safety.

For additional information about the Arkansas Virtual High School, refer to Appendix 1, page 66.

Arkansas Educational Television Network (AETN)

The Education Department of the Arkansas Educational Television Network (AETN) provides a variety of opportunities to meet the needs of educators (public, private, or home school) at the K-12 grade level. The educational services currently available at AETN are:

- **Video-On-Demand System** – Streamed video provided through the Internet allows users to access, preview and use video on demand or by downloading for later use.

- **Teacherline** – AETN now offers over 70 on-line courses for educators designed to help teachers acquire the skills they need to prepare students for a successful future.

- **Arkansas Technology Institute** – a five-day intensive training institute structured to allow participants to merge the use of technology into ongoing curriculum applications. Workshops explore the use of various technologies and options for use in the classroom.

- **Educator's Portal** – AETN's Education Portal is a web-based solution for educators to find a "one stop shop" for educator's resources and materials.

- **Resource Library Listing** – Videos of instructional television series based on curriculum standards and targeted to specific grade levels.

- **StationBreak E-letter and Web site** – includes access to the K-12 Electronic publications provide access to the early morning block feed schedule, ancillary materials, Web site links to other appropriate resources, and Arkansas Framework correlation.

- **25 Satellite Downlink sites across the State of Arkansas** – AETN has digital and analog sites available in Arkansas for distance learning, workshops and training.

For additional information about AETN, refer to Appendix 1, page 66.

Arkansas Educational Service Cooperatives

The 15 Educational Service Cooperatives throughout the state serve to provide support to the school districts in their region, provide professional development opportunities, and act as a consortium for purchasing certain services and supplies. The Cooperatives also provide varying degrees of technical computer support services to the schools in their area.

For additional information about the Coops refer to Appendix 1, page 67.

Arkansas State University "NETmobile"

The Arkansas State University "NETmobile" travels the state delivering information technology services to network businesses and communities in order to improve their utilization of technology and to assist impoverished regions in "leveling the playing field" with more developed regions. This two-year project has three main components: mobility, economic development, and technology. The NETmobile is deployed to communities, businesses, entrepreneurs, and the workforce in the Mississippi Delta in Arkansas. Note: The original Netmobile project funding has expired and it is currently in transition as Arkansas State University searches for other funding opportunities.

For additional information about the Arkansas State University "NETmobile," refer to Appendix 1, page 67.

MarcoPolo Program

The mission of the MarcoPolo program in Arkansas is to create standards-based Internet content, to provide the requisite professional development to teachers, and to maintain the program so it may enrich teaching and affect student achievement. The goals of MarcoPolo Program in Arkansas are to provide teachers with comprehensive standards-based, on-line lesson plans and resources that cover every core K-12 subject and grade level and to reach most Arkansas teachers with MarcoPolo trainees trained in schools.

For additional information about the MarcoPolo Program, refer to Appendix 1, page 68.

Greenland Charter School

Greenland's Charter School Program gives students a chance to work independently at a fast pace with computer equipment and training the high school didn't previously offer. Students log on to wireless laptop computers to work through courses at their own pace to fulfill requirements by designing projects with their classmates. Students access online curriculum through a system which allows teachers to check individuals' progress and pinpoint the areas in which students are struggling.

For additional information about the Greenland Charter School, refer to Appendix 1, page 68.

Arkansas E-Rate Work Group

The Arkansas E-rate Workgroup (AEWG) works on behalf of state entities that serve pre-K-12 students and public library patrons. The AEWG represents all E-rate applicants in the State of Arkansas. Members of the AEWG are: Representatives from the Arkansas Department of Education, Department of Information Systems, Educational Service Cooperative's Technology Coordinators, Governor's Office, Little Rock School District, Office of Executive CIO, and

Arkansas State Library. The AEWG strives to promote awareness of the E-rate program in the State of Arkansas and assist schools and libraries through the processes required to receive E-rate funding.

For additional information about the Arkansas E-rate Working Group, refer to Appendix 1, page 69.

> **It is evident from this information in Section 1 that Arkansas has a large number and a wide variety of ongoing technology assets that provide examples and resources for future advances. This information also helped to make obvious the significant statewide needs described in Section 2.**

Section 2

Needs that Require Technology Solutions

The following needs were identified through educational panel discussions with the Task Force members and significant stakeholders in Arkansas education; i.e., parents, School Board members, school administrators, teachers, technology coordinators, Department of Education staff, and other educational service providers. *The order does not indicate priority.*

Needs Summary Table	
Needs	**Sources Who Identified the Need**
More on-site technical support personnel in schools for planning installation, trouble shooting and maintenance.	Task Force members, teachers and administrators
More and enhanced quality professional development training for teachers and administrators to utilize available technology.	Task Force members, teachers, and school administrators
Greater student/classroom access to computers	Task Force members, teachers and administrators
Improved administrative support and leadership in modeling the importance and effective use of technology in their work.	Teachers, Task Force members
Meet parents' expectations for more on-line resources and communications from their schools to improve their involvement and participation in their child's education.	Parents, Teachers, and School Administrators
Improved statewide coordination for distance learning services to provide: a) better content distribution and process for courses to be acquired; b) a centralized clearinghouse, calendar, and on-line registration; c) web-based catalogue for online K-12 distance learning programs; and d) stronger curriculum content, academic integrity and proof of effectiveness.	ADE Distance Learning Center, Arkansas School for Mathematics, Sciences, and the Arts, Arkansas Virtual High School, Great Rivers Educational Cooperative, AETN
Need for additional state network capabilities which require additional bandwidth in the upcoming years.	Arkansas Department of Information Systems (DIS), ADE, and Task Force members
Improve the core curriculum achievement scores of Arkansas high school students by utilizing proven technology models.	ADE Distance Learning Center, Teachers, Arkansas School for Mathematics, Sciences, and the Arts, Arkansas Virtual High School, Great Rivers Educational Cooperative, and consensus from all Task Force Members
Increase awareness and compliance with the National Educational Technology Standards for Teachers.	Arkansas State Board of Education in Arkansas, Teachers from Task Force and guest panelists.

The needs listed above are described in more detail in the following pages.

Needs for Technology Integration

More On-Site Technical Support Personnel in Schools for Planning Installation, Troubleshooting and Maintenance

"Technical support" includes the planning, installation, troubleshooting, and maintenance of computer hardware and software, servers, printers, and the networks that connect them together.

It was unanimous that technology support in schools appears to be far short of what is essential for the daily maintenance and support of a district's technology systems. According to one teacher that served on a panel, "It is becoming apparent that our available technical support is not keeping up with our extensive network growth." Adequate on-site technical support is vital if a school is to use the technology asset as a core component of its instructional program. A technical person/staff needs to be dedicated to its support and take responsibility for its proper operation.

Teachers are growing to rely on technology resources and depend on those resources to be operational. When technical failure occurs, assistance is required within a reasonable time. According to one district administrator from an average-sized district, employing one full time technology coordinator to meet an entire district's technology support needs will fail and produce frustration for the staff. A Technology Coordinator serving on the Task Force contended that in-house technical support from one technician per district would never provide the necessary support it requires.

As technology has become a core component within education, districts have had to devise systems to support it through new staff positions. School districts have devised varied alternatives for providing a technical maintenance service. Some of these methods for assigning support roles are locating volunteers or teachers with an interest in technology and adding this responsibility to their other obligations. Typically, the number of responsibilities the technology support staff attempts to fulfill is not realistic and does not leave adequate time and resources for that person to implement a successful technology support program.

The Task Force discovered several obstacles for maintaining adequate technical staffing in schools, which included:

- Competition with the private sector for skilled workforces;

- Difficulty recruiting skilled personnel able to work in an educational environment;

- School administrators hiring unqualified staff for their primary technical support positions.

The following are symptoms of a district with inadequate technical support and maintenance personnel resources:

- Increased risk of district-wide virus attacks;

- Breakdown in networks;

- Increased frustration of school staff in resolving and trouble shooting network problems;

- Educational programs stop working for unprecedented periods of time;

- Lengthy delays in getting equipment fixed;

- Technical support staff that is not trained or credentialed.

More and Enhanced Quality Professional Development Training for Teachers and Administrators

Limited and poor quality professional development opportunity was ranked as a major barrier to technology integration among each of the Task Force members and panelists. The training for school staff is not keeping up with the rapid pace at which technology is entering the schools.

Despite the state's six continuing education hours required per year in technology, teachers are not receiving relevant training. Most teachers interviewed during Task Force panel sessions testified that the state's six required technology training hours are not always relevant to a particular teacher's environment. The panel of teachers felt that training must be connected to what a teacher does for it to be effective.

The following consistently reported problems with current professional development offerings were discovered:

- Much of our technology training for teachers is minimal and typically provided at the beginning of the school year;

- Technology training is provided through the traditional approach where staff is provided with two or three days of technology in-service the week before school begins. The problem with this approach is the timing and the relevance of the training does not meet the teachers' immediate needs;

- When teachers receive training on software and systems that are not available in their classroom, it lowers motivation to integrate technology;

- Training for teachers and administrators is not keeping up with the fast pace that technology is entering the schools;

- In general, less than 15 percent of a typical school's technology budget goes toward training teachers;

- Many times skills-based training sessions are focused on a technology that the teachers do not have access to in their classrooms;

- A limited number of educators have learned how to effectively integrate technology into the classroom.

Much of the state's offerings are still focused on technical skill training. Just "using technology" is not the same as "incorporating technology" into classroom studies. Teaching a teacher to use PowerPoint cannot be viewed as the integration of technology into education. The state needs to provide training strategies for helping teachers "change" instructional practices to integrate technology in a student-centered learning environment.

Student / Classroom Access to Computers

Several participants stated that the single greatest barrier when it came to technology integration was a lack of computers in the classrooms. It was the consensus among the teachers interviewed during panel sessions that placing one computer on a teacher's desk was the first means of introducing technology into the schools. Although this was helpful for administrative tasks and for research, it did not help in their teaching.

According to one teacher on that panel, "Trying to teach with technology in a classroom with only one computer is difficult to manage, and a minimum of five would be ideal because it provides more impromptu opportunities to make use of the tool during instruction." Even for classrooms that have five computer workstations, it requires special classroom management skills to effectively schedule their use among 18 to 24 students.

Several teachers expressed frustration with having to share computer projection devices and arranging the time was difficult. For instance, with only two or three projectors for computers available per school, teachers had to plan ahead to schedule for the hardware and then had to plan additionally for setup time. One teacher stated, "Although I could think of numerous on-line resources that would provide wonderful input for my class, it is difficult to schedule for the resources needed to incorporate the technology into my class at the time I need it." Other teachers confirmed similar frustration with having to share equipment. One teacher noted that she needed a projector in her room so that if she was teaching a lesson that the children did not understand, she could quickly and easily use the computer to bring resources to the class that could help with their understanding. Teachers cannot necessarily say when they will need technology resources; they need to have them always available to aid them in their efforts to communicate with their students.

Improved Administrative Support and Leadership in Modeling the Importance and Effective Use of Technology in Their Work

School administrators become a significant factor toward the success of a successful technology program and fostering an environment for technology integration. Several teachers stated that it was their school administrators' role to set an example of effective use of technology. Teachers expressed frustration in schools where administrators did not lead by setting an example of effective use of technology. According to one Task Force member, *"Educational leaders should be setting the climate"* for proper technology use at school because of their positions of leadership. Only by administrators modeling effective use within their own work will their example serve to encourage otherwise reluctant staff to test new ground in their teaching practices.

Meet Parents' Expectations for More On-Line Resources and Communications from Their Schools to Improve Their Involvement and Participation in Their Child's Education

Many parents involved on the Task Force and panelists were universal in their expectation for more on-line communication and access to educational materials. Parents expressed a need for on-line resources that would enable them to become more directly involved in their children's education. Parents sometimes feel disconnected from their child's teachers and school. Since it is the local school's responsibility to maintain relationships with parents, the ability to contact teachers from home via email and check the status of their child's work online would be valuable and many parents have come to expect that service from their schools.

Improved Distance Learning Services

The following distance learning needs were discovered during a Task Force meeting dedicated to distance learning in Arkansas. The meeting included a panel discussion that included the following providers of Distance Education:

- Arkansas Department of Education Distance Learning Center

- Arkansas School for Mathematics, Sciences, and the Arts

- Arkansas Virtual High School

- Great Rivers Educational Cooperative

- Arkansas Educational Television Network (AETN)

All of the distance learning service providers serving on the panel agreed to these distance education needs:

- Improved statewide coordination for Distance learning services to provide: a) better content distribution and process for courses to be acquired, b) a centralized clearing house, calendar, and on-line registration, and c) an effort to minimize duplication efforts.

- Need for a clearly defined process through which courses can be acquired in order for content to be easily distributed.

- Need for coordinating efforts among the state's distance learning providers.

- Need for a centralized calendar and on-line registration process.

- Need for a central clearinghouse for distance learning programs offered in the state.

- Higher quality distance learning to include stronger curriculum content, academic integrity, and proof of effectiveness

- In general, teachers and facilitators are not being adequately trained to be effective distance learning instructors. A new skill set is required to be an effective distance education instructor.

- Availability of advanced curriculum content offerings through distance education.

- Ensuring the academic integrity of distance learning courses meet the same academic rigor as a traditional course.

- Lack of documentation to prove the effectiveness of distance learning programs.

Need for Additional State Network Capabilities which Require Additional Bandwidth in the Upcoming Years

Ensuring that the Arkansas Public School Computer Network (APSCN) bandwidth is available for the delivery of content and other on-line application services:

One of the major problems facing the State Network in the future is that of line costs. With the increase in Internet use for on-line applications and video streaming, there are concerns about overloading the existing network if additional bandwidth is not provided in the upcoming years. Testimony from staff at the Department of Information Systems (DIS) who is responsible for managing the State Network revealed that during peak hours many individual connections on the State Network reach capacity. Despite the rise in bandwidth use, DIS has worked to ensure Quality of Service and bandwidth management. According to Department of Education staff, the state will see a rise in the use of live video streaming, which makes adequate bandwidth availability extremely important.

Improve the Core Curriculum Achievement Scores of Arkansas High Students by Utilizing Proven Technology Models

Studies have proven that technology models — such as The Environmental and Spatial Technology [EAST] instructional model — that are properly used by trained teachers are very effective in the core curriculum areas, i.e., mathematics, science, language arts, etc. Because technology is in all aspects of society, there exists an immediate and daunting challenge to provide today's youth with the opportunity to develop relevant, performance-based skills which are essential for survival in an information and technology driven era.

Technology models, however, do not lend themselves to the traditional "lecture" style of teaching. A change in the thinking of teachers is needed in order to integrate technology effectively into the classroom. It was confirmed by teachers on the Task Force that the "lecture method" — which is used by so many teachers — has been shown in studies to be the method which is the least effective for students' learning, as the teacher learns a great deal, but the students do not. Studies have also shown that when students are actively involved in class work, they learn a great deal more. Even though lecturing is relatively ineffective, abandoning that teaching methodology is frightening to many teachers. Several teachers suggested that the best way for teachers to become comfortable and skilled with different teaching methods is for them to have the opportunity to observe someone "doing it right." This is another part of the need that should be addressed.

Increase Awareness and Compliance with the National Educational Technology Standards for Teachers

In 2000 the Arkansas State Board of Education adopted the National Educational Technology Standards for K-12 Teachers and Students. However, there currently exists minimal recognition of these standards by Arkansas educators or Colleges of Education. Therefore, many teachers are not adequately educated or trained as they enter the teaching profession.

The number and complexity of technology-related competencies important for teachers to know is expanding because there is growing consensus that technology has a positive impact on student achievement. The continued growth of connected K-12 classrooms is another factor that makes it

very important for teachers and administrators to receive an education which fully complies with the

National Educational Technology Standards.

> **The needs and barriers identified in this section provide the basis for developing the options presented in Section 3 for how technology could be used to address these needs and overcome the barriers.**

Section 3

Possible Technology Solutions to Meet
the Education Needs of Arkansas

This is the most important section of this report because it delivers to legislative and executive leadership options for utilizing technology as a support for education across the state. This section is meant to support decisions that will cause positive changes in the status quo described in Section 1, to meet the needs described in Section 2, and ultimately to implement ways to make better use of technology as a teaching and a learning tool, providing opportunities to:

- Make more resources available to teachers to do their jobs in a more effective way, with less time having to be spent seeking out resources on their own;

- Advance and expand educational opportunities for students by providing access to the necessary tools, resources and enriched courses;

- Offer tools and resources to parents that will enable them to become more directly involved in their child's education;

- Avoid expensive duplicate efforts within school districts while exploring new uses of technology in the classroom.

The proposed technology solutions to meet the education needs of Arkansas have been divided into Stage I and Stage II:

- **Stage I - Short-Term Options** – Represents those programs and actions that that would begin soon and be implemented within the next few years.

- **Stage II – Long-Term Options** – Would be implemented a few years later because much of Stage II is complex, requires substantial funding and is largely dependant on many parts of Stage I being established and fully operational.

On the following pages, the summary table and subsequent paragraphs describe the possible optional solutions of Stage I and Stage II. These solutions represent proposed statewide initiatives

where technology is utilized to enhance education and address the needs discovered and outlined in the previous Section 2 of this Report.

Summary Table of Possible Optional Solutions

Optional Solutions for Stage 1	Needs Satisfied	Preliminary Cost Expectations	"Who is Involved"
Access Arkansas K-12 Portal	- More and enhanced quality professional development training for teachers and administrators to utilize available technology. - Improved administrative support and leadership in modeling the importance and effective use of technology in their work. - Meet parents' expectations for more on-line resources and communications from their schools to improve their involvement and participation in their child's education. - Improve the core curriculum scores of Arkansas high school students by utilizing proven technology models.	Program Development Costs: $25 per student, at 450,000 students = $11,250,000 first year costs, plus yearly maintenance costs for ongoing program operations. [Note: these costs are for program development and do not include additional network bandwidth, computers or operations.]	Administration to be determined; refer to **Section 5** for possibilities.
Creation of an Arkansas Coordinating Council for Distance Education	Improved statewide coordination for distance learning services to provide: a) better content distribution and process for courses to be acquired, and b) a centralized clearing house, calendar, and on-line registration, c) web-based catalogue for online K-12 distance learning programs; and d) stronger curriculum content, academic integrity and proof of effectiveness.	Costs would be absorbed in existing agency budgets.	ADE Distance Learning Center, Arkansas School for Mathematics, Sciences, and the Arts, Arkansas Virtual High School, Legislative and Executive branches of state government, Office of the Executive CIO, AETN
State Network Bandwidth	Need for additional State Network capabilities which require additional bandwidth in the upcoming years.	Substantial costs involved. However, E-rate would cover portion of cost required.	Arkansas Department of Information Systems (DIS), ADE, Office of ECIO, Telecommunication providers,
A Technology in Education Endorsement for Teachers	- Increase Awareness and Compliance with the National Educational Technology Standards for Teachers - More and enhanced quality professional development training for teachers and administrators to utilize available technology.	Cost would involve additional faculty, equipment and curriculum at Arkansas colleges endorsing teachers	Colleges/Universities, AR Department of Higher Education, AR Department of Education (ADE)
Provide Adequate On-Site Technology Support and Technology Integration Support Personnel	Lack of on-site technical support personnel in schools for planning installation, troubleshooting and maintenance.	Requires 1 full-time technician per 350-400 computers and peripheral devices; access to instructional integration specialists or endorsements.	ADE, Local Schools, Local Boards, Educational Service Cooperatives
Optional Solutions for Stage 2	**Needs Satisfied**	**Preliminary Cost Expectations**	**"Who is Involved"**
A Statewide One –to-One Laptop Program for Students and Teachers	More computers are needed in classrooms	$500 per student per 3 years.	ADE, Laptop Provider, Parents, Local School staff, Educational Service Cooperatives
Require the National Educational Technology Standards to become part of the process for approving teacher education programs	- More and enhanced quality professional development training for teachers and administrators to utilize available technology. - Improved Administrative support and leadership in modeling the importance and effective use of technology in their work. - Increase Awareness and Compliance with the National Educational Technology Standards for Teachers	To be determined	Colleges/Universities, Higher Education, ADE
Extend the Environmental and Spatial Technology (EAST) instructional model into other core curriculum courses where appropriate.	Improve the core curriculum scores of Arkansas students by utilizing proven technology models.	To be determined	EAST, ADE, Local Schools

Description of Stage 1 Solution Options

Access Arkansas K-12 Portal - Setting the Foundation

The Access Arkansas K-12 Portal implementation is the initial step toward setting the ground work for providing the abovementioned opportunities for parents, students and teachers. The portal part of the initiative will improve Arkansas education by deploying a program that empowers educators to utilize existing technology to make data driven decisions while simultaneously equipping them with multiple strategies that focus on key standards and increase communication between parents, students and educators.

The Access Arkansas K-12 Portal is comprised of five core areas directed at the three main constituencies of educators, students and parents that are so important to the support of a quality education system. The core components would include: Access Arkansas K-12 Interface that is the single interface where all programs are accessed; a curriculum matrix allowing educators to easily search for appropriate lessons, resources and assessments tied to Arkansas standards; online (and written) formative assessments to measure student progress and deliver immediate remediation material; professional development for teachers and administrators; and; a communication tool that allows students and parents to view important school related information such as lesson plans, real-time grades, homework, calendars, and to communicate with educators online. These core components would be delivered through one single interface, thereby delivering a "one stop shop" approach that ensures universal adoption of the Access Arkansas K-12 Portal.

Access Arkansas K-12 Interface

This Interface provides a simple-to-use computer access for administrators, teachers, students and parents. This important interface is the delivery platform on which all of the instructional and classroom management technologies come together so that the end user has a single point of access to all best-of-breed solutions identified by the state and local districts. The interface would   allow each individual district and school to manage their site while the state retains the ability   to

deliver tools and/or publish content for any district or school site. Providing local control ensures greater adoption by districts and schools. Individual teacher web pages will also be accessed from this point.

The interface would act as a starting point for all visitors to the Access Arkansas K-12 portal. The interface would include online professional development tools, teacher planning books, calendars, curriculum, and lesson planning functionality. It also would provide the delivery of solutions such as grade books, attendance, or any curricular content by multiple vendors for the purpose of statewide, district-wide or school-wide deployment. The Access Arkansas K-12 portal would be protected by a role-based authentication, single-user sign-on that provides easy access to all appropriate programs for each end user, whether administrator, teacher, parent or student.

Curriculum Matrix

The Curriculum Matrix is the comprehensive database that would allow educators equitable access to identify the priority of individual standards relative to the Arkansas criterion and norm reference tests. The Curriculum Matrix would assist teachers to identify key standards that require mastery for improving performance. Teachers could retrieve relevant lesson plans, classroom assessments, and resources linked to those individual prioritized benchmarks.

Communication Tool

This tool would be a comprehensive communication utility that empowers teachers to easily create individualized web pages. Parents and students can easily check homework, send emails to teachers, and see a monthly calendar of classroom events. The web site created by each teacher would provide students and parents with a resource to view lesson plans, class notes, homework and other materials. The communication tool provides a secure, 24/7 communication channel for all stakeholders in the education process.

Professional Development

Professional Development for teachers and administrators would focus on technology integration with curriculum and leveraging the Access Arkansas K-12 Portal to enhance the efficiency of

daily tasks and to increase parental engagement. The training would connect to their course content, be capable of being integrated into their classroom, and relate to the hardware and software accessible in their school.

Online Formative Assessment

The Assessment component would allow educators, students and parents to constantly monitor student progress through the use of test items tied to the Arkansas State standards. The formative assessments would be utilized to identify student weaknesses at both the individual and group level. The test items would be correlated to Arkansas's prioritized state standards through the Curriculum Matrix which enables the end user to immediately access alternative content that could be utilized to address areas of concern.

Estimated Costs

An approximate cost for implementing the Access Arkansas K-12 project would be $25 per student, based on a total number of approximately 450,000 students. This would be $11,250,000 first year costs, plus yearly maintenance costs for ongoing program operations.

To review details of the program components, refer to Appendix 2, page 71.

Creation of an Arkansas Coordinating Council for Distance Education

The purpose of the Distance Learning Coordinating Council is to ensure that distance learning operations for K-12 education across the state are being fully utilized through a collaborative process that maximizes the utilization of the state's technical and educational resources. The Coordinating Council will: a) reduce occurrences of isolated distance learning activities in the state; b) maximize the utilization of state distance learning resources; c) reduce duplicative efforts by multiple districts in digital content creation; and, d) spread the cost and increase the value of the state's shared distance learning services.

For the purpose of improving distance learning in the state the Coordinating Council will:

- Establish a web-based catalogue for online K-12 distance learning programs and resources available in the state. The catalogue will serve as a central point of information, reference, and review of online learning programs;

- Provide a centralized means to which distance learning content is distributed and shared;

- Develop a collaborative process by which K-12 curriculum, enriched content, concurrent credit; and teacher training is shared, distributed and acquired by education stakeholders in the state;

- Unite autonomous distance learning offerings across the state;

- Review K-12 distance learning courses from outside the state jointly with the Department of Education to determine appropriateness for Arkansas students;

- Facilitate partnerships between the K-12 distance learning providers in the state.

The Distance Learning Coordinating Council's membership would be comprised of one appropriate staff member from the following entities: Arkansas Department of Education, Arkansas Educational Television Network, Arkansas Virtual High School; Educational Service Cooperatives (one to represent the 15 Coops); Office of Information Technology; Department of Information Services, Arkansas State Library; Workforce Education; Department of Higher Education; and any other public entity offering K-12 courses through distance education.

A Proposed Strategy for Creating the Distance Learning Coordinating Council would be through legislation in the upcoming legislative session. The enabling legislation would need to repeal *Arkansas Code Title 6-47-305, The Arkansas Interagency Distance Learning Review Commission*, if this legislation passed.

To view a draft copy of enabling legislation, refer to Appendix 6, page101.

State Network Bandwidth

A partnership between the Department of Information Systems and Department of Education to provide the bandwidth necessary to support Access Arkansas K-12 and its associated activities.

In order to provide the online services described in Access Arkansas K-12 and increased uses of distance learning in the state, development of the state backbone and methods for handling large amounts of bandwidth to accommodate these new online services must continue.

Since 1998 there has been a tremendous growth in networking Arkansas classrooms, due to E-rate discounts, is now making it affordable for schools to install state-of-the-art networks. Schools are relying on networked devices for communication applications like electronic mail, database applications, educational software on remote servers, online instruction, compressed video, and access to a vast array of resource material via the Internet. Arkansas public schools have received approximately $64.5 million in technology discounts through E-rate during the first seven years of the program, 1997 to 2004.

A suggestion for accommodating this rise in bandwidth is to allow K-12 to access Internet2 as a resource. For the current time, scheduling, and statewide collaboration will be extremely important in helping to minimize bandwidth problems.

A Technology in Education Endorsement

With the successful completion of the required courses, a teacher will earn an endorsement in Educational Technology from an Arkansas College of Education. The endorsement targets teachers who teach other teachers the integration of technology in the classroom. For teachers that are currently qualified for this endorsement, alternative certification could be obtained by demonstrating technology integration skills and knowledge through an established assessment.

Arkansas teacher education programs incorporate a program that leads to an endorsement in Technology Integration based on the National Technology in Education Standards into their professional teacher certification programs. An endorsement is what teachers have added to their teaching certificate which qualifies them to teach a particular subject matter. The Technology in Education Endorsement would be for both the Secondary and Elementary level and signify that they are prepared and qualified to serve in that capacity.

The Technology in Education endorsement meets a stated need for certified educators who can integrate educational technology into K-12 teaching and learning. Teachers who hold this endorsement would be qualified to serve as trainers and master teachers for modeling effective use of technology in the classroom.

Action Plan for Implementation: Seek approval for adding the endorsement from Arkansas Schools of Education, Department of Education, and the State Board of Education prior to establishing the process for implementation. Colleges and universities would add the endorsement to their teacher education program once they acquire qualified teaching staff and curriculum resources.

The endorsement could be earned by any teacher currently holding an Arkansas Teacher Certificate or any student working to acquire a teaching certificate. The curriculum for the endorsement would include the following:

- Evaluating the Use of Technology in Learning and Teaching
- Using Computers in Reading Instruction
- Technology in the Teaching of Secondary Mathematics
- Curricular Integration of Technology
- Technology and the Teaching Practice
- Instructional Technology in Special Education
- Instructional Technology in the Elementary School
- Technology Applications for K-12 Teachers

Provide Adequate Technology Maintenance and Instructional Support Personnel

Two levels of support are necessary for the successful implementation of technology in the classroom. There must be technical maintenance support for the on-going operations of network infrastructure and equipment at the classroom level. Technical maintenance ensures that equipment and access will be available to the teacher at the classroom level. There must also be instructional support for the teacher to assist them in the effective utilization of technology in the instructional program. This instructional support is to be specific to the varied curricular needs as established by the Arkansas State Curriculum Framework Standards.

Technology Maintenance Personnel

All school districts shall maintain adequate technical support to perform the daily maintenance and support of a district's technical infrastructure. Over the years, technology has expanded, but for the most part, technical support has not. Technical support means those preventive, diagnostic, updating, replacement, and repair procedures that a school needs to have in place. Technical support can be provided either by persons who are part of the school district or through an outsourced contract.

Installed technology needs ongoing maintenance and support or it will not remain functional for long. As technology has become embedded in the school setting, schools have had to come up with systems to support it, and have had to create support roles and find people to fill them.

In the years technology first began entering schools, the need for maintenance was often unanticipated. Volunteers were pressed into service or teachers with an interest in technology were assigned support roles in addition to their other obligations. Such systems and roles were difficult to sustain. As technology has become an integral part of school operations, the need for a more formal technical support provision has become essential.

The indicators for assessing adequate technical support are:

- The numbers of technical support personnel and fulltime-equivalent (FTE) hours;

- The extent to which support personnel have other responsibilities within the school system;

- The total number of person-hours of technical support committed;

- Ratios of support calls to FTE staff hours, of support staff to the number of computers (and other networked devices), and of support staff to the number of users.

An industry practice is one fulltime-equivalent (FTE) technical support person per 300 end user technical devices. Technical devices would include computers, servers, printers, scanners, PDAs, network hardware, and other networked devices.

In consideration for determining the number of full time employees (FTEs) districts currently utilize, they should consider the hours of support received from outside support providers. Some of these might include the local Educational Cooperative technology coordinator or network field staff from the Department of Information Systems. Example: District X receives, on average, technology support from his Educational Service Cooperative 1 day a week for 2 hours. That would equal .05 FTE. DIS and ADE will provide each district with an FTE count for services provided by their staff. Student support should not count toward the FTE for technology support. However, adequately trained students for technical support can be a good support mechanism as long as it is done in a peripheral way as part of their instructional program only. Many schools depend on students to perform the district's technical functions. This solution is only acceptable when those students have adequate school staff to back them up. For example, students should not be responsible for addressing the district's network and information security. When that occurs the network is placed at risk by students being able to log on with system administrative privileges.

The following are symptoms of a district with inadequate technical support and maintenance personnel resources:

- Increased risk of district-wide virus attacks

- Breakdown in networks

- Increased frustration of school staff in resolving and trouble shooting network problems

- Educational programs stop working for unprecedented periods of time

- Lengthy delays in getting equipment fixed

- Technical support staff that is not trained or credentialed.

It was the consensus of all teachers interviewed that the most important resource for them is having staff that is able to keep their equipment operational all the time. The bottom line need is a functioning system that has new enough equipment to be useful for technology integration.

It was also apparent that districts need staff assignments for "instruction support" using technology. This person would assist staff with integrating technology into their instruction and provide professional development training on the integration of educational technology into the teaching and learning process.

Instructional Support Personnel

It is important that all school districts maintain adequate instructional support for the effective integration of technology in all aspects of the curriculum offerings of a school. This instructional support shall be provided for each teacher to effectively integrate technology into instruction at the classroom level.

Support for instructional technology integration necessitates the need for initial professional development that looks beyond the introductory concepts of what technology tools and software are available to teachers to the more involved concepts of the effective uses of these tools in the respective curriculum content areas. The initial professional development would provide for the generic instructional uses of technology tools for the classroom.

The person(s) charged with the task of serving teachers in the role of instructional technology support would supply continual training and on-site support to build on the foundational use of technology tools to provide specific strategies and resources for the classroom teacher focused on his or her curriculum content area. The individual(s) providing this instructional support would assist the classroom teacher through professional development, resource gathering efforts, mentoring service, and encouraging support. This support will be provided to make sure that teachers receive ongoing support for the successful use of technology in their classroom instruction.

More specifically, the support personnel for technology integration will:

- Collaborate with teachers and other instructional staff to develop curriculum materials and specific lesson plans that integrate technology.

- Model the integration of technology in all curriculum areas.

- Conduct staff development in the area of technology integration.

- Implement best practices related to technology use in the school program based on research, pilot programs, and state/national standards.

- Promote family, business, and community partnerships that support the academic success, career readiness, and general well-being of all children.

- Adhere to and communicate copyright as well as other laws and guidelines pertaining to the distribution and ethical use of all technology resources.

- Provide leadership and collaboration with advisory committees to develop, implement, and update technology components of the local school improvement plan.

- Lead in the ongoing evaluation of the effectiveness of the instructional technology integration program.

At present, there are no educational standards that dictate how to determine the best delivery method of instructional support for technology. There are a few examples available to suggest methods districts could use to meet the needs of instructional support for the classroom teacher. However districts choose to meet these needs, it is important they remember that support works best the closer it is to the person that has need of the support. Some districts, such as those in North Carolina, have recognized the importance of this level of support by designating what they term as the "key instructional technology specialist", a position that serves at the building level.

With both important roles - technical maintenance and instructional support - the teacher will be provided the necessary materials to maximize operational technology in the classroom. Providing technical maintenance without instructional support will produce a classroom with equipment that works but has no effective use in the instructional act. Providing instructional support without

technical support will produce a classroom with great strategies with no means of delivery. An effective classroom of the 21st century provides the technical maintenance to keep technology components secure and operational and instructional support to use technology effectively for student learning.

Description of Stage 2 Solution Options

Providing the Tools: One-to-One Laptop Program

This option of Stage II would provide laptop computers for all students and teachers at selected grade levels. It includes providing students and teachers with an Internet ready portable laptop to be utilized by the teacher, the student and the student's parents. This phase would be modeled after the Henrico County School District One-to-One laptop program.

Refer to a summary of their program in Appendix 3, page 77.

Due to the large number of students in the state, it would be necessary to identify which grade levels would be targeted for the One-to-One program and determine a phased approach for its implementation into other grade levels. The state would establish a partnership with a service provider for supplying the laptops and assisting with distribution and maintenance. In order to qualify for the One-to-One program districts would need to show their commitment by establishing a project and budget plan for laptop maintenance and training. The network, laptop technical support, and staff development requirements would need to be covered by the technology operating budget of the district.

Approximate Costs required for the laptops would be $500 per child / per year. Software packages included on each system (dictionary, thesaurus, encyclopedia, graphing calculator) would be part of the total cost, saving parents from purchasing the materials separately for their children.

The Access Arkansas K-12 portal and laptops would not be fully effective in homes lacking Internet access. To overcome the lack of connectivity for some households, the state could partner with an Internet service provider in leveraging an affordable cost for parents whose children are part of the One-to-One laptop program. Based on other states and regions, costs range from $9 to $11 per month that the parents would pay for their home Internet connection and $50 per year for insuring the laptop. It has been found that if an investment has been made on the part of the students and their families, they become more involved and interested in the program.

Require the National Educational Technology Standards to Become Part of the Process for Approving Teacher Education Programs

Increased emphasis is necessary to implement the State's Teacher and Student standards for technology and there is an important need for incorporating these in a) Arkansas Colleges preparing future teachers, and b) professional development opportunities for existing teachers.

The Arkansas State Board of Education played a key role when it adopted the National Education Technology Standards for K-12 teachers in 2000 (http://cnets.iste.org). It is now time the state take the next step and require these national standards, adopted by the Arkansas State Board of Education, to become part of the process for approving teacher education programs. The result would be an alignment between the technology standards in teacher education programs and the standards used for assessing and licensing K-12 teachers. Additional funding will be provided to the universities and colleges to assist them in providing the necessary resources required for the teacher education programs to meet these standards.

There are several compelling reasons to build a strong technology framework in the state's teacher education programs. One factor is that the number and complexity of technology-related competencies important for teachers to know is expanding. A second contributing factor is the growing consensus that technology has a positive impact on student achievement.

The continued growth of connected K-12 classrooms is a third factor that supports the decision to integrate technology in teacher preparations programs, ensuring that we have highly qualified teachers.

Extend the Environmental and Spatial Technology (EAST) Instructional Model

The EAST (Environmental and Spatial Technology) instructional model promotes a teacher's role as facilitator of learning, incorporating teacher facilitation teaching methods into the curriculum.

This has proved to be an effective technique for teaching in core curriculum areas such as mathematics, biology, language arts, etc. The EAST program model allows Arkansas high school students to become active learners, with emphasis placed on connecting core curriculum areas with technology. Through project-based curriculum and the integration of advanced software and hardware applications EAST students learn important skills. The teaching of these technological tools is not the focus of the EAST instructional model; the focus is using and learning the tools to solve problems.

The Environmental and Spatial Technology model has demonstrated success in transforming our teacher-centered Industrial Age classrooms into student-centered Information Age learning centers. This educational model evolved by focusing on the needs of a relatively small group of students representing a broad range of today's youth. Because technology is in all aspects of society, there exists an immediate and daunting challenge to provide today's youth with the opportunity to develop relevant, performance-based skills essential for survival in an information and technology driven era. The EAST instructional model assists in preparing our students to function effectively in the 21st Century.

Section 4

Process Used, Findings and Conclusions

A Summary of the Overall Process

The Technology in Education Task Force used a phased approach in accomplishing their charge from the Joint Committee.

Phase I consisted of:

Step 1 – Examining how technology is used in education in the state today

Step 2 – Identifying barriers and needs that exist in the current educational environment

Phase II consisted of:

Step 3 – Defining a vision for using technology in education for the future

- Imagining the 21st century learning setting

- For the student

- For the teacher

- For the parent

- For the administrator

Step 4 – Investigating existing national exemplary programs and identifying components that would address state needs in education for technology solutions

Phase III consisted of:

Step 5 – Designing and selecting specific technology solutions that would address the educational needs

Step 6 – Prioritize the final recommendations to be made to the Joint Committee on Educational Facilities

Step 7 – Draft and submit the final Report

Timeline for Process Used

	Process Followed by Task Force	Time Period
Step 1	Examining how technology is used today in K-12 education	September – November '03
Step 2	Identifying barriers and issues in today's environment	October – November '03
Step 3	Defining a vision for using technology in education for the future	December '03 – January '04
Step 4	Investigating existing national exemplary programs and identifying components that would address the state's needs in education for technology solutions	September '03 – June '04
Step 5	Designing and selecting specific technology solutions that would address the educational needs	January – July ' 04
Step 6	Prioritize the final recommendations to be made to the Joint Committee on Educational Facilities	January – March ' 04
Step 7	Draft and submit the final Report	August – November '04

Process and Findings Report

Step 1 – Examining How Technology is Used Today in K-12 Education

The current Arkansas educational environment was examined, including the State Network infrastructure, the Federal E-rate funding mechanism, and distance learning and other learning resources available to Arkansas public schools. It was noted that in many ways, Arkansas is a leader in the country; the current status of the State Network and of the Arkansas Public School Computer Network (APSCN) has not been achieved in many states.

State Network

- All but 38 of the 1,139 schools have access to a T1 or better

- All schools are connected to the network

- Connection is evaluated based on school need

- High bandwidth Internet connection can be available anywhere in the state in 30-60 days

- Much can be provided with funding by the Federal government though the E-Rate program

- Arkansas has seen E-rate funding rise from $11 million in 1998 to $21 million in 2002 -

  Before E-rate came into existence in 1998, most schools were accessing the Internet with

slow dial-up modems, used coax cable for the few small networks that did exist, and had a minimal number of classrooms or administrative offices connected to the Internet.

Distance Education

- 45 educational cooperatives and schools have interactive video
- 3,000 students are served by some form of online instruction for course credit
- At least one-third of schools do some form of distance learning
- Every school in Arkansas uses some form of technology to enhance the education process

Current Resources That Can Be Built Upon

- EAST Program
- Virtual High School
- Distance Learning Center
- Arkansas School for Mathematics, Science, and the Arts
- Higher education systems
- AETN

Mr. Matt Dozier, National Program Director of the EAST Initiative Offered an Overview of the Program

Arkansas is currently home to 136 EAST programs that cover every part of the state. EAST programs have been primarily established at a high school level; however, middle school programs are quickly appearing in both the state and national arena.

Private partners contribute to the program's ability to use state-of-the-art technology tools; without this private sector component of the program, the cost of such tools would be prohibitive.

Technology solutions have been made available to the EAST Initiative at discounted prices by numerous supporting vendors.

To qualify for the program an Arkansas school currently must be willing to contribute approximately $20,000, one certified teacher, and one room to the effort. In return, the state

supplies approximately $40,000 per program. Ten such grants were funded by the state in the last year; it is anticipated that the same number of programs will be funded in the current year. EAST schools in Arkansas receive infrastructure funding through legislated appropriation. In addition, grant funds are actively sought by the EAST administration and by students in participating programs in order to enhance the EAST experience.

Horace Mann Arts/Science Magnet Middle School EAST Students Presented a Discussion of Projects from Their School

Students from Horace Mann Arts/Science Magnet Middle School in Little Rock presented an impressive array of projects that had been implemented and were being planned in their EAST program. The projects include:

- Mann's Weather Station

- Mann's Helping Hands – technology assistance for teachers

- Mentoring Program – working with small children

- Fourche Creek Project – with a focus on urban wetlands

- Japanese Internment Camps – featuring "virtual visits" to Arkansas camps

Mr. Prentice Dupins, EAST Facilitator, Joe T. Robinson High School

Students from Mr. Prentice Dupins' classroom presented sampling of their work.

Mr. Dupins presented a four-minute summary created by his students which highlighted the three-hour video documentation of the experiences of veterans of foreign wars through student interviews.

Ms. Tina Reese, Technology Specialist, Rogers Public Schools

Technology was used for classroom organizational support and as an instructional tool.

Minimum tools that teachers need in the classroom include a connection to the Internet, a computer, and word processing, spreadsheet, and presentation software.

The "products" that all educators must produce for the teaching process include lesson plans, grades, and electronic communication with other teachers, school administrators, and parents.

Hardware solutions recommended for the classroom were digital cameras (especially in the hands of students) and either a scan converter or an LCD projector to project material to the front of the classroom for all to see.

Ms. Becky Hart, Director of Instructional Technology, Hot Springs School District

Ms. Hart shared her perspective gained from working with educational technology in various school districts in the state.

Training and incorporating technology into the curriculum must be planned; it does not work well as an afterthought.

Ms. Hart emphasized the importance of training for educators and noted that the best way to train was to give examples of how technology could be easily incorporated into the classroom experience. She noted that it was best to focus on specific tools and to discuss them in non-technical terms.

One size does not fit all districts or schools. Teacher requirements of technology will depend on what subject is taught and on the teaching style.

Decisions about technology in the schools are most often made by administrative and technical staff. Teachers need to add valuable input into those decisions. Teaching administrators the value of technology is very helpful for increasing their understanding of issues with technology.

Traditionally, technology has been used in K-12 predominantly for administrative functions. Educational uses of technology have only fairly recently been a major focus.

Ms. Hart felt that it was important for teachers to teach standards and to teach by engaging students. She noted Intel's *Teach to the Future* program as a good example for professional development. In this program, teachers learn from other teachers how, when, and where to incorporate technology tools and resources into their lesson plans. Teaching with standards, training trainers, and using samples created by teachers have worked successfully in this training model.

Technology is getting easier for teachers to use. Only a short time ago, teachers working with technology had to know much more about computer systems and applications than simply how to

point and click. The industry has made great strides in making technology easier, so that the focus of the educator can be the subject matter and how to present it to students, not on how to make complicated devices operate correctly.

Summary from a Panel of Distance Learning Providers in Arkansas – Jim Boardman, Mike Lar and Belinda Kittrel, Department of Education Distance Learning Center

Mr. Boardman mentioned that not all individuals or organizations are supportive of distance learning. Some feel that having a teacher in a classroom is the only adequate answer to education needs.

CIV does not need to be the primary source of distance learning in the state, although it is very well suited for certain classes and for professional development. ADE staff felt that asynchronous offerings and offerings to the desktop, such as H.323, were a more important direction for distance learning to take.

Gerard Newsom and Kathleen Stafford, Arkansas Educational Television Network

AETN offers the Arkansas Technology Institute (ATI), a five-day intensive training institute structured to allow participants to merge the use of technology into ongoing curriculum applications. Sessions include Multimedia, Web Design and Development, Video Production, and Distance Learning.

AETN coordinates with various institutions to offer college credit telecourses. High school students can take these telecourses, but they must coordinate with a particular college or university to receive college credit.

AETN, in partnership with ADE, is beginning to offer video streaming/video-on-demand for all Arkansas K-12 schools. Between 10,000 and 20,000 video segments will be available for viewing over the Internet, video clips can be introduced into the classroom to augment lessons, and resources will be available for search by grade level, subject matter, or state/national curriculum standards.

Dr. John Measel and Chris Robbins,

Arkansas School for Mathematics, Sciences and the Arts (ASMSA)

ASMSA has approximately 1,700 students in their distance learning program for this year (2003-'04) which represents a 90% growth from the year before.

Mr. Robbins felt that distance learning options should always be "Plan B" and that it was always preferable to have a classroom/teacher model when that option was available. However, he felt that distance learning could provide excellent instruction in those instances where this preferable option of classroom/teacher is not possible.

Compressed Interactive Video (CIV) requires approximately $30,000 to equip a room for either the instructional end or the receiving classroom end. In addition, the cost of the T1 line is part of the expense (using H.320 technology). ASMSA is interested in moving from H.320 to H.323 platforms for video conferencing classes. Mr. Robbins compared the $30,000 price of a CIV room with the $3,000 cost of a personal computer. A PC equipped to access the Internet is a requirement for H.323. Additionally, Quality of Service (QoS) is a necessary consideration for H.323. It is important to begin the transition from H.320 to H.323.

Bill Beavers from the Arkansas Virtual High School (AVHS),
Arch Ford Educational Cooperative

Any student enrolled in an Arkansas public or private school attending Grades 9 to12 may participate in their offerings. The affiliate school must grant permission and students must have access to a computer with an Internet connection during the school day and/or at home. The schools still maintain responsibility for student enrollment and for student success in the program.

Online courses revolve around the normal school semester schedule and some courses are offered for summer school credit in a compressed semester format.

Step 2 – Identifying Needs and Issues in Today's Environment

The Task Force had several panel discussions that focused on barriers and needs hindering technology integration into the classroom. The panel members included the following:

- Margaret Buford, Principal at Marion Intermediate School

- Marilyn Carrell, Teacher at Springdale High School

- Barbara Harper, Teacher at Robinson High School

- Vicki Sandage, Teacher at Shirley Alternative Learning Center

- Heather Sorrells, Teacher at Marion Intermediate School

- Tim Vent, Technology Coordinator at Great Rivers Educational Service Cooperative

- Jim Yeager, Guidance Counselor at Pottsville High School.

Distance Learning

Is the installation of a CIV room for every Arkansas school part of the solution set for answering the mandates facing K-12?

Panel members and several Task Force members did not advise the state to pursue that direction due to it being an unnecessary expense. The interactive video environment works better for professional development and training for adults than as a course offering environment for children. In addition, one $30,000 interactive video classroom is restricted to six classes per day. Use of H.323 video and distance learning web-based options at the desktop will reach many more students than pursuing interactive video classrooms.

The Task Force considered statistics that indicated there are approximately 440,000 students in K-12 in the state and 125,000 to 150,000 students in Grades 9 through 12, and that the total number of students served in the state last year via some form of Distance Education was 2,200. Given these numbers, interactive video instruction impacts a small percentage of Arkansas students (total of 2,200).

The most cost-effective model of distance learning delivery involves centrally located instruction that can be received at many sites. The most costly model of distance learning delivery would be

for each school district to be capable of both delivering and receiving instruction. This would significantly increase both the one-time and ongoing operating costs.

Currently Distance Education is serving as a solution for meeting teacher shortages. The three biggest areas of teacher shortages is in the areas of Math, Science and Foreign Languages. In rural areas of the state this shortage is magnified. The second greatest teacher shortage are those certified in Journalism and English at the high school level.

Other topics of major concern to Arkansas Distance Education providers were:

- Developing a centralized scheduling and on-line registration process

- Adopting a common bell schedule and school calendar

- Ensuring the academic integrity of distance learning programs

- Ensuring that the Arkansas Public School Computer Network (APSCN) bandwidth is available for the delivery of content.

- Clearinghouse for distance learning programs offered in the state

- Improved coordination for distance learning

- Evaluation procedures to determine which distance learning programs are most effective

Technology Support

Over the years, the technology has increased in the schools but, for the most part, the technology support has not. This was identified as a large problem in most schools.

Technology Integration

The Task Force asked a panel of eight exemplary Arkansas educators to assess how the current K-12 teaching workforce is integrating technology into the classroom. Based on a scale from 1-10, with 1 being the teacher at the starting gate wanting or needing to be trained and 10 being a teacher who is skillfully integrating technology into the coursework, the scores given by the panel were 3, 2, 2, 3, 2, 3, and 3.

According to panel members and the majority of Task Force members, the use of computers in classrooms remains relatively low on average, and the use of computers have not transformed the

teaching practices of a majority of teachers relative to academic subjects, especially teachers in secondary education.

One reason why technology is not being used by teachers in instruction is that the "lecture" model of teaching is not necessarily conducive to integrating technology effectively into the classroom. A change in the thinking of teachers is needed in order to integrate technology effectively into the classroom. The "lecture method," which is used by so many teachers, has been shown in studies to be the method which is the least effective for students' learning.

Several teachers mentioned that access to technology and the time to arrange for it was difficult. For instance, with only two or three projectors to be shared, teachers had to plan ahead to schedule for the hardware and then had to plan additional time for setup. It takes a considerable amount of time to prepare for classes and to grade the assignments from all of the students. Introducing additional time requirements for the technology is too demanding.

Barriers to effective use of technology in teaching were lack of funds or space for the technology, lack of administrative or technical support, and lack of training.

Advanced Placement (AP) classes and courses for gifted and talented students are seen as having a disproportionate level of technology funding. Several teachers testified that classes that are marked as "special" for any reason are often eligible for funding through grant offerings. There are rarely grant offerings for the "regular student." The regular classroom students do not have the advantage of being able to acquire special technology funds for their needs.

Professional Development

A reference was made to a study conducted in 2001 by Sherman that confirmed less than 15% of a typical school's technology budget goes toward training teachers, and this statistic hasn't changed since the study.

It was recognized that training for school staff is not keeping up with the rapid pace in which technology is entering the school environment.

Training must be connected to a teacher's environment. It must connect to their course content, be capable of being integrated into their classroom, and relate to the hardware and software accessible to them in their school.

All of the teachers on the panels felt that the Arkansas' six required hours in technology is not always relevant to a particular teacher's environment. They felt that training must be connected to what a teacher does to be effective.

It was suggested that some accountability be required of teachers in their professional development completions. Teachers should not only attend training, but should also be asked to follow their training by using what they have learned in their classroom. This requirement, however, would need to be accompanied with training that was relevant to the teacher.

Step 3 – Defining a Vision for Using Technology in Education for the Future

The Task Force divided into three teams to draft "vision conditions" for each of the three areas of focus:

- Professional Staff
- Parents
- Students

"Vision conditions" are statements describing a model environment for where technology is serving to improve education for each stakeholder: staff, parents, and students.

The Task Force Consensus: A Vision for Using Technology in Education

Students in Every Arkansas School Have:

- Daily access to contemporary technologies, software, and telecommunications networks;
- Class activities that interweave educational technology skills and relevant curricular content;
- Technology available, in and away from school, that removes the restrictions of "time" and "place" and brings the student and educator together;

- The type of technical skill acquisition that prepares them to succeed in post-secondary education and occupations.

Parents of Arkansas Students Have:

- Access to their child's academic progress via the Internet anytime, anywhere;

- The means for enhanced communication between the student's home and school that would include:

- Daily assignments and schedules;

- Attendance records;

- School calendar;

- On-line forms for submission;

- On-line access to instructional resources, homework guidance, and other parenting support information.

Educators in Every Arkansas School Have:

- Technical assistance available for maintaining and utilizing technology;

- Consistent access to professional development in support of technology use in teaching and learning;

- School Boards and administrators that provide proactive leadership in developing an annual shared vision for educational technology among school staff, parents, and community;

- Technology available in and away from school that removes the restrictions of "time" and "place";

- Resources via technology enabling high quality course content; i.e., lesson plans, testing materials, etc.

Step 4 – Investigating Existing National Exemplary Programs and Identifying Components that Would Address the State Needs in Education for Technology Solutions

Representatives from the following exemplary programs addressed the Task Force. The following paragraphs are a summary of each exemplary program presentation.

Additional details describing each program are located in Appendix 3, page 77.

Henrico County School District's One-to-One Program

Presented by Vicki Wilson, Assistant Superintendent, Henrico County School District

Henrico County School District is currently in the third year of the One-to-One Program. At the end of the first year, students' scores were improved in all subject areas, the dropout rate had decreased, and the scholarship rate had increased. Now in the third year of the program, scores continue to rise and dropout rates continue to decline. The number of students in the district is approximately 26,000. Although the teachers were not ready for the program when it began, there was the realization that schools today are different than schools of the past and that there was a need to shift to a digital environment in order to fully engage a new breed of multi-tasking, digital learners.

For a more detailed report of the Henrico County Schools refer to Appendix 3, page 77.

Teaching and Learning in the Digital Age,

Presented by Dan McCormack, Apple Education

Dr. McCormack gave examples of web sites with digital content for K-12. He noted that various subscription services offer rich content for schools. The link below gives Dr. McCormack's page of links to online digital content, including: Beyond Books, NetTrekker, FrogGuts, ExploreLearning, Vantage Learning, Maps101, and various Apple content sites.

Link: http://homepage.mac.com/drdan2000/content.html

For a more detailed report of Apple's presentation refer to Appendix 3, page 79.

Sharing Professional Development Best Practices

Presented by Elaine Sellhorn, Technology Integration Specialist, Region One Education Service Center, Edinburg, Texas

Ms. Sellhorn summarized their program's successes in training teachers to utilize technology in their classrooms. Region One Service Center, located in southern Texas, has a student population that is 94% Hispanic and grows by approximately fifteen thousand students per year. The focus of the Education Service Center (ESC) is to train teachers in technology integration. Master Technology Teacher (MTT) Certification training is available via online courses and workshops. The MTT Certification trains teachers to work with other teachers, rather than students. The training emphasizes not only how to use technology, but also when to use it.

For a more detailed report of the Region One Education Service Center refer to Appendix 3, page 79.

Enhancing Missouri's Instructional Networked Teaching Strategies: eMINTS

Presented by Monica Beglau, eMINTS Project Administrator and Cynthia Matzat, eMINTS Instructional Supervisor

Ms. Beglau and Ms. Matzat discussed the eMINTS program, which supports Missouri educators as they integrate technologies into teaching practices. The program has resulted in improved student performance, increased parent involvement, and enriched instructional effectiveness. In order to develop the program, the entire State of Missouri had to agree to use Federal Title IID funding for eMINTS; this was written into the Missouri State Technology Plan. eMints is administered by a collaboration between the Missouri Department of Education and the Missouri Research and Education Network. Students enrolled in eMINTS classes scored higher than students not enrolled in eMINTS classes in the same schools. In addition, the average eMINTS student scored higher than the statewide student average in every subject area. Utah is currently replicating the Missouri model in 45 of its school districts (2003)

For a more detailed report of Missouri's eMINTS program and costs for Arkansas implementation refer to Appendix 3, page 80.

Models of Technology Improved Learning

Presented by Dr. James Schnitz, IBM Education Strategy Executive

Dr. Schnitz emphasized how performance accountability under the No Child Left Behind (NCLB) requirements has fundamentally changed public education. Traditionally, the focus of public education has been placed on creating educational opportunity for students; NCLB has shifted the focus to the results of learning. This shift holds school systems accountable for improvements in achievement. Relying on end-of-term testing is not effective in this new environment; it is necessary for assessment to become a part of the teaching process in order to change outcomes early enough in the school year for improved achievement to be possible. In addition, presenting a standard curriculum has given way to allowing "on demand" student curricular needs.

For more information on Models of Technology Improved Learning, refer to Appendix 3, page 85.

Washington State Digital Learning Commons

Presented by Louis Fox, CEO of the Washington State Digital Learning Commons

The goal of the Digital Learning Commons was to impact the largest number of students, teachers, and parents possible in the State of Washington and to deliver resources to these stakeholders statewide. The Commons was the recommendation of a Task Force called by Governor Locke of Washington to provide solutions for problems not dissimilar to those currently faced in the State of Arkansas. The Digital Learning Commons is a Web-based portal operated from a single Web site, centrally hosted and integrated to the K-20 Network, where students and teachers from around the state will have access to the following: digital resources, learning tools, and online classes.

For a more detailed report of the Washington State Digital Learning Commons refer to Appendix 3, page 85.

The South Dakota Technology Teachers Learning Academy

Presented by Peg Henson, Program Supervisor of the South Dakota Technology Teachers Learning Academy (TTL)

The TTL is the result of their Governor's emphasis on teaching training for technology. The TTL is 20 days of hands-on training for a teacher to understand how technology can enhance instruction and learning. State legislators support the TTL and appropriate state funds to operate it within the South Dakota Department of Education. South Dakota also utilizes their Federal technology dollars toward funding the academy.

For a more detailed report of the South Dakota Technology Teachers Learning Academy refer to Appendix 3, page 89.

Step 5 – Designing and Selecting Specific Technology Solutions that Would Address the Educational Needs

- The Task Force utilized small teams to develop a list of the best education technology program actions that will achieve previously developed Vision Conditions for Arkansas schools and meet needs discovered.

- A Subcommittee was formed to refine the team reports into a consolidated list of solutions.

Step 6 – Prioritize the Final Recommendations to be made to the Joint Committee on Educational Facilities

- The Task Force prioritized program solutions to get the top four or five.

- Prepared a list of top program solutions to include in the final Report.

Step 7 – Draft and Submit the Final Report

- The existing subcommittee consolidated all Task Force related documentation in drafting a Final Report

- Members of the Task Force were provided a copy of the draft.

- The Task Force reviewed and offered comments regarding needed changes in the draft Report.

- On October 15, 2004 the full Task Force convened for final consensus.

- November 2004: The Task Force Report Submitted to the Joint Committee on Educational Facilities.

Section 5

Considerations for the Funding and Administration Needed to Support the Options in Section 3

Possible Funding Options

School districts can continue to utilize the following sources to support technology programs placed in priority categories for future implementation include the following: a) federal entitlements, b) federal grants disseminated by the state, c) E-rate discounts, d) state grants, e) foundation, corporate, and business grants or partnerships, f) capital improvement monies, g) local millage dedicated to technology, and h) regular district funds.

New statewide technology initiatives such as Access Arkansas K-12 will require considering additional funding sources. The following are possible sources in addition to those already being utilized:

Regaining the Sales Tax on Items Ordered On-Line

Several states are considering recapturing the sales tax lost on items purchased over the Internet. Arkansas could designate such regained taxes to school technology programs.

Private Business Donations

Arkansas business could be encouraged to provide donations toward statewide technology initiatives. In this way such companies would be investing in their future workforce and helping build a stronger Arkansas economy. The State of Idaho has benefited from such a donation from the Albertson's Company that supports technology in Education. Another successful example is the model used for how Arkansas established the non-profit program called the Instructional Microcomputer Project for Arkansas Classrooms (IMPAC). IMPAC was formed utilizing private funds from Arkansas companies. IMPAC gave Arkansas schools a head start in technology due to the combined support of state and private funds.

Possible Administration Options for "Access Arkansas K-12

The Access Arkansas K-12 statewide program solution is the only option listed in Section 3 which requires a decision regarding how it would be administered. The following are possible options for organizations which could administer Access Arkansas K-12.

- Arkansas Department of Education
- An Arkansas University – The University of Washington administers such a statewide technology in education program in cooperation with the Department of Education.
- Private for Profit Company – through a contract with the Department of Education
- Private Non-Profit Company – through a contract with the Department of Education, such as was done when the Instructional Microcomputer Project for Arkansas Classrooms (IMPAC) was established.

Section 6

Acknowledgements of Task Force Members, Partners and Other Contributors

The Task Force members are commended for their attendance and for their pledged support to this important work. The Office of the Executive Chief Information Officer gratefully acknowledges the cooperation and assistance from individuals and groups in the preparation, review and editing of this report.

The Task Force is made up of leaders in education, business, and government that come from many walks of life and shared a common interest: improving the quality and accessibility of education for our children. The members of the Task Force were chosen because of what they know or who they represent. The Task Force members represented the following groups associated with education from all regions across the state:

- Educators from Elementary, Middle, and High Schools

- School Administrators

- School Boards and PTAs

- Legislators

- Educational Service Cooperatives

- Arkansas School for Mathematics, Sciences and the Arts

- EAST

- Department of Education

- Department of Higher Education

- Arkansas Educational Television Network (AETN)

- Arkansas Science and Technology Authority

- Department of Information Systems

- Office of the Executive Chief Information Officer

- Technology Providers and Facilitators

Membership of the Technology in Education Task Force

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Sen. John Paul Capps, State Senator
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The Task Force recognizes the following individuals for their assistance and valuable contributions during the course of this work:

- Bill Beavers: Arch Ford Educational Cooperative

- Margaret Buford: Marion Public School District

- Marilyn Carrell: Springdale Public School District

- Barbara Harper: Pulaski County Special School District

- Becky Hart: Hot Springs Public School District

- Mark Hudson: Legislative Research

- Mike Lar: Department of Education

- Dr. Herb Monoson, Vice-President of Research: Arkansas Science and Technology Authority

- Debbie Martin: Department of Information Systems

- Rick Martin: Department of Information Systems

- Tina Reese: Technology Specialist from Rogers Public Schools

- Chris Robbins, Arkansas School for Mathematics, Sciences, and the Arts

- Vicki Sandage: Shirley Public School District

- Heather Sorrells: Marion Public School District

- Dana Thompson: Department of Information Systems

- Karen Walls: Office of Information Technology

- Trey Wetzel and Aaron Shaneyfelt: Joe T. Robinson High School Students

The Task Force recognizes the following Partners that assisted in our work. These are also possible business partners that could assist in implementing the optional solutions within this report:

- Apple, Inc.: Dan McCormack, Maureen Brim, and Tom Burnett

- Gateway Computers: Paige Scott

- SBC: John Davis, Brenda Sessions and Amy Floyd

- Plato: Judy Box, Alan Whisman, Randi Economou, Brian Blades, Nora Porter

- EdGate: Kurt and Paul Fichtman

- The Princeton Review: Marcy Serratt

- eMINTS (Missouri): Monica Beglau and Cynthia Matzat

- CISCO Systems: Todd Smithson

- Alltel: Tony Ferguson and Mark Witcher

- Dell: David Lynn and Jim Eden

- IBM: Chris Holmes, Jim Schnitz, and Lance Youngblood:

- Explornet: Paige Cox

- The Washington State Digital Learning Commons: Louis Fox

- Texas Region 1 Education Service Center: Elaine Sellhorn

- Intel: Terry Smithson

- Microsoft: Brent Jackson

- South Dakota Technology Teachers Learning Academy: Peg Henson

Additional vendors that could assist in implementing the optional solutions within this report:

- Beyond Books

- EdLine

- PowerSchool

- Pearson Digital Learning

- SchoolMaster

- Xap

- http://Aboutlearning.com

Section 7

Appendices

Appendix 1 – Data: The Current State of Technology Enabled Programs

Arkansas Department of Education Distance Learning Center

Link: http://dlc.k12.ar.us

The Arkansas Department of Education (ADE) Distance Learning Center (DLC) supports the delivery of quality distance learning courses to areas in Arkansas where teacher availability is limited. Classes that are required by Arkansas State standards, as well as many non-required courses, are offered at various times to facilitate increased student flexibility in course scheduling. Courses are currently being offered through the following technologies: a) Compressed Interactive Video, b) Enhanced AudioGraphics, and c) Web-based Technologies.

ADE is responsible for coordinating, monitoring, and supporting K-12 schools for distance learning. ADE has supported all forms of distance learning in the state. Synchronous offerings include video conferencing (both H.320 and H.323) and AudioGraphics; asynchronous offerings include online courses and resources. Another important focus for ADE is to provide resources for teachers.

The ADE Distance Learning Center (DLC) was established in July 2001 to oversee and coordinate the implementation of distance learning in the K-12 schools. This includes developing and delivering content that meets Arkansas standards; providing leadership and direction in technology implementation; and providing professional development opportunities to administrators, faculty, and staff. The Distance Learning Center utilizes the Arkansas Curriculum Frameworks for its course offerings.

Currently, the following course offerings are available through the Center: Creative Writing; English 9 and 12; Advanced Placement (AP) English Literature; Algebra I and II; Pre-calculus/Trigonometry; Calculus; AP Calculus; Journalism I and II; Oral Communications; Physics; French I and II; Spanish I, II, and III; U.S. History; AP U.S. History; World History; and Civics. Twenty-four core areas of teacher resources are provided.

Professional development workshops are held for K-12 teachers and administrators. This training is performed via CIV to individual schools with video conferencing rooms (there are currently 52 schools with CIV capabilities) and to the educational cooperatives in the state. The Center's professional development includes offerings for parents, counselors, administrators, nurses, special education teachers, and new school board members.

Environmental and Spatial Technology (EAST) Project

Link: http://www.eastproject.org/Portal/

The EAST (Environmental and Spatial Technology) Initiative is the result of strong relationships between business, government, and education. These relationships provide awareness and access to necessary and relevant resources normally not available to educators.

EAST students experience an individualized self-directed, service-oriented project-based curriculum that provides value to the local schools and communities. Students are exposed to strategies that help them move from the traditional self-centered approaches of learning into a more realistic (and more relevant) interdependent environment that stress understanding, collaboration, and team approaches to problem resolution.

2003 Projects can be viewed at: http://www.eastproject.org/Portal/ProjectsIndex.asp

Numerous vendors and a support team at the University of Arkansas at Fayetteville Center for Advanced Spatial Technologies (CAST) provide assistance to students. Most Arkansas high schools and many middle schools participate in the EAST Project.

More than 23,000 students from seven states across the nation have participated in the EAST program, which originated in our state. Arkansas is currently home to 136 EAST programs that cover every part of the state. EAST programs have been primarily established at a high school level. However, middle school programs are quickly appearing in both the state and national arena.

EAST is a model of engaging students in self-directed learning and team work to complete community-based service projects using the latest advanced technology applications available in the marketplace. Private partners contribute to the program's ability to use state-of-the-art technology tools; without this private sector component of the program, the cost of such tools would be prohibitive. Technology solutions have been made available to the EAST Initiative at discounted prices by numerous supporting vendors.

To qualify for the program, an Arkansas school currently must be willing to contribute approximately $20,000, one certified teacher, and one room as a school district commitment to the project. In return, the state supplies approximately $40,000 per program. Ten such grants were funded by the state in the last year (2003-2004). It is anticipated that the same number of programs will be funded in the current year (2004-2005). EAST schools in Arkansas receive infrastructure funding through legislated appropriation. In addition, grant funds are actively sought by the EAST administration and by students in participating programs in order to enhance the EAST experience.

Horace Mann Arts/Science Magnet Middle School EAST Students

Link to their projects: http://mannmagnet.com/mann/id19.html

EAST students from Horace Mann Arts/Science Magnet Middle School) in Little Rock have developed an impressive array of projects in their EAST program. Their projects include:
- A Weather Station – in place at the school.
- Horace Mann's Helping Hands – technology assistance program for teachers.
- A Mentoring Program – working with small children.

- Fourche Creek Project – with a focus on urban wetlands.
- Japanese Internment Camps – featuring "virtual visits" to Arkansas camps.

Joe T. Robinson High School EAST Lab

Link to their projects: http://www.pcssd.org/robinson

EAST students from Joe T. Robinson High School in Little Rock have impacted their surrounding community with service-based projects. These projects have included:

- The RAVE (Reliving American Veterans' Experiences) Project – A DVD documentary revealing the experiences of veterans of foreign wars through student interviews with veterans. The project has been extended, with many more veterans volunteering to tell their stories. The students' skills in the interviewing and recording processes were vastly improved by learning from their first effort, and it appears that the study will continue well into the future.
- Pinnacle Mountain State Park Virtual Tour – A virtual reality tour of the Pinnacle Mountain State Park Visitor Center.
- TEK – Technology Education For Kids software program.

Arkansas School for Mathematics, Sciences, and the Arts Distance Learning Services

Link: http://www.ASMSAweb.com

The Arkansas School for Mathematics, Sciences and the Arts (ASMSA) is a residential high school for academically advanced juniors and seniors. The institution develops curricula and instructional resources for all Arkansas schools. One of the key offerings at ASMSA is their center for distance education. The distance learning program at the ASMSA. ASMSA has approximately 1,700 students in their distance learning program for this year. This represents a 90% growth from the year before. ASMSA is involved with Henderson State University in developing three graduate level courses for Middle School Mathematics and Science teachers.

ASMSA serves 48 school districts in the state; many of these districts are in economic distress.

ASMSA is market driven; they meet the needs that are identified by the school districts in the state. When ASMSA is unable to meet a need, they contact ADE to determine if the need can be met there. Technologies available in the program consist of CIV and AudioGraphics.

ASMSA has eleven different course offerings, most of which are foreign language classes (Spanish I, II, and III and French I and II for high school; and Elementary Spanish for K-6). Mathematics and Science offerings include AP Biology, Algebra II, Pre-Calculus, and Calculus. Virtual labs are not used with AP Biology. Labs are addressed by sending equipment and instructors to the school or by bringing the students to ASMSA. Hands-on experience is needed to pass AP tests, so this option is considered to be the best solution at present.

Arkansas Virtual High School – Arch Ford Educational Cooperative Plummerville, Arkansas

Link: http://arkansashigh.k12.ar.us/avhs_main.htm

The Arkansas Virtual High School (AVHS) is funded by the Arkansas Department of Education. The purpose of AVHS is to provide an online alternative learning environment for the students of Arkansas' public schools who need assistance in completing coursework that is difficult to receive due schedule conflicts or other extenuating circumstances that might impede a high school student's progress.

AVHS offers online courses over the Internet. Classes offered via AVHS are designed around the Arkansas State Curriculum Frameworks and guidelines to meet Arkansas standards. Online courses allow students to learn anytime, anywhere. Any student enrolled in an Arkansas public or private school attending Grades 9 to 12 may participate. The affiliate school must grant permission, and students must have access to a computer with an Internet connection during the school day and/or at home. The schools still maintain responsibility for student enrollment and for student success in the program. AVHS does not award diplomas, as some national virtual schools do, i.e., the Florida Virtual High School.

Teachers may develop courses for AVHS. In addition, 25 of the 38 core courses required to meet Arkansas standards are available online. These courses cover the disciplines of mathematics, science, social studies, language arts, foreign language, computer applications, and health and safety. Other offerings under development include courses that help meet the core course requirements and courses that meet Advanced Placement guidelines.

AVHS uses the existing certified teacher base in Arkansas. Employed or retired teachers can work on a part-time basis in the program. Courses revolve around the normal school semester schedule; and some courses are offered for summer school credit in a compressed semester format.

Arkansas Educational Television Network (AETN) Conway, Arkansas

Link: http://www.aetn.org

The Education Department of the Arkansas Educational Television Network (AETN) provides a variety of opportunities to meet the needs of educators – public, private, or home school – at the K-12 grade level. The educational services currently available at AETN are:

Services currently offered by AETN:

Video-On-Demand System – Streamed video provided through the Internet allows users to access, preview and use video on demand or by downloading for later use. Streamed video provided by AETN is designed to enhance and provide an additional visual component to teacher presentations and student projects. All videos are correlated to the Arkansas standards in math, science, language arts, social studies and health.

Teacherline - AETN now offers over 70 on-line courses for educators designed to help teachers acquire the skills they need to prepare students for a successful future. TeacherLine provides online professional development through facilitated courses that meet Arkansas standards in a supportive and collaborative learning communities and exemplary Internet-based resources.

Arkansas Technology Institute – a 5-day intensive training institute structured to allow participants to merge the use of technology into ongoing curriculum applications. Workshops explore the use of various technologies and options for use in the classroom. Working in teams, participants complete a hands-on project that puts theory into practice. Teams design and develop technology-enhanced lesson plans that will be reviewed by ADE and posted at this institute's Web site. Graduates are certified as the institute trainers. Sessions include Multimedia Presentation Techniques, Web Design and Development Basic, Video Production Technology and Distance Learning Basic.

Resource Library Listing – AETN maintains a special group of instructional television series obtained with extended broadcast, duplication, and duplication rights. These series are sequential, based on curriculum standards, and targeted to specific grade levels.

StationBreak E-letter and Web site – Electronic publications provide access to the Early Morning Block Feed Schedule, ancillary materials, Web site links to other appropriate resources and Arkansas Framework correlation.

Clearinghouse – AETN makes every effort to alert schools to other electronic experiences, as they are made available. Recent examples include the Colonial Williamsburg Electronic Field Trips, and the US Department of Education Satellite Town Meetings.

Professional Development Series – AETN includes series in the Early Morning Block Feed schedule an on their web site that provide professional development opportunities for educators.

Copyright Resources – Brief summaries for copyright law and fair use; PBS extended taping rights, educational multimedia copyright, FAQs, and tape label suggestions are available.

Arkansas Educational Service Cooperatives

Link: http://arkedu.state.ar.us/schools/

The 15 Educational Service Cooperatives throughout Arkansas serve to provide support to the school districts in their region, as well as provide professional development opportunities and act as a consortium for purchasing certain services and supplies. The cooperatives also provide technical computer support services to the schools in their area.

The Coops offer the schools on-line technical training through their instructional resources site at: http://www.dawson.dsc.k12.ar.us/artech/Classroom/instructional_resources.htm

Arkansas State University "NETmobile"

Link: http://deltaced.astate.edu/rc_netmobile.htm

The Arkansas State University "NETmobile" travels the state delivering information technology services to network businesses and communities in order to improve their utilization of technology

and for impoverished regions to assist leveling the playing field with more developed regions. This two-year project has three main components: mobility, economic development, and technology. The NETmobile is deployed to Communities, businesses, entrepreneurs, and the workforce in the Mississippi Delta in Arkansas. Note: The original Netmobile project funding has expired and it is currently in transition as Arkansas State University searches for other funding opportunities.

MarcoPolo Program

The mission of the MarcoPolo program in Arkansas is to create standards-based Internet Content and provide the requisite professional development to teachers, and to maintain the program so it may enrich teaching and affect student achievement.

The goals of MarcoPolo Program in Arkansas are to provide teachers with comprehensive standards-based, on-line lesson plans and resources that cover every core K-12 subject and grade level and to reach most Arkansas teachers, with MarcoPolo trainees trained in schools.
- Arkansas goals include:
- A MarcoPolo field trainer in each district
- Provide Technology Integration training for each Educational Cooperative
- Provide innovative utilization for MarcoPolo lessons and activities
- Provide feedback and support to the MarcoPolo Educational Foundation

Current Data on the progress of Arkansas (as of 9/20/04):
- Total Field Trainings in 2004: 10
- Total Field Trainings (Completed and Scheduled): 282
- Total Field Trainers Trained: 828
- Total Active Field Trainers: 123
- Total Willing Field Trainers: 510
- Total Schools with Field Trainers: 204
- Total Districts with Field Trainers: 80
- Total Educators Trained To Date (from projections): 5383
- Total Educators Trained To Date (from Roster): 82
- Total Educators Trained To Date (from Rosters and Follow-Ups): 5043

Greenland Charter School

Greenland's charter school program gives students a chance to work independently at a fast pace and with computer equipment and training the high school didn't previously offer. Students log on to wireless laptop computers to work through courses at their own pace and fulfill requirements by designing projects with their classmates. Students access online curriculum through a system which allows teachers to check individuals' progress and pinpoint the areas in which students are struggling. Students report to a large room the size of two classrooms for one to five of the 21 courses offered. Teachers and students communicate through interactive video technology. The students see and hear the teacher on one screen and themselves on another. The teacher can choose the camera angle to show himself, a handout or an object on the Elmo (similar to an overhead projector), a computer screen, or a video playing in a VCR. Students also take courses using

enhanced audioGrapics and web-based technologies, where students and teachers collaborate using a telephone system, computer, Whiteboard, and Web-CT.

Telephone – Students use an audio conferencing telephone system. These systems are very sensitive and unless the telephone is on mute, the instructor can hear everything the students say.

Computer – No more than five students sit around a computer with a large monitor. The monitor projects material for the class period. The students also see a video image of the instructor. The students and the instructor have electronic writing tablets that permit written information to be seen on the monitor.

Web-based Technologies – Web-based synchronous (interactive) and asynchronous (non-interactive) sessions utilize Internet resources for classroom and professional development. Various systems used include Whiteboard, Web-CT, and Webber.

Arkansas E-Rate Workgroup

Web-based Technologies – Web-based synchronous (interactive) and asynchronous (non-interactive) The Arkansas E-rate Workgroup (AEWG) works on behalf of state entities that serve pre-K-12 students and public library patrons. The AEWG represents all E-rate applicants in the State of Arkansas. Members of the AEWG are: Representatives from the Arkansas Department of Education, Department of Information Systems, Educational Service Cooperative's Technology Coordinators, Governor's Office, Little Rock School District, Office of Executive CIO, and Arkansas State Library.

The AEWG continually monitors the E-rate program rules and regulations and disseminates the information to the Arkansas applicants throughout the program year, thus assisting Arkansas applicants in complying with E-rate program rules. The AEWG interfaces with the Federal Communications Commission (FCC), Universal Service Administration Company (USAC) and Schools and Libraries Division (SLD) on behalf of Arkansas applicants.

The AEWG provides many services to Arkansas applicants. These services include, but are not limited to: training, list serve and a web site for information dissemination. Members of the AEWG assist Arkansas applicants through the application process and assist in filing of appeals if the applicant's request for funding is denied. The AEWG acts as an intermediary to the SLD program administrators to escalate Arkansas applicant issues. The AEWG responds to FCC Notices of Proposed Rule Making ensuring Arkansas perspectives are heard. Members participate in national E-rate organizations such as the State E-rate Coordinator's Alliance (SECA) further ensuring Arkansas' applicants are considered in recommended program changes.

Appendix 2 – Access Arkansas K-12 Program Outline: A Proposed Statewide Initiative where Technology is Used to Enhance Education

Access Arkansas K-12 Portal is an on-line tool that provides teachers, parents and students with the following five core services:

- **A single, on-line interface**, where all programs are accessed by educators, parents and students;
- **Professional development** for teachers and administrators that focuses on, a) technology integration with curriculum, and b) leveraging *Access Arkansas K-12 Portal* to enhance the efficiency of daily tasks and to increase parental engagement;
- **A curriculum matrix** allowing educators to easily search for appropriate lessons, resources and assessments aligned to the Arkansas Standards;
- **A communication tool** that a) increases communication between administrators and teachers and extends dissemination of vital information; and b) allows parents and students to view important school related information and communicate with teachers and administrators;
- **Formative, on-line assessments** that measure student progress and immediately deliver pertinent remediation material.

In order to accomplish this, the following requirements are necessary:

- Teachers must be prepared, equipped, and supported in utilizing technology;
- At a minimum, each campus must have the following available:
- High speed Internet access
- One computer lab
- One up-to-date computer per classroom
- A Master Technology Teacher Endorsement

With the successful completion of the required courses (or demonstration of required competencies on assessment), a teacher will earn an endorsement in Educational Technology from an Arkansas State college. The endorsement targets teachers who teach other teachers the integration of technology in the classroom.

The success of this initiative is dependent upon the following:

- It being an agent of change;
- Incentives and requirements are needed;
- The magnitude to which it is embraced by parents, teachers and school administrators;

Teachers experiencing a savings of time and/or a higher quality method of doing their job through the use of technology (i.e., on-line curriculum guides, grading, lesson plans, communicating with parents).

Benefits and Value of the Project

- One single interface that ensures universal adoption of *Access Arkansas K-12 Portal* services.
- Alignment with state standards.
- Increase of communication between teachers, students and parents.

The Coordination of Access Arkansas Operations

- The following are possible options for organizations which could administer Access Arkansas K-12.
- Arkansas Department of Education
- An Arkansas University – The University of Washington administers such a statewide technology in education program in cooperation with the Department of Education.
- Private for Profit Company – through a contract with the Department of Education.
- Private-Non-Profit Company – through a contract with the Department of Education, such as was done when IMPAC Learning Systems was established.

The Core Components to Access Arkansas K-12

A. Standardized On-line Access to Resources by all Arkansas School Districts

1. The on-line access includes a communications channel between teacher and parent.
   a. The channel is uniform statewide
   b. The channel provides secure communication that protects the privacy of student records and information (compliant with the Family Educational Rights and Privacy Act);
   c. The Access Arkansas K-12 portal will include the necessary authentication and authorization (for example, a role-based, single-user sign-on) to provide easy access to all appropriate programs for each end user whether administrator, teacher, parent or student.
2. A centralized clearinghouse that manages content (on-line resources and information).
3. The "content" component of Access Arkansas K-12 encompasses the following:
   a. Educational online resources for teachers that will enhance Arkansas K-12 curriculum
   b. A robust online student information system (SIS) that includes data related to each Arkansas student
      - Communicates important academic information to parents, teachers and students via the Internet including:
        - real-time reporting of student grades
        - standardized test scores
        - attendance
        - other meaningful, real time information for parents and teachers

- Enhances and extends the capabilities of the Department of Education's current SIS system, Arkansas Public School Computer Network (APSCN).
- Integrates with APSCN and common grade book applications.

c. Web "space" for school and teacher web sites

d. Teachers will submit class information to their own customized site. This would include: lesson plans, assignments, special event announcements, curriculum supplement material, calendar, etc.

e. On-line Resources for Parents (accessing with ID login and secure password). The resources would include the following:
  - Student information, including:
    - lesson plans
    - real-time student grades to provide opportunities for improvement
    - attendance status
    - student portfolios
    - other student status reports
  - Parenting skill information
  - School Information, including:
    - class schedule
    - communication links between teacher and parent;
    - scholarship information

f. On-line Resources for Teachers
  - Lesson plans aligned with the Arkansas Curriculum Frameworks
  - Lesson plan database
  - Communication links between teacher and parent
    - Currently, parents are communicating via email only if the teacher gives them their address.
  - Web-enabled student portfolios that travel with the student.
    - All the portfolios would be centrally located.
  - Web enabled student transcript
  - Web enabled technology training - examples:
    - Training on routine desktop applications
    - Integration of technology into core content areas.

g. On-line Resources for Students
  - Career planning
    - Career assessment
    - Career interest inventory
  - Scholarship information
    - Online applications
  - Distance learning courses
    - Includes courses outside the traditional school day
  - SAT/ACT test assistance

- College preparation
  - Assist in college application process
  - Apply for colleges online
  - Virtual tours of college campuses
  - Financial aid opportunities
    - Estimate student financial aid eligibility

B. Training for Educators (both pre-service and career), Students, Parents and School Board Members

Provide teachers and administrators with professional development that prepares them to teach using 21st Century Skills. Technology can assist good teachers become better teachers. However, technology is a wasted resource in the hands of a teacher unwilling or untrained in utilizing its educational applications.

1. The training is available in both on-line format and "live" on-site training.
2. Offer courses featuring asynchronous video on demand (participants need not be online at the same time).
3. The training will include:
    a. Training on enabling and utilizing Access Arkansas K-12 (for parents, teachers and students)
    b. Technology integration training (for teachers and administrators)
    c. Technology tool training (for teachers and administrators)
    d. Software application training (for teachers and administrators)
    e. Training toward compliance with the National Educational Technology Standards for Teachers and Administrators
        - Higher education institutions will be required to have a plan on incorporating the standards into their pre-service curriculum.
        - Prospective teacher demonstrate proficiency through colleges of education.
        - School districts would certify that existing teachers meet these national technology standards.

C. Formative Assessment Component

1. Allows teachers, parents and students to monitor student development through the use of validated assessment items aligned to the Arkansas Curriculum Standards Framework.
2. Identifies student weaknesses at the student, class and campus levels.
3. Allows teacher to access supplemental content to address the levels of concern.
4. Allows teachers to either use the supplied assessment tests or create their own.

Additional Support Needed to Assure Success of the Initiative

A. **Teachers Provided with Technology Support and Tools**
   - Teachers will be provided with:
       - Adequate 21st Century technology tools to fully utilize Access Arkansas K-12;
       - Teachers will be provided the technical support required to keep systems operational.

B. **A Partnership with the Department of Information Systems and Department of Education**
   - To provide the bandwidth necessary to support Access Arkansas K-12 and its associated activities.

C. **A Master Technology Teacher Endorsement**

Appendix 3 – National Exemplary Programs

The Henrico County School District, Virginia, One-to-One Laptop Program

Presented by Vicki Wilson, Assistant Superintendent, Henrico County School District

The Henrico County School District in Virginia was not prepared for the One-to-One Program initiated for its students; the program had to evolve as it was implemented. However, the results have been impressive: both student scores and attendance have improved. Recruiting teachers for the school district is much easier and Internet connectivity is available in the students' homes. Henrico County School District is currently in the third year of the One-to-One program. At the end of the first year, students' scores were improved in all subject areas, the dropout rate had decreased, and the scholarship rate had increased. Now in the third year of the program, scores continue to rise and dropout rates continue to decline.

After year one of the program, it was obvious that more instructional support was needed for students, teachers, and parents. In year two of the program, a full-time trainer was added for every school in the district; before this point, each school had a full-time technician only. In addition, the staffing required maintaining a student help desk was hired. The help desk has been an extremely helpful tool of support.

Henrico County is a diverse blend of rural and urban schools. On the average, these schools receive $500 less per student than other schools in Virginia. Partnering with Apple allowed the school district to implement the program while staying within their technology operating budget. The number of students in the district (25,000 – 28,000) was also helpful in financing the initiative.

The program has trained teachers in the district, who, in turn, have developed content aligned with state and national standards for all to use. Partners have also assisted the district with content. Content for the Advanced Placement (AP) curriculum has also been a focus, and Henrico County students perform well on AP exams.

Although the teachers were not ready for the program when it began, there was the realization that schools today are different than schools of the past, and that there was a need to shift to a digital environment in order to fully engage a new breed of multi-tasking, digital learners. As in all such programs, there were early adopters and early resisters within the teaching population. Now, by year three of the program, teachers have become adjusted to the new environment.

Parents, also, recognized the need for schools to engage in a digital learning experience for their children. However, parents were reluctant to fully embrace a program that they felt would demand that they do away with textbooks. Over time, the parents have, for the most part, come to realize that the texts do not go away, and that the program only augments the students' learning environment.

The Task Force members were invited to ask questions about the program; Dr. Wilson provided the following responses to Task Force members' questions:

If the technology operating budget (4-5% of the overall school budget) was primarily used for infrastructure, what else was given up to finance the program?

The program began on a light year for textbook adoption, so not as many text purchases were necessary. In addition, desk purchases were postponed. Since every classroom now became a computer lab, facilities and space for the regular computer labs were not required. And, funds to produce interim reports that had previously been sent home with students were not needed since the information was now accessible online.

Do the children give the computers back after the school year has been completed?

Laptop computers are collected at the end of each school year, refurbished over the summer months, and then redistributed, each, to the same child, in the fall when classes resume. At the end of four years, Apple offers the families an option to purchase the computers at very reasonable prices. Many homes in the district did not have computers. A laptop computer sent home with a student became the family computer

Do many computers "disappear?"

The students are required to use the computers, and there is a very low rate of computer disappearance. Each system, however, has an identification number, and the schools work with the local Police and with local pawnshops to address any issues they face.

What computer repair system is needed by the program?

Apple has placed a repair center on-site to assist in keeping computers operational. It has been found that, generally, the younger the child, the better the computer is cared for.

What was the outlay per computer?

Five hundred dollars per child / per year is required. Infrastructure and staff development needs are primarily covered by the technology operating budget of the district. Software packages included on each system (dictionary, thesaurus, encyclopedia, graphing calculator) save parents from purchasing the materials separately for their children.

Who pays for the home connection to the Internet?

Parents pay $9 per month for the Internet connection and $50 per year for insurance. A foundation has been established to assist parents that cannot meet these payments; however, parents are encouraged to pay an amount that is workable. It has been found that if an investment has been made on the part of the students and their families, they become more involved and interested in the program.

What Adequate Yearly Progress (AYP) has been achieved by these schools?

The current 65% AYP for the district will be analyzed to see what the children are missing and to adjust the program to address problem areas.

Does every teacher develop course content, or are specialists available for core areas?

The district has content specialists; standards are built into course content that is available for all teachers to use. In addition, the district uses a number of subscription services to acquire content.

Do the teachers use these content offerings?

Some teachers use the offerings a lot; others use it less. However, the content is used much more now than it was in the first year of the program. In year one, less content was available.

Is battery life a problem?

Battery life is not a problem. A student must charge the battery every night; but, then, the charge will last for the next day.

Have additional rules been necessary regarding the laptop computers?

Yes, additional rules have been made, for instance, "no open laptops in the halls."

How are Wide Area Network (WAN) abuses contained?

In year one of the program, the network was not robust enough to meet all the needs of the students. This was, in part, due to student abuse of network resources. A major lesson was learned that first year, and now, filtering is in place to dictate sites that students may and may not access.

Teaching and Learning in the Digital Age

Presented by Dan McCormack, Apple Education

Dr. McCormack gave examples of web sites with digital content for K-12. He noted that various subscription services offer rich content for schools. The link below provides Dr. McCormack's page of links to online digital content, including: Beyond Books, NetTrekker, FrogGuts, ExploreLearning, Vantage Learning, Maps101, and various Apple content sites.

Link: http://homepage.mac.com/drdan2000/content.html

Sharing Professional Development Best Practices

Presented by Elaine Sellhorn, Technology Integration Specialist, Region One Education Service Center (ESC), Edinburg, Texas

Region One, which is located in southern Texas, has a student population that is 94% Hispanic and grows by approximately fifteen thousand students per year. The primary objectives of the Service Center are to assist the school districts in improving student performance while operating more economically and to implement initiatives assigned by the Texas legislature and the Texas Commissioner of Education. After recently incurring substantial loses in available grants and funding, and, in addition, having increased demands made upon teachers from the No Child Left Behind program, the Region has looked aggressively at grant writing as a means to sustain their operations.

A focus of the ESC is to train teachers in technology integration. The schools in Region One use most of the technology platforms currently available, so the Service Center must support all subject areas on all necessary platforms. Master Technology Teacher (MTT) Certification training is available via online courses and workshops. The MTT Certification trains teachers to work with other teachers, rather than students. The training emphasizes not only how to use technology, but also, when to use it. Available resources include the Southwest Educational Development Laboratory (SEDL) which creates and provides research-based products and services to improve teaching and learning, and the Regional Technology in Education Consortium (RTEC) which supports schools, teachers, and leaders in using technology through professional development, information dissemination, and technical assistance.

Considering leadership to be essential, Region One ESC works closely with the Texas Association of School Administrators and the Texas Leadership Center and Technology Leadership Academy (TASA – http://www.TASAnet.org) to:

- Increase technology knowledge and skills of Principals and Superintendents, including how to support integration of technology in the classroom;
- Help administrators be more involved in making technology decisions; and
- Help administrators model technology use to staff, students, and the community.

Specialists at Region One have found that there is no one solution to help teachers integrate technology into the classroom. Rather, they have relied upon a number of different methods. At this point in time, they feel that technology integration skills should be requisite for hiring new teachers into the system. In addition, it is important to assess the skill levels of current teachers; the Service Center uses online technology self-assessment tools to assist educators in evaluating their technology skills and in helping to direct them to resources available to upgrade those skills. Ms. Sellhorn noted that it was also important for Principals to hold teachers accountable for integrating technology into their classes. Finally, teachers need to be given real incentives for their efforts and, also, given the time they need to devote to technology integration skills development.

Link: http://www.esc1.net/

eMINTS: Enhancing Missouri's Instructional Networked Teaching Strategies

Presented by Monica Beglau, eMINTS Project Administrator and Cynthia Matzat, eMINTS Instructional Supervisor

Using technology to create learning experiences that engage young learners in new ways is the heart of the eMINTS (enhancing Missouri's Instructional Networked Teaching Strategies) program. eMINTS is changing education across Missouri and is an example of an extraordinary K-20 partnership producing remarkable results.

MOREnet (Missouri Research and Education Network) administers eMINTS in collaboration with the Missouri Department of Elementary and Secondary Education (DESE).

Goal of eMINTS is to support Missouri educators as they integrate multimedia technology into inquiry-based, student-centered, interdisciplinary, collaborative teaching practices.

The eMINTS Revolution

- Since 1999, eMINTS classrooms have been added across the state using a combination of local, state and federal funds.
- 195 of Missouri's 524 public school districts participate in the eMINTS program.
- Over 700 eMINTS classrooms in grades 3-12 in Missouri rural, suburban and urban settings.
- More than 16,000 children and teachers report to eMINTS classrooms daily.
- Classrooms include a rich array of multimedia learning technologies such as one Internet-connected computer for every two students, an interactive whiteboard and associated equipment and software.
- eMINTS instructional model requires teachers to learn to teach in very different ways from those they learned and have practiced over the years.

eMINTS Professional Development Support System

- Helping teachers learn new teaching strategies using technologies requires significant "just-in-time" professional development support to transform teaching.
- Teachers receive 250 hours of professional development over two years.
- Occurs mainly after school hours.
- Sessions are followed-up by classroom visits from MOREnet instructional specialists living in the geographic area.

eMINTS Results

- Students in eMINTS classrooms score higher on all statewide tests compared to students in non-eMINTS classrooms in their own schools and statewide. See http://emints.more.net/evaluation/index.shtml
- Two years of test score analysis verify results that students are moving out of lower levels of performance into higher levels.
- eMINTS is effective in reducing the effects of poverty on student performance.
- Over 74% of eMINTS schools achieved Adequate Yearly Progress (AYP) in 2003 compared to 49% of schools statewide.

eMINTS Collaboration with University of Missouri (UM) System

- UM's College of Education provides eThemes - an extensive database of content-rich, child-safe websites matched to state curriculum standards.
- UM's elementary pre-service teacher education students complete field experiences in eMINTS classrooms at Parkade Elementary School. University of Missouri-Kansas City (UMKC) and University of Missouri-St. Louis (UMSL) pre-service teacher education students also visit eMINTS classrooms.
- eMINTS teachers may enroll in optional graduate credit courses associated with eMINTS. UM's School of Information Science and Learning Technologies (SISLT) in the College of Education applies six of the hours to advanced online degrees.

eMINTS Collaboration with Missouri Higher Education

- Southwest Missouri State University College of Education since 2000 - three eMINTS classrooms in the Greenwood Laboratory School where pre-service teachers complete field experiences. SMSU also offers graduate credit to interested eMINTS teachers.
- New relationship Lincoln University - ultimate goal to graduate official eMINTS teachers prepared to teach in eMINTS classrooms

eMINTS Adoption by Other States

- Missouri is working with specialists in Utah to replicate the program in 45 classrooms in five school districts in Utah. Interest has been shown by North Carolina, Kansas and other states.

eMINTS Awards

The eMINTS program has received awards in recognition of its performance:
- Stockholm Challenge Award 2001 Finalist in Education for Contribution in Global Movement of Building a Better Information Society
- Computer World Smithsonian Laureate for Visionary Use of Information Technology in Education and Academia February 2000
- The Videographer Award of Distinction for "eMINTS: Expanding for a Brighter Future" 2000

Estimated Costs for Establishing Two eMINTS Classrooms Using In-District Professional Development Specialist Model Year 1			
	State**	District	Total
6100 Salaries			
*Teacher stipends (2 teachers x 100 hrs. @ $15/hr.)	$3,000		$3,000
*Teacher subs (2 teachers x 4 days @ $80/day)	$640		$640
District Trainer*		$30,000*	$30,000
Salaries Total	$3,640	$30,000*	$33,640
6200 Benefits			
*Benefits for teachers (Stipend x benefit rate, generally around 12%) and trainer (Salary x benefit rate 24%)	$360	$7,200*	$7,560
Benefits Total	$360	$7,200*	$7,560
6300 Purchased Services			
*Professional development fees paid to eMINTS program in Missouri (1 trainer @ $10,000)	$10,000		$10,000
*Travel expenses (1 trainer RT to Missouri for 1 week)	$3,000		$3,000
Dial-up service (2 teachers x 12 mos. @ $30/mo.)	$720		$720
Mileage for trainer to provide professional development and make classroom visits	$1,000		$1,000
Purchased Services Total	$14,720		$14,720
6400 Materials and Supplies			
Upgrade electrical and add GFI (2 rooms @ $600 each)	$1,200		$1,200
Student desks (28 @ $300)	$8,400		$8,400
Student chairs (28 @ $30)		$840	$840
Teacher furniture (2 desks @ $300)	$600		$600
MS Office Suite XP Pro (32 @ $62)	$1,984		$1,984
Inspiration software (2 multi packs of 20 @ $895)	$1,790		$1,790
MS Publisher (2 @ $90)	$180		$180
Other (describe)			
Materials and Supplies Total	$14,154	$840	$14,994
6500 Capital Outlay			
Switches 2 @ $1,300)	$2,600		$2,600
Wire rooms for 14 internet drops/CAT 5e 2 @ $1,250	$2,500		$2,500
Teacher laptops (2 @ $1,700)	$3,400		$3,400
Teacher computer workstations (2 @ $2,100)	$4,200		$4,200
Scanners (2 @ $210)	$420		$420
Printers (2 @ $275)	$550		$550
Digital cameras (2 @ $400)	$800		$800
Student computers (28 @ $1,200)	$33,600		$33,600
Interactive whiteboards and projectors (2 @ $5,000)	$10,000		$10,000
Capital Outlay Total	$55,470		$55,470
Project Total	$88,344**	$38,040	$126,384
District Match Total		$38,040*	
State Request Total	$88, 344**		

*   *If a new FTE is hired for position*

** *Title IID Enhancing Education Through Technology Competitive Grant Funds*

Additional eMINTS Information

The estimated costs provided for the establishment of two eMINTS classrooms in one school building include the typical average costs for installing the equipment and providing the professional development for two teachers. As such, the estimates are not meant to be inclusive of all possible costs but rather are representative of costs incurred by the average Missouri school district upon implementation of the program. The estimates are based on classrooms with one teacher per classroom and 28 students per classroom.

The cost model is based on the preparation of one in-district educational technology specialist by the eMINTS program in Missouri.

The professional development fees paid to the eMINTS program in Missouri provide the in-district trainer with over 100 hours of specialized professional development and support throughout the first year of program replication/implementation. The trainer travels to Missouri for one week of intensive work with eMINTS staff and then participates in monthly conference calls, e-conferencing, and video teleconferencing. The trainer will be provided with access to password-protected web space where the full eMINTS Professional Development program materials for participating teachers and trainers is located.

The estimated costs do not include the additional costs of providing the school with T-1 internet connectivity nor do they include the costs to air condition classrooms as would be required based on the additional amount of equipment in the room. The cost estimates for electrical service and internet drops are based on the average costs experienced by Missouri districts.

Supply costs for paper, printer cartridges and other miscellaneous expenses are not included.

Year 2 costs generally include stipends for teachers for 75 hours of professional development, substitute teachers for two full release days and travel costs for the in-district trainer to complete professional development sessions and classroom visits. Year 2 professional development fees paid to the eMINTS program in Missouri to complete the training of the trainer are $1,000.

In the example provided, approximately 70% of the costs can be covered using Title IID competitive funds with 30% covered by local funds. States may determine that 100% of the costs could be covered using Title IID competitive funds. Districts could also contribute a higher percentage and/or add funds to establish additional classrooms.

Project Contact Information

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Models of Technology Improved Learning

Presented by James Schnitz, IBM Education Strategy Executive

Dr. Schnitz noted that performance accountability under the No Child Left Behind (NCLB) requirements has fundamentally changed public education. Traditionally, the focus of public education has been placed on creating educational opportunity for students; NCLB has shifted the focus to the results of learning. This shift holds school systems accountable for improvements in achievement. Relying on end-of-term testing is not effective in this new environment; it is necessary for assessment to become a part of the teaching process in order to change outcomes early enough in the school year for improved achievement to be possible. In addition, presenting a standard curriculum has given way to allowing "on demand" student curricular needs. Dr. Schnitz concluded that individual and personalized instruction, accompanied by intervention strategies for problem areas, was yielding noticeable results. K-12 learning plans must be aligned to work with the demands of the NCLB Adequate Yearly Progress (AYP) requirements.

Washington State Digital Learning Commons

Presented by Louis Fox, CEO of the Washington State Digital Learning Commons

The Washington State Digital Learning Commons is a Web based portal and operated from a single Web site, centrally hosted and integrated to the K-20 Network, where students and teachers from around the state have access to the following:

- Digital Resources

One section will be a repository for exemplary applications of rich multi-media digital content that will enhance curricula in schools. It will offer active links to a broad range of educational and cultural organizations such as science centers, museums and archives.

Learning Tools

Another section will provide customizable digital tools for students, teachers and parents, all accessed through a single user login. They include online technology integration tools that will help teachers and librarians incorporate digital resources, and a means for students to create personalized portfolios that can capture, preserve and present their work.

Online Classes

The third section will offer a continually growing range of media-rich, interactive, and engaging courses. These include middle and high school core, AP, ESL, adult education, workforce training and teacher training courses.

Dr. Fox indicated that the goal of the Digital Learning Commons was to impact the largest number of students, teachers, and parents possible in the State of Washington, and to deliver resources to these stakeholders statewide. The Commons was the recommendation of a Task Force called by Governor Locke of Washington to provide solutions for problems not dissimilar to those currently faced in the State of Arkansas.

Dr. Fox's Responses to Task Force Questions about the Digital Learning Commons

How did the Washington Task Force select the Digital Learning Commons as the best solution to implement?

The first step taken by the Washington Task Force was to research other states and countries for solutions to similar problems. The Task Force then decided on three different ways to gather input from their own state. They held forums in communities around the state. Each Community Forum would begin with examples of digital resources that could be made available; then the individuals in attendance would be asked what types of digital resources would be useful for them. The forums yielded free flowing discussion. Generally on the same day that a forum was held, focus groups involving adults and High School and Middle School students in the communities were held and provided much useful input. In addition, a survey firm was hired to implement a telephone survey to generate statistically valid information to assist the Task Force. This process of gathering input from the communities has been an iterative approach by the Washington Task Force in designing the Digital Learning Commons.

What was the initial scope of the Digital Learning Commons (DLC) pilot project?

Initially, the pilot was designed to work with 7-10 schools; the DLC is currently working with 18 schools. The schools vary in size and are located throughout the state. The Task Force focused on schools that did not already have ample digital resources available to them. Because the initial pilot time line was short, the decision was made to focus first on student stakeholders; resources for the teacher and parent stakeholders would be considered at a later point in the project. Four kinds of resources were launched for students:

Summarize the Digital Learning Commons (DLC) Gateway?

The DLC Gateway is an online library or metadata repository that contains resources for students to use in their studies, assignments, projects, and presentations.

What Courses are provided in the Digital Learning Commons (DLC) Gateway?

High School, Advanced Placement (AP), Foreign Language, English as a Second Language, Vocational, and College courses are available through the Digital Learning Commons. The DLC is working with about ten different course providers, and sets threshold conditions for those providers. A quality control process for courses includes allowing students taking courses to comment on their experiences; and a peer review process has been established for the acquisition of all new DLC courses.

A decision was made to not "reinvent the wheel" in the development and acquisition of resources for the Commons, and, to the extent possible, existing resources were used. A priority was to furnish learning resources that were available "anytime" and "anywhere."

Can students take course offerings outside the bell schedule?

Yes, the courses are all web-based. Research has indicated that the primary place for students to access the resources is the school, and a very robust K-20 network already exists in Washington

State. A second access point is the library, and the third is a combination of homes and community centers. After-hours programs are available in Boys' and Girls' Clubs, as well as in community libraries.

In this first phase of the DLC program, was any additional equipment necessary for the classrooms?

For the most part, no additional equipment was needed for the Commons. The participating schools were assessed in a number of areas to see how they would be able to interface with the resources made available in the DLC. A reasonable installed base of technology in the schools was required to become involved in the program. The program constructed a template for a couple of different applicable grants. This tool could be used to tailor grant applications to individual schools that needed to apply for additional equipment; although this service was provided, it was not the main thrust of the project.

Were other entities that offered online learning in Washington State included under the DLC umbrella? Or are these groups still operating separately from the Commons?

Some of Washington State's existing online service providers are close partners with the DLC. For instance, an Internet Academy in the state has become one of the main providers of online High School courses. Some school districts have their own online programs, and license one or more courses through the Commons. The DLC has tried to capture and work with existing services in the state. They are also trying to work with all of the different distance learning groups in the state to see how they can all work together. This effort is also extending across state boundaries. The DLC program is working with several other western states to share resources and to enter into joint licensing agreements.

What major barriers were encountered in making the Digital Learning Commons a success?

Many people look at the DLC web site and assume that the site is "The Commons," but that is not the case. An extensive training program was put into place in the communities. There are approximately 5,000 student users of the DLC and about 500 teachers involved in the first phase of the program. This year, the program will expand to 20,000 student users and 2,000 teachers. Some level of "hands-on" training is offered to every student and every teacher in the program. University students have been tasked to go out into the communities to train users. Complex logistics and lots of site work were involved in the project.

There are currently two major issues for the Commons: One issue concerns putting the Commons on a self-sustaining pathway. There will be some amount of state subsidy for the program, particularly for assisting needy individuals and needy schools and school districts. However, it will also be necessary to direct some portion of the student FTE apportionment to come back to the Commons, particularly to pay for courses. Working out the business model for the program is a large part of the proof of concept. The DLC is working very closely with Principals and Superintendents in the user communities and with the Superintendent of Public Instruction's office to develop this business model.

What were the considerations for the Commons to develop as a public/private partnership rather than as an extension of the State's Department of Education?

It was considered necessary to establish the Commons with 501(c3) status in order to get the project off the ground. This does not avoid all the complexities of the environment, but it does remove some of the barriers to implementation. At some point it may be considered advisable to change the 501(c3) status and to become a part of an existing entity; but, initially, this seemed to be the best way to begin, and there was a consensus of the Washington Task Force members to proceed in this direction.

What grades were targeted for the initial pilot?

Students in grades 8 to 12 were the primary focus.

What is the next step for this second year of the DLC program?

In this next year, the student base will be expanded, as mentioned before, to 20,000; the teacher base will be expanded as well, to include 2,000 teachers. In addition, an emphasis will be placed on enlarging and refining content for the program. A process will be run across the state in PTAs and for other community groups to determine what types of resources will be useful for parents.

Would you comment on the classes that you offer and on the teacher qualification needed?

All of the courses offered have an associated teacher. Generally, that teacher is not in the same place as the students. Each participating school has a school mentor; that teacher mentor is usually responsible for 20-25 students who are taking online courses. There are many different models for how those teacher mentors are used. Some schools have one period of the day where all students enrolled in an online class meet with the mentor to discuss details of their classes. The mentors do not necessarily have the discipline-specific knowledge of the classes that they mentor for; their role is to work with the students and to encourage, troubleshoot, and keep the students on-task. In other participating schools, students may meet with their mentor before or after school hours. All mentors receive student progress reports from the online class teachers so that they have a regular update on how their students are performing. Mentors must undergo an extensive training program that has both online and in-person components.

Have you developed any metrics to evaluate the DLC as it moves forward?

The Commons does have an Assessment Plan which Dr. Fox offered to share, along with a Mid-year Report. Individual student academic progress is measured. It will be necessary to track academic achievement over time. Increasing student participation in post-secondary education is an additional goal of the Commons, and this, also, will need to be assessed over time. Since decisions such as how the Commons' resources are integrated into school sites, how the resources are used, and how schools determine which students are allowed to take online classes, vary and are made at the local level; it is necessary to track and evaluate these differences. Additionally, each individual resource used for the Commons is being evaluated, along with the training programs that are in place. Since the DLC is a research project, the evaluation component is very significant.

How do you envision the full roll-out of the DLC?

Within five years, the Commons should be present in every Middle School and High School in the state. Then, the project may focus on earlier grades, particularly as technology interfaces improve. In addition, more educational resources for adults and more post-secondary level resources are envisioned. At some later point, private and parochial schools will also be engaged.

Is the DLC seen as a resource to the traditional schools in the state or as an alternative school?

The Commons is seen as augmenting and supplementing schools, not as replacing them. In traveling around the state, it was easy to see that talent was very evenly distributed, but that opportunity was not. The Commons was seen as a way to ensure that more opportunity met up with more of that talent. Political opposition has not been encountered; this is not a partisan issue. Nor has the Teachers' Union been opposed to the work being done by the Commons; the DLC has been seen as furthering the work of the schools and the teachers, and not as competing with them.

Do you have any final comments or any advice for the Arkansas Task Force as it enters into this process?

Dr. Fox emphasized the importance of getting out into the local communities, and talking to parents, teachers, and students in those communities about the resources that they feel they need and about the obstacles that they face in the educational process. He recommended that we engage in the same sort of iterative process of gaining feedback that the Commons used to help in its design. This process has helped people in Washington to see the DLC as *their* Commons; it is not something that is being done to them, but is something that they own. There is no substitute for the hard work of going out and engaging people at the community level throughout the state.

Link: http://depts.washington.edu/lcommons/index.html

The South Dakota Technology Teachers Learning Academy

Information obtained from Peg Henson, the Program Supervisor of the South Dakota Technology Teachers Learning Academy (TTL); Tammy Bauke is the Director of TTL

Background - The Technology Teachers Learning Academy

(TTL) is the result of the Governor's emphasis on teaching training for technology. He maintains it takes 20 days of hands on training for a teacher to understand how technology can enhance instruction and learning. Within the context of South Dakota wiring all of their schools with T1 capacity, the Governor was instrumental in making sure the teachers were adequately trained – result a 20 day academy (TTL) for teachers to receive training in both the use of technology and how that technology would be incorporated into the curriculum. The teacher went into academy with a focus on their own classroom. By the end of the 20 days the teacher has developed a unit of study that incorporates technology. The beginning weeks of academy (20 days) teachers learn basic technology skills necessary to utilize technology in the classroom. These skills included email, MS Word, Excel, PowerPoint, web page design, and effective instructional design.

Teachers

Teachers are paid $1,000 to attend the 20 day (4 week) academy, and are given a $1,000 equipment stipend to purchase technology for their classroom to support the units they were implementing.

The TTL Instructors

Teachers that are using technology in the classroom are selected to teach the academies (rather than having technology specialists, college faculty, etc). TTL staff review the applications and choose the most innovative teachers to serve as instructors for the academy.

Funding

state legislators support the TTL and appropriate state funds to operate it within the S.D. Dept of Education. They also utilize their Federal technology dollars toward this academy (that was the initial source of funds).

Advanced TTL Academies

The advanced TTL Academies are for teachers that want more advanced training and get updated on latest innovations. The advanced academies include: video production and editing, GPS/GIS, advanced web page design, advanced Office skills. The advanced academies are offered in summer and are two weeks long. Some of the advanced courses are starting to become available on-line, and these are offered throughout the school calendar year. \

TTL Organization

The TTL is part of the S.D. Department of Education. The TTL staff is responsible for the operation of the academies. The TTL is responsible for identifying the schools were the academies will be located, and selected the instructors. The TTL staff approves or denies hosting of academies at a school.

Appendix 4 – Meeting Agendas 2003 - 2004

August 27, 2003, 1:00 – 4:00 PM

Arkansas State Police Headquarters, 1 State Police Plaza Drive, Classroom B, Little Rock, Arkansas

- Welcome and Opening Remarks - Carolyn Walton, Chair, and Senator Shane Broadway
- Introductions
- Presentation: Why We Are Here - Carolyn Walton, Chair
- Time Out: Technology at Work, in the Classroom, at Home - Gary Underwood
- Discussion of Task Force's Future Activities and Schedule
- Review of Meeting Dates
- Other Business
- Adjournment

September 15, 2003, 10:00 – 2:00 PM

Arkansas State Police Headquarters, 1 State Police Plaza Drive, Classroom B, Little Rock, Arkansas

- Introductory Comments and Goals for Meeting
  Carolyn Walton, Committee Chair
- The EAST Initiative in Arkansas
  - From the Leadership Team: Matt Dozier, National Director
  - From the Students at Joe T. Robinson High School and Horace Mann Junior High School
- Break-Time/Box Lunches
- Technology as a Classroom Organizational Support and Instructional Tool
  - Tina Reese: Technology Specialist, Rogers Public Schools
  - Becky Hart: Director of Instructional Technology, Hot Springs Public Schools
- What We've Learned Today (Group Discussion)
  - What's working
  - Barriers to success
- Discussion for Next Meeting (September 29th)
- Adjournment

September 29, 2003, 10:00 – 2:00 PM

Arkansas State Police Headquarters, 1 State Police Plaza Drive, Classroom B, Little Rock, Arkansas

- Introductory Comments and Goals for Meeting
  Carolyn Walton, Committee Chair
- Update Report: Educational Facilities Task Force
- Distance Learning Opportunities in Arkansas by Panel Members

- o Jim Boardman and Belinda Kittrell: Department of Education Distance Learning Center
- o Gerard Newsom and Kathleen Stafford: AETN
- o Dr. John Measel and Chris Robbins: Arkansas School for Mathematics, Sciences and the Arts
- o Bill Beavers: Arch Ford Educational Cooperative
- Break-Time/Box Lunches provided by Alltel, Inc.
  - o Arkansas Schools \ Wired Network Presentation by Mark Witcher and Tony Ferguson of Alltel
- Panel Discussion: Distance Learning Opportunities, Barriers, Models, and Future Directions.
  - o Panel discussion moderated by Carolyn Walton
- Wrap Up: We've Learned Today (Group Discussion)
  - o What's working
  - o Barriers to success
- Discussion for Next Meeting (October 15th)
- Adjournment

October 15, 2003, 10:00 – 2:00 PM

Arkansas State Police Headquarters, 1 State Police Plaza Drive, Classroom B, Little Rock, Arkansas

- Introductory Comments and Goals for Meeting
- Recommendation Report from the Subcommittee on Facility Assessment
- Summary Report from the Strategic Policy Forum, "From Blackboards to SMART Boards" conference in Hot Springs, October 7 – 8
- A Panel Discussion: Barriers Hindering Technology Integration into the Classroom
  - o Panel Members: Margaret Buford, School Principal at Marion Intermediate School; Marilyn Carrell, Teacher at Springdale High; Barbara Harper, Teacher at Robinson High School; Vicki Sandage, Teacher at Shirley Alternative Learning Center; Heather Sorrells, Teacher at Marion Intermediate School; Tim Vent, Technology Coordinator at Great Rivers Educational Service Cooperative; Jim Yeager, Guidance Counselor at Pottsville High School.
- Break-Time/Box Lunches provided by Cisco Systems
  - o Presentation by Todd Smithson, Cisco Systems
- Continue Panel Discussion: Barriers Hindering Technology Integration into the Classroom
- Panel Discussion Wrap Up: We've Learned Today (Group Discussion)
- Summary Discussion from last meeting's "Distance Learning Panel Discussion"
- Discussion for Next Meeting (October 29th)
- Adjournment

October 29, 2003, 10:00 – 2:00 PM

Arkansas State Police Headquarters, 1 State Police Plaza Drive, Classroom B, Little Rock, Arkansas

- Introductory Comments and Goals for Meeting
- Final Recommendation Report to Facilities Task Force
- The List of Issues Received
- A Description of the Process for Moving Forward
  - Goal: a) To develop a vision that describes how technology is used to improve education and services for its students and constituents, and b) Develop the action plan that will describe what should be done, including who will do it, what resources will be required, and timeframe for implementation.
  - Today's Objective: Develop and draft vision conditions for each of the three areas of focus: a) Professional Staff, b) Parents/Caregivers, and c) Students
- Instructions for today's team assignment
- Break into subject area teams to work on assignment (vision conditions)
- Break-Time/Box Lunches provided by Apple; Presentation by Dr. Dan McCormick, Education Technology Consultant
- Continue team assignments
- Teams present their draft vision conditions to Task Force
- Next steps: A retreat to continue work toward identifying solutions/actions to reach vision conditions.
- Adjournment

November 12, 2003, 10:00 – 2:00 PM

Arkansas State Police Headquarters, 1 State Police Plaza Drive, Classroom B, Little Rock, Arkansas

- Update: The Task Force Retreat, January 21-22
- A Review of Process for Moving Forward
  - The Day's Objectives:
    - Draft vision conditions for each of the three areas of focus: a) Professional Staff, b) Parents/Caregivers, and c) Students
    - Identify potential barriers to overcome
    - Receive input and exchange recommendations among teams
  - Instructions for today's team assignment *(refer to team assignment handout)*
- Break into subject area teams to work on the day's objective *(refer to the team assignment handout)*
- Break-Time/Box Lunches provided by Dell; Presentation by Jim Eden, Major Accounts Mgr, Dell Inc.
- Continue team assignments
  - Teams exchange their 'vision conditions' AND 'barriers' lists with other teams; this provides other teams the opportunity for feedback and adding to the visions and barriers
- Task Force comes back together for Team Reports
- Next steps: The retreat to work toward identifying solutions for reaching vision conditions and overcoming barriers
- Adjournment

January 21-22, 2004

Location: Winrock International Conference Center, Morrilton, Arkansas

Day One – Wednesday, January 21		
8:00 a.m. – 8:50 a.m.	Arrival and Check-in	Front Desk-Flagstone Room
9:00 a.m. – 9:20 a.m.	Introduction Carolyn Walton and Drew Mashburn	West Conference Room
9:20 a.m. – 9:30 a.m. 9:30 a.m. – 10:00 a.m. 10:00 a.m. – 10:15 a.m.	Henrico School District's One-to-One Program Introduction by Dan McCormick, Apple Education Technology Consultant Henrico School District Presentation Dr. Mark Edwards, Superintendent Dr. Vicki Wilson, Asst. Superintendent Discussion: Henrico One-to-One Program Facilitated by Carolyn Walton	West Conference Room
10:15 a.m. – 10:30 a.m.	Break	Rockefeller Conf. Rm
10:30 a.m. – 11:15 a.m. 11:15 a.m. – 11:35 a.m.	Teaching and Learning in the Digital Age Dr. Dan McCormack, Apple Education Technology Consultant Q and A	West Conference Room
11:35 a.m. – 1:00 p.m.	Break Lunch	Show Barn Dining Room
1:15 p.m. – 2:00 p.m. 2:00 p.m. – 2:20 p.m.	Sharing Professional Development Best Practices - Paige Scott, Gateway Field Executive - Elaine Sellhorn, Technology Integration Specialist Service Center Edinburg, TX - Larry Deville, Professional Services Specialist Q and A	West Conference Room
2:20 p.m. – 2:30 p.m.	Break	Rockefeller Conf. Rm
2:30 p.m. – 3:15 p.m. 3:15 p.m. – 3:35 p.m.	eMINTS - Enhancing Missouri's Instructional Networked Teaching Strategies: Supports Missouri educators in integrating multimedia technology into teaching practices - Monica M. Beglau, eMINTS Project Admin - Cynthia Matzat, eMINTS Instructional Supervisor Q and A	West Conference Room
3:35 p.m. – 3:45 p.m.	Break	Rockefeller Conf. Rm
3:45 p.m. – 4:25 p.m. 4:25 p.m. – 4:40 p.m.	Models of Technology Improved Learning Dr. James E. Schnitz, IBM Education Strategy Executive Q and A	West Conference Room
4:40 p.m. – 5:10 p.m. 5:10 p.m. – 5:30 p.m.	The Washington State Digital Commons Louis Fox, CEO of the Digital Learning Commons (Presentation taped earlier this week) Discussion	West Conference Room
6:00 p.m. – 7:15 p.m.	Dinner	Show Barn Dining Rm
7:30 p.m. – 9:30 p.m.	Hospitality Room Open	Tack Room
Day Two – Wednesday, January 21 Purpose: To develop a list of the best education technology program actions that will achieve previously developed Vision Conditions for Arkansas schools.		
7:30 a.m. – 8:20 a.m.	Breakfast Served	Show Barn Dining Rm

8:30 a.m. – 9:00 a.m.	Purpose and Process for developing Best Solution Recommendations Carolyn Walton and Drew Mashburn	West Conference Rm
9:00 a.m. – 10:30.	Each group develops a list of the best technology program solutions that will achieve previously developed Vision Conditions for Arkansas schools.	Group 1 – W Conf Rm Group 2 – Breakout Rm 1 Group 3 - Breakout Rm 2
10:30 a.m. – 10:45 a.m.	Break	Rockefeller Conf. Rm.
10:45 p.m. – 11:45 p.m.	Each group completes their list to deliver to group in West Conference Room	Group 1 – W Conf Rm Group 2 – Breakout Rm 1 Group 3 - Breakout Rm 2
11:45 a.m. – noon Noon – 1:00 p.m.	Break Lunch	Show Barn Dining Rm
1:15 p.m. – 2:15 p.m.	Each group reports and has solicitation of ideas from other groups and Q&A	West Conf Rm
2:15 p.m. – 2:45 p.m.	Select and Combine the highest priority program solutions that will achieve previously developed Vision Conditions for Arkansas schools.	West Conf Rm
2:45 p.m. – 3:00 p.m.	Discuss follow-up needs/next steps and adjourn	West Conf Rm

April 2, 2004, 9:30 AM – 2:00 PM

2nd Floor Conference Room Union Plaza Building, Little Rock, Arkansas

Goal of Task Force: To recommend and implement a specific implementation of something new; an initiative that has value for multiple purposes.

Meeting Purpose: To consolidate the three team reports into one recommendation report and 2) finalize the language for each program component within the report.
- Guidelines to help us reach our purpose
- Limit program components within the recommendation?
- A review of the 3 recommendation reports
- Identify and list similar program components
- Clarify understanding of each of the similar program components listed
- Prioritize the most important program components (establishes our top priorities)
- Draft definition and phrasing to the top priority program components.
- Discussion for next steps.
- Adjournment

April 2, 2004, 9:30 AM – 2:00 PM

2nd Floor Conference Room Union Plaza Building, Little Rock, Arkansas

Goal of Task Force: To recommend and implement a specific implementation of something new; an initiative that has value for multiple purposes.

Meeting Purpose:

- To continue to consolidate the three team reports into one recommendation report
- Finalize the language for each program component within the report, and
- Add program details to the current proposal framework.
- Review the existing draft proposal
- As we read through the proposal identify areas that need further clarification and/or information.
- Clarify understanding of the program's components.
- Draft definition and phrasing to the program components.
- Discussion for next steps.
- Adjournment

April 30, 2004, 9:30 AM – 2:30 PM

2nd Floor Conference Room Union Plaza Building, Little Rock, AR

Goal of Task Force: To recommend and implement a specific implementation of something new; an initiative that has value for multiple purposes.

Meeting Purpose: Finalize draft recommendation, and establish strategy for presenting to the Task Force

1. Formative Assessment Piece adding in (Princeton Review/EdGate)
2. Finalize Draft
   o Limit program components within the recommendation?
3. How to we address proprietary models within the report?
4. Discuss presentation to Task Force
   o Dates for Task Force Meeting
5. Discuss Next Steps

June 9, 2004, 10:00 – 2:30 PM

Arkansas State Police Headquarters, 1 State Police Plaza Drive, Classroom B, Little Rock, Arkansas

- Welcome and Meeting Purpose (Gary Underwood)
- An Update from the Task Force on Educational Facilities (Drew Mashburn)
- Overview of the Process (Drew Mashburn)
- A Presentation of the proposal organized around the three stakeholders (Prentice, Kathy, Drew)
  - o Overview
  - o Core Areas
  - o Executive Summary
- Unresolved Issues (Drew Mashburn)
- Break-Time/Box Lunches provided by Plato Learning, Inc.
- Reactions (Kathy and Prentice facilitate)

- Next Steps
  - Option 1 approved at this meeting with minor or no modification and can proceed to next steps
    - Draft Action plan that includes cost/timeline for implementation/project manager/vendor comparison
  - Option 2 approved with modifications and needs further review before moving to next steps
    - Consensus could be reached via email for sake of time
  - Option 3 rejects proposal with significant concerns
- Adjournment

Appendix 5 – Task Force Information Resources

- Arkansas Department of Education Distance Learning Center
  http://dlc.k12.ar.us
- Arkansas Educational Service Cooperatives
  http://arkedu.state.ar.us/schools/
- Arkansas Educational Television Network (AETN)
  http://www.aetn.org
- Arkansas School for Mathematics, Sciences and the Arts Distance Learning Services
  http://www.asmsa.org
- Arkansas State University "NETmobile,"
  http://deltaced.astate.edu/rc_netmobile.htm
- Arkansas Virtual High School established at the Arch Ford Educational Cooperative
  http://arkansashigh.k12.ar.us/avhs_main.htm
- AskEric
  http://www.askeric.org
- California Dept of Education's On-line Teacher Resources
  http://score.rims.k12.ca.us/index.html
- ChannelOne
  http://www.channelone.com
- ChannelOneTeacher
  http://www.teachworld.com
- CyberGuide
  http://www.sdcoe.k12.ca.us/SCORE/cyberguide.html
- eMINTS (Missouri)
  http://emints.more.net
- Environmental and Spatial Technology (EAST) Project
  http://www.eastproject.org/Portal/
- Horace Mann Arts/Science Magnet Middle School EAST Students
  http://mannmagnet.com/mann/id19.html
- Inspiration
  http://www.inspiration.com/home.cfm
- Joe T. Robinson High School EAST Lab
  http://www.pcssd.org/robinson/east
- Louisiana's Making Connections
  http://www.doe.state.la.us/conn/websites.php
- National Educational Technology Standards for Students:
  http://cnets.iste.org/students/
- National Educational Technology Standards for Teachers:
  http://cnets.iste.org/teachers/

- Neufeld Learning System's Understanding Math
  http://www.neufeldmath.com
- Plato interactive courseware
  http://www.plato.com/k12/instructional/featured.asp
- Rubric Generator RubiStar:
  http://rubistar.4teachers.org/index.php
- READ 180
  http://teacher.scholastic.com/read180/about
- South Dakota Technology Teachers Learning Academy
  http://www.desmet.k12.sd.us/ttl/sites.htm
- South Region Education Board (SREB) Report: "Preparing Tomorrow's Teachers to use Technology"
  http://www.sreb.org/main/Publications/pubs/(03E58)-Preparing_Tom_Teach.pdf
- STAR Reading and STAR Math
  http://www.renlearn.com/lis/default.htm
- WebQuest
  http://webquest.sdsu.edu
- Texas Leadership Center and Technology Leadership Academy
  http://www.TASAnet.org
- Texas Region One Education Service Center (ESC), Edinburg, TX
  http://www.esc1.net/

Appendix 6 – Draft Legislation for Distance Learning Coordinating Council

The purpose of the Distance Learning Coordinating Council is to ensure that distance learning operations for K-12 education across the state are being fully utilized through a collaborative process that maximizes the utilization of the state's technical and educational resources. The Coordinating Council will: a) reduce occurrences of isolated distance learning activities in the state; b) maximize the utilization of state distance learning resources; and, c) spread the cost and increase the value of the state's shared distance learning services.

The Distance Learning Coordinating Council's membership will be comprised of one appropriate staff member from the following entities: Arkansas Department of Education, Arkansas Educational Television Network; Arkansas School for Mathematics, Sciences and the Arts, Arkansas Virtual High School, Educational Service Cooperatives (one to represent the 15 Coops); Office of Information Technology, Department of Information Services, Arkansas State Library, Workforce Education, Department of Higher Education, and any other public entity offering K-12 courses through distance education.

The Coordinating Council may by a majority vote of the council add members to represent other entities coming into existence after the effective date of this Act.

The Coordination Council shall meet on a regular basis and make recommendations to the Department of Education for distance learning.

For the purpose of improving distance learning in the state the Coordinating Council shall:
- Establish a web-based catalogue for online K-12 distance learning programs and resources available in the state. The catalogue will serve as a central point of information, reference, and review of online learning programs.
- Provide a centralized means to which distance learning content is distributed and shared;
- Develop a collaborative process by which K-12 curriculum, enriched content, concurrent credit, and teacher training by shared, distributed and acquired by education stakeholders in the state.
- Unite autonomous distance learning offerings across the state.
- Review K-12 distance learning courses from outside the state jointly with the Department of Education to determine appropriateness for Arkansas students.
- Facilitate partnerships between the K-12 distance learning providers in the state.

Scope of Authority

The Coordinating Council makes recommendations to the Arkansas Department of Education and the legislature with regard to distance learning standards, coordination of services, on-line curriculum, supplemental course material, and collaborative processes for which distance learning content can be shared and delivered to Arkansas educational entities.

The Council's role is advisory to the Department of Education.

The Council has the authority to add to existing standards and rules governing distance learning contingent upon Department of Education approval.

Note: *Arkansas Code Title 6-47-305* [The Arkansas Interagency Distance Learning Review Commission] needs to be repealed if this legislation passes.