

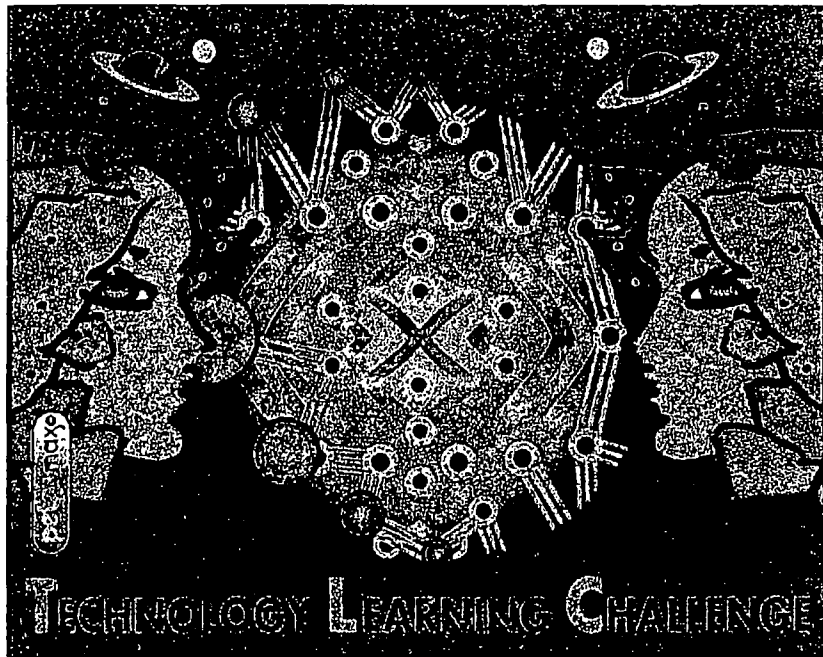


U.S. Department of Education
Washington, D.C.

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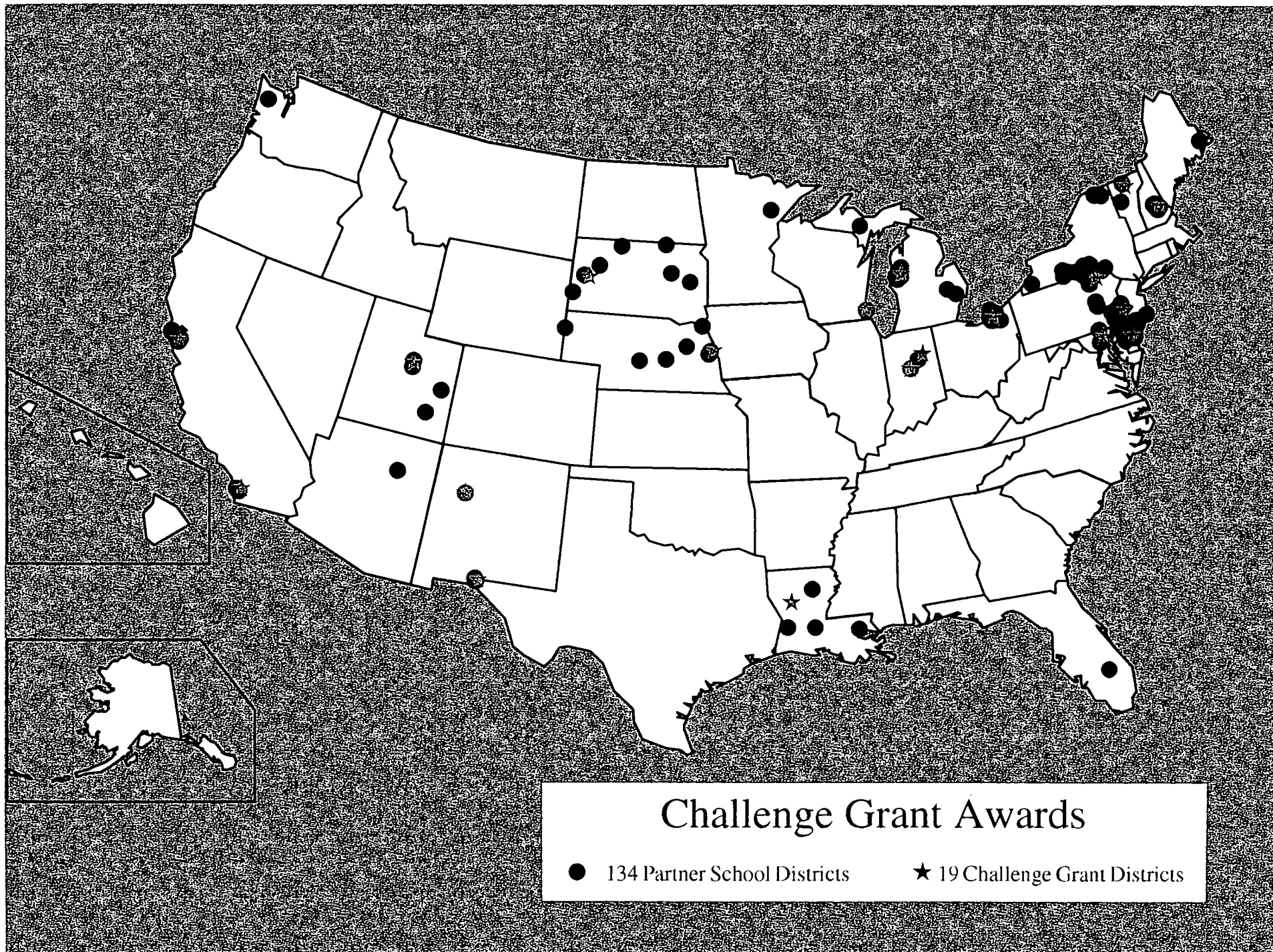
Challenge Grants for Technology In Education

GRANT ABSTRACTS
FY 1995



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Technology Learning Challenge Grants

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CHALLENGE GRANTS FOR TECHNOLOGY IN EDUCATION

The U.S. Department of Education is awarding \$9.5 million in Challenge Grants for technology in education to 19 communities in 16 states across the country. The 19 school districts in these communities will work in partnerships with a total of 134 other school districts in 23 states. These school districts will be using powerful new technologies and the information superhighway to transform their factory era schools into information age learning centers.

Challenge Grants will average \$1 million a year for five years. During the first year, one and a quarter million students will be served by these grants, and the number of students served will grow each year during the life of the projects.

In each Challenge Grant community a consortium of schools, businesses, libraries, museums and community organizations are matching the grant with substantial commitments for equipment, software development, technical support, telecommunications services and other costs. These Challenge Grant communities are making a significant educational investment in the future of their children. The total value of matching commitments is over \$70 million in the first year, and during the five year life of these projects the total value of these investments is expected to be over \$300 million. Funds awarded through the Challenge Grants will augment these local investments and support new curriculum design, teacher training, and the evaluation of educational effectiveness.

Over 380 partners will participate in the activities of these nineteen Challenge Grant communities. A total of 153 school districts will use new technologies for education reform. Over 120 business firms are participating in Challenge Grant community partnerships, along with 34 universities and colleges, ten museums, five libraries, nine State Education Agencies, the education offices of five national parks and a state park system, two regional education laboratories, an energy laboratory, a Navy base, an Army base, three Governor's Offices, and two Mayor's offices. Of the participating school districts 78 are urban and 70 are rural. The rural school districts include eight Bureau of Indian Affairs schools. Of the 120 businesses committed to these partnerships, 14 are hardware manufacturers; 12 are software developers; and 18 are telecommunications firms. Additional school districts, firms, and community organizations are encouraged to join these partnerships in the future.

Nineteen local school districts, one in each community, will administer these grants. A list of the school districts is attached, along with a map designating the locations of the 19 Challenge Grant communities and the rest of the 134 participating school districts. A one page abstract of each Challenge Grant community's initiative is also attached.

These communities are responding to an ambitious challenge. Everywhere we look, technology is changing the way we work and live -- everywhere, that is, but in our schools and classrooms. In classrooms that should be modern information centers for learning, the basic media of instruction continue to be black boards and chalk. The implications for education and economic competitiveness are enormous. In a strong economy, employers must have well-educated employees who make skillful use of information technologies to increase their knowledge and continuously improve their productivity. But few schools today are able to provide the high performance learning tools that would allow students to develop these skills.

As catalysts for change, challenge grants will support communities of educators, parents, industry partners, and community leaders who are working to retool their schools for the 21st century. Powerful new technologies and the information superhighway create new possibilities for extending the time, the place, and the resources for learning. Schools can be linked to the home, and to libraries, museums, community centers and the work place, to provide high quality learning opportunities at any time and any place. Challenge grant communities will make these connections and open their schools to new educational resources available across the nation and around the world.

As each Challenge Grant community acts on its vision for education reform, careful attention is being paid to ensure that we do not become a society in which low income communities and other areas with the greatest need for technology are left behind in the acquisition of skills and knowledge needed to be productive citizens in the 21st century. These grants support local alliances of educators, industry partners, and community leaders who are committed to developing creative responses to the information age requirements of all learners, including those in inner cities and rural areas.

These 19 Challenge Grant communities are likely to succeed because they have begun with a clear definition of the educational problems they want to address. In most cases these communities are working on the integration of new technologies into state or local education reform efforts that have been stimulated by the National Education Goals. Effective use of new technologies in these communities will contribute to school readiness and improved student achievement in reading, writing, science, mathematics, the arts and other disciplines. Each project will support professional development for teachers and promote greater parent and community involvement in education. And each will help smooth the transition from school to work by engaging students in real life learning experiences through which they can develop the life-long learning skills necessary to compete in the economy of the 21st century. In several cases, district-wide, state-wide, and regional efforts to set clear expectations for what all students should know will enable these communities to form major markets that stimulate demand for new high quality learning systems and software.

Although the funds available this year limit these Challenge Grants to just a handful of the 530 communities that applied, during the 1995-96 school year we plan to conduct a second round competition, which could lead to an additional award of 20 new grants by September 1996.

For additional information on this program contact:

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San Mateo County Office of Education

Redwood City, California

Silicon Valley Challenge 2000 Multimedia Project

This project is one element of an ambitious program to revitalize education in schools throughout Northern California's Silicon Valley. Under the leadership of the San Mateo and Santa Clara County offices of education, and a consortium of industry partners called "Joint Venture: Silicon Valley" (JVS), over \$15 million in corporate contributions has been raised in the area to support systemic school reform. The Challenge 2000 Multimedia project builds on the collaborative foundation and experience of JVS, helps unite several of its diverse elements, and focuses on the use of multimedia technologies in the creation of student instructional units. The project includes 37 schools, more than 750 teachers and 23,000 students drawn from two counties and nine school districts. Over 50% of these students come from low-income homes. The project addresses objectives of the Goals 2000 Act, provides an extensive professional development program, contains a strong school-to-work element, and promotes reform at all levels of education.

The Multimedia Project creates four "school communities," consisting of elementary and secondary schools, and colleges. The program is establishing a high-performance telecommunication network that links the schools, allowing them to exchange curriculum information and participate in joint educational activities. Through the network, the schools have access to state-of-the-art multimedia development tools, and physical and virtual resources at the Bay Area Multimedia Technology Alliance (BAMTA). BAMTA's "Collaboratory" is an educational research facility and technology testbed that facilitates the development of multimedia projects, including collaborative work environments. The school communities are being equipped with multimedia hubs containing high performance computer graphics workstations that allow students and teachers to take full advantage of Collaboratory resources. Each of the schools is developing an "exemplary practice" model for learning activities supported with multimedia software and network tools. Students use these technologies to explore subject matter content, and engage in collaboration, planning, revision, problem solving, critical thinking, and reflection. The school communities have also developed individual technology plans:

Blossom Valley Learning Consortium

Located primarily in South San Jose, this school community includes nine schools, and the general and special education departments of San Jose State University. Support services such as tutoring, alternative learning, and medical diagnoses are provided in partnership with local government, public agencies and industry. A school networking plan and a cross-school assessment system help consolidate the schools' programs. One school district in the consortium is opening a "Technology Teacher Magnet School" where teachers learn to use telecommunication and multimedia to enrich curricula.

Family of Schools

This community of 15 schools drawn from four districts serves an economically and culturally diverse population of over 10,000 students. The team's high school draws 40% of its students from an inner-city area where the median household income is less than half the national average. The Family of Schools focuses on improving math and science instruction, with extensive support from industry partners, including three major businesses, three community colleges, and an educational foundation. This community has established a professional development center where teachers create and test technology-supported math and science curricula.

Overfelt Family

These five East San Jose schools serve one of Silicon Valley's most economically stressed communities. At the elementary schools, eight out of ten children are eligible for free or reduced-price lunches. At

home, nearly 80% of the students speak a language other than English. The Overfelt Family community is focusing on improvements in literacy and language arts, and is turning its schools into family centers, building on the school-linked "Healthy Start" integrated services program. Other focuses are retention, motivation and support of teachers in connecting instructional activities to real-world applications.

Palo Alto Learning Communities

This community of 16 schools focuses on literacy and school-to-work activities in an ambitious reform program that: 1) promotes performance assessment by community and corporate representatives who conduct standardized scoring of student multi-media exhibitions; and 2) helps develop school-to-work skills with a network link between schools, libraries, administrative offices and corporations.

JVS has obtained commitments for educational support from the Hewlett-Packard Company, Intel, Network General, Symantec, 3Com, Silicon Graphics, Apple Computer, Applied Materials, Cirrus Logic, Logitech, NetManage, Quantum, the Robert Noyce Foundation, Sun Microsystems, Wells Fargo Bank, and Adobe Systems. JVS is acting as a broker in obtaining technical support from the staff of these corporations for Multimedia Project schools. Additionally, JVS is providing funding for release time and basic computer and Internet training of teachers. Silicon Graphics, Inc. will donate up to ten high-performance workstations for each school community hub, which will be located in the team's secondary school.

Project evaluation will be performed by SRI International. The project will maintain complete records of activities and products generated by the four school communities, and these materials along with results of the project evaluation will be disseminated in hard copy form and through the World Wide Web. The Multimedia Project brings together a powerful consortium of public, and private institutions to implement a comprehensive plan to help reform education in schools throughout the Silicon Valley.

Consortium Partners

Bay Area Multimedia Technology Alliance
Blossom Valley Learning Consortium
Family of Schools
Institute for Research on Learning
Joint Venture: Silicon Valley--21st Century Education
Initiative & Smart Valley, Inc.
Overfelt Family
Palo Alto Learning Communities
Santa Clara County Office of Education
Smart Valley, Inc.
SRI International

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San Diego Unified School District

San Diego, California

The Triton Project

"The Triton Project" is a multi-partner educational reform effort that blends a unique ocean-themed curriculum with several technologies to create new learning opportunities for students and teachers in the San Diego schools. The San Diego Unified School District is the eighth largest in the country. More than 26% of its students are classified "English language learners" (ELL), and they speak more than 50 native languages. Over half the ELL students are economically disadvantaged, and academic achievement among many students throughout the school system is poor. The Triton Project uses the capabilities and unique appeal of modern technology to capture interest in core curricula, provide a highly productive education program, and produce improved student achievement throughout all elementary and secondary schools in the system. As the program is expanded to include all San Diego School System students by the year 2000, more than 128,000 children will participate. This program includes a strong staff development component and evaluation plan. Its major focus is the development of a content-based and standards-driven curriculum. The program stresses systemic reform, and contains elements that are in compliance with recommendations of the National Education Commission on Time and Learning and the Goals 2000 Act. There are four main goals.

1) Equitable Access to Technology

The program is increasing the availability of educational technologies throughout the school system in order to ensure equitable access to technology-related opportunities for all students. The program teaches students to identify, organize and allocate educational resources. They work with a variety of technologies, including the Internet, word processing, spreadsheets, databases, multimedia, telerobotics, videoconferencing, digital video, and virtual reality.

2) Improved Learning Outcomes

The program utilizes a variety of technologies to improve learning outcomes in reading, writing, math, and science. Several approaches are employed, including the establishment of measurable objectives and evaluation strategies, the implementation of curricula that address the needs of second language learners, and the application of technology to specific learning challenges.

3) Improved Interaction with Parents and the Community

The program promotes effective telecommunication using computers, video and cable television. These technologies encourage communication across ages, geographies, genders, ethnicities, and economic levels. Through telecommunication, digital video production, and cable television, the program allows students to contact and learn from schools and other community resources at distant sites.

4) Effective Staff Development

The program provides effective, hands-on training for administrators, teachers, support staff, and parents. Teachers learn to use technology as a tool in developing lessons, and discover how to locate and utilize educational resources on the Internet.

The Triton Project is a collaborative partnership between the San Diego City Schools and a number of private and public organizations within the community. Each of the partners provides a unique service to the program. The school system is working closely with the Mayor's office to connect electronically all classrooms, offices, and school libraries to colleges, universities,

public libraries, medical centers, social service agencies, research facilities, Sea World, museums and other places of interest in the city. Sea World is expanding its telecommunication capabilities directly into district classrooms, and communicates directly with students via the Internet. Scripps Institution of Oceanography and the Stephen Birch Aquarium-Museum are sharing two curricular units they have developed, "Kelp Forest" and "Forecasting the Future." They also work with teachers in the development of new curricula. The San Diego Public Libraries offer Homework Centers as an electronic resource for students. Pacific Bell, through its Education First project, links the partners electronically, and is working with San Diego State University on a curriculum development project. The San Diego Supercomputer Center supports the design and production of a curriculum that takes the vast resources of the Internet and filters them into a practical, useful program of study. It also supports the virtual reality component of the project. The Naval Command Control and Ocean Surveillance Center gives advice in virtual reality development, demonstrates advance technologies in action, works with students to design and develop robots that can operate at a distance and in virtual worlds, and offers engineering and technical support.

An external evaluator from San Diego State University is working with Triton Project staff to design an evaluation plan for the program. The evaluator will conduct site visits, observations and interviews, and will coordinate project data collection. School district staff will work with Triton Project staff to coordinate data collection and analysis. Project participants will assist at every level in the design, implementation and interpretation of the evaluation.

The Triton Project blends new technologies, intriguing subject matter, and non-traditional learning opportunities in a unique and motivational education program.

Consortium Partners

Naval Command Control & Ocean Surveillance Center
Office of the Mayor of San Diego
Pacific Bell's Education First Initiative
San Diego Data Processing Corporation
San Diego Public Library System
San Diego State University
San Diego Supercomputer Center at UC-San Diego
Scripps Institute of Oceanography
Sea World
Stephen Birch Aquarium-Museum

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Capital School District

Dover, Delaware

Delaware Interactive Educational Television Consortium

The Capital School District and the State of Delaware have formed an Interactive Educational Television Consortium that is bringing unique and engaging classroom learning activities directly into the homes of schoolchildren throughout the state. Through the use of small computers ("set-tops") that connect to home televisions equipped with cable or phone modems, the consortium can provide programming that is interactive, entertaining, educational, and tailored to meet both state curriculum requirements and the individual needs of students. This program can be easily replicated in school systems throughout the country. It responds to recommendations of the National Commission on Time and Learning, fits within the framework of the Goals 2000 Act, and has a strong school-home element. The program is being piloted in five elementary schools with high percentages of disadvantaged students. As it grows into the state's 16 school districts, more than 12,500 students in grades K-6 eventually will participate. The program has four major goals:

1) Increase Student Learning Time

In response to the challenge of breaking the mold of our "factory-era schools" this project utilizes cutting-edge technology to extend learning into the home on a daily basis. This allows students to increase their learning time with instructional programs that directly address their learning styles and needs. Time typically spent passively and unproductively watching television and playing video games is replaced with active and productive learning time in which solid curricula are combined with video game interactivity to create a new learning dynamic for children.

2) Increase Parental Involvement

Family and community participation are vital components of this project. No matter how thoughtful and comprehensive a school improvement program is, the school alone cannot improve academic performance for all students. This project fosters and supports a home environment that encourages learning, provides for realistic expectations, and enhances the parent's role as the child's first and most important teacher. It also fosters improved communication between parents and teachers.

3) Provide Professional Development for Teachers and Staff

Teachers and staff receive comprehensive training for the project, and they are provided set-top computers for their homes. As the infrastructure is deployed, teachers participate in interactive staff development "on-demand," and they learn to use the system to generate personalized instructional materials for students. In addition, they can go "on-line" with their colleagues and learn, share and communicate easily with one another.

4) Provide Equitable Access to Educational Technology

Every child involved in the project and every household they represent is provided, free of charge, all equipment needed to participate fully. This program opens opportunities for universal access to high-quality instruction and helps to close the gap between the technology haves and have-nots.

Hardware and initial programming for this project have been developed by The Lightspan Partnership, Inc. of Robbinsville, New Jersey. Lightspan also provides training for faculty and parents, and ten days of consultant support for each school. Additional programming in language arts, health, social studies, science, math,

parenting and other subjects is provided through contracts with a wide variety of educational publishers.

The Interactive Educational Television Consortium is an outgrowth of the Delaware Educational Technology Committee, the Delaware Goals 2000 Technology Committee, and the Capital School District Technology Committee. State partners in the consortium include the Delaware Department of Public Instruction and all school districts in Delaware with elementary student populations. Programming partners include the Lightspan Partnership, Cable in the Classroom, WHYY Public Broadcasting in Wilmington, Tom Synder Productions, the Agency for Instructional Technology, Seymour Pappert's Creative Playground, the Imagination Machine, and others. Hardware and technical support partners include Comcast Inc., TeleCommunications Incorporated (TCI), the Cable Television Association of Maryland, Delaware, and the District of Columbia, Apple Computer, and others.

In addition to the interactive telecommunications network, each elementary classroom involved in the project is being equipped with new technologies to support the education process at school. Participating classes contain three set-top computers, one teacher workstation with a large-screen monitor for instructional presentations and lesson modeling, and two set-tops serving as student workstations. Student workstations are equipped with headsets, so that students can participate in personal multi-media instruction without disturbing classmates.

Dover's Capital School District and the State of Delaware have forged a dynamic alliance of private industries, government agencies and educational institutions to extend the education process beyond the walls of the traditional classroom and place it in the hands of parents and their children.

Consortium Partners

Apple Computer, Inc.
Bell Atlantic
Cable in the Classroom
Cable Television Association of MD, DE, & DC
COMCAST
Delaware Department of Public Instruction
Delaware Schools with K-6 students
The Lightspan Partnership
State of Delaware
Tele-Communications Inc. (TCI)
WHYY Public Broadcasting, Wilmington

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Waukegan Community Unit School District 60

Waukegan, Illinois

Technology and Learning Collaborative

The Technology and Learning Collaborative (TLC) is a dynamic consortium of educational institutions, private businesses, and government agencies that has developed a multi-faceted program to modernize and improve the educational process in the Waukegan Public Schools. Waukegan schools experience many of the problems common to inner city systems: high truancy rates, widespread poverty, high mobility rates, and low academic achievement. The TLC consortium is addressing these problems by implementing a community-wide math and science education program based on innovative uses of new technologies. This is a replicable program that has strong school-home, school-community and school-work components. It provides for extensive professional development training, and addresses targets of the Goals 2000 Act. More than 7,000 students in grades 4-12 receive direct benefits from the program. Project goals are:

1) Improving Student Achievement in Math and Science

With the use of new technologies and an emphasis on project-based learning activities, students improve their achievement through: 1) Active engagement in constructing and communicating principles of math and science; 2) Participation in meaningful scientific investigations; 3) Investigation and understanding of basic math and science concepts; 4) Investigating and understanding connections between subject disciplines; and 5) Relating scientific and mathematical knowledge to themselves and their lives by working on real-life problems and issues.

2) Promoting Engaged Learning

Making the transition to "engaged learning" (learning while doing and learning from doing) requires rethinking the way traditional material is taught. To accomplish this, teachers in Waukegan schools practice peer coaching through classroom visits and conferencing with lead teachers. Lead teachers develop project-based, collaborative learning units that integrate math, science and technology. They receive training in engaged learning methods from Apple Computers, Inc., the North Central Regional Education Laboratory (NCREL), and other consortium partners, and they learn how to utilize technology to facilitate engaged learning.

3) Promoting the Use of Educational Technologies

The consortium is establishing model classrooms to be duplicated throughout the Waukegan schools. Each classroom contains a teacher workstation with multimedia capability; an overhead TV monitor; five student workstations with multimedia capabilities; a laptop; a printer; a compact video camera; a color scanner; a digital camera; and an Internet connection. The project provides teachers and students training in the use of these technologies.

4) Improving Workplace Readiness and Workplace Skills

In a program to reach beyond the walls of the classroom, the Technology and Learning Collaborative is establishing Technology Learning Community Centers (TLCC's) that provide students, parents and other adults access to a wide range of educational technologies and information. The TLCC's are located at four easily accessible sites within the community, and they offer computers, printers, connectivity to the Internet and other resources for public use. In addition, the Waukegan Public Library is developing and maintaining an on-line community bulletin board that provides assistance to individuals seeking information on education, community services and job opportunities.

This project is producing several products and processes that are being disseminated to school systems throughout the country. Examples include project-based, collaborative learning units for math and science; classroom case studies in video, print and

electronic forms; a professional networking model; and a model Technology Learning Community Center (TLCC) for lifelong learning. These products are distributed nationally and globally with the assistance of Apple Computer, Northwestern University, the North Central Regional Education Laboratory (NCREL), and the Illinois State Board of Education (ISBE).

The TLC is receiving substantial support from businesses and government agencies in the Waukegan community. Abbott Laboratories is helping to produce workplace readiness videos. The College of Lake County, the Waukegan Park District, and the YMCA are providing space, staff and programming for three Technology and Learning Community Centers. Barat College is providing faculty and student mentors for science projects. The ISBE is developing guides for use by other school systems. Legat Architects and U.S. Cable are donating program planning services for infrastructure design. North Central Regional Education Lab is conducting a series of training workshops for teachers. The Northeastern Illinois Assistive Technology Consortium and the Special Education Parents Advisory Council (SEPAC) are offering extensive support for children with disabilities. Northwestern University is using Waukegan as a test site for its Collaborative Learning through Visualization (CoVis) project in earth science, and the Waukegan Schools Foundation is providing educational technology equipment.

Consortium Partners

Abbott Laboratories
Apple Computer, Inc.
Barat College
College of Lake County
Illinois State Board of Education (ISBE)
Lake County Technology Campus
Legat Architects
North Central Regional Education Laboratory
Northeastern Illinois Assistive Technology Consortium
Northwestern University
Special Education Parents Advisory Council
U.S. Cable of Lake County
Waukegan Park District
Waukegan Public Library
Waukegan Schools Foundation
YMCA

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Anderson Community School Corporation

Anderson, Indiana

Anderson Community Technology Project

Anderson Community Technology Now! is a consortium of local and state agencies in Indiana that is combining innovative technology initiatives to raise the academic achievement of 3,140 underchallenged and at-risk students (and their families) in six elementary and two middle schools. The program is designed to accelerate the pace of educational improvement and ensure greater economic opportunity within the community.

The project is addressing its goal by--

- increasing community involvement in public education;
- increasing teacher professionalism and productivity through professional development activities;
- developing new learning environments;
- strengthening the connections between home, school, and community to foster family skills and involvement in education; and
- providing opportunities for teachers and students to become self-directed and collaborative learners.

As part of previous school and systemic restructuring efforts, Anderson has undertaken several activities which will be used in this project. One such activity is the School on Wheels, a specially trained cadre of teachers and principals who can temporarily assume the roles of entire school faculties to enable educators to participate in staff development. Another activity is the 1995 Community Forum for Education, supported by local employers, community organizations, and civic groups. This organization studies, plans and helps implement new educational applications of technology.

The Anderson Community Technology Project has several major components:

1) The Buddy System Project at the Corporation for Educational Technology (CET) promotes the extension of the learning day beyond the classroom and into the homes of 4th-8th grade students.

2) The Vision Athena Project, sponsored by the Corporation for Educational Communications (CEC) and the Children's Museum of Indianapolis, is making available two-way video for distance learning and electronic field trips, e.g. to the Indianapolis Zoo. Butler and Indiana Universities, the school system, and the Anderson Federation of Teachers are providing instructional courses and staff development in the use of educational technology.

3) A community technology center with Internet connections and regularly held training sessions is being dedicated at the Anderson Public Library to benefit all community members.

4) Professional development services are being provided by the Indiana University School of Education and the Butler University College of Education. The focus is on integrating technology into the history, language arts, mathematics, and science curricula.

5) On-line and in-person tutoring in literacy, mathematics, and technology is being provided by Anderson University students (60 in the first year) to elementary and middle school students.

6) Educational videotapes developed by Indiana Public Broadcasting Stations in collaboration with Anderson teachers are supplementing 4th grade Indiana history materials.

7) Special educational programming and teacher training are being broadcast through the local TCI cable operator to students and their families. Programs include "Ingenious" (news, weather, etc.)

and "What on Earth" (6 news stories per day). This is one of the first multimedia databases for homes delivered by cable.

8) Family mathematics and science training is delivered via two-way video by the Children's Museum of Indianapolis to school and community facilities to strengthen family learning in mathematics and science.

About 240 fourth grade students are the focus of first-year activities, and the project will expand to all upper elementary and middle school students and their teachers by the end of the five-year project. First-year activities include computer instruction in word processing and productivity software, and integration of technology applications into 4th grade language arts and social studies classes. Emphasis is on changing teaching styles, using the home computer for collaborative writing and reading projects, and using telecommunications projects to teach Indiana history. Each school has a fund to allow teachers to purchase professional development services from the three participating universities. Other professional development activities include the School on Wheels and the Principals Technology Leadership Training Program sponsored by the Indiana Department of Education. Rockman *et al*, a research and evaluation group in San Francisco, is conducting an evaluation of the entire program. The evaluation will determine changes in: academic achievement of disadvantaged students, family involvement in the education process, computer-based instructional time, and changes in teacher attitudes and instructional approach.

Consortium Partners

Anderson Area Chamber of Commerce
Anderson Federation of Teachers
Anderson Public Library
Anderson University
Butler University College of Education
Children's Museum of Indianapolis
Corporation for Educational Communications (CEC)
Corporation for Educational Technology (CET)
Indiana Department of Education
Indiana Public Broadcasting Stations
Indiana University School of Education
National City Bank
TCI of Central Indiana (cable TV)

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Indianapolis Public Schools

Indianapolis, Indiana

A Learning Cooperative

The Indianapolis Public Schools are pioneering a unique school/government/business consortium called "A Learning Cooperative: Connecting and Supporting Systemic Mathematics, Science and Technology Initiatives via Telecommunication." Utilizing the experience and resources of Ameritech, a cellular service provider, this consortium is developing an affordable, scalable, and equitably distributed telecommunication infrastructure which links the North Central Regional Educational Laboratory (NCREL), 25 schools in Indianapolis, 25 in Chicago, and 3 in Walled Lake, Michigan. The new network delivers research-based curriculum and technical support to participating schools, and it provides professional development activities for the program's teachers. The program promotes systemic change in the teaching of mathematics, science, and technology, is in accord with the recommendations of the Goals 2000 Act, and has strong school-home, school-community and school-work elements. About 90,000 students receive direct benefit from the project. There are six major components of the program:

1) Developing and Sharing Exemplary Instruction

The network allows exemplary teachers to conduct lessons at participating consortium schools via "distance learning." Lessons are prepared in the form of "Curriculum Support Units" (CSU's), short video programs with supplementary text that teach specific key concepts. Through careful collaboration among the consortium members, the CSU's are designed to address basic math and science concepts, and to fit smoothly within the curriculum frameworks of each district.

2) Providing Professional Development

The Learning Cooperative provides unique professional development opportunities for individual teachers, principals, administrators and school community teams. During regularly scheduled on-line meetings, educators analyze and improve their curriculum, instruction and assessment practices in math and science. The system provides access to a database of professional development materials produced by NCREL, and it is connected via the Internet to other professional development resources.

3) Providing Technical Assistance and Educational Support

The Learning Cooperative and Ameritech have established a group of advisors that provide technical support related to the program's infrastructure and educational content. The advisors help participating teachers identify effective methods for putting Learning Cooperative activities in place, suggest ways to share ideas for using the system, and promote the use of technology in math and science instruction.

4) Improving Communications Between Parents and Schools

The Learning Cooperative is building awareness of the need for increased parental involvement in the educational program, and it is working to improve the connection between parents and school staff. The consortium's telecommunication infrastructure is being used to provide information to parents on specific ways they can take an active role in school activities, to convene parent support groups, to establish a hotline for homework information, to provide a voice mail service for teachers, and to produce educational television broadcasts.

5) Conducting evaluation

The Learning Cooperative is conducting an ongoing evaluation for the purpose of: 1) determining its progress in achieving goals; 2) improving the curriculum; 3) identifying barriers to a successful program; and 4) identifying the next steps in improving the program. Evaluation activities have been designed to help consortium partners measure their own progress in improving math and science curricula and understand the theories behind best practice methods in math and science teaching.

6) Developing partnerships to provide ongoing resources.

The Learning Cooperative has established an educational communications system for use by school personnel, parents, and community members. The system contains information on the effective uses of technology in learning and teaching, and it allows teachers, parents, community members and other interested individuals to make contacts, learn and work together, or just talk to one another. The system is connected to numerous other Internet resources related to critical education reform issues.

Each partner in the consortium has a unique role. Ameritech is installing and maintaining the equipment. The Indianapolis Public Schools are leading the development of science units and staff development. The Chicago Public Schools are developing mathematics activities and staff development activities. The Walled Lake Community Schools are developing a method to integrate the science and math units into the curriculum of the three districts. NCREL is developing communities of practice and curriculum support units, as well as scheduling distance learning through the telecommunication infrastructure.

The "Learning Cooperative" has developed a comprehensive program that utilizes educational technologies to revitalize the education process in participating schools, involve parents in school reform, and promote cooperation between disparate school systems in three midwestern states.

Consortium Partners

Ameritech (Indianapolis, IN)
Chicago Public Schools
Detroit High School of Commerce & Business
Administration
Indianapolis Public Schools
LearningAccess (Washington, DC)
North Central Regional Educational Laboratory
(NCREL) (Oak Brook, IL)
Walled Lake Consolidated Schools (Walled Lake, MI)

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Natchitoches Parish School Board

Natchitoches, Louisiana

The Natchitoches Parish School Board and Goals 2000/LaNIE

The Natchitoches Parish School Board and Goals 2000/LaNIE Technology Challenge Grant Consortium is developing comprehensive programs that use telecommunication to increase participation in high-tech learning by underserved K-12 students in five Louisiana school districts. The consortium will ultimately increase communication among all community stakeholders by using learning technologies to provide educational opportunities for students and parents at more convenient times and more accessible places. Over five years, approximately 174,000 students in 48 schools and 19 community sites will be served by the consortium.

This project builds on a previous Louisiana Goals 2000 effort and a Louisiana Networking Infrastructure for Education (LaNIE) grant received from the National Science Foundation to integrate Internet resources and K-12 instruction at five pilot sites across the state. Staff from both projects have been working jointly to develop an overall state educational technology plan.

Building on the work of the pilot sites, the new project is developing transferable models for providing underserved students access to technology, increasing student achievement, and documenting successful practices for widespread use in other communities across the country. Each of the five pilot sites, guided by a district technology advisory committee, is developing, implementing, and evaluating a comprehensive district plan for using educational technology to increase student achievement and to meet local educational goals.

To improve student achievement, the project will address school readiness and provide professional development activities for educators and community partners; it will also involve parents in the learning process and concentrate on the transition from school to work and life-long learning.

Project staff are giving special attention to: 1) the obstacles limiting access for underserved populations; 2) training for additional school personnel, parents, and community program leaders; and 3) the development of materials to support parent and community programs.

Each district is increasing access to educational opportunities by opening school sites after hours and by expanding access to places more often visited by community members.

The five districts are developing standards-based curriculum materials for all content disciplines, and expanding access locations to include community centers, playgrounds, libraries, and churches. Priority subject areas are mathematics, science, language arts and literacy. Professional development activities for teachers, students, parents, and administrators of community organizations are being offered. Dissemination plans and public awareness campaigns are also being developed (electronic mail, home page at each site, regional conferences, etc.). During the second and third years additional community sites will be added and teacher-developed curriculum materials will be disseminated on-line through the International Society for Technology in Education Gopher server and World Wide Web server. During the fourth and fifth years video conferences will be used to transfer model practices to other parts of Louisiana. In addition, the project will work with the

Louisiana Board of Elementary and Secondary Education and the Board of Regents to develop technology standards for pre-service and in-service education.

Professional development courses for educators and community members are being developed collaboratively by consortium members, and will be offered at each of the following cooperating universities: Northwestern State University, Natchitoches Parish; Northeast Louisiana University, Ouachita Parish; the University of Southwestern Louisiana, Lafayette Parish; the University of New Orleans, Jefferson Parish; and McNeese State University, Calcasieu Parish.

Consortium Partners

BellSouth Telecommunication
Calcasieu Parish School System
Governor's Office of Women's Services
Governor's Office: Louisiana Goals 2000/LaNIE
Greater New Orleans Free-Net, Inc.
International Society for Technology in Education
Jefferson Elementary School PTA
Jefferson Parish Public School System
Lafayette Natural History Museum
Lafayette Parish School Board
Louisiana Association of Computer Using Educators
Louisiana Bd. of Elementary & Secondary Education
Louisiana Board of Regents
Louisiana Department of Education
Louisiana Department of Public Safety and Corrections
Louisiana Networking Infrastructure for Education
McNeese State University
Monroe City School System
Natchitoches Parish Library
Northeast Louisiana University
Northwestern State University
Our Lady of Lourdes Regional Medical Center
Shell Oil Products Company
University of New Orleans
University of Southwestern Louisiana

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Baltimore City Public Schools

Baltimore, Maryland

Baltimore Learning Communities

The Baltimore Learning Communities project is a multi-faceted education program that utilizes distance learning, interactive cable TV and the Internet to connect schools to homes, places of work, and the community at large. The program provides extensive professional development training for teachers, directly involves parents in the education process, and extends a wide range of new educational opportunities to over 38,000 students at the middle and high school levels. This is a replicable program that addresses recommendations of the Goals 2000 Act, promotes life-long learning, and has strong school-work, school-home, and school-community components. The program has four main elements:

1) School

School-based activities focus on mathematics, social studies, science, communication, and the arts. They complement findings of the Secretary's Commission on Achieving Necessary Skills (SCANS), and emphasize competencies required by the job market. Students learn to plan schedules and budgets, improve interpersonal skills, conduct research, communicate information, locate career data, and use technology to facilitate learning. The Johns Hopkins University Center for Technology in Education and the Institute for Policy Studies, and the University of Maryland at College Park coordinate training in which teachers use new technologies to create customized curriculum products.

2) Work

The Baltimore Learning Communities project connects schools to the workplace through two-way interactive video connections and digital networks. Through this system, work supervisors at retail stores, supermarkets, restaurants, and other places of business interact with school professional staff to learn how to transform work experiences into learning experiences. Participating businesses develop learning-rich tasks that lead to "Service Certificates" for student employees. Supervisors receive guidance from Bell Atlantic instructors adept at the change process, and are supported by Johns Hopkins University staff knowledgeable about adolescents and the transition from school to work. In addition, "Magic Me," an AmeriCorp national service and learning organization, is recruiting and training parents to participate in this element of the program.

3) Connections

The Baltimore Learning Communities project utilizes Internet connections to provide school and career information. Students query existing labor market databases to explore opportunities and salary structures in a wide range of occupations; teachers use electronic resources in planning and building curriculum products; and parents provide assistance at schools and community centers where interactive video and computers are available. This element of the Baltimore Learning Communities project contains job opportunity benefits for both students and their parents.

4) Digital Video on Demand

Discovery Communications, Inc. (The Discovery Channel and The Learning Channel) is providing about 100 hours of educational video material for use in the project. This information, which is specially selected and indexed, includes professionally produced documentaries and other programming with valuable instructional content. It also contains professional development material created for programs such as "Teacher TV," which has aired on the Learning Channel. DCI is digitizing this programming to permit on-demand retrieval and high quality display via the Internet. All content is indexed to state and local learning goals, and can be located by keywords and phrases. Teachers may select segments of

video material to meet specific instructional needs. Materials from other sources, such as the National Archives, are also available.

Partners in the Baltimore Learning Communities project contribute to the program's success in a variety of ways: Apple Computers and Bell Labs are providing significant contributions in hardware and resources. Learning Matters, Inc. is producing CD-ROM's in support of the SCANS element. The Maryland Business Roundtable is facilitating the use of two-way video to allow students to "shadow" workers in a variety of occupations. The Maryland Institute, College of Art is helping middle school students produce TV programming through Baltimore Youth Television. The American Training Standards Institute, a non-profit organization, is linking school local area networks with a wide area network. The Educational Film Center is providing interactive multimedia, software, videodisks and video/print curriculum series. The Pelavin Division of the American Institutes for Research will perform ongoing evaluations, covering all four major elements of the project. Results of the evaluations and educational materials developed for the project will be disseminated through the Internet, professional publications, and documentary television.

Consortium Partners

AIR/Pelavin Associates, Inc.
American Federation of Teachers
American School Counselors Association
American Training Standards Institute
Apple Computers, Inc.
Bell Atlantic
Citizens Information Technology Education Center
COMCAST, Inc.
Discovery Communications, Inc.
Educational Film Center
Johns Hopkins University
Learning Matters, Inc.
Magic Me
Maryland Business Roundtable
Maryland Institute College of Art
Maryland Public Television
Maryland State Department of Education
Maryland State Teachers Association (NEA)
National Archives
NEA Center for Innovation in Education
Restaurant Association of Maryland
Space Telescope Science Institute
University of Maryland at College Park

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Newaygo County Intermediate School District

White Cloud, Michigan

Newaygo County Advanced Technology Service

The Newaygo County Advanced Technology Service (NCATS) consortium has been established to develop and maintain an advanced fiber optic cable telecommunication network that will enrich the education process throughout the county. The network's education program enhances educational opportunities for over 9,000 disadvantaged students and adults; improves the training and mutual support of the teaching staff in county schools; provides a delivery mechanism for improved curricula; and supports a unified effort among all county service agencies to coordinate their actions in dealing with the social, educational, and economic needs of local families. The network supports data, video, and voice communications capabilities that are available to all county residents. It connects all the county schools, the county seat, the hospital, libraries, private non-profit agencies, and area businesses. It provides student access to higher level curriculum in science, mathematics, and modern languages, and it supports professional development opportunities for teachers. NCATS is a replicable program with strong school-home, school-community, and school-work components. The program was specifically designed to help meet student outcomes envisioned in the Goals 2000 Act.

The need for this program is urgent. Newaygo County is one of the most rural, isolated and poor counties in Michigan, and almost half of its students live in poverty. The students of this county consistently score below state averages on the Michigan Educational Assessment Project (MEAP) in the fourth, seventh, and tenth grades. The consortium's program, which reaches over 9,000 students and their teachers, utilizes educational technologies and specialized program content designed specifically to help overcome these problems.

Specific objectives of the program include:

- Providing teachers and students access to network technology
- Increasing student achievement levels to state averages on standardized tests
- Giving parents and community members tools to assess student readiness for work
- Establishing a "single point of intake" system for County service agencies
- Creating a centralized data bank of student assessment tools and lesson plans for teachers
- Providing a county-wide profile of student achievement for use in professional development activities for teachers
- Creating electronic work groups where teachers collaborate to meet student needs
- Creating a delivery system for advanced courses in higher education
- Building an automated management system for teachers
- Establishing county-wide student outcomes in math, language arts, science, and social studies that conform to the Goals 2000 Act and the Michigan Core Curriculum for High School Graduation
- Creating new partnerships within the county that address educational and employment needs of area businesses.

The Fremont Area Foundation, the largest rural-based community foundation in Michigan, provides funding for the construction of the fiber optic network. The Gerber Companies Foundation provides support for the video distance learning component of the network. At appropriate locations throughout the county, the Newaygo County

government provides network access points where members of the public who do not have access to computers can pursue personal interests, check their children's school records, and obtain access to County services.

As the program grows, every teacher in Newaygo County will be provided a personal classroom workstation, and there will be a minimum of four workstations in each class for student use. Each school will be provided two computer lab settings where large class projects can be conducted. Video transmissions of specialized courses and other educational support products will be delivered through a broadband CATV network. The school district is equipping classrooms, a broadcast studio and a video production facility to coordinate video distribution, maintain production archives, and capture educational programming via satellite.

The District has entered into an agreement with Western Michigan University to conduct an evaluation of this project. The evaluation uses a variety of techniques, such as test scores, portfolios, focus groups, and surveys, to collect information pertaining to the effectiveness of the program. Data on qualitative and quantitative measures are collected, and feedback information is made available to project staff and stakeholders about the strengths and limitations of the project. This information is used to ensure that revisions and improvements are made in programs and processes.

This project brings together a strong consortium of public, private, and nonprofit institutions to implement a comprehensive plan to improve the education process in a rural school district.

Consortium Partners

Fremont Public Library
Fremont Public Schools
Gerber Memorial Hospital
Grant Public Schools
Hesperia Public Schools
Newaygo County
Newaygo County Multi-Agency Consortium
Newaygo Public Schools
White Cloud Public Library
White Cloud Public Schools

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Westside Community Schools

Omaha, Nebraska

The Community Discovered

"The Community Discovered: Integrating Art and Technology in K-12 Education" is a multi-element education program that uses technology to bring art museums and other educational resources to K-12 classrooms in Nebraska and 10 other states. The program targets over 40,000 students in rural and urban settings. Its main goal is to strengthen a nationwide community of educators engaged in creating integrated art-focused curricula in all core subject areas. The program contains a strong professional development component, fits within the framework of the Goals 2000 Act, and offers a broad range of extended learning opportunities. There are five major components:

1) The Electronic Art Museum in the Classroom

The Smithsonian Institution, the Getty Museum, the Joslyn Museum, the Sheldon Museum and the Museum of Nebraska Art are making more than 750 art images available to schools through the Internet, along with curriculum and contextual information for use by educators and students. Museum educators are providing educational outreach programs that use technologies such as the Internet, kiosks, and interactive multi-media.

2) Computer-Based Educational Strategies

In collaboration with private companies, educators of disadvantaged and underrepresented students are evaluating educational software for applicability to classroom settings and instructional objectives. In addition, a technology mentor cadre of 13 educators is producing a comprehensive Internet guide to arts and technology resources available in print, and through ARTnet, an electronic communications network managed by the Nebraska Department of Education and Prairie Visions: The Nebraska Consortium for Discipline-Based Art Education. These mentors conduct workshops to promote project activities, provide technical assistance via the Internet or telephone, and provide guidance in the selection of computer hardware and software.

3) Professional Development and Support for Educators

Through this program, educators of rural and urban disadvantaged students participate in two-week museum-based institutes to enable them to design curricula that use technology to integrate art and other core subjects. Students use electronic portfolios to record progress, and evaluators review the portfolios to provide guidance in improving art curricula. Participants access curriculum modules, digitized images and other museum resources through ARTnet. Through these activities, teachers gain valuable experience in reviewing, analyzing and integrating resources via the Internet. The program includes a comprehensive mentoring system, in which each teacher is assigned a technology mentor to assist with hardware, software and networking, and a curriculum integration mentor to assist with curriculum development and implementation.

4) Curriculum, Instruction and Assessment Strategies

A minimum of 632 curriculum modules are being developed and implemented, with a target of 90% teacher participation. The modules incorporate Internet digitized images and museum resources, multi-media projects, electronic portfolios, and other computer applications. Target student goals include improved attendance rates, improved student attitudes, and higher student performance. Students from up to 100 Nebraska districts will experience art modules developed through project activities.

5) Nationwide Community for art and Technology Integration

The program is stimulating cross-state partnerships with the goal of replicating project activities throughout the country. The project is

supporting four learning communities of educators and students. Each community is engaged in educational activities which integrate the arts and technology with other core subjects to enable students to achieve high academic standards. The communities are: 1) Nine Nebraska school districts serving isolated and disadvantaged students; 2) The nearly 100 school districts, nine colleges and universities, and four museums and art centers that comprise Prairie Visions; 3) Teams of arts education leaders in Colorado, Utah, Wyoming, Montana and Kansas; and 4) Regional institute grantees sponsored by The Getty Center for Education in the Arts at universities in California, Florida, Texas, Ohio, and Tennessee. A comprehensive evaluation of the entire project has been arranged through the Far West Laboratory in San Francisco.

The Westside Community School District has organized an effective consortium of museums, educational institutions and private industries that is using modern technology to bring some of the world's finest art into classrooms throughout the country.

Consortium Partners

ArtsEdge Arts and Education Information Network
Apple Computer, Inc.
Digital Visions, Inc.
Far West Laboratory for Educational R&D
Getty Center for Education in the Arts (and Grantees)
J. Paul Getty Museum
Joslyn Art Museum
Lexington Public Schools
M Power Multimedia Design Corporation
Museum of Nebraska Art
Nebraska Art Teachers Association
Nebraska Department of Education
Nebraska Educational Service Units #3, #7, & #13
Nebraska Indian Community College
Pacific Imaging Center
Prairie Visions: The Nebraska Consortium for
Discipline-Based Art Education
School District of Grand Island
Sheldon Memorial Art Gallery & Sculpture Garden
Smithsonian National Museum of American Art
The Kennedy Center
Winnebago Public Schools

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Manchester School District

Manchester, New Hampshire

The Manchester Challenge

The Manchester Challenge is a large-scale education reform effort that is integrating instructional technologies into the curricula of elementary, middle, and high schools in the greater Manchester, New Hampshire area. The project is being implemented in collaboration with the Manchester municipal government, nearby school districts, colleges, businesses, industries and technology vendors. Project technologies include instructional television, satellite broadcasts, multimedia telecomputing, and administrative applications. The program addresses recommendations of the Goals 2000 Act, and has strong school-community and school-work components. Over 28,000 students benefit from project activities.

The program is designed to provide all students equitable access to information technology, facilities and training. All participating educators are provided the equipment, training, time and on-going support to enable them to use information technology effectively. All schools throughout the district are being interconnected with a state-of-the-art network for voice, video, and data. Educators and students enhance the learning process with two-way video and audio distance learning classrooms, workstations in all classrooms, instructional television via cable, video production/reception via building institutional loops connected to media centers, multimedia workstations, high speed telecomputing, and a variety of other learning technologies. There are four major program elements:

1) Professional Development

The first year of professional development activities is directed at the high school level, and the remaining years are directed at both middle and elementary school levels. The program offers teachers a series of sequential professional development programs leading to the successful operation of multi-media workstations for classroom instruction. Teachers form learning teams in which more proficient teachers provide instruction and support for the less experienced. Training activities include instruction in the use of the Internet, the World Wide Web, and other technologies.

2) Curriculum Development

University faculty and education consultants assist Manchester teachers with curriculum development. Teams of teachers work independently to carry out curriculum development needed for interdisciplinary, thematic student projects. Teams are developed around common planning time and common student course enrollments. Curriculum units and projects are shared among teacher teams in all participating schools.

3) Technology Implementation

Utilizing the Manchester Challenge telecommunication network, students at all project schools may participate in distance learning classes that would not otherwise be offered due to low enrollment. Each distance learning classroom is equipped with multiple cameras, video displays, and a teacher control station. These classes are augmented by data networks through which faculty and students can share text materials and access relevant databases.

4) Partnership Activities

Consortium members contribute to the Manchester Challenge in a number of ways. The Manchester School District and the municipal government have made a strong commitment to the purchase of new hardware and software. All the other project partners contribute funding and/or in-kind services.

Goals of the project include better teaching, increased learning, organizational efficiency, enhanced communications, improved accountability, and reporting, improved community development, support for life-long learning, access to learning programs by citizens, sustained partnerships between educational and business

organizations, the exchange of information with other educational organizations, shared resources with business and public institutions, and an improved economic viability for the community.

Consortium Partners

Audubon Society of New Hampshire
Bedford School District
Cabletron
Central Paper Products
CHAMPS-Parent Group
Coca Cola
Community Improvement Program
Computer Learning Center
Continental Cablevision
Cyber-Space
Goffstown School District
Gossler Park Parent Teacher Group
Granite State Credit Union
Hallsville Parent Teacher Group
Lavallee/Brensinger Professional Associates
Manchester Chamber of Commerce
Manchester School of Technology
McLane, Graf, Raulerson & Middleton
Memorial High Booster Club
Morgan Press
Multimedia Systems Inc.
New Hampshire College
New Hampshire Department of Education
New Hampshire Public Television
Northwest Parent Teacher Group
Notre Dame College
NYNEX
Optima Health, Inc.
Parkey-Varney Parent Teacher Group
Public Service of New Hampshire
Queen City Sound
State Department of Education
Tech PC
Telephone Network Technologies
Town of Bedford
U.S. Army
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Pueblo of Laguna Department of Education

Laguna, New Mexico

Four Directions

"Four Directions" is an education reform project that blends American Indian culture with new educational technologies to revitalize curricula and instruction in Bureau of Indian Affairs (BIA) schools. Based on their urgent need, eight schools representing tribal groups in eight states have been selected as pilot sites for the project. Within five years the program will expand to include 24 BIA schools in locations throughout the country. The project involves K-12 students, parents, and members of their communities. The program has strong School-Home and School-Community components, promotes extended time for learning, and provides extensive professional development opportunities for teachers. Project activities include:

- Restructuring curricula to incorporate local cultures and values
- Collaborating across sites through on-site training, on-line tutoring, and cooperative teaming
- Creating networked "virtual communities" with Internet presence
- Encouraging life-long learning by extending technology support to communities surrounding project schools
- Maintaining a network database of teaching, assessment, professional development, and student-created resources
- Creating a research-based evaluation model

As the core of this project, each school develops an advisory team consisting of students, parents, teachers, paraprofessionals and community members. It is the responsibility of each team to develop authentic learning tasks that are relevant to students and that are drawn from the unique cultural context of each tribe. These tasks are then developed into "thematic cycles," central components of core curricula that allow the presentation of subject matter within a cultural context, and allow the cultural theme to be integrated into other subjects. As members of the team, parents and community members, including elders, are involved in the development of curricula and are involved in the evaluation of the project and its relevance to the traditions of the tribe. Targeted curriculum areas include art, mathematics, science, social studies, economics, geography, language arts and fine arts.

An integral part of this program are communications services provided through the Educational Native American Network (ENAN), an Internet communications service for all BIA schools. Each school is utilizing ENAN to produce World Wide Web (WWW) home pages that describe the school, its history and current activities. Technical support for the WWW effort is provided by the University of Kansas through the Unified Network InformaTics for Education (UNITE) system. The WWW pages also contain information about each American Indian group participating in the project. This information is shared with other schools and with non-Native American schools via the Internet. The WWW pages offer a look at the unique aspects of each American Indian group from the perspective of its own people. This provides students with a focal point for problem solving and for sharing the important cultural contributions made by each of the tribes. The project uses the WWW to disseminate project tasks, curriculum ideas, school information, tribal histories, and project results. Project technologies are used by students to perform research on thematic issues, develop learning activities on the themes, explore other disciplines that are part of the theme cycles, and provide access to their results for authentic assessment. Information and programs developed through Four Directions are available to a wide audience

through the Internet. Access to project technologies is available after school hours to students and their families, in a program to extend learning opportunities to the entire community.

This project contains a strong professional development component. Teams from each of the schools attend a 10 day training session held at the Southwest Indian Polytechnical Institute in Albuquerque, New Mexico. This training covers the development of thematic units based on authentic tasks, the integration of these units into the curriculum, and the use of technology. In addition, the project sponsors two technology training workshops annually at each of the schools.

Best practices reports, as determined by ongoing evaluation of the project, are made available through national conferences, the Educational Resources Information Center (ERIC), the National Clearinghouse for Bilingual Education (NCBE), the Eisenhower National Clearinghouse, and the World Wide Web.

The Four Directions project is a unique program that uses modern technologies to create enriched, integrated learning environments designed around Indian children's real life experiences.

Consortium Partners

Ahfachkee Day School, Clewson, FL
Dilcon Boarding School, Winslow, AZ
Fond du Lac Ojibwe School, Cloquet, MN
Hannahville Indian School, Wilson, MI
Heard Museum of Native Culture & Art, Phoenix, AZ
Indian Island School, Old Town, ME
Intel Corporation
Laguna Elementary/Middle School, Laguna, NM
Mathematical Association of America
Microsoft Corporation
Museum of Northern Arizona, Flagstaff, AZ
Quileute Tribal School, LaPush, WA
Sandia National Laboratories, U.S. Dept. of Energy
Southwest Indian Polytechnic Institute,
Albuquerque, NM
Takini School, Howes, SD
University of Kansas, Lawrence, KS

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Summit County Educational Service Center

Cuyahoga Falls, Ohio

NEW³: New Technology, New Knowledge, New Work

NEW³ is a broad consortium of educational institutions, government agencies, private businesses and philanthropic organizations dedicated to the goal of transforming teaching and learning in Summit County, Ohio by the year 2000. To meet this ambitious objective, the consortium has developed a program through which students use technology to complete substantive *new work* that meets high educational standards set forth by new local curricula, and the Ohio K-12 Competency Based Education standards. Utilizing the talents of business and community representatives, the project promotes life-long learning, through the use of technology, fits within the framework of Goals 2000 objectives, supports school to work principles, and has a strong professional development component. More than 88,000 students benefit from the program.

The NEW³ project addresses the needs of approximately 88,500 students in 18 school districts in and around Akron, Ohio. Six of the school districts have high percentages of economically and educationally disadvantaged students. The project centers on transforming the tasks used in learning and will include all grades, K through 12. NEW³ requires the collaborative efforts of the entire community, including educators, parents, and students.

A critical premise of the program is that school work needs to be redesigned so that it engages students in learning that they view as relevant to their world today and tomorrow. The Challenge Grant enables the Summit County Educational Services Center consortium to develop and implement a plan to design *new work*, to support a Technology Academy for teacher development, and to develop and implement a Technology Work Experience Program for high school and college students.

The first and primary goal of the program is to design *new work* for students -- work that engages, work with which children persist, and work that results in a sense of accomplishment. Learners develop competencies by engaging in authentic, meaningful and rewarding experiences that are valued by parents, community, and society at large. *New student work* is being designed and developed jointly with learners, communities, and the Center for Leadership in School Reform of Louisville, Kentucky.

The second goal is to expand teachers' understanding of how to create *new work* in partnership with students through coursework at the Summit County Office of Education's nationally acclaimed "Technology Academy." Here teachers learn about using technologies in the context of what children do, not what machines do. More than 2300 teachers will graduate from the Academy's intensive one year, 73 hour course of study in the five years of the NEW³ project.

The third goal is to design, develop, and operate a Technology Work Experience program through which high school and college students participate in educational and work experiences while maintaining and operating the classroom technologies supporting the NEW³ project. This program enhances school-to-work transitions by providing authentic technology-related experiences for participants. NEW³ has arranged for a major upgrading of school and classroom technology infrastructure. Improvements include computer network installation, electrical upgrades, new computer workstations, and acquisition of video equipment. The Work Experience Program is formed as a nonprofit company, operated by students, and dedicated to rapid response support for

this classroom technology. Funding for the classroom hardware is provided largely by the Ohio SchoolNet program.

The fourth goal is to develop educational software to support *new work*. Partnership with LOGAL of Cambridge, Massachusetts on the development of simulation-based, *new work* software is an important component of the NEW³ project.

A final goal is to provide teachers the opportunity to acquire the skills and knowledge needed to instruct students. Professional development activities are supported by the University of Akron, Kent State University and Ashland University. This includes developing performance standards relating to *new work* and technology. These standards are to be used in considering the employment of new teachers.

In addition, national panels of experts in mathematics, technology, language arts, science and other content areas are involved in assessing curricula and effectiveness. Ameritech, a cellular telephone service provider, is funding and operating two community-based computer centers in the City of Akron in support of NEW³.

By the year 2000, students will use technology to complete substantive *new work* that meets high standards; resulting in transformed schools, and, ultimately, self-sustaining communities of life-long learning.

Consortium Partners

Akron Regional Development Board
Ameritech Ohio
Ashland University
Center for Leadership in School Reform
Eighteen School Districts (Akron Area)
Galen A. Roush Foundation
Kent State University
LOGAL
Summit County Educational Service Center
Summit Education Partnership Foundation
University of Akron

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School District of Philadelphia

Philadelphia, Pennsylvania

Philadelphia's Technology Challenge Consortium

Philadelphia's Technology Challenge Grant Consortium has developed a comprehensive program to invigorate K-12 and adult education programs through the imaginative use of educational technologies. Incorporated within the Philadelphia School District's systemic reform effort, "Children Achieving," the program utilizes many of the latest developments in telecommunication, multimedia, and computer instruction to build new teaching and learning processes within small learning communities. The resulting "Virtual Schools" represent a fundamental and radical transformation of teaching to emphasize interaction and inquiry in the learning process. Over 55,000 students will benefit from the program in the first two years, and in the following three years the program will be expanded to include more than 210,000. The program encourages the development of infrastructure and partnership among the municipal government, the local school district, community service providers, and educational institutions at all levels. This is a replicable program with strong school-home, school-community, and school-work components. It provides effective support for professional development activities, addresses targets of the Goals 2000 act, and offers unique opportunities for extended learning. There are four primary goals:

1) Infrastructure/Networking (Universal Access)

This initiative builds an electronic communications system to connect students, parents, teachers and community members. The system enables citizens to enjoy easy access to the administrative and instructional staff of the School District of Philadelphia, and other local, national and global on-line information resources. The system may be accessed at three key school locations: library areas for parent and student access; teacher areas for faculty and support staff access; and office areas for administrative access.

2) Access to Information

There are two major components of the program's on-line resources: The Teaching and Learning Network (TLN) and the Family Resource Network (FRN). The TLN is a key link to an "effective practices" database which includes information on local and national curriculum resources, sample lesson plans, information on standards and assessment, discussion group opportunities related to teaching and learning issues, cross-referenced lists of all teaching and learning resources on the Internet, and on-line homework assistance. The FRN assists schools in identifying and providing health, mental health and social services to students and families.

3) Professional Development

Each school in Philadelphia employs a Subject Area Specialist in technology (SAS) who is responsible for organizing and supporting education technology efforts in schools, leading the effort to integrate educational technologies throughout the curriculum, and training other teachers at each school in how to use educational technologies effectively. A portion of the funding from this grant will be used to purchase additional professional development services, and to provide professional leave days for teachers to receive training from their school's technology SAS.

4) Virtual Schools

Using the new communications system implemented through this grant, the program distributes curriculum, instruction, and assessment information electronically through on-line centers of instruction called "Virtual Schools." These electronic classrooms offer services to adults seeking diplomas, homebound students, prison inmates, and other hard-to-reach populations. With the cooperation of Consortium partners such as Public Television Station WHYY, the Private Industry Council of Philadelphia, the Community College of Philadelphia, and others, Virtual Schools

offer General Education Degree (GED) coursework, English as a Second Language (ESL) coursework, and other curricula.

The other Consortium partners support "Effective Practice Sites" established within six clusters of high schools and their feeder schools. These sites are demonstration and evaluation laboratories for technology systems and educational strategies developed as part of the project. At one high school, the University of Pennsylvania and Bell Atlantic are developing an Internet communications system to support voice mail, E-mail, professional development, and curriculum development. Temple University is helping students at another school learn how to use the Internet as a resource for English, social studies, and other subjects. IBM is working with three schools to utilize new technologies to assist special education students and students for whom English is a second language. Public Television Station WHYY is lending another school its expertise in production, communication and technology to create a "virtual school." Drexel University students are assisting schools in the integration of new technologies across the curriculum, and emphasizing improvements in math education through the use of computer labs. Moore College of Art is enabling students to develop a wide variety of curricula on CD-ROM, utilizing student-edited video, still images, recorded sound and text. Materials can be distributed via a city-wide network that can support small electronic learning communities.

This project brings together a powerful consortium of public, private and nonprofit institutions to implement a comprehensive plan to improve the education process in an urban school district.

Consortium Partners

Bell Atlantic
City of Philadelphia
Community College of Philadelphia/Private
Industry Council of Philadelphia
Drexel University
IBM
Moore College of Art
Philadelphia Education Fund
School District of Philadelphia
Temple University
Unisys Corporation
University of Pennsylvania
WHYY Public Television

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Towanda Area School District

Towanda, Pennsylvania

New Vision

"New Vision" is a consortium of school districts, post-secondary institutions, museums and private industries that demonstrates the dynamic ability of emerging technologies to expand and improve educational opportunities in rural, remote, poor school districts. Under the leadership of the Towanda Area School District, New Vision is establishing "distance learning centers" at 23 local education agencies (LEA), six post-secondary institutions, and the State Museum of Pennsylvania. These sites are being linked electronically to a network of 40 schools and agencies committed to sharing local educational resources through interactive videoconferencing. Through its network, New Vision can offer high-level classes that are not commonly offered due to low enrollment; use exemplary teachers to cover hard-to-fill positions in several districts at once; conduct unique student workshops; and offer advanced placement courses. The project is establishing one of the largest interactive networks in the country, involving over 54,000 students in Pennsylvania, New Jersey and New York. Each of the LEA's has demonstrated its commitment to the project by agreeing to match 50% of all equipment costs with local funding. This program addresses recommendations of the Goals 2000 Act, emphasizes school to work training, and contains strong professional development and evaluation elements.

New Vision builds upon the success of the Northern Tier Rural Distance Learning Consortium, a distance learning organization established in 1992. This model program consists of six rural school districts in Northern Pennsylvania, and it is funded by a grant from Commonwealth Telephone Company. (No Technology Learning Challenge funding is being used to support Northern Tier programs.) The basic governing bylaws of the Northern Tier Consortium have been adapted for New Vision to form a network of regional consortia alliances consisting of the Cape May Consortium (New Jersey), the Adirondack Consortium (New York) and the Southeast Consortium (Pennsylvania). These organizations have agreed upon a four-phase implementation plan for New Vision:

1) Establishing Distance Learning Centers

Equipment purchases and inventory controls are centrally managed through the Northern Tier Consortium. All equipment purchased through New Vision is the property of each individual school district. All learning sites are fully equipped with the technology required to support distance learning classes.

2) Linking Schools

In cooperation with College Misericordia and the Northern Tier Consortium, New Vision provides a training program for coordinators at all sites to ensure understanding and proficiency in using the system. Training conferences create opportunities for all schools to define strategies for expanding participation of other districts and to modify the program to meet the needs of schools new to the program.

3) Sharing Resources

Each post-secondary participant provides services, programs and activities that can be shared cost-effectively with LEA's. Service components include adult evening programs, career counseling, academic counseling, dual credit high school courses, electronic field trips, peer tutoring programs, staff development, pre-college and pre-technical education, and curriculum development projects.

4) Linking to State Museums

The Pennsylvania State Museum offers electronic field trips, a teacher-to-historian information exchange program, curriculum development initiatives, and program packages that deal with issues and developments in state history and culture. New Vision is working with New York and New Jersey to develop a tri-state exchange agreement

between museums, historic sites, science centers, and participating school districts.

Each of the partners in the New Vision consortium provides a unique contribution to the program. College Misericordia conducts dual-credit college level courses. Penn State (Wilkes-Barre and Harrisburg campuses) offers college courses for adults, professional development, career counseling, and guest lectures. Lackawanna Junior College presents Adult Basic Education programs over the network, and provides network connections to the National Tele-Consortium and the Mid-Atlantic Consortium. Commonwealth Telephone company provides free bridging access and is assisting in linking the full consortium. The Pennsylvania Rural Electric Association is helping to disseminate information on New Vision throughout the country. Mansfield University is promoting post-secondary educational opportunities through the network. Atlantic County Community College (New Jersey) is providing technical/vocational training opportunities via New Vision. The PictureTel Corporation is establishing a videoconferencing system at the State Museum of Pennsylvania, assisting with network optimization, and helping to adapt the network for connection to such resources as historic battlefields, zoos, aquariums, science centers, and performance centers. The Center for Rural Pennsylvania is supporting a staff position to operate a networked cultural awareness program. Also, through the network, the State Museum of Pennsylvania provides links to its exhibits, planetarium, and other comprehensive educational resources.

New Vision is a comprehensive, replicable program that utilizes the technology of telecommunication to expand and improve educational opportunities in isolated school systems in Pennsylvania, New York and New Jersey

Consortium Partners

Atlantic Community College
Center for Rural Pennsylvania
Claverack Rural Electric
College Misericordia
Commonwealth Telephone Company
Community Education Council
Harrisburg Area Community College
International Paper Company
Lackawanna Junior College
Mansfield University
Northeast Pennsylvania Tech-Prep Consortium
Penn State University (Wilkes-Barre & Harrisburg)
Pennsylvania Rural Electric Association
PictureTel Corporation
State Museum of Pennsylvania
Towanda Area School District
and 28 other school Districts in PA, NJ, and NY

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Black Hills Special Services Cooperative

Sturgis, South Dakota

Technology in Education Challenge for Rural America (TEC-RAM)

South Dakota's "Technology in Education Challenge for Rural America" (TEC-RAM) consortium has organized a state-wide, community-focused education program to advance the effective use of technology in restructuring schools by: 1) introducing innovative educational technologies in a statewide redesign of K-12 curricula, instruction and assessment; and 2) capitalizing on new technologies to promote student achievement. The program will impact over 14,000 rural students in the first year, and over 35,000 throughout its duration. Designed to respond to the Improving America's Schools Act, the Goals 2000: Educate America Act, and the School-to-Work Opportunities Act, this program integrates technology into a systemic educational reform effort that improves teaching and learning and leads to the attainment of challenging standards by all students. There are six critical elements of the program:

1) Restructuring

The initiative builds upon efforts by local school districts and communities to restructure school programs to conform with challenging state education standards and locally determined student outcomes. Through the integration of technology into this process, a broad cross-section of community leaders will participate in the articulation of a shared education mission.

2) Utilization

The project uses a collaborative approach for the design and evaluation of technology-enhanced curricula, instruction, and performance assessment. Teams of teachers, curriculum specialists, technology specialists and private software developers identify and implement interdisciplinary projects and strategies that engage students as active learners involved in authentic, community-based learning experiences. Some of the technologies being utilized include CD-ROM and other "open architecture" applications for student-directed learning experiences; interactive, multimedia applications developed by private business partners; multimedia educational materials developed by student/teacher teams; and inquiry applications that utilize the Internet.

3) Professional Development

TEC-RAM collaboration teams work directly in classrooms to model, involve, and support teachers in the process of integrating technology into effective standards-based curriculum and instruction. The collaboration teams include pre-service teachers, so that a major portion of both in-service and pre-service educational technology training can take place in actual classroom settings.

4) Replication

The program is designed to encourage replication in other rural school districts in South Dakota. The initial six demonstration districts serve as models for an additional 12 replication districts that will participate in TEC-RAM through an RFP process.

5) Inclusiveness

The program design is fully inclusive of all students, reflecting an even geographic distribution across the state. One of the initial demonstration districts serves an Indian reservation, which is located in one of the 10 poorest counties in the nation.

6) Access

TEC-RAM emphasizes access to innovative, cost-effective technology and telecommunication resources that enhance teaching and learning. This requires the development of cost-effective, interactive, multi-media applications that extend experiential

learning beyond the limits of the classroom and small rural communities. For schools located in isolated settings with limited communications access, TEC-RAM is implementing packet radio as an alternative to telecommunications via telephone line.

All partners in the TEC-RAM consortium contribute substantially to the human resource capability of the project. Based on their proven readiness, six local school districts have been selected as the initial TEC-RAM consortium demonstration sites. These districts contribute the time and expertise of administrative and specialist staff, along with the substantial, uncompensated time of direct educational staff. The Black Hills Special Services Cooperative, Technology and Innovations in Education (TIE) provides services through its Technology Demonstration and Training Center, the TIE Preview Center, and the TIE Curricula Center. TIE also provides access to South Dakota's Rural Development and Educational Network and several statewide programmatic resources. The South Dakota Department of Education and Cultural Affairs provides access to South Dakota's Rural Development Telecommunications Network. Spring Creek Productions provides video production expertise for the development of products to support project activities and for video-related training activities at the local sites.

The TEC-RAM project brings together a broad range of school systems, communities, state agencies and private industry for the purpose of introducing innovative educational technologies into a rural school system.

Consortium Partners

Aberdeen School District 6-1
Black Hills Special Services Cooperative
Black Hills State University
Dakota State University
Douglas School District 51-1
Hot Springs School District 23-2
Huron School District 02-2
Lake Central School District 39-2
South Dakota Dept. of Education & Cultural Affairs
South Dakota Dept. of Labor
Spring Creek Productions
Todd County School District 66-1

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Socorro Independent School District

El Paso, Texas

A Community of 21st Century Learners for El Paso

"A Community of 21st Century Learners for El Paso" is an ambitious program using technology to rejuvenate the schools in El Paso, Texas. The program goals are to produce within five years: 1) Ten restructured partner schools and a teacher preparation institution, fully connected to the Internet and its resources; 2) 120 teachers who integrate acquired technologies and national standards into the curriculum, and who serve as teacher trainers at 70 other schools; 3) 10,000 students from impoverished neighborhoods who bridge the academic performance gap in state and national standardized tests; 4) 1,000 Hispanic parents utilizing laptop computers in a program to provide technology knowledge and skills; 5) 100 business partners serving as mentors for 200 disadvantaged elementary and high school students; and 6) A "Community of Learners" development change model with emphasis on access to technology to be exported to the 55 schools that are members of the "El Paso Collaborative for Academic Excellence." The program has a strong School to Work component, integrates objectives of the Goals 2000 Act, and ensures ongoing professional development of teachers, administrators and university faculty. There are five major components of the program:

1) Connectivity

Through this grant, the consortium provides computer network connections in 110 classrooms in 10 partner schools. These connections are supported by appropriate software and hardware which includes CD-ROM capability, scanners, color printers, LCD projection panels, video cameras, VCRs, Newton notebook computers, and QuickTake cameras. Additional laptop computers are borrowed by low-income parents for use at home. Technical support is provided by two educational technology experts employed as non-tenure faculty.

2) Staff Development

The program provides resources for 120 teachers to obtain university certification in either of two programs: the Texas Technology Endorsement, or the Instructional Specialist Master's Degree program with emphasis on educational technology and curriculum integration. Each participant will train at least three other teachers in the effective use of educational technologies to improve academic achievement. Funding from this grant will enable the University of Texas at El Paso to provide a course of study uniquely structured for the needs of the participants.

3) Technology Access for Low Income Parents

Each participating school is developing a Parent Center designed to provide parents with training opportunities in English speaking skills, parenting skills, computer use, and instructional support skills. Families may borrow computers for extended periods of time in order to stimulate student achievement, promote parent awareness of the education process, enhance job potential for parents, and involve parents in school activities.

4) E-Mail Business Mentors

The consortium has organized a "Community and Business Liaison" project that is developing a business mentor program at each participating school. Each school is assigned 10 mentors from local businesses, and each mentor is assigned two students. Mentors will

demonstrate the many uses of electronic communications, and will maintain E-mail contact with students throughout the year, providing assistance with school work, and serving as a role-model example of the value of a good education.

5) Sustainability

At the end of five years, all participating schools will have established an advanced level of network connectivity that will remain useful long after the project has ended. The program's post-graduate instruction opportunities will continue to be available at the University of Texas El Paso, and university faculty will continue the integration of technology and standards into their course curricula. Parent development activities will continue, including the role of parents as trainers of teachers for home visits. The El Paso Collaborative for Academic Excellence will disseminate information about the program.

The project provides for a detailed assessment of participants' performance within the university training programs, teacher performance in the school faculty development programs, and student achievement within the core curricula. Student performance is measured against national content standard guidelines for the arts, civics and government, English, foreign languages, geography, history, math and science. The project also provides for evaluations of parent participation and business mentoring support.

The El Paso Challenge Grant consortium is part of a city-wide collaborative for academic excellence, taking advantage of school, home, government and business resources. The program promotes a major systemic reform agenda for education in the El Paso region.

Consortium Partners

El Paso Chamber of Commerce
El Paso Collaborative for Academic Excellence
El Paso Community College
El Paso Hispanic Chamber of Commerce
El Paso Independent School District
El Paso Interreligious Sponsoring Organization
Region XIX Education Service Center
University of Texas at El Paso
Ysleta Independent School District

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Southeast Education Service Center

Price, Utah

State of Utah Resource Web (SURWEB)

The State of Utah Resource Web (SURWEB) is a telecommunication project providing educational opportunities for Utah students who live in poor, rural, or culturally disenfranchised communities. The program was conceived and implemented by a consortium of public and private agencies including Utah's educational service centers, institutions of higher learning, the Far West Laboratory for Educational Research and Development, museums, state parks, national parks, and Native American tribal councils and agencies. The program fits within the framework of the Goals 2000 Act, encourages school reform, and provides comprehensive professional development opportunities. More than 400,000 students will eventually be impacted. There are five major goals of the program:

1) Building Connectivity

SURWEB is a natural extension of two existing educational telecommunication projects in Utah: the Southeast Utah Regional Wide Area Network (SURWAN) and the UtahLink Project. Both networks have a proven record of providing dependable service to schools. The SURWEB project builds on these networks, and adds a World Wide Web capability that enables schools to develop on-line educational resources and applications.

2) Developing Curriculum Applications

A Curriculum Advisory Committee (CAC) guides the development of units of study supported by SURWEB. The CAC is composed of teachers, parents, business representatives, a Utah State Office of Education curriculum specialist, university curriculum specialists, educational service center directors, and information specialists from state agencies. Using state and national school reform goals as a guide, the CAC develops thematic instructional units which integrate subject matter disciplines, introduce real-life issues, and capitalize on local and state resources. Unit subjects include dinosaurs, red rock formations, Native American cultures, ecosystems, pioneering history, and other topics related to the region. This educational material is made available to Utah schools and schools throughout the country via SURWEB and other state networks connected to the Internet.

3) Providing Staff Development

SURWEB is developing and piloting a teacher training program called Utah Internet Institutes that provides instruction in utilizing the resources of the Internet. The Institutes train teachers to access resources via telecommunication, integrate resources into teaching and learning, and evaluate student projects completed over the Internet. In addition, the teachers learn to create their own Internet resources for dissemination on-line. The technical production laboratories at Southern Utah University and the College of Eastern Utah provide training components for the Institutes and assist in the production of related WWW resources.

4) Scaling Up SURWEB

As SURWEB's lead agency, the Southeast Education Service Center (SESC) is working with the other Utah education service agencies to expand the program throughout the state. In the first year of the project, the other service agencies are conducting a series of planning meetings in each of their regions to strengthen regional educational technology planning, coordinate planning across agencies, and integrate the SURWEB project into their plans. In subsequent years, SURWEB will install WWW servers at appropriate sites in each service center, so that these organizations may utilize SURWEB applications in educational technology programs.

5) Evaluating SURWEB

The Far West Laboratory for Educational Research and Development has developed and will implement an evaluation plan for SURWEB. The evaluation design calls for focus group reviews of the program, and large scale mail surveys of students, faculty, parents and community members. The evaluation process is designed to measure the value of SURWEB in changing in the way people seek information, the way they teach, and the way they learn.

Members of the SURWEB consortium are providing support for the program in numerous ways: the Southeast Education Service Center has contributed hardware and software acquired through a Rural Electrification Administration grant; Southern Utah University provides facilities and content specialists in support of professional development activities; the Utah Education Network is contributing the services of an Internet specialist; the Utah State Office of Education is providing ongoing high school maintenance support and Internet training for all teachers in the state; Far West Laboratory is developing and implementing an evaluation plan; the national and state parks and the Indian agencies are providing information specialists; US West is providing technical assistance for a user friendly WWW network. Novell, Inc. will extend education discounts to maximize funds and give more students access to the project.

Consortium Partners

Dinosaur National Monument

Far West Laboratory

Indian Councils/Agencies

National Parks System

Arches

Bryce Canyon

Canyonlands

Capitol Reef

Zion

Novell, Inc.

Office of Museum Services

Service Centers:

Central Utah Educational Services

Northeastern Utah Educational Services

Southeastern Educational Service Center

Southwest Educational Development Center

Southern Utah University

US West Communications

Utah Education Network

Utah State Office of Education

Utah State Parks System (includes 45 parks)

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Montpelier School District

Montpelier, Vermont

The WEB Project

The WEB Project, subtitled "Creating a WEB of Evidence of Student Performance in Nonverbal Inquiry and Expression," is a consortium of state agencies, private industries, and educational institutions that are utilizing new technologies to effect systemic reform in school systems throughout Vermont. The project utilizes multimedia telecommunication 1) as an educational environment for student inquiry and expression, 2) as a medium for presenting and evaluating student work, and 3) as a virtual faculty room for fostering professional discussions about standards of excellence in education. The focus of the WEB Project is the arts, humanities and the social sciences. More than 200 students are participating in the first year, and within five years the program will expand to involve over 2,000 students throughout the state. This program fits within the framework of the Goals 2000 Act, promotes professional development, contains strong evaluation and dissemination components and is designed to merge with the overall state education reform initiative. The program has three major elements:

1) Cooperating School Districts

In three pilot Vermont school districts, the WEB Project is demonstrating the connections between educational standards, curriculum, instruction and assessment. Each school district is provided five "computer suites" for use in central locations within schools. Students use these high performance computers to digitize text, graphics, and full motion video files for use by other students in a variety of educational projects. The program enables classes to:

- Focus on the articulation of K-12 standards of performance
- Prepare students to create multimedia presentations and electronic portfolios to demonstrate learning
- Digitize images of student performances as benchmarks of standards, and publish the images on the World Wide WEB (WWW) for assessment and feedback
- Increase student understanding of the roles of technology and its application
- Introduce or upgrade multimedia authoring technology and provide training in its use

2) Professional Organizations

With the cooperation of the Vermont Arts Assessment Project and the Vermont Alliance for Arts Education, the WEB Project is providing educational standards-based training to teachers who represent school systems across the state. These teachers receive computers and video cameras that are used to digitize educational materials for review, and they learn to assess student work according to the Vermont Arts Assessment standards. Their training and expertise are shared with other teachers in their districts.

3) Action Researchers

The WEB Project trains instructors to utilize multimedia in teaching dance, music composition, multimedia authoring, and other skills. Training is conducted by "action researchers," stationed at "action research sites" throughout the state. Action researchers provide technical support for the WEB Project, keep journals of student activities, and digitize performance information.

Through the WEB Project, students use technology to build on their knowledge and skills, and they are provided opportunities to practice what they have learned. They come into contact with a wide range of adults in teaching and mentoring roles, particularly working artists, writers, composers, videographers, dancers, historians and others. They expand peer relationships through

sharing work and reflecting on the work of others. They learn to evaluate their own work based on objective standards of quality. They learn specific skills related to using telecommunication and multimedia, designing World Wide WEB (WWW) pages, presenting their work via telecommunication, writing, problem solving, and making valuable connections between art, humanities, sciences and social sciences.

Through the WEB Project, teachers are provided numerous opportunities for professional development. Local schools release teachers for professional training, and provide time and resources needed to take advantage of the local capacities being built by the program. A core group of teachers in each participating school is given time every day to support project activities. Statewide partners include WEB Project schools in summer institute plans, follow-up activities and networking support.

The IBM corporation is working closely with the state of Vermont to support its educational reform initiative. Each of the WEB Project schools is receiving educational technology funding from IBM, as well as technical assistance in developing record-keeping software that may be marketed nationwide. The Vermont Institute for Science, Mathematics and Technology (VISMT), through a National Science Foundation grant, is helping to coordinate WEB Project activities with other education reform projects in the state, and conducting statewide professional development programs to promote the use of technology in education.

Through the use of technology, the WEB Project is helping to renew the teaching of arts and humanities, promoting systemic education reform, and encouraging professional growth in school systems throughout the state of Vermont.

Consortium Partners

Franklin Northeast Supervisory Union
IBM
Montpelier School System
Proctor Junior-Senior High School
Vermont Arts Assessment Project
Vermont Institute for Science, Mathematics, and Technology (VISMT)

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Challenge Grants for Technology In Education Consortium Members - FY95

San Diego, California San Diego Unified School District The Triton Project

Consortium Partners:

Mayor's office, San Diego
Sea World
Scripps Institute of Oceanography
Stephen Birch Aquarium-Museum
Pacific Bell's Education First Initiative
San Diego State University
San Diego Supercomputer Center at the University of California at San Diego
City of San Diego Public Library system
Naval Command Control and Ocean Surveillance Center
San Diego Data Processing Corporation

Redwood City, California San Mateo County Office of Education Silicon Valley Challenge 2000

Consortium Partners:

San Mateo County Office of Education
Santa Clara County Office of Education

Renaissance School Teams

The Blossom Valley Learning Consortium
The Overfelt Family
Family of Schools
Building Learning Communities
Smart Valley, Inc.
Intel
Logitech
NetManage
Network General
Symantec
Pacific Bell
Sun Microsystems
Silicon Valley/21st Century Education Initiative
Adobe Systems
Apple Computer
Applied Materials

Cirrus Logic
Hewlett-Packard
Robert Noyce Foundation
Quantum Corporation
Silicon Graphics
Wells Fargo Bank
Bank of America
SRI International
Institute for Research on Learning
Customers & Technologies, Inc.
Bay Area Multimedia Technology Alliance

Dover, Delaware Capital School District State of Delaware Interactive Educational Television Consortium

Consortium Partners

Apple Computer
Bell Atlantic
Cable in the Classroom
Capital School District (and 4 other Delaware Schools)
COMCAST
The Lightspan Partnership
State of Delaware
TCI
WHYY Public Broadcasting

Waukegan, Illinois Waukegan Community School District 60 Technology and Learning Collaborative

Consortium Partners

Abbott Laboratories
Apple Computer, Inc.
Barat and Lake County Colleges
Illinois State Board of Education (ISBE)
Lake County Technology Campus
Legat Architects,
North Central Regional Education Laboratory
Northern Illinois Assistive Technology Consortium

Northwestern University
Special Education Parents Advisory Council
Waukegan Park District
Waukegan Public Library
Waukegan Schools Foundation
YMCA

Anderson, Indiana

Anderson Community School Corporation Anderson Community Technology Project

Consortium Partners:

Anderson Area Chamber of Commerce
Anderson Federation of Teachers
Anderson Public Library
Anderson University
Butler University College of Education
Children's Museum of Indianapolis
Corporation for Educational Communications (CEC)
(Indianapolis, IN)
Corporation for Educational Technology (CET)
Indiana Department of Education
Indiana Public Broadcasting Stations
Indiana University School of Education
TCI of Central Indiana (cable TV)

Indianapolis, Indiana

Indianapolis Public Schools A Learning Cooperative

Consortium Partners:

Ameritech (Indianapolis, IN)
Chicago Public Schools
Detroit High School of Commerce & Business
Administration
LearningAccess (Washington, DC)
North Central Regional Educational Laboratory
(NCREL) (Oak Brook, IL)
Walled Lake Consolidated Schools (Walled Lake, MI)

Natchitoches, Louisiana

Natchitoches Parish School Board Enhancing Student Achievement by Networking Underserved Communities

Consortium Partners:

BellSouth Telecommunications
Calcasieu Parish School System
Governor's Office: Louisiana Goals 2000
Jefferson Parish Public School System
Lafayette Natural History Museum
Lafayette Parish School Board
Louisiana Board of Elementary & Secondary
Education

Louisiana Department of Education
McNeese State University
Monroe City School System
Natchitoches Parish Library
Northeast Louisiana University
Northwestern State University
Shell Oil Products Company
University of New Orleans
University of Southwestern Louisiana
10 other organizations

Baltimore, MD

Baltimore City Public Schools Baltimore Learning Communities

Consortium Partners:

AIR/Pelavin Associates, Inc.
American School Counselors Association
American Training Standards Institute
Apple Computers, Inc.
Baltimore City Public Schools
Bell Atlantic
Citizens Information Technology Education Center
COMCAST, Inc.
Discovery Communications, Inc.
Educational Film Center
Johns Hopkins University
Learning Matters, Inc.
Magic Me
Maryland Business Roundtable
Maryland Institute College of Art
Maryland Public Television
Maryland State Department of Education
National Archives
National Education Association Center for Innovation
in Education
Prince George's County Public Schools
Restaurant Association of Maryland
Space Telescope Science Institute
The American Federation of Teachers
The Maryland State Teachers Association (NEA)
University of Maryland at College Park

White Cloud, Michigan
Newaygo County Intermediate School District
Newaygo County Advanced Technology Service

Consortium Partners:

Fremont Public Library
Fremont Public Schools
Gerber Memorial Hospital
Grant Public Schools
Hesperia Public Schools
Newaygo County
Newaygo County Intermediate School District
Newaygo County Multi-Agency Consortium
Newaygo Public Schools
White Cloud Public Library
White Cloud Public Schools

Westside Community Schools
Omaha, Nebraska
The Community Discovered: Integrating Art
and Technology in K-12 Education

Consortium Partners:

ArtsEdge
Apple Computer, Inc.
Digital Visions, Inc.
Far West Laboratory
Getty Center for Education in the Arts (and Grantees)
J. Paul Getty Museum
Joslyn Art Museum
Kennedy Center
Lexington Public Schools
M Power Multimedia Design Corporation
Museum of Nebraska Art
Nebraska Art Teachers Association
Nebraska Department of Education
Nebraska Educational Service Units #3, #7, & #13
Nebraska Indian Community College
Pacific Imaging Center
Prairie Visions: The Nebraska Consortium for
Discipline-Based Art Education
School District of Grand Island
Sheldon Memorial Art Gallery & Sculpture Garden
Smithsonian National Museum of American Art
Westside Community Schools
Winnebago Public Schools

Cuyahoga Falls, OH
Summit County Office Of Education
Consortium Partners:

Akron Regional Development Board
Ameritech Ohio
Ashland University
Center for Leadership in School Reform
Eighteen District Consortium (Akron Area)
Galen A. Roush Foundation
Kent State University
LOGAL
Summit County Educational Service Center
Summit Education Partnership Foundation
TELXON Corporation
University of Akron

Manchester, New Hampshire
Manchester School District
The Manchester Challenge

Consortium Partners:

Audubon-Society of New Hampshire
Bedford School District
Cabletron
Central Paper Products
Chamber of Commerce
CHAMPS-Parent Group
Coca Cola
Community Improvement Program
Computer Learning Center
Continental Cablevision
Cyber-Space
Golfstown School District
Gossler Par Parent Teacher Group
Granite State Credit Union
Hallsville Parent Teacher Group
Lavallee/Brensinger Prof Associates
Manchester School of Technology
McLane, Graf, Raulerson & Middleton
Memorial High Booster Club
Morgan Press
Multimedia Systems Inc.
New Hampshire College
New Hampshire Public Television
Northwest Parent Teacher Group
Notre Dame College
Optima Health
Parkey-Vamey Parent Teacher Group
Queen City Sound
State Department of Education

Tech PC
Telephone Network Technologies
Town of Bedford
U.S. Army
U.S. First
University of New Hampshire

Laguna, NM
Pueblo of Laguna Department of Education
Four Directions

Consortium Partners:

Afachkee Day School, Clewson, FL
Indian Island School, Old Town, ME
Quilete Tribal School, LaPush, WA
Takini School, Howes, SD
Dilcon Boarding School, Winslow, AZ
Laguna Elementary/Middle School, Laguna, NM
Hannahville Indian School, Wilson, MI
Fond du Lac Ojibwe School, Cloquet, MN
Southwest Indian Polytechnic Inst, Albuquerque, NM
University of Kansas, Lawrence, KS
The Heard Museum of Native Culture and Art,
Phoenix, AZ
Museum of Northern Arizona, Flagstaff, AZ
The Intel Corporation
The Microsoft Corporation
The Mathematical Association of America
Sandia Labs, U.S. Department of Energy

Philadelphia, Pennsylvania
School District of Philadelphia
Philadelphia's Technology Challenge
Consortium

Consortium Partners:

Bell Atlantic
City of Philadelphia
Community College of Philadelphia/Private Industry
Council of Philadelphia
Drexel University
IBM
Moore College of Art
Philadelphia Education Fund
School District of Philadelphia
Temple University
Unisys Corporation
University of Pennsylvania
WHYY Public Television

Towanda, Pennsylvania
Towanda Area School District
New Vision

Consortium Partners:

Towanda Area School District
Troy Area School District
Sullivan County School District
Tunkhannock Area School District
Montrose Area School District
Northern Tioga School District
Wallenpaupack Area School District
Southern Tioga School District
Berwick Area School District
Warwick School District
Westen Wayne School District
Warren County School District
Forest Area School District
Northeast Bradford School District
Wellsboro Area School District
Eastern Lebanon County School District
Cape May County Spec. Services School District
Cape May County Technical School
Cape May City School District
Lower Cape May Regional School District
Lower Township Board of Education
Middle Township Public Schools
North Wildwood School District
Stone Harbor Board of Education
Crest Memorial School
Upper Township School
Saranac Lake Central School District
Malone Central School District
Lake Placid Central School District
Penn State University
College Misericordia
Mansfield University
Lackawanna Community College
Harrisburg Area Community College
Atlantic Community College
Commonwealth Telephone Company
Claverack Rural Electric
Pennsylvania Rural Electric Association
PA State Museum
PictureTel
Community Education Council
NE Pa Tech-Prep Consortium
International Paper Company
The Center for Rural Pennsylvania

Sturgis, SD
Black Hills Special Services Cooperative
Technology in Education for Rural America
(TEC-RAM)

Consortium Partners:

Aberdeen School District 6-1
Black Hills Special Services Cooperative
Black Hills State University
Dakota State University
Douglas School District 51-1
Hot Springs School District 23-2
Huron School District 02-2
Lake Central School District 39-2
South Dakota Dept. of Education & Cultural Affairs
South Dakota Dept. of Labor
Spring Creek Productions
Todd County School District 66-1

El Paso, Texas
Socorro Independent School District
A Community of 21st Century Learners for El
Paso

Consortium Partners:

El Paso Chamber of Commerce
El Paso Collaborative for Academic Excellence
El Paso Community College
El Paso Hispanic Chamber of Commerce
El Paso Independent School District
El Paso Interreligious Sponsoring Organization
Region XIX Education Service Center
Socorro Independent School District
University of Texas at El Paso
Ysleta Independent School District

Price, Utah
Southeast Education Service Center
State of Utah Resource Web (SURWEB)

Consortium Partners:

Dinosaur National Monument
Far West Laboratory
Indian Councils/Agencies
National Parks System
Arches
Bryce Canyon
Canyonlands

Capitol Reef
Zions
Novell
Office of Museum Services
Central Utah Educational Services
Northeastern Utah Educational Services
Southeastern Educational Service Center
Southwest Educational Development Center
Southern Utah University
US West Communications
Utah Education Network
Utah State Office of Education
Utah State Parks System (includes 45 parks)

Montpelier, Vermont
The Web Project
Creating a Web of Evidence of Student
Performance

Consortium Partners:

Franklin Northeast Supervisory Union
IBM
Montpelier School System
Proctor Junior-Senior High School
Vermont Arts Assessment Project
Vermont Institute for Science, Mathematics, and
Technology (VISMT)

Technology Challenge Grants : FY 1995

Name	City	State	Recommend Years 1-5	FY95 Obligations 10/95-3/96	FY96 Approved 4/96-12/96
Baltimore City Public Schools	Baltimore	MD	7,977,847	624,712	1,228,696
Pueblo of Laguna Dept of Ed	Laguna	NM	5,651,911	557,779	839,501
Southeast Education Service Center	Price	UT	3,343,738	333,999	501,101
Waukegan CU School District 60	Waukegan	IL	3,361,900	500,000	852,146
Black Hills Special Services Coop	Sturgis	SD	3,164,675	310,000	466,553
Newaygo County Intermediate School	White Cloud	MI	4,975,488	580,000	915,363
School District of Philadelphia	Philadelphia	PA	9,505,176	959,000	1,427,946
Natchitoches Parish School Board	Natchitoches	LA	4,385,807	500,000	746,772
Socorro ISD	El Paso	TX	3,397,681	342,500	517,638
Anderson Community School Corp	Anderson	IN	3,077,090	300,000	546,577
San Diego Unified School District	San Diego	CA	4,138,729	510,241	718,672
Towanda Area School District	Towanda	PA	2,894,224	462,107	610,107
Montpelier School System	Montpelier	VT	2,573,170	329,661	464,972
San Mateo County Office of Ed	Redwood City	CA	6,354,764	550,000	897,841
Summit City Office of Ed	Cuyahoga Falls	OH	6,820,582	585,000	965,437
Westside Community Schools	Omaha	NE	6,001,441	412,500	709,931
Manchester School District	Manchester	NH	2,778,038	500,000	628,002
Capital School District	Dover	DE	5,523,300	550,000	798,503
Indianapolis Public Schools	Indianapolis	IN	4,080,508	500,000	687,664
Totals			90,006,066	9,499,605	14,523,422



FOR EMBARGOED RELEASE: 9 a.m. EDT
October 10, 1995

Contact: Melinda Kitchell Malico
(202) 401-1008

NOTE: Secretary Riley will be available via conference call Tuesday at 11 a.m. and 2 p.m. EDT to talk with reporters about the grants. Call (800) 495-0245, SCHOOLS (724-6657)

PRESIDENT SAYS TECHNOLOGY CHALLENGE GRANTS WILL HELP BUILD 21ST CENTURY SCHOOLS

WASHINGTON, Oct. 10 -- President Clinton today announced the first installment on a five-year commitment to move the nation's schools into the Information Age.

Flanked by Vice President Gore, Education Secretary Richard Riley and corporate leaders, the President announced 19 Challenge Grants for Technology in Education. The awards, totaling \$9.5 million, are going to community partnerships with matching commitments of more than \$70 million in the first year and over \$300 million during the five-year span of the projects.

"Everywhere we look, technology is changing the way we work and live," President Clinton said. "Now, more than ever, it is imperative that our nation's schools have the technology they need to prepare students for the 21st century.

"The recipients of these challenge grants and their partners are committed to developing creative responses to the Information Age requirements of all students, including those in inner cities and rural areas. These grants will support visionary educators, parents, business partners and community leaders who are working to retool their schools for the future."

-MORE-



The challenge grant partnerships -- local consortia comprised of school districts and 380 partners representing business, education, libraries, museums, the military, states and cities -- will help infuse powerful new technologies into schools, allowing students and teachers to join the information superhighway. The partners have made substantial commitments for equipment, software development, technical support, telecommunications services and other costs.

"Powerful new technologies and the information superhighway can create unparalleled possibilities for extending the time, place and resources for learning," Riley said. "By linking schools to homes, libraries, museums, community centers and the workplace, these partnerships will expand learning opportunities for all students. The challenge grant communities being announced today will make these connections a reality -- and open schools to the abundance of educational resources available around the world."

The 19 grant recipients have formed partnerships with more than 134 other school districts in 23 states in the first year of the grant cycle. The partnerships also include more than 120 businesses, 34 universities and colleges, 10 museums, five libraries, 10 state education departments, education offices in five national and a state park system, two regional education laboratories, an energy laboratory, a Naval base and an Army base, and state and local government offices.

"These communities are responding to an ambitious challenge," Riley said. "Classrooms should be modern information centers for learning, yet most instruction still takes place with black boards and chalk. The implications for education and economic

-MORE-

competitiveness are enormous. Employers need well-educated employees who can use information technologies to gain knowledge and improve productivity. These grants will help schools and corporate partners make technology a part of effective teaching and learning."

First-year support for the projects comes from both fiscal year 1995 and 1996 funds; the grants announced today are funded with FY 95 funds. The Clinton administration is seeking Congressional support to fully fund the five-year grants at more than \$85 million. Clinton requested \$70 million for FY 96, but the House has recommended just \$25 million and the Senate is considering funding of \$15 million.

"At a time when hundreds of communities across the country are expressing their desire to meet the challenge of bringing their schools into the information age, it is tragic that Congress is considering cuts in this program, which would provide the resources they need for an effective response," Riley said. "Each federal dollar committed to this program is generating over \$3 of additional local community investment in the future of our children. This is an investment in education and our future economic competitiveness that should not be lost."

###

NOTE TO EDITORS: Attached is a list of grantees.

FY 1995 CHALLENGE GRANTS FOR TECHNOLOGY IN EDUCATION

CALIFORNIA

Redwood City	San Mateo County Office of Education	\$550,000
	Contact: Joe Becerra (415) 802-5444	

San Diego	San Diego Unified School District	510,241
	Contact: Richard Fabian (619) 225-3416	

DELAWARE

Dover	Capital School District	550,000
	Contact: William McGlumphy (302) 672-1521	

ILLINOIS

Waukegan	Waukegan Community Unit School District 60	500,000
	Contact: Elaine Armani (708) 360-5440	

INDIANA

Anderson	Anderson Community School Corporation	300,000
	Contact: Terri Austin (317) 641-2151	

Indianapolis	Indianapolis Public Schools	500,000
	Contact: John Kern (317) 226-4122	

LOUISIANA

Natchitoches	Natchitoches Parish School Board	500,000
	Contact: Kerry Davidson (504) 342-4253	

MARYLAND

Baltimore	Baltimore City Public Schools	624,712
	Contact: Michael Pitroff (410) 396-7607	

MICHIGAN

White Cloud	Newaygo County Intermediate School District	580,000
	Contact: Larry Ivens (616) 924-0380	

NEBRASKA

Omaha	Westside Community Schools	412,500
	Contact: Susan Manuel (402) 390-2124	

NEW HAMPSHIRE

Manchester	Manchester School District	500,000
	Contact: Terry Bullard (603) 624-6300	

NEW MEXICO

Laguna	Pueblo of Laguna Department of Education Contact: Gilbert Sanchez (505) 552-6008	\$557,779
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OHIO

Cuyahoga Falls	Summit County Office of Education Contacts: Steve Snyder / Gaye Fawcett (216) 945-5600	585,000
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PENNSYLVANIA

Philadelphia	School District of Philadelphia Contact: Steven Guttentag (215) 299-4670	959,000
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Towanda	Towanda Area School District Contact: Daniel Paul (717) 265-9894	462,107
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SOUTH DAKOTA

Sturgis	Black Hills Special Services Cooperative Contact: Jim Parry (605) 394-1876	310,000
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TEXAS

El Paso	Socorro Independent School District Contact: Ben DeBlis (915) 860-3438	342,500
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UTAH

Price	Southeast Education Service Center Contact: F. Lynn Bills (801) 637-1173	333,999
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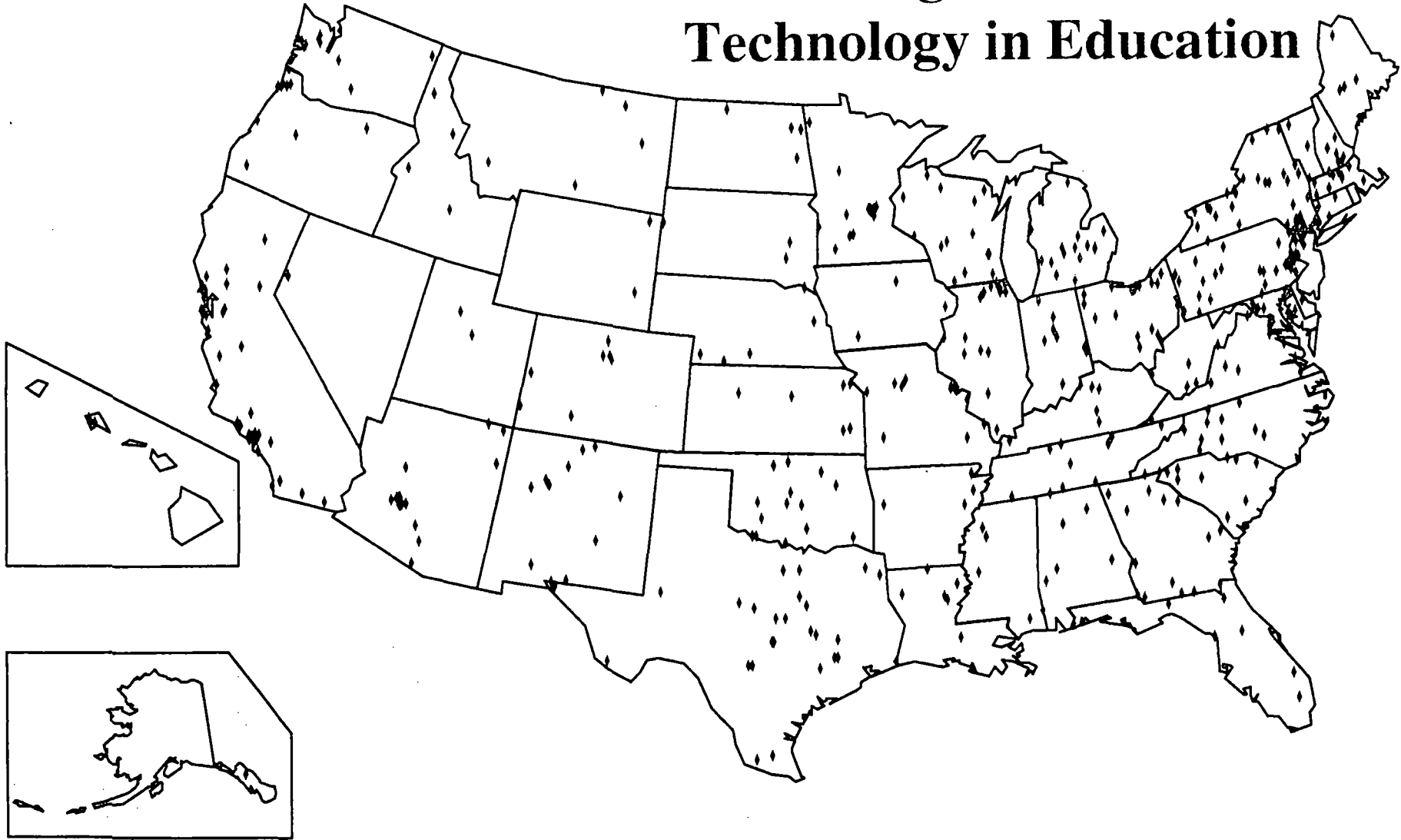
VERMONT

Montpelier	Montpelier School District Contact: David Gibson (802) 223-6366	329,661
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**CHALLENGE GRANTS FOR TECHNOLOGY IN EDUCATION
RECOMMENDED FOR 5 YEAR AWARDS**

<u>LOCATION</u>	<u>ENTITY</u>	<u>5 YEAR RECOMMENDATION</u>
San Diego, CA	San Diego Unified School District	\$4,138,729
Redwood City, CA	San Mateo County Office of Education	\$6,354,764
Dover, DE	Capital School District	\$5,523,300
Waukegan, IL	Waukegan C U School District	\$3,361,900
Anderson, IN	Anderson Community School Corp	\$3,077,090
Indianapolis, IN	Indianapolis Public Schools	\$4,080,508
Natchitoches, LA	Natchitoches Parish School Board	\$4,385,807
Baltimore, MD	Baltimore City Public Schools	\$7,977,847
White Cloud, MI	Newaygo County Intermediate School District	\$4,975,488
Omaha NE	Westside Community Schools	\$6,001,441
Manchester, NH	Manchester School District	\$2,778,038
Laguna, NM	Pueblo of Laguna Department of Education	\$5,651,911
Cuyahoga Falls, OH	Summit County Educational Service Center	\$6,820,582
Philadelphia, PA	School District of Philadelphia	\$9,505,176
Towanda, PA	Towanda Area School District	\$2,894,224
Sturgis, SD	Black Hills Special Services Cooperative	\$3,164,675
El Paso, TX	Socorro Independent School District	\$3,397,681
Price UT	Southeast Education Service Center	\$3,343,738
Montpelier, VT	Montpelier School System	\$2,573,170

Challenge Grants for Technology in Education

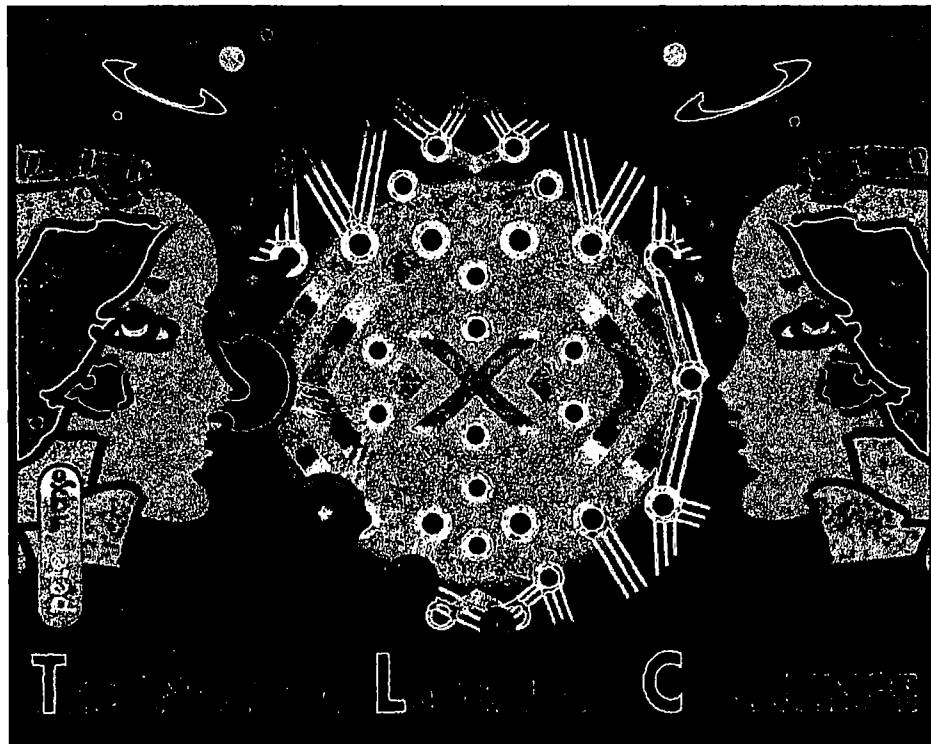


◆ Applications

Interagency Learning Technology Office

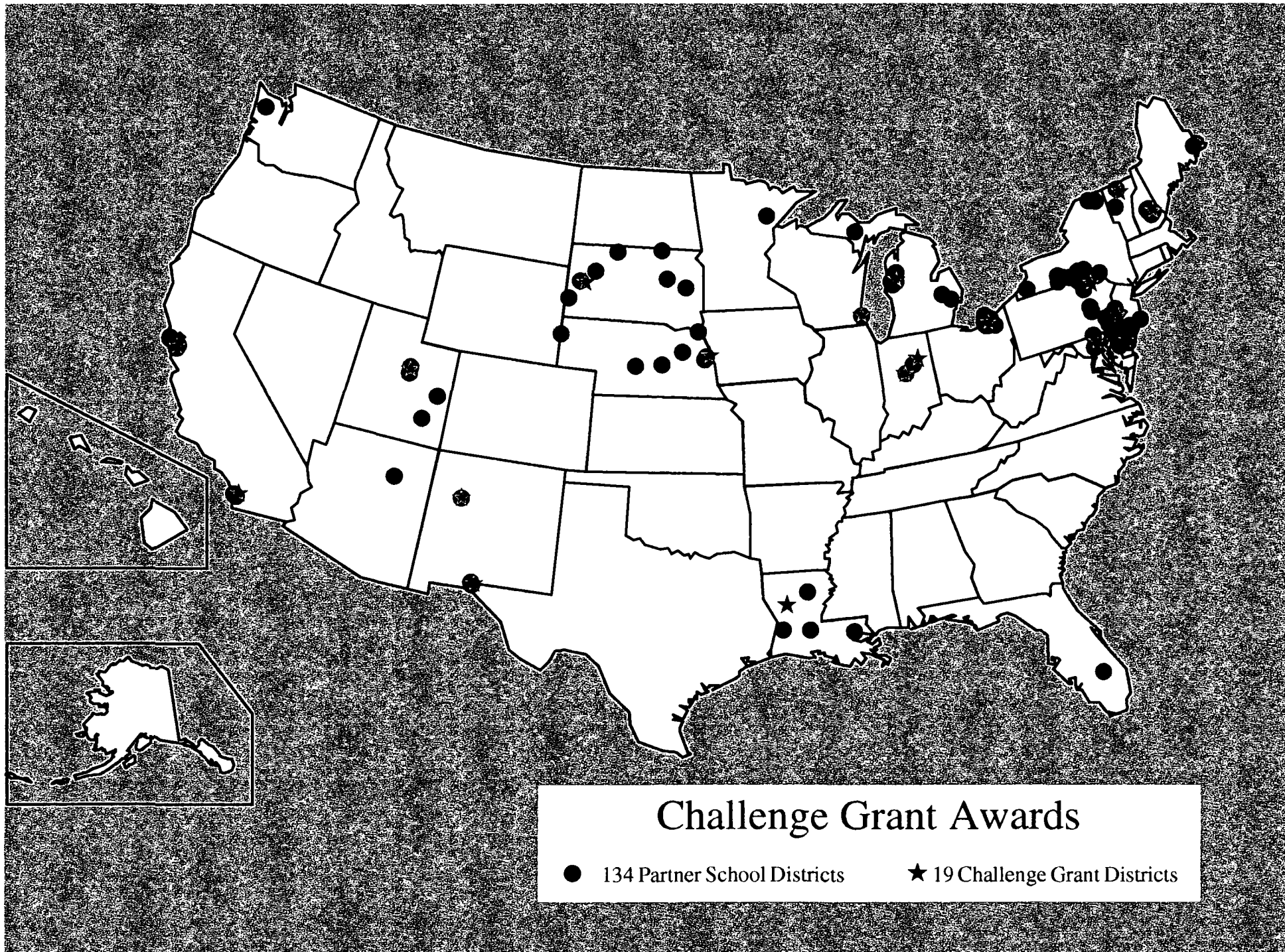
Challenge Grants for Technology In Education

GRANT ABSTRACTS
FY 1995



Interagency Learning Technology Office
U.S. Department of Education
Suite 6300
1250 Maryland Ave., S.W.
Washington, D.C. 20202-5544
202-708-6001

Prepared by William Anderson
National Aeronautics and Space Administration





FOR EMBARGOED RELEASE: 9 a.m. EDT
October 10, 1995

Contact: Melinda Kitchell Malico
(202) 401-1008

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-MORE-



The challenge grant partnerships -- local consortia comprised of school districts and 380 partners representing business, education, libraries, museums, the military, states and cities -- will help infuse powerful new technologies into schools, allowing students and teachers to join the information superhighway. The partners have made substantial commitments for equipment, software development, technical support, telecommunications services and other costs.

"Powerful new technologies and the information superhighway can create unparalleled possibilities for extending the time, place and resources for learning," Riley said. "By linking schools to homes, libraries, museums, community centers and the workplace, these partnerships will expand learning opportunities for all students. The challenge grant communities being announced today will make these connections a reality -- and open schools to the abundance of educational resources available around the world."

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competitiveness are enormous. Employers need well-educated employees who can use information technologies to gain knowledge and improve productivity. These grants will help schools and corporate partners make technology a part of effective teaching and learning."

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Technology Learning Challenge Grants

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CHALLENGE GRANTS FOR TECHNOLOGY IN EDUCATION

The U.S. Department of Education is awarding \$9.5 million in Challenge Grants for technology in education to 19 communities in 16 states across the country. The 19 school districts in these communities will work in partnerships with a total of 134 other school districts in 23 states. These school districts will be using powerful new technologies and the information superhighway to transform their factory era schools into information age learning centers.

Challenge Grants will average \$1 million a year for five years. During the first year, one and a quarter million students will be served by these grants, and the number of students served will grow each year during the life of the projects.

In each Challenge Grant community a consortium of schools, businesses, libraries, museums and community organizations are matching the grant with substantial commitments for equipment, software development, technical support, telecommunications services and other costs. These Challenge Grant communities are making a significant educational investment in the future of their children. The total value of matching commitments is over \$70 million in the first year, and during the five year life of these projects the total value of these investments is expected to be over \$300 million. Funds awarded through the Challenge Grants will augment these local investments and support new curriculum design, teacher training, and the evaluation of educational effectiveness.

Over 380 partners will participate in the activities of these nineteen Challenge Grant communities. A total of 153 school districts will use new technologies for education reform. Over 120 business firms are participating in Challenge Grant community partnerships, along with 34 universities and colleges, ten museums, five libraries, nine State Education Agencies, the education offices of five national parks and a state park system, two regional education laboratories, an energy laboratory, a Navy base, an Army base, three Governor's Offices, and two Mayor's offices. Of the participating school districts 84 are urban and 70 are rural. The rural school districts include eight Bureau of Indian Affairs schools. Of the 120 businesses committed to these partnerships, 14 are hardware manufacturers; 12 are software developers; and 18 are telecommunications firms. Additional school districts, firms, and community organizations are encouraged to join these partnerships in the future.

Nineteen local school districts, one in each community, will administer these grants. A list of the school districts is attached, along with a map designating the locations of the 19 Challenge Grant communities and the rest of the 134 participating school districts. A one page abstract of each Challenge Grant community's initiative is also attached.

These communities are responding to an ambitious challenge. Everywhere we look, technology is changing the way we work and live -- everywhere, that is, but in our schools and classrooms. In classrooms that should be modern information centers for learning, the basic media of instruction continue to be black boards and chalk. The implications for education and economic competitiveness are enormous. In a strong economy, employers must have well-educated employees who make skillful use of information technologies to increase their knowledge and continuously improve their productivity. But few schools today are able to provide the high performance learning tools that would allow students to develop these skills.

As catalysts for change, challenge grants will support communities of educators, parents, industry partners, and community leaders who are working to retool their schools for the 21st century. Powerful new technologies and the information superhighway create new possibilities for extending the time, the place, and the resources for learning. Schools can be linked to the home, and to libraries, museums, community centers and the work place, to

provide high quality learning opportunities at any time and any place. Challenge grant communities will make these connections and open their schools to new educational resources available across the nation and around the world.

As each Challenge Grant community acts on its vision for education reform, careful attention is being paid to ensure that we do not become a society in which low income communities and other areas with the greatest need for technology are left behind in the acquisition of skills and knowledge needed to be productive citizens in the 21st century. These grants support local alliances of educators, industry partners, and community leaders who are committed to developing creative responses to the information age requirements of all learners, including those in inner cities and rural areas.

These 19 Challenge Grant communities are likely to succeed because they have begun with a clear definition of the educational problems they want to address. In most cases these communities are working on the integration of new technologies into state or local education reform efforts that have been stimulated by the National Education Goals. Effective use of new technologies in these communities will contribute to school readiness and improved student achievement in reading, writing, science, mathematics, the arts and other disciplines. Each project will support professional development for teachers and promote greater parent and community involvement in education. And each will help smooth the transition from school to work by engaging students in real life learning experiences through which they can develop the life-long learning skills necessary to compete in the economy of the 21st century. In several cases, district-wide, state-wide, and regional efforts to set clear expectations for what all students should know will enable these communities to form major markets that stimulate demand for new high quality learning systems and software.

Although the funds available this year limit these Challenge Grants to just a handful of the 530 communities that applied, during the 1995-96 school year we plan to conduct a second round competition, which could lead to an additional award of 20 new grants by September 1996.

For additional information on this program contact:

**Interagency Learning Technology Office
U. S. Department of Education
Suite 6300
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Washington, D.C. 20202-5544
Phone: 202-708-6001
Fax: 202-708-6003**

San Mateo County Office of Education

Redwood City, California

Silicon Valley Challenge 2000 Multimedia Project

This project is one element of an ambitious program to revitalize education in schools throughout Northern California's Silicon Valley. Under the leadership of the San Mateo and Santa Clara County offices of education, and a consortium of industry partners called "Joint Venture: Silicon Valley" (JVS), over \$15 million in corporate contributions has been raised in the area to support systemic school reform. The Challenge 2000 Multimedia project builds on the collaborative foundation and experience of JVS, helps unite several of its diverse elements, and focuses on the use of multimedia technologies in the creation of student instructional units. The project includes 37 schools, more than 750 teachers and 23,000 students drawn from two counties and nine school districts. Over 50% of these students come from low-income homes. The project addresses objectives of the Goals 2000 Act, provides an extensive professional development program, contains a strong school-to-work element, and promotes reform at all levels of education.

The Multimedia Project creates four "school communities," consisting of elementary and secondary schools, and colleges. The program is establishing a high-performance telecommunication network that links the schools, allowing them to exchange curriculum information and participate in joint educational activities. Through the network, the schools have access to state-of-the-art multimedia development tools, and physical and virtual resources at the Bay Area Multimedia Technology Alliance (BAMTA). BAMTA's "Collaboratory" is an educational research facility and technology testbed that facilitates the development of multimedia projects, including collaborative work environments. The school communities are being equipped with multimedia hubs containing high performance computer graphics workstations that allow students and teachers to take full advantage of Collaboratory resources. Each of the schools is developing an "exemplary practice" model for learning activities supported with multimedia software and network tools. Students use these technologies to explore subject matter content, and engage in collaboration, planning, revision, problem solving, critical thinking, and reflection. The school communities have also developed individual technology plans:

Blossom Valley Learning Consortium

Located primarily in South San Jose, this school community includes nine schools, and the general and special education departments of San Jose State University. Support services such as tutoring, alternative learning, and medical diagnoses are provided in partnership with local government, public agencies and industry. A school networking plan and a cross-school assessment system help consolidate the schools' programs. One school district in the consortium is opening a "Technology Teacher Magnet School" where teachers learn to use telecommunication and multimedia to enrich curricula.

Family of Schools

This community of 15 schools drawn from four districts serves an economically and culturally diverse population of over 10,000 students. The team's high school draws 40% of its students from an inner-city area where the median household income is less than half the national average. The Family of Schools focuses on improving math and science instruction, with extensive support from industry partners, including three major businesses, three community colleges, and an educational foundation. This community has established a professional development center where teachers create and test technology-supported math and science curricula.

Overfelt Family

These five East San Jose schools serve one of Silicon Valley's most economically stressed communities. At the elementary schools, eight

out of ten children are eligible for free or reduced-price lunches. At home, nearly 80% of the students speak a language other than English. The Overfelt Family community is focusing on improvements in literacy and language arts, and is turning its schools into family centers, building on the school-linked "Healthy Start" integrated services program. Other focuses are retention, motivation and support of teachers in connecting instructional activities to real-world applications.

Palo Alto Learning Communities

This community of 16 schools focuses on literacy and school-to-work activities in an ambitious reform program that: 1) promotes performance assessment by community and corporate representatives who conduct standardized scoring of student multi-media exhibitions; and 2) helps develop school-to-work skills with a network link between schools, libraries, administrative offices and corporations.

JVS has obtained commitments for educational support from the Hewlett-Packard Company, Intel, Network General, Symantec, 3Com, Silicon Graphics, Apple Computer, Applied Materials, Cirrus Logic, Logitech, NetManago, Quantum, the Robert Noyce Foundation, Sun Microsystems, Wells Fargo Bank, and Adobe Systems. JVS is acting as a broker in obtaining technical support from the staff of these corporations for Multimedia Project schools. Additionally, JVS is providing funding for release time and basic computer and Internet training of teachers. Silicon Graphics, Inc. will donate up to ten high-performance workstations for each school community hub, which will be located in the team's secondary school.

Project evaluation will be performed by SRI International. The project will maintain complete records of activities and products generated by the four school communities, and these materials along with results of the project evaluation will be disseminated in hard copy form and through the World Wide Web. The Multimedia Project brings together a powerful consortium of public, and private institutions to implement a comprehensive plan to help reform education in schools throughout the Silicon Valley.

Consortium Partners

Bay Area Multimedia Technology Alliance
Blossom Valley Learning Consortium
Family of Schools
Institute for Research on Learning
Joint Venture: Silicon Valley--21st Century Education
Initiative & Smart Valley, Inc.
Overfelt Family
Palo Alto Learning Communities
Santa Clara County Office of Education
Smart Valley, Inc.
SRI International

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San Diego Unified School District

San Diego, California

The Triton Project

"The Triton Project" is a multi-partner educational reform effort that blends a unique ocean-themed curriculum with several technologies to create new learning opportunities for students and teachers in the San Diego schools. The San Diego Unified School District is the eighth largest in the country. More than 26% of its students are classified "English language learners" (ELL), and they speak more than 50 native languages. Over half the ELL students are economically disadvantaged, and academic achievement among many students throughout the school system is poor. The Triton Project uses the capabilities and unique appeal of modern technology to capture interest in core curricula, provide a highly productive education program, and produce improved student achievement throughout all elementary and secondary schools in the system. As the program is expanded to include all San Diego School System students by the year 2000, more than 128,000 children will participate. This program includes a strong staff development component and evaluation plan. Its major focus is the development of a content-based and standards-driven curriculum. The program stresses systemic reform, and contains elements that are in compliance with recommendations of the National Education Commission on Time and Learning and the Goals 2000 Act. There are four main goals:

1) Equitable Access to Technology

The program is increasing the availability of educational technologies throughout the school system in order to ensure equitable access to technology-related opportunities for all students. The program teaches students to identify, organize and allocate educational resources. They work with a variety of technologies, including the Internet, word processing, spreadsheets, databases, multimedia, telerobotics, videoconferencing, digital video, and virtual reality.

2) Improved Learning Outcomes

The program utilizes a variety of technologies to improve learning outcomes in reading, writing, math, and science. Several approaches are employed, including the establishment of measurable objectives and evaluation strategies, the implementation of curricula that address the needs of second language learners, and the application of technology to specific learning challenges.

3) Improved Interaction with Parents and the Community

The program promotes effective telecommunication using computers, video and cable television. These technologies encourage communication across ages, geographies, genders, ethnicities, and economic levels. Through telecommunication, digital video production, and cable television, the program allows students to contact and learn from schools and other community resources at distant sites.

4) Effective Staff Development

The program provides effective, hands-on training for administrators, teachers, support staff, and parents. Teachers learn to use technology as a tool in developing lessons, and discover how to locate and utilize educational resources on the Internet.

The Triton Project is a collaborative partnership between the San Diego City Schools and a number of private and public organizations within the community. Each of the partners provides a unique service to the program. The school system is working closely with the Mayor's office to connect electronically all classrooms, offices, and school libraries to colleges, universities,

public libraries, medical centers, social service agencies, research facilities, Sea World, museums and other places of interest in the city. Sea World is expanding its telecommunication capabilities directly into district classrooms, and communicates directly with students via the Internet. Scripps Institution of Oceanography and the Stephen Birch Aquarium-Museum are sharing two curricular units they have developed: "Kelp Forest" and "Forecasting the Future." They also work with teachers in the development of new curricula. The San Diego Public Libraries offer Homework Centers as an electronic resource for students. Pacific Bell, through its Education First project, links the partners electronically, and is working with San Diego State University on a curriculum development project. The San Diego Supercomputer Center supports the design and production of a curriculum that takes the vast resources of the Internet and filters them into a practical, useful program of study. It also supports the virtual reality component of the project. The Naval Command Control and Ocean Surveillance Center gives advice in virtual reality development, demonstrates advance technologies in action, works with students to design and develop robots that can operate at a distance and in virtual worlds, and offers engineering and technical support.

An external evaluator from San Diego State University is working with Triton Project staff to design an evaluation plan for the program. The evaluator will conduct site visits, observations and interviews, and will coordinate project data collection. School district staff will work with Triton Project staff to coordinate data collection and analysis. Project participants will assist at every level in the design, implementation and interpretation of the evaluation.

The Triton Project blends new technologies, intriguing subject matter, and non-traditional learning opportunities in a unique and motivational education program.

Consortium Partners

Naval Command Control & Ocean Surveillance Center
Office of the Mayor of San Diego
Pacific Bell's Education First Initiative
San Diego Data Processing Corporation
San Diego Public Library System
San Diego State University
San Diego Supercomputer Center at UC-San Diego
Scripps Institute of Oceanography
Sea World
Stephen Birch Aquarium-Museum

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Capital School District

Dover, Delaware

Delaware Interactive Educational Television Consortium

The Capital School District and the State of Delaware have formed an Interactive Educational Television Consortium that is bringing unique and engaging classroom learning activities directly into the homes of schoolchildren throughout the state. Through the use of small computers ("set-tops") that connect to home televisions equipped with cable or phone modems, the consortium can provide programming that is interactive, entertaining, educational, and tailored to meet both state curriculum requirements and the individual needs of students. This program can be easily replicated in school systems throughout the country. It responds to recommendations of the National Commission on Time and Learning, fits within the framework of the Goals 2000 Act, and has a strong school-home element. The program is being piloted in five elementary schools with high percentages of disadvantaged students. As it grows into the state's 16 school districts, more than 12,500 students in grades K-6 eventually will participate. The program has four major goals:

1) Increase Student Learning Time

In response to the challenge of breaking the mold of our "factory-era schools" this project utilizes cutting-edge technology to extend learning into the home on a daily basis. This allows students to increase their learning time with instructional programs that directly address their learning styles and needs. Time typically spent passively and unproductively watching television and playing video games is replaced with active and productive learning time in which solid curricula are combined with video game interactivity to create a new learning dynamic for children.

2) Increase Parental Involvement

Family and community participation are vital components of this project. No matter how thoughtful and comprehensive a school improvement program is, the school alone cannot improve academic performance for all students. This project fosters and supports a home environment that encourages learning, provides for realistic expectations, and enhances the parent's role as the child's first and most important teacher. It also fosters improved communication between parents and teachers.

3) Provide Professional Development for Teachers and Staff

Teachers and staff receive comprehensive training for the project, and they are provided set-top computers for their homes. As the infrastructure is deployed, teachers participate in interactive staff development "on-demand," and they learn to use the system to generate personalized instructional materials for students. In addition, they can go "on-line" with their colleagues and learn, share and communicate easily with one another.

4) Provide Equitable Access to Educational Technology

Every child involved in the project and every household they represent is provided, free of charge, all equipment needed to participate fully. This program opens opportunities for universal access to high-quality instruction and helps to close the gap between the technology haves and have-nots.

Hardware and initial programming for this project have been developed by The Lightspan Partnership, Inc. of Robbinsville, New Jersey. Lightspan also provides training for faculty and parents, and ten days of consultant support for each school. Additional programming in language arts, health, social studies, science, math,

parenting and other subjects is provided through contracts with a wide variety of educational publishers.

The Interactive Educational Television Consortium is an outgrowth of the Delaware Educational Technology Committee, the Delaware Goals 2000 Technology Committee, and the Capital School District Technology Committee. State partners in the consortium include the Delaware Department of Public Instruction and all school districts in Delaware with elementary student populations. Programming partners include the Lightspan Partnership, Cable in the Classroom, WHYY Public Broadcasting in Wilmington, Tom Synder Productions, the Agency for Instructional Technology, Seymour Pappert's Creative Playground, the Imagination Machine, and others. Hardware and technical support partners include Comcast Inc., TeleCommunications Incorporated (TCI), the Cable Television Association of Maryland, Delaware, and the District of Columbia, Apple Computer, and others.

In addition to the interactive telecommunications network, each elementary classroom involved in the project is being equipped with new technologies to support the education process at school. Participating classes contain three set-top computers, one teacher workstation with a large-screen monitor for instructional presentations and lesson modeling, and two set-tops serving as student workstations. Student workstations are equipped with headsets, so that students can participate in personal multi-media instruction without disturbing classmates.

Dover's Capital School District and the State of Delaware have forged a dynamic alliance of private industries, government agencies and educational institutions to extend the education process beyond the walls of the traditional classroom and place it in the hands of parents and their children.

Consortium Partners

Apple Computer, Inc.
Bell Atlantic
Cable in the Classroom
Cable Television Association of MD, DE, & DC
COMCAST
Delaware Department of Public Instruction
Delaware Schools with K-6 students
The Lightspan Partnership
State of Delaware
Tele-Communications Inc. (TCI)
WHYY Public Broadcasting, Wilmington

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Waukegan Community Unit School District 60

Waukegan, Illinois

Technology and Learning Collaborative

The Technology and Learning Collaborative (TLC) is a dynamic consortium of educational institutions, private businesses, and government agencies that has developed a multi-faceted program to modernize and improve the educational process in the Waukegan Public Schools. Waukegan schools experience many of the problems common to inner city systems: high truancy rates, widespread poverty, high mobility rates, and low academic achievement. The TLC consortium is addressing these problems by implementing a community-wide math and science education program based on innovative uses of new technologies. This is a replicable program that has strong school-home, school-community and school-work components. It provides for extensive professional development training, and addresses targets of the Goals 2000 Act. More than 7,000 students in grades 4-12 receive direct benefits from the program. Project goals are:

1) Improving Student Achievement in Math and Science

With the use of new technologies and an emphasis on project-based learning activities, students improve their achievement through:

- 1) Active engagement in constructing and communicating principles of math and science;
- 2) Participation in meaningful scientific investigations;
- 3) Investigation and understanding of basic math and science concepts;
- 4) Investigating and understanding connections between subject disciplines; and
- 5) Relating scientific and mathematical knowledge to themselves and their lives by working on real-life problems and issues.

2) Promoting Engaged Learning

Making the transition to "engaged learning" (learning while doing and learning from doing) requires rethinking the way traditional material is taught. To accomplish this, teachers in Waukegan schools practice peer coaching through classroom visits and conferencing with lead teachers. Lead teachers develop project-based, collaborative learning units that integrate math, science and technology. They receive training in engaged learning methods from Apple Computers, Inc., the North Central Regional Education Laboratory (NCREL), and other consortium partners, and they learn how to utilize technology to facilitate engaged learning.

3) Promoting the Use of Educational Technologies

The consortium is establishing model classrooms to be duplicated throughout the Waukegan schools. Each classroom contains a teacher workstation with multimedia capability; an overhead TV monitor; five student workstations with multimedia capabilities; a laptop; a printer; a compact video camera; a color scanner; a digital camera; and an Internet connection. The project provides teachers and students training in the use of these technologies.

4) Improving Workplace Readiness and Workplace Skills

In a program to reach beyond the walls of the classroom, the Technology and Learning Collaborative is establishing Technology Learning Community Centers (TLCC's) that provide students, parents and other adults access to a wide range of educational technologies and information. The TLCC's are located at four easily accessible sites within the community, and they offer computers, printers, connectivity to the Internet and other resources for public use. In addition, the Waukegan Public Library is developing and maintaining an on-line community bulletin board that provides assistance to individuals seeking information on education, community services and job opportunities.

This project is producing several products and processes that are being disseminated to school systems throughout the country. Examples include project-based, collaborative learning units for math and science, classroom case studies in video, print and

electronic forms; a professional networking model; and a model Technology Learning Community Center (TLCC) for lifelong learning. These products are distributed nationally and globally with the assistance of Apple Computer, Northwestern University, the North Central Regional Education Laboratory (NCREL), and the Illinois State Board of Education (ISBE).

The TLC is receiving substantial support from businesses and government agencies in the Waukegan community. Abbott Laboratories is helping to produce workplace readiness videos. The College of Lake County, the Waukegan Park District, and the YMCA are providing space, staff and programming for three Technology and Learning Community Centers. Barat College is providing faculty and student mentors for science projects. The ISBE is developing guides for use by other school systems. Legat Architects and U.S. Cable are donating program planning services for infrastructure design. North Central Regional Education Lab is conducting a series of training workshops for teachers. The Northeastern Illinois Assistive Technology Consortium and the Special Education Parents Advisory Council (SEPAC) are offering extensive support for children with disabilities. Northwestern University is using Waukegan as a test site for its Collaborative Learning through Visualization (CoVis) project in earth science, and the Waukegan Schools Foundation is providing educational technology equipment.

Consortium Partners

Abbott Laboratories
Apple Computer, Inc.
Barat College
College of Lake County
Illinois State Board of Education (ISBE)
Lake County Technology Campus
Legat Architects
North Central Regional Education Laboratory
Northeastern Illinois Assistive Technology Consortium
Northwestern University
Special Education Parents Advisory Council
U.S. Cable of Lake County
Waukegan Park District
Waukegan Public Library
Waukegan Schools Foundation
YMCA

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Anderson Community School Corporation

Anderson, Indiana

Anderson Community Technology Project

Anderson Community Technology Now! is a consortium of local and state agencies in Indiana that is combining innovative technology initiatives to raise the academic achievement of 3,140 underchallenged and at-risk students (and their families) in six elementary and two middle schools. The program is designed to accelerate the pace of educational improvement and ensure greater economic opportunity within the community.

The project is addressing its goal by--

- increasing community involvement in public education;
- increasing teacher professionalism and productivity through professional development activities;
- developing new learning environments;
- strengthening the connections between home, school, and community to foster family skills and involvement in education; and
- providing opportunities for teachers and students to become self-directed and collaborative learners.

As part of previous school and systemic restructuring efforts, Anderson has undertaken several activities which will be used in this project. One such activity is the School on Wheels, a specially trained cadre of teachers and principals who can temporarily assume the roles of entire school faculties to enable educators to participate in staff development. Another activity is the 1995 Community Forum for Education, supported by local employers, community organizations, and civic groups. This organization studies, plans and helps implement new educational applications of technology.

The Anderson Community Technology Project has several major components:

1) **The Buddy System Project** at the Corporation for Educational Technology (CET) promotes the extension of the learning day beyond the classroom and into the homes of 4th-8th grade students.

2) **The Vision Athena Project**, sponsored by the Corporation for Educational Communications (CEC) and the Children's Museum of Indianapolis, is making available two-way video for distance learning and electronic field trips, e.g. to the Indianapolis Zoo, Butler and Indiana Universities, the school system, and the Anderson Federation of Teachers are providing instructional courses and staff development in the use of educational technology.

3) **A community technology center** with Internet connections and regularly held training sessions is being dedicated at the Anderson Public Library to benefit all community members.

4) **Professional development services** are being provided by the Indiana University School of Education and the Butler University College of Education. The focus is on integrating technology into the history, language arts, mathematics, and science curricula.

5) **On-line and in-person tutoring** in literacy, mathematics, and technology is being provided by Anderson University students (60 in the first year) to elementary and middle school students.

6) **Educational videotapes** developed by Indiana Public Broadcasting Stations in collaboration with Anderson teachers are supplementing 4th grade Indiana history materials.

7) **Special educational programming and teacher training** are being broadcast through the local TCI cable operator to students and their families. Programs include "Ingenious" (news, weather, etc.)

and "What on Earth" (6 news stories per day). This is one of the first multimedia databases for homes delivered by cable.

8) **Family mathematics and science training** is delivered via two-way video by the Children's Museum of Indianapolis to school and community facilities to strengthen family learning in mathematics and science.

About 240 fourth grade students are the focus of first-year activities, and the project will expand to all upper elementary and middle school students and their teachers by the end of the five-year project. First-year activities include computer instruction in word processing and productivity software, and integration of technology applications into 4th grade language arts and social studies classes. Emphasis is on changing teaching styles, using the home computer for collaborative writing and reading projects, and using telecommunications projects to teach Indiana history. Each school has a fund to allow teachers to purchase professional development services from the three participating universities. Other professional development activities include the School on Wheels and the Principals Technology Leadership Training Program sponsored by the Indiana Department of Education. Rockman *et al*, a research and evaluation group in San Francisco, is conducting an evaluation of the entire program. The evaluation will determine changes in: academic achievement of disadvantaged students, family involvement in the education process, computer-based instructional time, and changes in teacher attitudes and instructional approach.

Consortium Partners

Anderson Area Chamber of Commerce
Anderson Federation of Teachers
Anderson Public Library
Anderson University
Butler University College of Education
Children's Museum of Indianapolis
Corporation for Educational Communications (CEC)
Corporation for Educational Technology (CET)
Indiana Department of Education
Indiana Public Broadcasting Stations
Indiana University School of Education
National City Bank
TCI of Central Indiana (cable TV)

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Indianapolis Public Schools

Indianapolis, Indiana

A Learning Cooperative

The Indianapolis Public Schools are pioneering a unique school/government/business consortium called "A Learning Cooperative: Connecting and Supporting Systemic Mathematics, Science and Technology Initiatives via Telecommunication." Utilizing the experience and resources of Ameritech, a cellular service provider, this consortium is developing an affordable, scaleable, and equitably distributed telecommunication infrastructure which links the North Central Regional Educational Laboratory (NCREL), 25 schools in Indianapolis, 25 in Chicago, and 3 in Walled Lake, Michigan. The new network delivers research-based curriculum and technical support to participating schools, and it provides professional development activities for the program's teachers. The program promotes systemic change in the teaching of mathematics, science, and technology, is in accord with the recommendations of the Goals 2000 Act, and has strong school-home, school-community and school-work elements. About 90,000 students receive direct benefit from the project. There are six major components of the program:

1) Developing and Sharing Exemplary Instruction

The network allows exemplary teachers to conduct lessons at participating consortium schools via "distance learning." Lessons are prepared in the form of "Curriculum Support Units" (CSU's), short video programs with supplementary text that teach specific key concepts. Through careful collaboration among the consortium members, the CSU's are designed to address basic math and science concepts, and to fit smoothly within the curriculum frameworks of each district.

2) Providing Professional Development

The Learning Cooperative provides unique professional development opportunities for individual teachers, principals, administrators and school community teams. During regularly scheduled on-line meetings, educators analyze and improve their curriculum, instruction and assessment practices in math and science. The system provides access to a database of professional development materials produced by NCREL, and it is connected via the Internet to other professional development resources.

3) Providing Technical Assistance and Educational Support

The Learning Cooperative and Ameritech have established a group of advisors that provide technical support related to the program's infrastructure and educational content. The advisors help participating teachers identify effective methods for putting Learning Cooperative activities in place, suggest ways to share ideas for using the system, and promote the use of technology in math and science instruction.

4) Improving Communications Between Parents and Schools

The Learning Cooperative is building awareness of the need for increased parental involvement in the educational program, and it is working to improve the connection between parents and school staff. The consortium's telecommunication infrastructure is being used to provide information to parents on specific ways they can take an active role in school activities, to convene parent support groups, to establish a hotline for homework information, to provide a voice mail service for teachers, and to produce educational television broadcasts.

5) Conducting evaluation

The Learning Cooperative is conducting an ongoing evaluation for the purpose of: 1) determining its progress in achieving goals; 2) improving the curriculum; 3) identifying barriers to a successful program; and 4) identifying the next steps in improving the program. Evaluation activities have been designed to help consortium partners measure their own progress in improving math and science curricula and understand the theories behind best practice methods in math and science teaching.

6) Developing partnerships to provide ongoing resources.

The Learning Cooperative has established an educational communications system for use by school personnel, parents, and community members. The system contains information on the effective uses of technology in learning and teaching, and it allows teachers, parents, community members and other interested individuals to make contacts, learn and work together, or just talk to one another. The system is connected to numerous other Internet resources related to critical education reform issues.

Each partner in the consortium has a unique role. Ameritech is installing and maintaining the equipment. The Indianapolis Public Schools are leading the development of science units and staff development. The Chicago Public Schools are developing mathematics activities and staff development activities. The Walled Lake Community Schools are developing a method to integrate the science and math units into the curriculum of the three districts. NCREL is developing communities of practice and curriculum support units, as well as scheduling distance learning through the telecommunication infrastructure.

The "Learning Cooperative" has developed a comprehensive program that utilizes educational technologies to revitalize the education process in participating schools, involve parents in school reform, and promote cooperation between disparate school systems in three midwestern states.

Consortium Partners

Ameritech (Indianapolis, IN)
Chicago Public Schools
Detroit High School of Commerce & Business
Administration
Indianapolis Public Schools
LearningAccess (Washington, DC)
North Central Regional Educational Laboratory
(NCREL) (Oak Brook, IL)
Walled Lake Consolidated Schools (Walled Lake, MI)

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Natchitoches Parish School Board

Natchitoches, Louisiana

The Natchitoches Parish School Board and Goals 2000/LaNIE

The Natchitoches Parish School Board and Goals 2000/LaNIE Technology Challenge Grant Consortium is developing comprehensive programs that use telecommunication to increase participation in high-tech learning by underserved K-12 students in five Louisiana school districts. The consortium will ultimately increase communication among all community stakeholders by using learning technologies to provide educational opportunities for students and parents at more convenient times and more accessible places. Over five years, approximately 174,000 students in 48 schools and 19 community sites will be served by the consortium.

This project builds on a previous Louisiana Goals 2000 effort and a Louisiana Networking Infrastructure for Education (LaNIE) grant received from the National Science Foundation to integrate Internet resources and K-12 instruction at five pilot sites across the state. Staff from both projects have been working jointly to develop an overall state educational technology plan.

Building on the work of the pilot sites, the new project is developing transferable models for providing underserved students access to technology, increasing student achievement, and documenting successful practices for widespread use in other communities across the country. Each of the five pilot sites, guided by a district technology advisory committee, is developing, implementing, and evaluating a comprehensive district plan for using educational technology to increase student achievement and to meet local educational goals.

To improve student achievement, the project will address school readiness and provide professional development activities for educators and community partners; it will also involve parents in the learning process and concentrate on the transition from school to work and life-long learning.

Project staff are giving special attention to: 1) the obstacles limiting access for underserved populations; 2) training for additional school personnel, parents, and community program leaders; and 3) the development of materials to support parent and community programs.

Each district is increasing access to educational opportunities by opening school sites after hours and by expanding access to places more often visited by community members.

The five districts are developing standards-based curriculum materials for all content disciplines, and expanding access locations to include community centers, playgrounds, libraries, and churches. Priority subject areas are mathematics, science, language arts and literacy. Professional development activities for teachers, students, parents, and administrators of community organizations are being offered. Dissemination plans and public awareness campaigns are also being developed (electronic mail, home page at each site, regional conferences, etc.). During the second and third years additional community sites will be added and teacher-developed curriculum materials will be disseminated on-line through the International Society for Technology in Education Gopher server and World Wide Web server. During the fourth and fifth years video conferences will be used to transfer model practices to other parts of Louisiana. In addition, the project will work with the

Louisiana Board of Elementary and Secondary Education and the Board of Regents to develop technology standards for pre-service and in-service education.

Professional development courses for educators and community members are being developed collaboratively by consortium members, and will be offered at each of the following cooperating universities: Northwestern State University, Natchitoches Parish; Northeast Louisiana University, Ouachita Parish; the University of Southwestern Louisiana, Lafayette Parish; the University of New Orleans, Jefferson Parish; and McNeese State University, Calcasieu Parish.

Consortium Partners

BellSouth Telecommunication
Calcasieu Parish School System
Governor's Office of Women's Services
Governor's Office: Louisiana Goals 2000/LaNIE
Greater New Orleans Free-Net, Inc.
International Society for Technology in Education
Jefferson Elementary School PTA
Jefferson Parish Public School System
Lafayette Natural History Museum
Lafayette Parish School Board
Louisiana Association of Computer Using Educators
Louisiana Bd. of Elementary & Secondary Education
Louisiana Board of Regents
Louisiana Department of Education
Louisiana Department of Public Safety and Corrections
Louisiana Networking Infrastructure for Education
McNeese State University
Monroe City School System
Natchitoches Parish Library
Northeast Louisiana University
Northwestern State University
Our Lady of Lourdes Regional Medical Center
Shell Oil Products Company
University of New Orleans
University of Southwestern Louisiana

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Baltimore City Public Schools

Baltimore, Maryland

Baltimore Learning Communities

The Baltimore Learning Communities project is a multi-faceted education program that utilizes distance learning, interactive cable TV and the Internet to connect schools to homes, places of work, and the community at large. The program provides extensive professional development training for teachers, directly involves parents in the education process, and extends a wide range of new educational opportunities to over 38,000 students at the middle and high school levels. This is a replicable program that addresses recommendations of the Goals 2000 Act, promotes life-long learning, and has strong school-work, school-home, and school-community components. The program has four main elements:

1) School

School-based activities focus on mathematics, social studies, science, communication, and the arts. They complement findings of the Secretary's Commission on Achieving Necessary Skills (SCANS), and emphasize competencies required by the job market. Students learn to plan schedules and budgets, improve interpersonal skills, conduct research, communicate information, locate career data, and use technology to facilitate learning. The Johns Hopkins University Center for Technology in Education and the Institute for Policy Studies, and the University of Maryland at College Park coordinate training in which teachers use new technologies to create customized curriculum products.

2) Work

The Baltimore Learning Communities project connects schools to the workplace through two-way interactive video connections and digital networks. Through this system, work supervisors at retail stores, supermarkets, restaurants, and other places of business interact with school professional staff to learn how to transform work experiences into learning experiences. Participating businesses develop learning-rich tasks that lead to "Service Certificates" for student employees. Supervisors receive guidance from Bell Atlantic instructors adept at the change process, and are supported by Johns Hopkins University staff knowledgeable about adolescents and the transition from school to work. In addition, "Magic Me," an AmeriCorp national service and learning organization, is recruiting and training parents to participate in this element of the program.

3) Connections

The Baltimore Learning Communities project utilizes Internet connections to provide school and career information. Students query existing labor market databases to explore opportunities and salary structures in a wide range of occupations; teachers use electronic resources in planning and building curriculum products; and parents provide assistance at schools and community centers where interactive video and computers are available. This element of the Baltimore Learning Communities project contains job opportunity benefits for both students and their parents.

4) Digital Video on Demand

Discovery Communications, Inc. (The Discovery Channel and The Learning Channel) is providing about 100 hours of educational video material for use in the project. This information, which is specially selected and indexed, includes professionally produced documentaries and other programming with valuable instructional content. It also contains professional development material created for programs such as "Teacher TV," which has aired on the Learning Channel. DCI is digitizing this programming to permit on-demand retrieval and high quality display via the Internet. All content is indexed to state and local learning goals, and can be located by keywords and phrases. Teachers may select segments of

video material to meet specific instructional needs. Materials from other sources, such as the National Archives, are also available.

Partners in the Baltimore Learning Communities project contribute to the program's success in a variety of ways: Apple Computers and Bell Labs are providing significant contributions in hardware and resources. Learning Matters, Inc. is producing CD-ROM's in support of the SCANS element. The Maryland Business Roundtable is facilitating the use of two-way video to allow students to "shadow" workers in a variety of occupations. The Maryland Institute, College of Art is helping middle school students produce TV programming through Baltimore Youth Television. The American Training Standards Institute, a non-profit organization, is linking school local area networks with a wide area network. The Educational Film Center is providing interactive multimedia, software, videodisks and video/print curriculum series. The Pelavin Division of the American Institutes for Research will perform ongoing evaluations, covering all four major elements of the project. Results of the evaluations and educational materials developed for the project will be disseminated through the Internet, professional publications, and documentary television.

Consortium Partners

AIR/Pelavin Associates, Inc.
American Federation of Teachers
American School Counselors Association
American Training Standards Institute
Apple Computers, Inc.
Bell Atlantic
Citizens Information Technology Education Center
COMCAST, Inc.
Discovery Communications, Inc.
Educational Film Center
Johns Hopkins University
Learning Matters, Inc.
Magic Me
Maryland Business Roundtable
Maryland Institute College of Art
Maryland Public Television
Maryland State Department of Education
Maryland State Teachers Association (NEA)
National Archives
NEA Center for Innovation in Education
Restaurant Association of Maryland
Space Telescope Science Institute
University of Maryland at College Park

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Newaygo County Intermediate School District

White Cloud, Michigan

Newaygo County Advanced Technology Service

The Newaygo County Advanced Technology Service (NCATS) consortium has been established to develop and maintain an advanced fiber optic cable telecommunication network that will enrich the education process throughout the county. The network's education program enhances educational opportunities for over 9,000 disadvantaged students and adults; improves the training and mutual support of the teaching staff in county schools; provides a delivery mechanism for improved curricula; and supports a unified effort among all county service agencies to coordinate their actions in dealing with the social, educational, and economic needs of local families. The network supports data, video, and voice communications capabilities that are available to all county residents. It connects all the county schools, the county seat, the hospital, libraries, private non-profit agencies, and area businesses. It provides student access to higher level curriculum in science, mathematics, and modern languages, and it supports professional development opportunities for teachers. NCATS is a replicable program with strong school-home, school-community, and school-work components. The program was specifically designed to help meet student outcomes envisioned in the Goals 2000 Act.

The need for this program is urgent. Newaygo County is one of the most rural, isolated and poor counties in Michigan, and almost half of its students live in poverty. The students of this county consistently score below state averages on the Michigan Educational Assessment Project (MEAP) in the fourth, seventh, and tenth grades. The consortium's program, which reaches over 9,000 students and their teachers, utilizes educational technologies and specialized program content designed specifically to help overcome these problems.

Specific objectives of the program include:

- Providing teachers and students access to network technology
- Increasing student achievement levels to state averages on standardized tests
- Giving parents and community members tools to assess student readiness for work
- Establishing a "single point of intake" system for County service agencies
- Creating a centralized data bank of student assessment tools and lesson plans for teachers
- Providing a county-wide profile of student achievement for use in professional development activities for teachers
- Creating electronic work groups where teachers collaborate to meet student needs
- Creating a delivery system for advanced courses in higher education
- Building an automated management system for teachers
- Establishing county-wide student outcomes in math, language arts, science, and social studies that conform to the Goals 2000 Act and the Michigan Core Curriculum for High School Graduation
- Creating new partnerships within the county that address educational and employment needs of area businesses.

The Fremont Area Foundation, the largest rural-based community foundation in Michigan, provides funding for the construction of the fiber optic network. The Gerber Companies Foundation provides support for the video distance learning component of the network. At appropriate locations throughout the county, the Newaygo County

government provides network access points where members of the public who do not have access to computers can pursue personal interests, check their children's school records, and obtain access to County services.

As the program grows, every teacher in Newaygo County will be provided a personal classroom workstation, and there will be a minimum of four workstations in each class for student use. Each school will be provided two computer lab settings where large class projects can be conducted. Video transmissions of specialized courses and other educational support products will be delivered through a broadband CATV network. The school district is equipping classrooms, a broadcast studio and a video production facility to coordinate video distribution, maintain production archives, and capture educational programming via satellite.

The District has entered into an agreement with Western Michigan University to conduct an evaluation of this project. The evaluation uses a variety of techniques, such as test scores, portfolios, focus groups, and surveys, to collect information pertaining to the effectiveness of the program. Data on qualitative and quantitative measures are collected, and feedback information is made available to project staff and stakeholders about the strengths and limitations of the project. This information is used to ensure that revisions and improvements are made in programs and processes.

This project brings together a strong consortium of public, private, and nonprofit institutions to implement a comprehensive plan to improve the education process in a rural school district.

Consortium Partners

Fremont Public Library
Fremont Public Schools
Gerber Memorial Hospital
Grant Public Schools
Hesperia Public Schools
Newaygo County
Newaygo County Multi-Agency Consortium
Newaygo Public Schools
White Cloud Public Library
White Cloud Public Schools

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Westside Community Schools

Omaha, Nebraska

The Community Discovered

"The Community Discovered: Integrating Art and Technology in K-12 Education" is a multi-element education program that uses technology to bring art museums and other educational resources to K-12 classrooms in Nebraska and 10 other states. The program targets over 40,000 students in rural and urban settings. Its main goal is to strengthen a nationwide community of educators engaged in creating integrated art-focused curricula in all core subject areas. The program contains a strong professional development component, fits within the framework of the Goals 2000 Act, and offers a broad range of extended learning opportunities. There are five major components:

1) The Electronic Art Museum in the Classroom

The Smithsonian Institution, the Getty Museum, the Joslyn Museum, the Sheldon Museum and the Museum of Nebraska Art are making more than 750 art images available to schools through the Internet, along with curriculum and contextual information for use by educators and students. Museum educators are providing educational outreach programs that use technologies such as the Internet, kiosks, and interactive multi-media.

2) Computer-Based Educational Strategies

In collaboration with private companies, educators of disadvantaged and underrepresented students are evaluating educational software for applicability to classroom settings and instructional objectives. In addition, a technology mentor cadre of 13 educators is producing a comprehensive Internet guide to arts and technology resources available in print, and through ARTnet, an electronic communications network managed by the Nebraska Department of Education and Prairie Visions: The Nebraska Consortium for Discipline-Based Art Education. These mentors conduct workshops to promote project activities, provide technical assistance via the Internet or telephone, and provide guidance in the selection of computer hardware and software.

3) Professional Development and Support for Educators

Through this program, educators of rural and urban disadvantaged students participate in two-week museum-based institutes to enable them to design curricula that use technology to integrate art and other core subjects. Students use electronic portfolios to record progress, and evaluators review the portfolios to provide guidance in improving art curricula. Participants access curriculum modules, digitized images and other museum resources through ARTnet. Through these activities, teachers gain valuable experience in reviewing, analyzing and integrating resources via the Internet. The program includes a comprehensive mentoring system, in which each teacher is assigned a technology mentor to assist with hardware, software and networking, and a curriculum integration mentor to assist with curriculum development and implementation.

4) Curriculum, Instruction and Assessment Strategies

A minimum of 632 curriculum modules are being developed and implemented, with a target of 90% teacher participation. The modules incorporate Internet digitized images and museum resources, multi-media projects, electronic portfolios, and other computer applications. Target student goals include improved attendance rates, improved student attitudes, and higher student performance. Students from up to 100 Nebraska districts will experience art modules developed through project activities.

5) Nationwide Community for art and Technology Integration

The program is stimulating cross-state partnerships with the goal of replicating project activities throughout the country. The project is

supporting four learning communities of educators and students. Each community is engaged in educational activities which integrate the arts and technology with other core subjects to enable students to achieve high academic standards. The communities are: 1) Nine Nebraska school districts serving isolated and disadvantaged students; 2) The nearly 100 school districts, nine colleges and universities, and four museums and art centers that comprise Prairie Visions; 3) Teams of arts education leaders in Colorado, Utah, Wyoming, Montana and Kansas; and 4) Regional institute grantees sponsored by The Getty Center for Education in the Arts at universities in California, Florida, Texas, Ohio, and Tennessee. A comprehensive evaluation of the entire project has been arranged through the Far West Laboratory in San Francisco.

The Westside Community School District has organized an effective consortium of museums, educational institutions and private industries that is using modern technology to bring some of the world's finest art into classrooms throughout the country.

Consortium Partners

ArtsEdge Arts and Education Information Network
Apple Computer, Inc.
Digital Visions, Inc.
Far West Laboratory for Educational R&D
Getty Center for Education in the Arts (and Grantees)
J. Paul Getty Museum
Joslyn Art Museum
Lexington Public Schools
M Power Multimedia Design Corporation
Museum of Nebraska Art
Nebraska Art Teachers Association
Nebraska Department of Education
Nebraska Educational Service Units #3, #7, & #13
Nebraska Indian Community College
Pacific Imaging Center
Prairie Visions: The Nebraska Consortium for
Discipline-Based Art Education
School District of Grand Island
Sheldon Memorial Art Gallery & Sculpture Garden
Smithsonian National Museum of American Art
The Kennedy Center
Winnebago Public Schools

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Manchester School District

Manchester, New Hampshire

The Manchester Challenge

The Manchester Challenge is a large-scale education reform effort that is integrating instructional technologies into the curricula of elementary, middle, and high schools in the greater Manchester, New Hampshire area. The project is being implemented in collaboration with the Manchester municipal government, nearby school districts, colleges, businesses, industries and technology vendors. Project technologies include instructional television, satellite broadcasts, multimedia telecomputing, and administrative applications. The program addresses recommendations of the Goals 2000 Act, and has strong school-community and school-work components. Over 28,000 students benefit from project activities.

The program is designed to provide all students equitable access to information technology, facilities and training. All participating educators are provided the equipment, training, time and on-going support to enable them to use information technology effectively. All schools throughout the district are being interconnected with a state-of-the-art network for voice, video, and data. Educators and students enhance the learning process with two-way video and audio distance learning classrooms, workstations in all classrooms, instructional television via cable, video production/reception via building institutional loops connected to media centers, multimedia workstations, high speed telecomputing, and a variety of other learning technologies. There are four major program elements:

1) Professional Development

The first year of professional development activities is directed at the high school level, and the remaining years are directed at both middle and elementary school levels. The program offers teachers a series of sequential professional development programs leading to the successful operation of multi-media workstations for classroom instruction. Teachers form learning teams in which more proficient teachers provide instruction and support for the less experienced. Training activities include instruction in the use of the Internet, the World Wide Web, and other technologies.

2) Curriculum Development

University faculty and education consultants assist Manchester teachers with curriculum development. Teams of teachers work independently to carry out curriculum development needed for interdisciplinary, thematic student projects. Teams are developed around common planning time and common student course enrollments. Curriculum units and projects are shared among teacher teams in all participating schools.

3) Technology Implementation

Utilizing the Manchester Challenge telecommunication network, students at all project schools may participate in distance learning classes that would not otherwise be offered due to low enrollment. Each distance learning classroom is equipped with multiple cameras, video displays, and a teacher control station. These classes are augmented by data networks through which faculty and students can share text materials and access relevant databases.

4) Partnership Activities

Consortium members contribute to the Manchester Challenge in a number of ways. The Manchester School District and the municipal government have made a strong commitment to the purchase of new hardware and software. All the other project partners contribute funding and/or in-kind services.

Goals of the project include better teaching, increased learning, organizational efficiency, enhanced communications, improved accountability, and reporting, improved community development, support for life-long learning, access to learning programs by citizens, sustained partnerships between educational and business

organizations, the exchange of information with other educational organizations, shared resources with business and public institutions, and an improved economic viability for the community.

Consortium Partners

Audubon Society of New Hampshire
Bedford School District
Cabletron
Central Paper Products
CHAMPS-Parent Group
Coca Cola
Community Improvement Program
Computer Learning Center
Continental Cablevision
Cyber-Space
Goffstown School District
Gossler Park Parent Teacher Group
Granite State Credit Union
Hallsville Parent Teacher Group
Lavallee/Brensinger Professional Associates
Manchester Chamber of Commerce
Manchester School of Technology
McLane, Graf, Raulerson & Middleton
Memorial High Booster Club
Morgan Press
Multimedia Systems Inc.
New Hampshire College
New Hampshire Department of Education
New Hampshire Public Television
Northwest Parent Teacher Group
Notre Dame College
NYNEX
Optima Health, Inc.
Parkey-Varney Parent Teacher Group
Public Service of New Hampshire
Queen City Sound
State Department of Education
Tech PC
Telephone Network Technologies
Town of Bedford
U.S. Army
U.S. First
University of New Hampshire

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Pueblo of Laguna Department of Education

Laguna, New Mexico

Four Directions

"Four Directions" is an education reform project that blends American Indian culture with new educational technologies to revitalize curricula and instruction in Bureau of Indian Affairs (BIA) schools. Based on their urgent need, eight schools representing tribal groups in eight states have been selected as pilot sites for the project. Within five years the program will expand to include 24 BIA schools in locations throughout the country. The project involves K-12 students, parents, and members of their communities. The program has strong School-Home and School-Community components, promotes extended time for learning, and provides extensive professional development opportunities for teachers. Project activities include:

- Restructuring curricula to incorporate local cultures and values
- Collaborating across sites through on-site training, on-line tutoring, and cooperative teaming
- Creating networked "virtual communities" with Internet presence
- Encouraging life-long learning by extending technology support to communities surrounding project schools
- Maintaining a network database of teaching, assessment, professional development, and student-created resources
- Creating a research-based evaluation model

As the core of this project, each school develops an advisory team consisting of students, parents, teachers, paraprofessionals and community members. It is the responsibility of each team to develop authentic learning tasks that are relevant to students and that are drawn from the unique cultural context of each tribe. These tasks are then developed into "thematic cycles," central components of core curricula that allow the presentation of subject matter within a cultural context, and allow the cultural theme to be integrated into other subjects. As members of the team, parents and community members, including elders, are involved in the development of curricula and are involved in the evaluation of the project and its relevance to the traditions of the tribe. Targeted curriculum areas include art, mathematics, science, social studies, economics, geography, language arts and fine arts.

An integral part of this program are communications services provided through the Educational Native American Network (ENAN), an Internet communications service for all BIA schools. Each school is utilizing ENAN to produce World Wide Web (WWW) home pages that describe the school, its history and current activities. Technical support for the WWW effort is provided by the University of Kansas through the Unified Network InformaTics for Education (UNITE) system. The WWW pages also contain information about each American Indian group participating in the project. This information is shared with other schools and with non-Native American schools via the Internet. The WWW pages offer a look at the unique aspects of each American Indian group from the perspective of its own people. This provides students with a focal point for problem solving and for sharing the important cultural contributions made by each of the tribes. The project uses the WWW to disseminate project tasks, curriculum ideas, school information, tribal histories, and project results. Project technologies are used by students to perform research on thematic issues, develop learning activities on the themes, explore other disciplines that are part of the theme cycles, and provide access to their results for authentic assessment. Information and programs developed through Four Directions are available to a wide audience

through the Internet. Access to project technologies is available after school hours to students and their families, in a program to extend learning opportunities to the entire community.

This project contains a strong professional development component. Teams from each of the schools attend a 10 day training session held at the Southwest Indian Polytechnical Institute in Albuquerque, New Mexico. This training covers the development of thematic units based on authentic tasks, the integration of these units into the curriculum, and the use of technology. In addition, the project sponsors two technology training workshops annually at each of the schools.

Best practices reports, as determined by ongoing evaluation of the project, are made available through national conferences, the Educational Resources Information Center (ERIC), the National Clearinghouse for Bilingual Education (NCBE), the Eisenhower National Clearinghouse, and the World Wide Web.

The Four Directions project is a unique program that uses modern technologies to create enriched, integrated learning environments designed around Indian children's real life experiences.

Consortium Partners

Ahfachkee Day School, Clewson, FL
Dilcon Boarding School, Winslow, AZ
Fond du Lac Ojibwe School, Cloquet, MN
Hannahville Indian School, Wilson, MI
Heard Museum of Native Culture & Art, Phoenix, AZ
Indian Island School, Old Town, ME
Intel Corporation
Laguna Elementary/Middle School, Laguna, NM
Mathematical Association of America
Microsoft Corporation
Museum of Northern Arizona, Flagstaff, AZ
Quileute Tribal School, LaPush, WA
Sandia National Laboratories, U.S. Dept. of Energy
Southwest Indian Polytechnic Institute,
Albuquerque, NM
Takini School, Howes, SD
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Summit County Educational Service Center

Cuyahoga Falls, Ohio

NEW³: New Technology, New Knowledge, New Work

NEW³ is a broad consortium of educational institutions, government agencies, private businesses and philanthropic organizations dedicated to the goal of transforming teaching and learning in Summit County, Ohio by the year 2000. To meet this ambitious objective, the consortium has developed a program through which students use technology to complete substantive *new work* that meets high educational standards set forth by new local curricula, and the Ohio K-12 Competency Based Education standards. Utilizing the talents of business and community representatives, the project promotes life-long learning, through the use of technology, fits within the framework of Goals 2000 objectives, supports school to work principles, and has a strong professional development component. More than 88,000 students benefit from the program.

The NEW³ project addresses the needs of approximately 88,500 students in 18 school districts in and around Akron, Ohio. Six of the school districts have high percentages of economically and educationally disadvantaged students. The project centers on transforming the tasks used in learning and will include all grades, K through 12. NEW³ requires the collaborative efforts of the entire community, including educators, parents, and students.

A critical premise of the program is that school work needs to be *redesigned* so that it engages students in learning that they view as relevant to their world today and tomorrow. The Challenge Grant enables the Summit County Educational Services Center consortium to develop and implement a plan to design *new work*, to support a Technology Academy for teacher development, and to develop and implement a Technology Work Experience Program for high school and college students.

The first and primary goal of the program is to design *new work* for students -- work that engages, work with which children persist, and work that results in a sense of accomplishment. Learners develop competencies by engaging in authentic, meaningful and rewarding experiences that are valued by parents, community, and society at large. *New student work* is being designed and developed jointly with learners, communities, and the Center for Leadership in School Reform of Louisville, Kentucky.

The second goal is to expand teachers' understanding of how to create *new work* in partnership with students through coursework at the Summit County Office of Education's nationally acclaimed "Technology Academy." Here teachers learn about using technologies in the context of what children do, not what machines do. More than 2300 teachers will graduate from the Academy's intensive one year, 73 hour course of study in the five years of the NEW³ project.

The third goal is to design, develop, and operate a Technology Work Experience program through which high school and college students participate in educational and work experiences while maintaining and operating the classroom technologies supporting the NEW³ project. This program enhances school-to-work transitions by providing authentic technology-related experiences for participants. NEW³ has arranged for a major upgrading of school and classroom technology infrastructure. Improvements include computer network installation, electrical upgrades, new computer workstations, and acquisition of video equipment. The Work Experience Program is formed as a nonprofit company, operated by students, and dedicated to rapid response support for

this classroom technology. Funding for the classroom hardware is provided largely by the Ohio SchoolNet program.

The fourth goal is to develop educational software to support *new work*. Partnership with LOGAL of Cambridge, Massachusetts on the development of simulation-based, *new work* software is an important component of the NEW³ project.

A final goal is to provide teachers the opportunity to acquire the skills and knowledge needed to instruct students. Professional development activities are supported by the University of Akron, Kent State University and Ashland University. This includes developing performance standards relating to *new work* and technology. These standards are to be used in considering the employment of new teachers.

In addition, national panels of experts in mathematics, technology, language arts, science and other content areas are involved in assessing curricula and effectiveness. Ameritech, a cellular telephone service provider, is funding and operating two community-based computer centers in the City of Akron in support of NEW³.

By the year 2000, students will use technology to complete substantive *new work* that meets high standards; resulting in transformed schools, and, ultimately, self-sustaining communities of life-long learning.

Consortium Partners

Akron Regional Development Board
Ameritech Ohio
Ashland University
Center for Leadership in School Reform
Eighteen School Districts (Akron Area)
Galen A. Roush Foundation
Kent State University
LOGAL
Summit County Educational Service Center
Summit Education Partnership Foundation
University of Akron

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School District of Philadelphia

Philadelphia, Pennsylvania

Philadelphia's Technology Challenge Consortium

Philadelphia's Technology Challenge Grant Consortium has developed a comprehensive program to invigorate K-12 and adult education programs through the imaginative use of educational technologies. Incorporated within the Philadelphia School District's systemic reform effort, "Children Achieving," the program utilizes many of the latest developments in telecommunication, multimedia, and computer instruction to build new teaching and learning processes within small learning communities. The resulting "Virtual Schools" represent a fundamental and radical transformation of teaching to emphasize interaction and inquiry in the learning process. Over 55,000 students will benefit from the program in the first two years, and in the following three years the program will be expanded to include more than 210,000. The program encourages the development of infrastructure and partnership among the municipal government, the local school district, community service providers, and educational institutions at all levels. This is a replicable program with strong school-home, school-community, and school-work components. It provides effective support for professional development activities, addresses targets of the Goals 2000 act, and offers unique opportunities for extended learning. There are four primary goals:

1) Infrastructure/Networking (Universal Access)

This initiative builds an electronic communications system to connect students, parents, teachers and community members. The system enables citizens to enjoy easy access to the administrative and instructional staff of the School District of Philadelphia, and other local, national and global on-line information resources. The system may be accessed at three key school locations: library areas for parent and student access; teacher areas for faculty and support staff access; and office areas for administrative access.

2) Access to Information

There are two major components of the program's on-line resources: The Teaching and Learning Network (TLN) and the Family Resource Network (FRN). The TLN is a key link to an "effective practices" database which includes information on local and national curriculum resources, sample lesson plans, information on standards and assessment, discussion group opportunities related to teaching and learning issues, cross-referenced lists of all teaching and learning resources on the Internet, and on-line homework assistance. The FRN assists schools in identifying and providing health, mental health and social services to students and families.

3) Professional Development

Each school in Philadelphia employs a Subject Area Specialist in technology (SAS) who is responsible for organizing and supporting education technology efforts in schools, leading the effort to integrate educational technologies throughout the curriculum, and training other teachers at each school in how to use educational technologies effectively. A portion of the funding from this grant will be used to purchase additional professional development services, and to provide professional leave days for teachers to receive training from their school's technology SAS.

4) Virtual Schools

Using the new communications system implemented through this grant, the program distributes curriculum, instruction, and assessment information electronically through on-line centers of instruction called "Virtual Schools." These electronic classrooms offer services to adults seeking diplomas, homebound students, prison inmates, and other hard-to-reach populations. With the cooperation of Consortium partners such as Public Television Station WHYY, the Private Industry Council of Philadelphia, the Community College of Philadelphia, and others, Virtual Schools

offer General Education Degree (GED) coursework, English as a Second Language (ESL) coursework, and other curricula.

The other Consortium partners support "Effective Practice Sites" established within six clusters of high schools and their feeder schools. These sites are demonstration and evaluation laboratories for technology systems and educational strategies developed as part of the project. At one high school, the University of Pennsylvania and Bell Atlantic are developing an Internet communications system to support voice mail, E-mail, professional development, and curriculum development. Temple University is helping students at another school learn how to use the Internet as a resource for English, social studies, and other subjects. IBM is working with three schools to utilize new technologies to assist special education students and students for whom English is a second language. Public Television Station WHYY is lending another school its expertise in production, communication and technology to create a "virtual school." Drexel University students are assisting schools in the integration of new technologies across the curriculum, and emphasizing improvements in math education through the use of computer labs. Moore College of Art is enabling students to develop a wide variety of curricula on CD-ROM, utilizing student-edited video, still images, recorded sound and text. Materials can be distributed via a city-wide network that can support small electronic learning communities.

This project brings together a powerful consortium of public, private and nonprofit institutions to implement a comprehensive plan to improve the education process in an urban school district.

Consortium Partners

Bell Atlantic
City of Philadelphia
Community College of Philadelphia/Private
Industry Council of Philadelphia
Drexel University
IBM
Moore College of Art
Philadelphia Education Fund
School District of Philadelphia
Temple University
Unisys Corporation
University of Pennsylvania
WHYY Public Television

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Towanda Area School District

Towanda, Pennsylvania

New Vision

"New Vision" is a consortium of school districts, post-secondary institutions, museums and private industries that demonstrates the dynamic ability of emerging technologies to expand and improve educational opportunities in rural, remote, poor school districts. Under the leadership of the Towanda Area School District, New Vision is establishing "distance learning centers" at 23 local education agencies (LEA), six post-secondary institutions, and the State Museum of Pennsylvania. These sites are being linked electronically to a network of 40 schools and agencies committed to sharing local educational resources through interactive videoconferencing. Through its network, New Vision can offer high-level classes that are not commonly offered due to low enrollment; use exemplary teachers to cover hard-to-fill positions in several districts at once; conduct unique student workshops; and offer advanced placement courses. The project is establishing one of the largest interactive networks in the country, involving over 54,000 students in Pennsylvania, New Jersey and New York. Each of the LEA's has demonstrated its commitment to the project by agreeing to match 50% of all equipment costs with local funding. This program addresses recommendations of the Goals 2000 Act, emphasizes school to work training, and contains strong professional development and evaluation elements.

New Vision builds upon the success of the Northern Tier Rural Distance Learning Consortium, a distance learning organization established in 1992. This model program consists of six rural school districts in Northern Pennsylvania, and it is funded by a grant from Commonwealth Telephone Company. (No Technology Learning Challenge funding is being used to support Northern Tier programs.) The basic governing bylaws of the Northern Tier Consortium have been adapted for New Vision to form a network of regional consortia alliances consisting of the Cape May Consortium (New Jersey), the Adirondack Consortium (New York) and the Southeast Consortium (Pennsylvania). These organizations have agreed upon a four-phase implementation plan for New Vision:

1) Establishing Distance Learning Centers

Equipment purchases and inventory controls are centrally managed through the Northern Tier Consortium. All equipment purchased through New Vision is the property of each individual school district. All learning sites are fully equipped with the technology required to support distance learning classes.

2) Linking Schools

In cooperation with College Misericordia and the Northern Tier Consortium, New Vision provides a training program for coordinators at all sites to ensure understanding and proficiency in using the system. Training conferences create opportunities for all schools to define strategies for expanding participation of other districts and to modify the program to meet the needs of schools new to the program.

3) Sharing Resources

Each post-secondary participant provides services, programs and activities that can be shared cost-effectively with LEA's. Service components include adult evening programs, career counseling, academic counseling, dual credit high school courses, electronic field trips, peer tutoring programs, staff development, pre-college and pre-technical education, and curriculum development projects.

4) Linking to State Museums

The Pennsylvania State Museum offers electronic field trips, a teacher-to-historian information exchange program, curriculum development initiatives, and program packages that deal with issues and developments in state history and culture. New Vision is working with New York and New Jersey to develop a tri-state exchange agreement

between museums, historic sites, science centers, and participating school districts.

Each of the partners in the New Vision consortium provides a unique contribution to the program. College Misericordia conducts dual-credit college level courses. Penn State (Wilkes-Barre and Harrisburg campuses) offers college courses for adults, professional development, career counseling, and guest lectures. Lackawanna Junior College presents Adult Basic Education programs over the network, and provides network connections to the National Tele-Consortium and the Mid-Atlantic Consortium. Commonwealth Telephone company provides free bridging access and is assisting in linking the full consortium. The Pennsylvania Rural Electric Association is helping to disseminate information on New Vision throughout the country. Mansfield University is promoting post-secondary educational opportunities through the network. Atlantic County Community College (New Jersey) is providing technical/vocational training opportunities via New Vision. The PictureTel Corporation is establishing a videoconferencing system at the State Museum of Pennsylvania, assisting with network optimization, and helping to adapt the network for connection to such resources as historic battlefields, zoos, aquariums, science centers, and performance centers. The Center for Rural Pennsylvania is supporting a staff position to operate a networked cultural awareness program. Also, through the network, the State Museum of Pennsylvania provides links to its exhibits, planetarium, and other comprehensive educational resources.

New Vision is a comprehensive, replicable program that utilizes the technology of telecommunication to expand and improve educational opportunities in isolated school systems in Pennsylvania, New York and New Jersey.

Consortium Partners

Atlantic Community College
Center for Rural Pennsylvania
Claverack Rural Electric
College Misericordia
Commonwealth Telephone Company
Community Education Council
Harrisburg Area Community College
International Paper Company
Lackawanna Junior College
Mansfield University
Northeast Pennsylvania Tech-Prep Consortium
Penn State University (Wilkes-Barre & Harrisburg)
Pennsylvania Rural Electric Association
PictureTel Corporation
State Museum of Pennsylvania
Towanda Area School District
and 28 other school Districts in PA, NJ, and NY

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Black Hills Special Services Cooperative

Sturgis, South Dakota

Technology in Education Challenge for Rural America (TEC-RAM)

South Dakota's "Technology in Education Challenge for Rural America" (TEC-RAM) consortium has organized a state-wide, community-focused education program to advance the effective use of technology in restructuring schools by: 1) introducing innovative educational technologies in a statewide redesign of K-12 curricula, instruction and assessment; and 2) capitalizing on new technologies to promote student achievement. The program will impact over 14,000 rural students in the first year, and over 35,000 throughout its duration. Designed to respond to the Improving America's Schools Act, the Goals 2000: Educate America Act, and the School-to-Work Opportunities Act, this program integrates technology into a systemic educational reform effort that improves teaching and learning and leads to the attainment of challenging standards by all students. There are six critical elements of the program:

1) Restructuring

The initiative builds upon efforts by local school districts and communities to restructure school programs to conform with challenging state education standards and locally determined student outcomes. Through the integration of technology into this process, a broad cross-section of community leaders will participate in the articulation of a shared education mission.

2) Utilization

The project uses a collaborative approach for the design and evaluation of technology-enhanced curricula, instruction, and performance assessment. Teams of teachers, curriculum specialists, technology specialists and private software developers identify and implement interdisciplinary projects and strategies that engage students as active learners involved in authentic, community-based learning experiences. Some of the technologies being utilized include CD-ROM and other "open architecture" applications for student-directed learning experiences; interactive, multimedia applications developed by private business partners; multimedia educational materials developed by student/teacher teams; and inquiry applications that utilize the Internet.

3) Professional Development

TEC-RAM collaboration teams work directly in classrooms to model, involve, and support teachers in the process of integrating technology into effective standards-based curriculum and instruction. The collaboration teams include pre-service teachers, so that a major portion of both in-service and pre-service educational technology training can take place in actual classroom settings.

4) Replication

The program is designed to encourage replication in other rural school districts in South Dakota. The initial six demonstration districts serve as models for an additional 12 replication districts that will participate in TEC-RAM through an RFP process.

5) Inclusiveness

The program design is fully inclusive of all students, reflecting an even geographic distribution across the state. One of the initial demonstration districts serves an Indian reservation, which is located in one of the 10 poorest counties in the nation.

6) Access

TEC-RAM emphasizes access to innovative, cost-effective technology and telecommunication resources that enhance teaching and learning. This requires the development of cost-effective, interactive, multi-media applications that extend experiential

learning beyond the limits of the classroom and small rural communities. For schools located in isolated settings with limited communications access, TEC-RAM is implementing packet radio as an alternative to telecommunications via telephone line.

All partners in the TEC-RAM consortium contribute substantially to the human resource capability of the project. Based on their proven readiness, six local school districts have been selected as the initial TEC-RAM consortium demonstration sites. These districts contribute the time and expertise of administrative and specialist staff, along with the substantial, uncompensated time of direct educational staff. The Black Hills Special Services Cooperative, Technology and Innovations in Education (TIE) provides services through its Technology Demonstration and Training Center, the TIE Preview Center, and the TIE Curricula Center. TIE also provides access to South Dakota's Rural Development and Educational Network and several statewide programmatic resources. The South Dakota Department of Education and Cultural Affairs provides access to South Dakota's Rural Development Telecommunications Network. Spring Creek Productions provides video production expertise for the development of products to support project activities and for video-related training activities at the local sites.

The TEC-RAM project brings together a broad range of school systems, communities, state agencies and private industry for the purpose of introducing innovative educational technologies into a rural school system.

Consortium Partners

Aberdeen School District 6-1
Black Hills Special Services Cooperative
Black Hills State University
Dakota State University
Douglas School District 51-1
Hot Springs School District 23-2
Huron School District 02-2
Lake Central School District 39-2
South Dakota Dept. of Education & Cultural Affairs
South Dakota Dept. of Labor
Spring Creek Productions
Todd County School District 66-1

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E-mail: jparry@sdtie.sdserv.org

Socorro Independent School District

El Paso, Texas

A Community of 21st Century Learners for El Paso

"A Community of 21st Century Learners for El Paso" is an ambitious program using technology to rejuvenate the schools in El Paso, Texas. The program goals are to produce within five years: 1) Ten restructured partner schools and a teacher preparation institution, fully connected to the Internet and its resources; 2) 120 teachers who integrate acquired technologies and national standards into the curriculum, and who serve as teacher trainers at 70 other schools; 3) 10,000 students from impoverished neighborhoods who bridge the academic performance gap in state and national standardized tests; 4) 1,000 Hispanic parents utilizing laptop computers in a program to provide technology knowledge and skills; 5) 100 business partners serving as mentors for 200 disadvantaged elementary and high school students; and 6) A "Community of Learners" development change model with emphasis on access to technology to be exported to the 55 schools that are members of the "El Paso Collaborative for Academic Excellence." The program has a strong School to Work component, integrates objectives of the Goals 2000 Act, and ensures ongoing professional development of teachers, administrators and university faculty. There are five major components of the program:

1) Connectivity

Through this grant, the consortium provides computer network connections in 110 classrooms in 10 partner schools. These connections are supported by appropriate software and hardware which includes CD-ROM capability, scanners, color printers, LCD projection panels, video cameras, VCRs, Newton notebook computers, and QuickTake cameras. Additional laptop computers are borrowed by low-income parents for use at home. Technical support is provided by two educational technology experts employed as non-tenure faculty.

2) Staff Development

The program provides resources for 120 teachers to obtain university certification in either of two programs: the Texas Technology Endorsement, or the Instructional Specialist Master's Degree program with emphasis on educational technology and curriculum integration. Each participant will train at least three other teachers in the effective use of educational technologies to improve academic achievement. Funding from this grant will enable the University of Texas at El Paso to provide a course of study uniquely structured for the needs of the participants.

3) Technology Access for Low Income Parents

Each participating school is developing a Parent Center designed to provide parents with training opportunities in English speaking skills, parenting skills, computer use, and instructional support skills. Families may borrow computers for extended periods of time in order to stimulate student achievement, promote parent awareness of the education process, enhance job potential for parents, and involve parents in school activities.

4) E-Mail Business Mentors

The consortium has organized a "Community and Business Liaison" project that is developing a business mentor program at each participating school. Each school is assigned 10 mentors from local businesses, and each mentor is assigned two students. Mentors will

demonstrate the many uses of electronic communications, and will maintain E-mail contact with students throughout the year, providing assistance with school work, and serving as a role-model example of the value of a good education.

5) Sustainability.

At the end of five years, all participating schools will have established an advanced level of network connectivity that will remain useful long after the project has ended. The program's post-graduate instruction opportunities will continue to be available at the University of Texas El Paso, and university faculty will continue the integration of technology and standards into their course curricula. Parent development activities will continue, including the role of parents as trainers of teachers for home visits. The El Paso Collaborative for Academic Excellence will disseminate information about the program.

The project provides for a detailed assessment of participants' performance within the university training programs, teacher performance in the school faculty development programs, and student achievement within the core curricula. Student performance is measured against national content standard guidelines for the arts, civics and government, English, foreign languages, geography, history, math and science. The project also provides for evaluations of parent participation and business mentoring support.

The El Paso Challenge Grant consortium is part of a city-wide collaborative for academic excellence, taking advantage of school, home, government and business resources. The program promotes a major systemic reform agenda for education in the El Paso region.

Consortium Partners

El Paso Chamber of Commerce
El Paso Collaborative for Academic Excellence
El Paso Community College
El Paso Hispanic Chamber of Commerce
El Paso Independent School District
El Paso Interreligious Sponsoring Organization
Region XIX Education Service Center
University of Texas at El Paso
Ysleta Independent School District

Project Director: Ben DeBellis
Director of Elementary Education
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Fax: 915-858-1520

Southeast Education Service Center

Price, Utah

State of Utah Resource Web (SURWEB)

The State of Utah Resource Web (SURWEB) is a telecommunication project providing educational opportunities for Utah students who live in poor, rural, or culturally disenfranchised communities. The program was conceived and implemented by a consortium of public and private agencies including Utah's educational service centers, institutions of higher learning, the Far West Laboratory for Educational Research and Development, museums, state parks, national parks, and Native American tribal councils and agencies. The program fits within the framework of the Goals 2000 Act, encourages school reform, and provides comprehensive professional development opportunities. More than 400,000 students will eventually be impacted. There are five major goals of the program:

1) Building Connectivity

SURWEB is a natural extension of two existing educational telecommunication projects in Utah: the Southeast Utah Regional Wide Area Network (SURWAN) and the UtahLink Project. Both networks have a proven record of providing dependable service to schools. The SURWEB project builds on these networks, and adds a World Wide Web capability that enables schools to develop on-line educational resources and applications.

2) Developing Curriculum Applications

A Curriculum Advisory Committee (CAC) guides the development of units of study supported by SURWEB. The CAC is composed of teachers, parents, business representatives, a Utah State Office of Education curriculum specialist, university curriculum specialists, educational service center directors, and information specialists from state agencies. Using state and national school reform goals as a guide, the CAC develops thematic instructional units which integrate subject matter disciplines, introduce real-life issues, and capitalize on local and state resources. Unit subjects include dinosaurs, red rock formations, Native American cultures, ecosystems, pioneering history, and other topics related to the region. This educational material is made available to Utah schools and schools throughout the country via SURWEB and other state networks connected to the Internet.

3) Providing Staff Development

SURWEB is developing and piloting a teacher training program called Utah Internet Institutes that provides instruction in utilizing the resources of the Internet. The Institutes train teachers to access resources via telecommunication, integrate resources into teaching and learning, and evaluate student projects completed over the Internet. In addition, the teachers learn to create their own Internet resources for dissemination on-line. The technical production laboratories at Southern Utah University and the College of Eastern Utah provide training components for the Institutes and assist in the production of related WWW resources.

4) Scaling Up SURWEB

As SURWEB's lead agency, the Southeast Education Service Center (SESC) is working with the other Utah education service agencies to expand the program throughout the state. In the first year of the project, the other service agencies are conducting a series of planning meetings in each of their regions to strengthen regional educational technology planning, coordinate planning across agencies, and integrate the SURWEB project into their plans. In subsequent years, SURWEB will install WWW servers at appropriate sites in each service center, so that these organizations may utilize SURWEB applications in educational technology programs.

5) Evaluating SURWEB

The Far West Laboratory for Educational Research and Development has developed and will implement an evaluation plan for SURWEB. The evaluation design calls for focus group reviews of the program, and large scale mail surveys of students, faculty, parents and community members. The evaluation process is designed to measure the value of SURWEB in changing in the way people seek information, the way they teach, and the way they learn.

Members of the SURWEB consortium are providing support for the program in numerous ways: the Southeast Education Service Center has contributed hardware and software acquired through a Rural Electrification Administration grant; Southern Utah University provides facilities and content specialists in support of professional development activities; the Utah Education Network is contributing the services of an Internet specialist; the Utah State Office of Education is providing ongoing high school maintenance support and Internet training for all teachers in the state; Far West Laboratory is developing and implementing an evaluation plan; the national and state parks and the Indian agencies are providing information specialists; US West is providing technical assistance for a user friendly WWW network. Novell, Inc. will extend education discounts to maximize funds and give more students access to the project.

Consortium Partners

Dinosaur National Monument

Far West Laboratory

Indian Councils/Agencies

National Parks System

Arches

Bryce Canyon

Canyonlands

Capitol Reef

Zion

Novell, Inc.

Office of Museum Services

Service Centers:

Central Utah Educational Services

Northeastern Utah Educational Services

Southeastern Educational Service Center

Southwest Educational Development Center

Southern Utah University

US West Communications

Utah Education Network

Utah State Office of Education

Utah State Parks System (includes 45 parks)

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E-mail: lynn.bills@m.k12.ut.us

Montpelier School District

Montpelier, Vermont

The WEB Project

The WEB Project, subtitled "Creating a WEB of Evidence of Student Performance in Nonverbal Inquiry and Expression," is a consortium of state agencies, private industries, and educational institutions that are utilizing new technologies to effect systemic reform in school systems throughout Vermont. The project utilizes multimedia telecommunication 1) as an educational environment for student inquiry and expression, 2) as a medium for presenting and evaluating student work, and 3) as a virtual faculty room for fostering professional discussions about standards of excellence in education. The focus of the WEB Project is the arts, humanities and the social sciences. More than 200 students are participating in the first year, and within five years the program will expand to involve over 2,000 students throughout the state. This program fits within the framework of the Goals 2000 Act, promotes professional development, contains strong evaluation and dissemination components and is designed to merge with the overall state education reform initiative. The program has three major elements:

1) Cooperating School Districts

In three pilot Vermont school districts, the WEB Project is demonstrating the connections between educational standards, curriculum, instruction and assessment. Each school district is provided five "computer suites" for use in central locations within schools. Students use these high performance computers to digitize text, graphics, and full motion video files for use by other students in a variety of educational projects. The program enables classes to:

- Focus on the articulation of K-12 standards of performance
- Prepare students to create multimedia presentations and electronic portfolios to demonstrate learning
- Digitize images of student performances as benchmarks of standards, and publish the images on the World Wide WEB (WWW) for assessment and feedback
- Increase student understanding of the roles of technology and its application
- Introduce or upgrade multimedia authoring technology and provide training in its use

2) Professional Organizations

With the cooperation of the Vermont Arts Assessment Project and the Vermont Alliance for Arts Education, the WEB Project is providing educational standards-based training to teachers who represent school systems across the state. These teachers receive computers and video cameras that are used to digitize educational materials for review, and they learn to assess student work according to the Vermont Arts Assessment standards. Their training and expertise are shared with other teachers in their districts.

3) Action Researchers

The WEB Project trains instructors to utilize multimedia in teaching dance, music composition, multimedia authoring, and other skills. Training is conducted by "action researchers," stationed at "action research sites" throughout the state. Action researchers provide technical support for the WEB Project, keep journals of student activities, and digitize performance information.

Through the WEB Project, students use technology to build on their knowledge and skills, and they are provided opportunities to practice what they have learned. They come into contact with a wide range of adults in teaching and mentoring roles, particularly working artists, writers, composers, videographers, dancers, historians and others. They expand peer relationships through

sharing work and reflecting on the work of others. They learn to evaluate their own work based on objective standards of quality. They learn specific skills related to using telecommunication and multimedia, designing World Wide WEB (WWW) pages, presenting their work via telecommunication, writing, problem solving, and making valuable connections between art, humanities, sciences and social sciences.

Through the WEB Project, teachers are provided numerous opportunities for professional development. Local schools release teachers for professional training, and provide time and resources needed to take advantage of the local capacities being built by the program. A core group of teachers in each participating school is given time every day to support project activities. Statewide partners include WEB Project schools in summer institute plans, follow-up activities and networking support.

The IBM corporation is working closely with the state of Vermont to support its educational reform initiative. Each of the WEB Project schools is receiving educational technology funding from IBM, as well as technical assistance in developing record-keeping software that may be marketed nationwide. The Vermont Institute for Science, Mathematics and Technology (VISMT), through a National Science Foundation grant, is helping to coordinate WEB Project activities with other education reform projects in the state, and conducting statewide professional development programs to promote the use of technology in education.

Through the use of technology, the WEB Project is helping to renew the teaching of arts and humanities, promoting systemic education reform, and encouraging professional growth in school systems throughout the state of Vermont.

Consortium Partners

Franklin Northeast Supervisory Union
IBM
Montpelier School System
Proctor Junior-Senior High School
Vermont Arts Assessment Project
Vermont Institute for Science, Mathematics, and Technology (VISMT)

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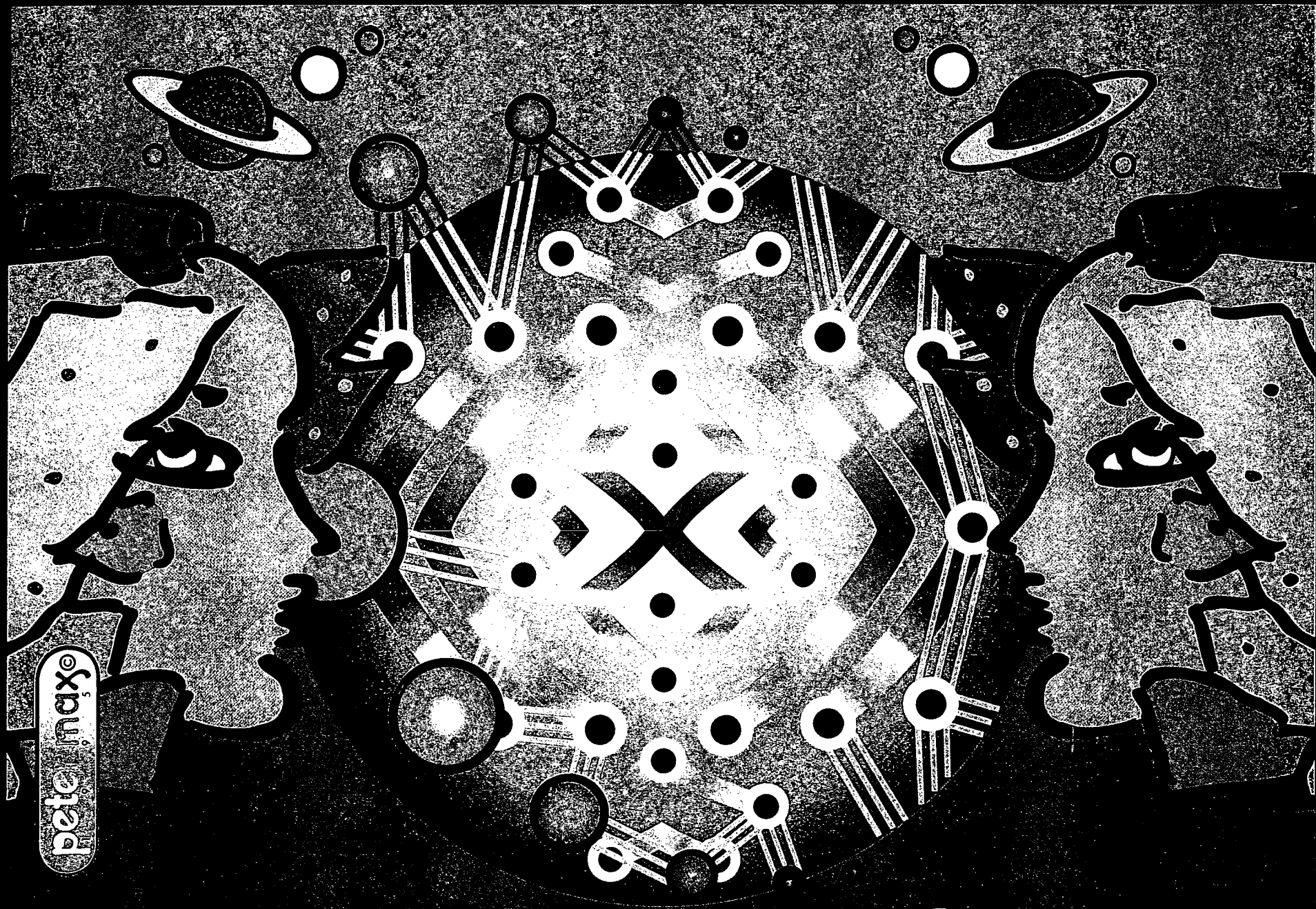
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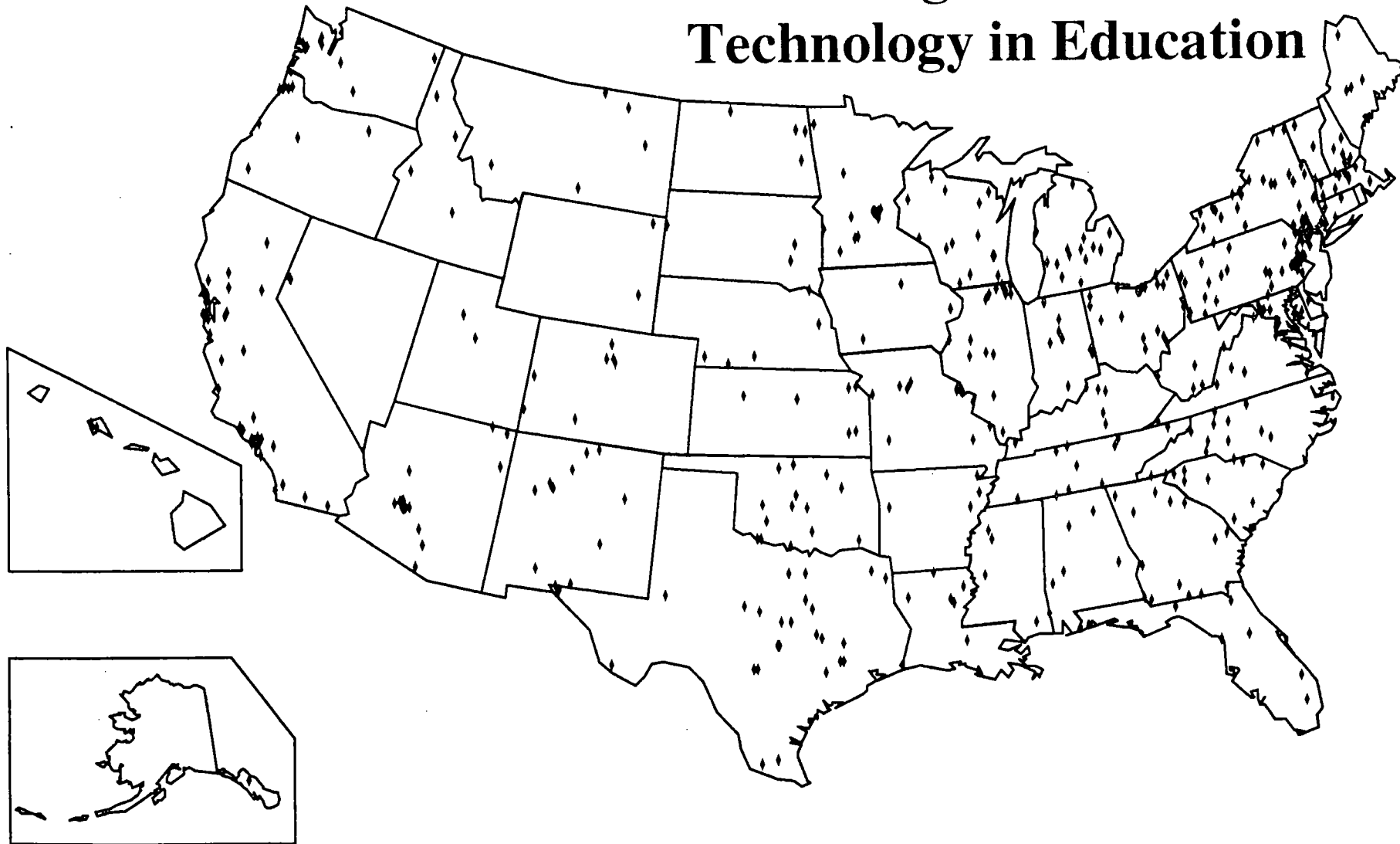
pete max⁵

TECHNOLOGY LEARNING CHALLENGE

**CHALLENGE GRANTS FOR TECHNOLOGY IN EDUCATION
RECOMMENDED FOR 5 YEAR AWARDS**

<u>LOCATION</u>	<u>ENTITY</u>	<u>5 YEAR RECOMMENDATION</u>
San Diego, CA	San Diego Unified School District	\$4,138,729
Redwood City, CA	San Mateo County Office of Education	\$6,354,764
Dover, DE	Capital School District	\$5,523,300
Waukegan, IL	Waukegan C U School District	\$3,361,900
Anderson, IN	Anderson Community School Corp	\$3,077,090
Indianapolis, IN	Indianapolis Public Schools	\$4,080,508
Natchitoches, LA	Natchitoches Parish School Board	\$4,385,807
Baltimore, MD	Baltimore City Public Schools	\$7,977,847
White Cloud, MI	Newaygo County Intermediate School District	\$4,975,488
Omaha NE	Westside Community Schools	\$6,001,441
Manchester, NH	Manchester School District	\$2,778,038
Laguna, NM	Pueblo of Laguna Department of Education	\$5,651,911
Cuyahoga Falls, OH	Summit County Educational Service Center	\$6,820,582
Philadelphia, PA	School District of Philadelphia	\$9,505,176
Towanda, PA	Towanda Area School District	\$2,894,224
Sturgis, SD	Black Hills Special Services Cooperative	\$3,164,675
El Paso, TX	Socorro Independent School District	\$3,397,681
Price UT	Southeast Education Service Center	\$3,343,738
Montpelier, VT	Montpelier School System	\$2,573,170

Challenge Grants for Technology in Education

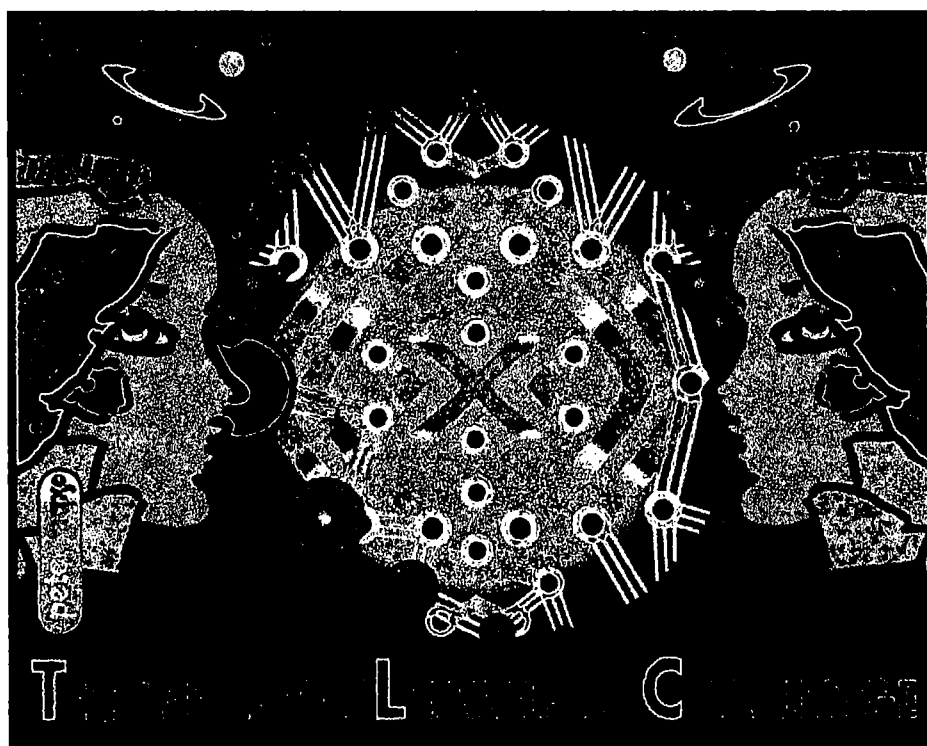


◆ Applications

Interagency Learning Technology Office

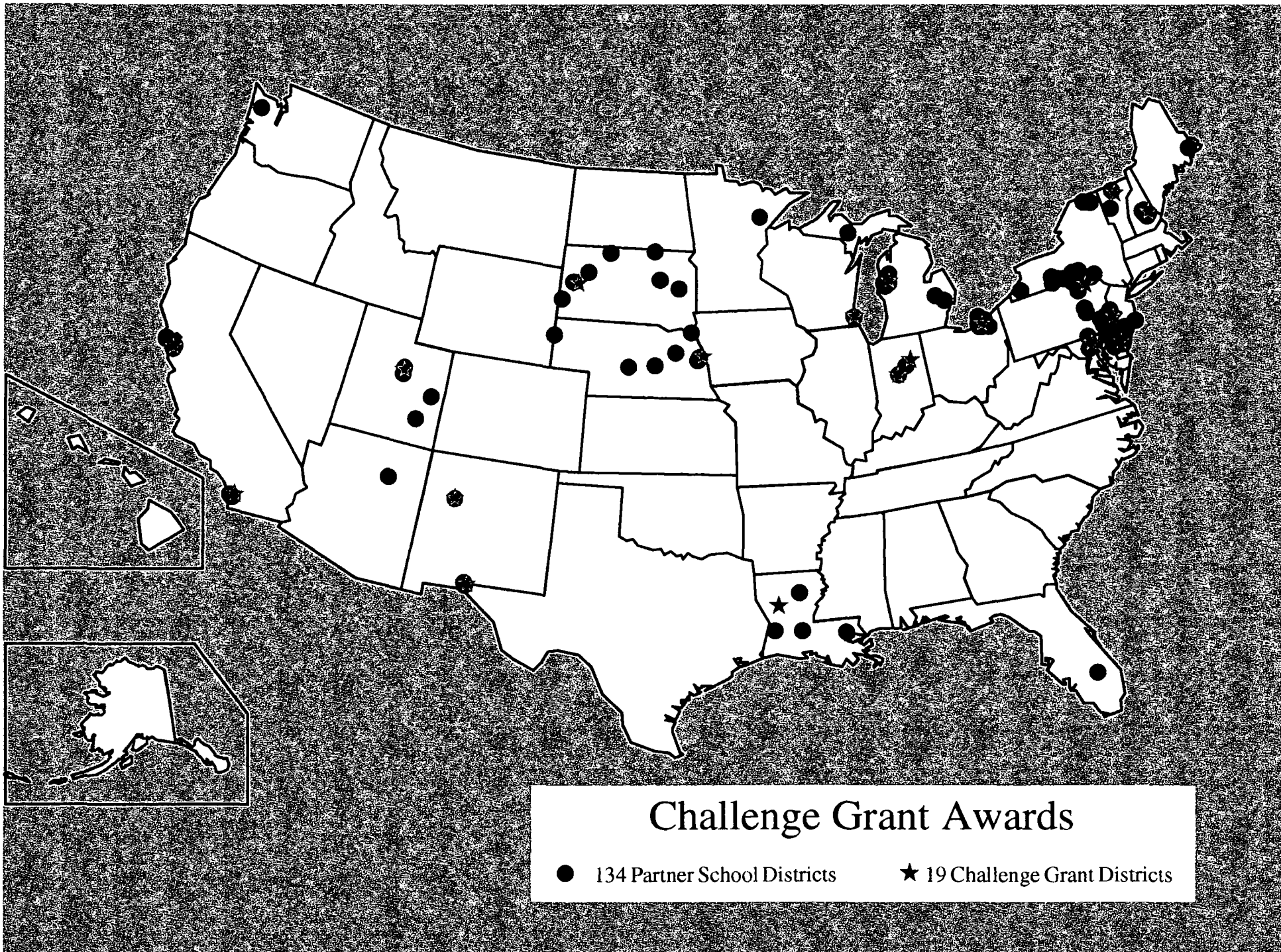
Challenge Grants for Technology In Education

GRANT ABSTRACTS
FY 1995



Interagency Learning Technology Office
U.S. Department of Education
Suite 6300
1250 Maryland Ave., S.W.
Washington, D.C. 20202-5544
202-708-6001

Prepared by William Anderson
National Aeronautics and Space Administration



UNITED STATES
DEPARTMENT OF EDUCATION



NEWS

FOR EMBARGOED RELEASE: 9 a.m. EDT
October 10, 1995

Contact: Melinda Kitchell Malico
(202) 401-1008

NOTE: Secretary Riley will be available via conference call Tuesday at 11 a.m. and 2 p.m. EDT to talk with reporters about the grants. Call (800) 495-0245, SCHOOLS (724-6657)

PRESIDENT SAYS TECHNOLOGY CHALLENGE GRANTS WILL HELP BUILD 21ST CENTURY SCHOOLS

WASHINGTON, Oct. 10 -- President Clinton today announced the first installment on a five-year commitment to move the nation's schools into the Information Age.

Flanked by Vice President Gore, Education Secretary Richard Riley and corporate leaders, the President announced 19 Challenge Grants for Technology in Education. The awards, totaling \$9.5 million, are going to community partnerships with matching commitments of more than \$70 million in the first year and over \$300 million during the five-year span of the projects.

"Everywhere we look, technology is changing the way we work and live," President Clinton said. "Now, more than ever, it is imperative that our nation's schools have the technology they need to prepare students for the 21st century.

"The recipients of these challenge grants and their partners are committed to developing creative responses to the Information Age requirements of all students, including those in inner cities and rural areas. These grants will support visionary educators, parents, business partners and community leaders who are working to retool their schools for the future."

-MORE-



The challenge grant partnerships -- local consortia comprised of school districts and 380 partners representing business, education, libraries, museums, the military, states and cities -- will help infuse powerful new technologies into schools, allowing students and teachers to join the information superhighway. The partners have made substantial commitments for equipment, software development, technical support, telecommunications services and other costs.

"Powerful new technologies and the information superhighway can create unparalleled possibilities for extending the time, place and resources for learning," Riley said. "By linking schools to homes, libraries, museums, community centers and the workplace, these partnerships will expand learning opportunities for all students. The challenge grant communities being announced today will make these connections a reality -- and open schools to the abundance of educational resources available around the world."

The 19 grant recipients have formed partnerships with more than 134 other school districts in 23 states in the first year of the grant cycle. The partnerships also include more than 120 businesses, 34 universities and colleges, 10 museums, five libraries, 10 state education departments, education offices in five national and a state park system, two regional education laboratories, an energy laboratory, a Naval base and an Army base, and state and local government offices.

"These communities are responding to an ambitious challenge," Riley said. "Classrooms should be modern information centers for learning, yet most instruction still takes place with black boards and chalk. The implications for education and economic

-MORE-

competitiveness are enormous. Employers need well-educated employees who can use information technologies to gain knowledge and improve productivity. These grants will help schools and corporate partners make technology a part of effective teaching and learning."

First-year support for the projects comes from both fiscal year 1995 and 1996 funds; the grants announced today are funded with FY 95 funds. The Clinton administration is seeking Congressional support to fully fund the five-year grants at more than \$85 million. Clinton requested \$70 million for FY 96, but the House has recommended just \$25 million and the Senate is considering funding of \$15 million.

"At a time when hundreds of communities across the country are expressing their desire to meet the challenge of bringing their schools into the information age, it is tragic that Congress is considering cuts in this program, which would provide the resources they need for an effective response," Riley said. "Each federal dollar committed to this program is generating over \$3 of additional local community investment in the future of our children. This is an investment in education and our future economic competitiveness that should not be lost."

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NOTE TO EDITORS: Attached is a list of grantees.

Technology Learning Challenge Grants

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CHALLENGE GRANTS FOR TECHNOLOGY IN EDUCATION

The U.S. Department of Education is awarding \$9.5 million in Challenge Grants for technology in education to 19 communities in 16 states across the country. The 19 school districts in these communities will work in partnerships with a total of 134 other school districts in 23 states. These school districts will be using powerful new technologies and the information superhighway to transform their factory era schools into information age learning centers.

Challenge Grants will average \$1 million a year for five years. During the first year, one and a quarter million students will be served by these grants, and the number of students served will grow each year during the life of the projects.

In each Challenge Grant community a consortium of schools, businesses, libraries, museums and community organizations are matching the grant with substantial commitments for equipment, software development, technical support, telecommunications services and other costs. These Challenge Grant communities are making a significant educational investment in the future of their children. The total value of matching commitments is over \$70 million in the first year, and during the five year life of these projects the total value of these investments is expected to be over \$300 million. Funds awarded through the Challenge Grants will augment these local investments and support new curriculum design, teacher training, and the evaluation of educational effectiveness.

Over 380 partners will participate in the activities of these nineteen Challenge Grant communities. A total of 153 school districts will use new technologies for education reform. Over 120 business firms are participating in Challenge Grant community partnerships, along with 34 universities and colleges, ten museums, five libraries, nine State Education Agencies, the education offices of five national parks and a state park system, two regional education laboratories, an energy laboratory, a Navy base, an Army base, three Governor's Offices, and two Mayor's offices. Of the participating school districts 84 are urban and 70 are rural. The rural school districts include eight Bureau of Indian Affairs schools. Of the 120 businesses committed to these partnerships, 14 are hardware manufacturers; 12 are software developers; and 18 are telecommunications firms. Additional school districts, firms, and community organizations are encouraged to join these partnerships in the future.

Nineteen local school districts, one in each community, will administer these grants. A list of the school districts is attached, along with a map designating the locations of the 19 Challenge Grant communities and the rest of the 134 participating school districts. A one page abstract of each Challenge Grant community's initiative is also attached.

These communities are responding to an ambitious challenge. Everywhere we look, technology is changing the way we work and live -- everywhere, that is, but in our schools and classrooms. In classrooms that should be modern information centers for learning, the basic media of instruction continue to be black boards and chalk. The implications for education and economic competitiveness are enormous. In a strong economy, employers must have well-educated employees who make skillful use of information technologies to increase their knowledge and continuously improve their productivity. But few schools today are able to provide the high performance learning tools that would allow students to develop these skills.

As catalysts for change, challenge grants will support communities of educators, parents, industry partners, and community leaders who are working to retool their schools for the 21st century. Powerful new technologies and the information superhighway create new possibilities for extending the time, the place, and the resources for learning. Schools can be linked to the home, and to libraries, museums, community centers and the work place, to

provide high quality learning opportunities at any time and any place. Challenge grant communities will make these connections and open their schools to new educational resources available across the nation and around the world.

As each Challenge Grant community acts on its vision for education reform, careful attention is being paid to ensure that we do not become a society in which low income communities and other areas with the greatest need for technology are left behind in the acquisition of skills and knowledge needed to be productive citizens in the 21st century. These grants support local alliances of educators, industry partners, and community leaders who are committed to developing creative responses to the information age requirements of all learners, including those in inner cities and rural areas.

These 19 Challenge Grant communities are likely to succeed because they have begun with a clear definition of the educational problems they want to address. In most cases these communities are working on the integration of new technologies into state or local education reform efforts that have been stimulated by the National Education Goals. Effective use of new technologies in these communities will contribute to school readiness and improved student achievement in reading, writing, science, mathematics, the arts and other disciplines. Each project will support professional development for teachers and promote greater parent and community involvement in education. And each will help smooth the transition from school to work by engaging students in real life learning experiences through which they can develop the life-long learning skills necessary to compete in the economy of the 21st century. In several cases, district-wide, state-wide, and regional efforts to set clear expectations for what all students should know will enable these communities to form major markets that stimulate demand for new high quality learning systems and software.

Although the funds available this year limit these Challenge Grants to just a handful of the 530 communities that applied, during the 1995-96 school year we plan to conduct a second round competition, which could lead to an additional award of 20 new grants by September 1996.

For additional information on this program contact:

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Washington, D.C. 20202-5544
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Fax: 202-708-6003**

San Mateo County Office of Education

Redwood City, California

Silicon Valley Challenge 2000 Multimedia Project

This project is one element of an ambitious program to revitalize education in schools throughout Northern California's Silicon Valley. Under the leadership of the San Mateo and Santa Clara County offices of education, and a consortium of industry partners called "Joint Venture: Silicon Valley" (JVS), over \$15 million in corporate contributions has been raised in the area to support systemic school reform. The Challenge 2000 Multimedia project builds on the collaborative foundation and experience of JVS, helps unite several of its diverse elements, and focuses on the use of multimedia technologies in the creation of student instructional units. The project includes 37 schools, more than 750 teachers and 23,000 students drawn from two counties and nine school districts. Over 50% of these students come from low-income homes. The project addresses objectives of the Goals 2000 Act, provides an extensive professional development program, contains a strong school-to-work element, and promotes reform at all levels of education.

The Multimedia Project creates four "school communities," consisting of elementary and secondary schools, and colleges. The program is establishing a high-performance telecommunication network that links the schools, allowing them to exchange curriculum information and participate in joint educational activities. Through the network, the schools have access to state-of-the-art multimedia development tools, and physical and virtual resources at the Bay Area Multimedia Technology Alliance (BAMTA). BAMTA's "Collaboratory" is an educational research facility and technology testbed that facilitates the development of multimedia projects, including collaborative work environments. The school communities are being equipped with multimedia hubs containing high performance computer graphics workstations that allow students and teachers to take full advantage of Collaboratory resources. Each of the schools is developing an "exemplary practice" model for learning activities supported with multimedia software and network tools. Students use these technologies to explore subject matter content, and engage in collaboration, planning, revision, problem solving, critical thinking, and reflection. The school communities have also developed individual technology plans:

Blossom Valley Learning Consortium

Located primarily in South San Jose, this school community includes nine schools, and the general and special education departments of San Jose State University. Support services such as tutoring, alternative learning, and medical diagnoses are provided in partnership with local government, public agencies and industry. A school networking plan and a cross-school assessment system help consolidate the schools' programs. One school district in the consortium is opening a "Technology Teacher Magnet School" where teachers learn to use telecommunication and multimedia to enrich curricula.

Family of Schools

This community of 15 schools drawn from four districts serves an economically and culturally diverse population of over 10,000 students. The team's high school draws 40% of its students from an inner-city area where the median household income is less than half the national average. The Family of Schools focuses on improving math and science instruction, with extensive support from industry partners, including three major businesses, three community colleges, and an educational foundation. This community has established a professional development center where teachers create and test technology-supported math and science curricula.

Overfelt Family

These five East San Jose schools serve one of Silicon Valley's most economically stressed communities. At the elementary schools, eight

out of ten children are eligible for free or reduced-price lunches. At home, nearly 80% of the students speak a language other than English. The Overfelt Family community is focusing on improvements in literacy and language arts, and is turning its schools into family centers, building on the school-linked "Healthy Start" integrated services program. Other focuses are retention, motivation and support of teachers in connecting instructional activities to real-world applications.

Palo Alto Learning Communities

This community of 16 schools focuses on literacy and school-to-work activities in an ambitious reform program that: 1) promotes performance assessment by community and corporate representatives who conduct standardized scoring of student multi-media exhibitions; and 2) helps develop school-to-work skills with a network link between schools, libraries, administrative offices and corporations.

JVS has obtained commitments for educational support from the Hewlett-Packard Company, Intel, Network General, Symantec, 3Com, Silicon Graphics, Apple Computer, Applied Materials, Cirrus Logic, Logitech, NetManage, Quantum, the Robert Noyce Foundation, Sun Microsystems, Wells Fargo Bank, and Adobe Systems. JVS is acting as a broker in obtaining technical support from the staff of these corporations for Multimedia Project schools. Additionally, JVS is providing funding for release time and basic computer and Internet training of teachers. Silicon Graphics, Inc. will donate up to ten high-performance workstations for each school community hub, which will be located in the team's secondary school.

Project evaluation will be performed by SRI International. The project will maintain complete records of activities and products generated by the four school communities, and these materials along with results of the project evaluation will be disseminated in hard copy form and through the World Wide Web. The Multimedia Project brings together a powerful consortium of public, and private institutions to implement a comprehensive plan to help reform education in schools throughout the Silicon Valley.

Consortium Partners

Bay Area Multimedia Technology Alliance
Blossom Valley Learning Consortium
Family of Schools
Institute for Research on Learning
Joint Venture: Silicon Valley--21st Century Education Initiative & Smart Valley, Inc.
Overfelt Family
Palo Alto Learning Communities
Santa Clara County Office of Education
Smart Valley, Inc.
SRI International

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San Diego Unified School District

San Diego, California

The Triton Project

"The Triton Project" is a multi-partner educational reform effort that blends a unique ocean-themed curriculum with several technologies to create new learning opportunities for students and teachers in the San Diego schools. The San Diego Unified School District is the eighth largest in the country. More than 26% of its students are classified "English language learners" (ELL), and they speak more than 50 native languages. Over half the ELL students are economically disadvantaged, and academic achievement among many students throughout the school system is poor. The Triton Project uses the capabilities and unique appeal of modern technology to capture interest in core curricula, provide a highly productive education program, and produce improved student achievement throughout all elementary and secondary schools in the system. As the program is expanded to include all San Diego School System students by the year 2000, more than 128,000 children will participate. This program includes a strong staff development component and evaluation plan. Its major focus is the development of a content-based and standards-driven curriculum. The program stresses systemic reform, and contains elements that are in compliance with recommendations of the National Education Commission on Time and Learning and the Goals 2000 Act. There are four main goals:

1) Equitable Access to Technology

The program is increasing the availability of educational technologies throughout the school system in order to ensure equitable access to technology-related opportunities for all students. The program teaches students to identify, organize and allocate educational resources. They work with a variety of technologies, including the Internet, word processing, spreadsheets, databases, multimedia, telerobotics, videoconferencing, digital video, and virtual reality.

2) Improved Learning Outcomes

The program utilizes a variety of technologies to improve learning outcomes in reading, writing, math, and science. Several approaches are employed, including the establishment of measurable objectives and evaluation strategies, the implementation of curricula that address the needs of second language learners, and the application of technology to specific learning challenges.

3) Improved Interaction with Parents and the Community

The program promotes effective telecommunication using computers, video and cable television. These technologies encourage communication across ages, geographies, genders, ethnicities, and economic levels. Through telecommunication, digital video production, and cable television, the program allows students to contact and learn from schools and other community resources at distant sites.

4) Effective Staff Development

The program provides effective, hands-on training for administrators, teachers, support staff, and parents. Teachers learn to use technology as a tool in developing lessons, and discover how to locate and utilize educational resources on the Internet.

The Triton Project is a collaborative partnership between the San Diego City Schools and a number of private and public organizations within the community. Each of the partners provides a unique service to the program. The school system is working closely with the Mayor's office to connect electronically all classrooms, offices, and school libraries to colleges, universities,

public libraries, medical centers, social service agencies, research facilities, Sea World, museums and other places of interest in the city. Sea World is expanding its telecommunication capabilities directly into district classrooms, and communicates directly with students via the Internet. Scripps Institution of Oceanography and the Stephen Birch Aquarium-Museum are sharing two curricular units they have developed: "Kelp Forest" and "Forecasting the Future." They also work with teachers in the development of new curricula. The San Diego Public Libraries offer Homework Centers as an electronic resource for students. Pacific Bell, through its Education First project, links the partners electronically, and is working with San Diego State University on a curriculum development project. The San Diego Supercomputer Center supports the design and production of a curriculum that takes the vast resources of the Internet and filters them into a practical, useful program of study. It also supports the virtual reality component of the project. The Naval Command Control and Ocean Surveillance Center gives advice in virtual reality development, demonstrates advance technologies in action, works with students to design and develop robots that can operate at a distance and in virtual worlds, and offers engineering and technical support.

An external evaluator from San Diego State University is working with Triton Project staff to design an evaluation plan for the program. The evaluator will conduct site visits, observations and interviews, and will coordinate project data collection. School district staff will work with Triton Project staff to coordinate data collection and analysis. Project participants will assist at every level in the design, implementation and interpretation of the evaluation.

The Triton Project blends new technologies, intriguing subject matter, and non-traditional learning opportunities in a unique and motivational education program.

Consortium Partners

Naval Command Control & Ocean Surveillance Center
Office of the Mayor of San Diego
Pacific Bell's Education First Initiative
San Diego Data Processing Corporation
San Diego Public Library System
San Diego State University
San Diego Supercomputer Center at UC-San Diego
Scripps Institute of Oceanography
Sea World
Stephen Birch Aquarium-Museum

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Capital School District

Dover, Delaware

Delaware Interactive Educational Television Consortium

The Capital School District and the State of Delaware have formed an Interactive Educational Television Consortium that is bringing unique and engaging classroom learning activities directly into the homes of schoolchildren throughout the state. Through the use of small computers ("set-tops") that connect to home televisions equipped with cable or phone modems, the consortium can provide programming that is interactive, entertaining, educational, and tailored to meet both state curriculum requirements and the individual needs of students. This program can be easily replicated in school systems throughout the country. It responds to recommendations of the National Commission on Time and Learning, fits within the framework of the Goals 2000 Act, and has a strong school-home element. The program is being piloted in five elementary schools with high percentages of disadvantaged students. As it grows into the state's 16 school districts, more than 12,500 students in grades K-6 eventually will participate. The program has four major goals:

1) Increase Student Learning Time

In response to the challenge of breaking the mold of our "factory-schools" this project utilizes cutting-edge technology to extend learning into the home on a daily basis. This allows students to increase their learning time with instructional programs that directly address their learning styles and needs. Time typically spent passively and unproductively watching television and playing video games is replaced with active and productive learning time in which solid curricula are combined with video game interactivity to create a new learning dynamic for children.

2) Increase Parental Involvement

Family and community participation are vital components of this project. No matter how thoughtful and comprehensive a school improvement program is, the school alone cannot improve academic performance for all students. This project fosters and supports a home environment that encourages learning, provides for realistic expectations, and enhances the parent's role as the child's first and most important teacher. It also fosters improved communication between parents and teachers.

3) Provide Professional Development for Teachers and Staff

Teachers and staff receive comprehensive training for the project, and they are provided set-top computers for their homes. As the infrastructure is deployed, teachers participate in interactive staff development "on-demand," and they learn to use the system to generate personalized instructional materials for students. In addition, they can go "on-line" with their colleagues and learn, share and communicate easily with one another.

4) Provide Equitable Access to Educational Technology

Every child involved in the project and every household they represent is provided, free of charge, all equipment needed to participate fully. This program opens opportunities for universal access to high-quality instruction and helps to close the gap between the technology haves and have-nots.

Hardware and initial programming for this project have been developed by The Lightspan Partnership, Inc. of Robbinsville, New Jersey. Lightspan also provides training for faculty and parents, and ten days of consultant support for each school. Additional programming in language arts, health, social studies, science, math,

parenting and other subjects is provided through contracts with a wide variety of educational publishers.

The Interactive Educational Television Consortium is an outgrowth of the Delaware Educational Technology Committee, the Delaware Goals 2000 Technology Committee, and the Capital School District Technology Committee. State partners in the consortium include the Delaware Department of Public Instruction and all school districts in Delaware with elementary student populations. Programming partners include the Lightspan Partnership, Cable in the Classroom, WHYY Public Broadcasting in Wilmington, Tom Synder Productions, the Agency for Instructional Technology, Seymour Pappert's Creative Playground, the Imagination Machine, and others. Hardware and technical support partners include Comcast Inc., TeleCommunications Incorporated (TCI), the Cable Television Association of Maryland, Delaware, and the District of Columbia, Apple Computer, and others.

In addition to the interactive telecommunications network, each elementary classroom involved in the project is being equipped with new technologies to support the education process at school. Participating classes contain three set-top computers, one teacher workstation with a large-screen monitor for instructional presentations and lesson modeling, and two set-tops serving as student workstations. Student workstations are equipped with headsets, so that students can participate in personal multi-media instruction without disturbing classmates.

Dover's Capital School District and the State of Delaware have forged a dynamic alliance of private industries, government agencies and educational institutions to extend the education process beyond the walls of the traditional classroom and place it in the hands of parents and their children.

Consortium Partners

Apple Computer, Inc.
Bell Atlantic
Cable in the Classroom
Cable Television Association of MD, DE, & DC
COMCAST
Delaware Department of Public Instruction
Delaware Schools with K-6 students
The Lightspan Partnership
State of Delaware
Tele-Communications Inc. (TCI)
WHYY Public Broadcasting, Wilmington

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Waukegan Community Unit School District 60

Waukegan, Illinois

Technology and Learning Collaborative

The Technology and Learning Collaborative (TLC) is a dynamic consortium of educational institutions, private businesses, and government agencies that has developed a multi-faceted program to modernize and improve the educational process in the Waukegan Public Schools. Waukegan schools experience many of the problems common to inner city systems: high truancy rates, widespread poverty, high mobility rates, and low academic achievement. The TLC consortium is addressing these problems by implementing a community-wide math and science education program based on innovative uses of new technologies. This is a replicable program that has strong school-home, school-community and school-work components. It provides for extensive professional development training, and addresses targets of the Goals 2000 Act. More than 7,000 students in grades 4-12 receive direct benefits from the program. Project goals are:

1) Improving Student Achievement in Math and Science

With the use of new technologies and an emphasis on project-based learning activities, students improve their achievement through: 1) Active engagement in constructing and communicating principles of math and science; 2) Participation in meaningful scientific investigations; 3) Investigation and understanding of basic math and science concepts; 4) Investigating and understanding connections between subject disciplines; and 5) Relating scientific and mathematical knowledge to themselves and their lives by working on real-life problems and issues.

2) Promoting Engaged Learning

Making the transition to "engaged learning" (learning while doing and learning from doing) requires rethinking the way traditional material is taught. To accomplish this, teachers in Waukegan schools practice peer coaching through classroom visits and conferencing with lead teachers. Lead teachers develop project-based, collaborative learning units that integrate math, science and technology. They receive training in engaged learning methods from Apple Computers, Inc., the North Central Regional Education Laboratory (NCREL), and other consortium partners, and they learn how to utilize technology to facilitate engaged learning.

3) Promoting the Use of Educational Technologies

The consortium is establishing model classrooms to be duplicated throughout the Waukegan schools. Each classroom contains a teacher workstation with multimedia capability; an overhead TV monitor; five student workstations with multimedia capabilities; a laptop; a printer; a compact video camera; a color scanner; a digital camera; and an Internet connection. The project provides teachers and students training in the use of these technologies.

4) Improving Workplace Readiness and Workplace Skills

In a program to reach beyond the walls of the classroom, the Technology and Learning Collaborative is establishing Technology Learning Community Centers (TLCC's) that provide students, parents and other adults access to a wide range of educational technologies and information. The TLCC's are located at four easily accessible sites within the community, and they offer computers, printers, connectivity to the Internet and other resources for public use. In addition, the Waukegan Public Library is developing and maintaining an on-line community bulletin board that provides assistance to individuals seeking information on education, community services and job opportunities.

This project is producing several products and processes that are being disseminated to school systems throughout the country. Examples include project-based, collaborative learning units for math and science; classroom case studies in video, print and

electronic forms; a professional networking model; and a model Technology Learning Community Center (TLCC) for lifelong learning. These products are distributed nationally and globally with the assistance of Apple Computer, Northwestern University, the North Central Regional Education Laboratory (NCREL), and the Illinois State Board of Education (ISBE).

The TLC is receiving substantial support from businesses and government agencies in the Waukegan community. Abbott Laboratories is helping to produce workplace readiness videos. The College of Lake County, the Waukegan Park District, and the YMCA are providing space, staff and programming for three Technology and Learning Community Centers. Barat College is providing faculty and student mentors for science projects. The ISBE is developing guides for use by other school systems. Legat Architects and U.S. Cable are donating program planning services for infrastructure design. North Central Regional Education Lab is conducting a series of training workshops for teachers. The Northeastern Illinois Assistive Technology Consortium and the Special Education Parents Advisory Council (SEPAC) are offering extensive support for children with disabilities. Northwestern University is using Waukegan as a test site for its Collaborative Learning through Visualization (CoVis) project in earth science, and the Waukegan Schools Foundation is providing educational technology equipment.

Consortium Partners

Abbott Laboratories
Apple Computer, Inc.
Barat College
College of Lake County
Illinois State Board of Education (ISBE)
Lake County Technology Campus
Legat Architects
North Central Regional Education Laboratory
Northeastern Illinois Assistive Technology Consortium
Northwestern University
Special Education Parents Advisory Council
U.S. Cable of Lake County
Waukegan Park District
Waukegan Public Library
Waukegan Schools Foundation
YMCA

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Anderson Community School Corporation

Anderson, Indiana

Anderson Community Technology Project

Anderson Community Technology Now! is a consortium of local and state agencies in Indiana that is combining innovative technology initiatives to raise the academic achievement of 3,140 underchallenged and at-risk students (and their families) in six elementary and two middle schools. The program is designed to accelerate the pace of educational improvement and ensure greater economic opportunity within the community.

The project is addressing its goal by--

- increasing community involvement in public education;
- increasing teacher professionalism and productivity through professional development activities;
- developing new learning environments;
- strengthening the connections between home, school, and community to foster family skills and involvement in education; and
- providing opportunities for teachers and students to become self-directed and collaborative learners.

As part of previous school and systemic restructuring efforts, Anderson has undertaken several activities which will be used in this project. One such activity is the School on Wheels, a specially trained cadre of teachers and principals who can temporarily assume the roles of entire school faculties to enable educators to participate in staff development. Another activity is the 1995 Community Forum for Education, supported by local employers, community organizations, and civic groups. This organization studies, plans and helps implement new educational applications of technology.

The Anderson Community Technology Project has several major components:

- 1) **The Buddy System Project** at the Corporation for Educational Technology (CET) promotes the extension of the learning day beyond the classroom and into the homes of 4th-8th grade students.
- 2) **The Vision Athena Project**, sponsored by the Corporation for Educational Communications (CEC) and the Children's Museum of Indianapolis, is making available two-way video for distance learning and electronic field trips, e.g. to the Indianapolis Zoo, Butler and Indiana Universities, the school system, and the Anderson Federation of Teachers are providing instructional courses and staff development in the use of educational technology.
- 3) A **community technology center** with Internet connections and regularly held training sessions is being dedicated at the Anderson Public Library to benefit all community members.
- 4) **Professional development services** are being provided by the Indiana University School of Education and the Butler University College of Education. The focus is on integrating technology into the history, language arts, mathematics, and science curricula.
- 5) **On-line and in-person tutoring** in literacy, mathematics, and technology is being provided by Anderson University students (60 in the first year) to elementary and middle school students.
- 6) **Educational videotapes** developed by Indiana Public Broadcasting Stations in collaboration with Anderson teachers are supplementing 4th grade Indiana history materials.
- 7) **Special educational programming and teacher training** are being broadcast through the local TCI cable operator to students and their families. Programs include "Ingenious" (news, weather, etc.)

and "What on Earth" (6 news stories per day). This is one of the first multimedia databases for homes delivered by cable.

8) **Family mathematics and science training** is delivered via two-way video by the Children's Museum of Indianapolis to school and community facilities to strengthen family learning in mathematics and science.

About 240 fourth grade students are the focus of first-year activities, and the project will expand to all upper elementary and middle school students and their teachers by the end of the five-year project. First-year activities include computer instruction in word processing and productivity software, and integration of technology applications into 4th grade language arts and social studies classes. Emphasis is on changing teaching styles, using the home computer for collaborative writing and reading projects, and using telecommunications projects to teach Indiana history. Each school has a fund to allow teachers to purchase professional development services from the three participating universities. Other professional development activities include the School on Wheels and the Principals Technology Leadership Training Program sponsored by the Indiana Department of Education. Rockman *et al*, a research and evaluation group in San Francisco, is conducting an evaluation of the entire program. The evaluation will determine changes in: academic achievement of disadvantaged students, family involvement in the education process, computer-based instructional time, and changes in teacher attitudes and instructional approach.

Consortium Partners

Anderson Area Chamber of Commerce
Anderson Federation of Teachers
Anderson Public Library
Anderson University
Butler University College of Education
Children's Museum of Indianapolis
Corporation for Educational Communications (CEC)
Corporation for Educational Technology (CET)
Indiana Department of Education
Indiana Public Broadcasting Stations
Indiana University School of Education
National City Bank
TCI of Central Indiana (cable TV)

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Indianapolis Public Schools

Indianapolis, Indiana

A Learning Cooperative

The Indianapolis Public Schools are pioneering a unique school/government/business consortium called "A Learning Cooperative: Connecting and Supporting Systemic Mathematics, Science and Technology Initiatives via Telecommunication." Utilizing the experience and resources of Ameritech, a cellular service provider, this consortium is developing an affordable, scalable, and equitably distributed telecommunication infrastructure which links the North Central Regional Educational Laboratory (NCREL), 25 schools in Indianapolis, 25 in Chicago, and 3 in Walled Lake, Michigan. The new network delivers research-based curriculum and technical support to participating schools, and it provides professional development activities for the program's teachers. The program promotes systemic change in the teaching of mathematics, science, and technology, is in accord with the recommendations of the Goals 2000 Act, and has strong school-home, school-community and school-work elements. About 90,000 students receive direct benefit from the project. There are six major components of the program:

1) Developing and Sharing Exemplary Instruction

The network allows exemplary teachers to conduct lessons at participating consortium schools via "distance learning." Lessons are prepared in the form of "Curriculum Support Units" (CSU's), short video programs with supplementary text that teach specific key concepts. Through careful collaboration among the consortium members, the CSU's are designed to address basic math and science concepts, and to fit smoothly within the curriculum frameworks of each district.

2) Providing Professional Development

The Learning Cooperative provides unique professional development opportunities for individual teachers, principals, administrators and school community teams. During regularly scheduled on-line meetings, educators analyze and improve their curriculum, instruction and assessment practices in math and science. The system provides access to a database of professional development materials produced by NCREL, and it is connected via the Internet to other professional development resources.

3) Providing Technical Assistance and Educational Support

The Learning Cooperative and Ameritech have established a group of advisors that provide technical support related to the program's infrastructure and educational content. The advisors help participating teachers identify effective methods for putting Learning Cooperative activities in place, suggest ways to share ideas for using the system, and promote the use of technology in math and science instruction.

4) Improving Communications Between Parents and Schools

The Learning Cooperative is building awareness of the need for increased parental involvement in the educational program, and it is working to improve the connection between parents and school staff. The consortium's telecommunication infrastructure is being used to provide information to parents on specific ways they can take an active role in school activities, to convene parent support groups, to establish a hotline for homework information, to provide a voice mail service for teachers, and to produce educational television broadcasts.

5) Conducting evaluation

The Learning Cooperative is conducting an ongoing evaluation for the purpose of: 1) determining its progress in achieving goals; 2) improving the curriculum; 3) identifying barriers to a successful program; and 4) identifying the next steps in improving the program. Evaluation activities have been designed to help consortium partners measure their own progress in improving math and science curricula and understand the theories behind best practice methods in math and science teaching.

6) Developing partnerships to provide ongoing resources.

The Learning Cooperative has established an educational communications system for use by school personnel, parents, and community members. The system contains information on the effective uses of technology in learning and teaching, and it allows teachers, parents, community members and other interested individuals to make contacts, learn and work together, or just talk to one another. The system is connected to numerous other Internet resources related to critical education reform issues.

Each partner in the consortium has a unique role. Ameritech is installing and maintaining the equipment. The Indianapolis Public Schools are leading the development of science units and staff development. The Chicago Public Schools are developing mathematics activities and staff development activities. The Walled Lake Community Schools are developing a method to integrate the science and math units into the curriculum of the three districts. NCREL is developing communities of practice and curriculum support units, as well as scheduling distance learning through the telecommunication infrastructure.

The "Learning Cooperative" has developed a comprehensive program that utilizes educational technologies to revitalize the education process in participating schools, involve parents in school reform, and promote cooperation between disparate school systems in three midwestern states.

Consortium Partners

Ameritech (Indianapolis, IN)
Chicago Public Schools
Detroit High School of Commerce & Business
Administration
Indianapolis Public Schools
LearningAccess (Washington, DC)
North Central Regional Educational Laboratory
(NCREL) (Oak Brook, IL)
Walled Lake Consolidated Schools (Walled Lake, MI)

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Natchitoches Parish School Board

Natchitoches, Louisiana

The Natchitoches Parish School Board and Goals 2000/LaNIE

The Natchitoches Parish School Board and Goals 2000/LaNIE Technology Challenge Grant Consortium is developing comprehensive programs that use telecommunication to increase participation in high-tech learning by underserved K-12 students in five Louisiana school districts. The consortium will ultimately increase communication among all community stakeholders by using learning technologies to provide educational opportunities for students and parents at more convenient times and more accessible places. Over five years, approximately 174,000 students in 48 schools and 19 community sites will be served by the consortium.

This project builds on a previous Louisiana Goals 2000 effort and a Louisiana Networking Infrastructure for Education (LaNIE) grant received from the National Science Foundation to integrate Internet resources and K-12 instruction at five pilot sites across the state. Staff from both projects have been working jointly to develop an overall state educational technology plan.

Building on the work of the pilot sites, the new project is developing transferable models for providing underserved students access to technology, increasing student achievement, and documenting successful practices for widespread use in other communities across the country. Each of the five pilot sites, guided by a district technology advisory committee, is developing, implementing, and evaluating a comprehensive district plan for using educational technology to increase student achievement and to meet local educational goals.

To improve student achievement, the project will address school readiness and provide professional development activities for educators and community partners; it will also involve parents in the learning process and concentrate on the transition from school to work and life-long learning.

Project staff are giving special attention to: 1) the obstacles limiting access for underserved populations; 2) training for additional school personnel, parents, and community program leaders; and 3) the development of materials to support parent and community programs.

Each district is increasing access to educational opportunities by opening school sites after hours and by expanding access to places more often visited by community members.

The five districts are developing standards-based curriculum materials for all content disciplines, and expanding access locations to include community centers, playgrounds, libraries, and churches. Priority subject areas are mathematics, science, language arts and literacy. Professional development activities for teachers, students, parents, and administrators of community organizations are being offered. Dissemination plans and public awareness campaigns are also being developed (electronic mail, home page at each site, regional conferences, etc.). During the second and third years additional community sites will be added and teacher-developed curriculum materials will be disseminated on-line through the International Society for Technology in Education Gopher server and World Wide Web server. During the fourth and fifth years video conferences will be used to transfer model practices to other parts of Louisiana. In addition, the project will work with the

Louisiana Board of Elementary and Secondary Education and the Board of Regents to develop technology standards for pre-service and in-service education.

Professional development courses for educators and community members are being developed collaboratively by consortium members, and will be offered at each of the following cooperating universities: Northwestern State University, Natchitoches Parish; Northeast Louisiana University, Ouachita Parish; the University of Southwestern Louisiana, Lafayette Parish; the University of New Orleans, Jefferson Parish; and McNeese State University, Calcasieu Parish.

Consortium Partners

BellSouth Telecommunication
Calcasieu Parish School System
Governor's Office of Women's Services
Governor's Office: Louisiana Goals 2000/LaNIE
Greater New Orleans Free-Net, Inc.
International Society for Technology in Education
Jefferson Elementary School PTA
Jefferson Parish Public School System
Lafayette Natural History Museum
Lafayette Parish School Board
Louisiana Association of Computer Using Educators
Louisiana Bd. of Elementary & Secondary Education
Louisiana Board of Regents
Louisiana Department of Education
Louisiana Department of Public Safety and Corrections
Louisiana Networking Infrastructure for Education
McNeese State University
Monroe City School System
Natchitoches Parish Library
Northeast Louisiana University
Northwestern State University
Our Lady of Lourdes Regional Medical Center
Shell Oil Products Company
University of New Orleans
University of Southwestern Louisiana

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Baltimore City Public Schools

Baltimore, Maryland

Baltimore Learning Communities

The Baltimore Learning Communities project is a multi-faceted education program that utilizes distance learning, interactive cable TV and the Internet to connect schools to homes, places of work, and the community at large. The program provides extensive professional development training for teachers, directly involves parents in the education process, and extends a wide range of new educational opportunities to over 38,000 students at the middle and high school levels. This is a replicable program that addresses recommendations of the Goals 2000 Act, promotes life-long learning, and has strong school-work, school-home, and school-community components. The program has four main elements:

1) School

School-based activities focus on mathematics, social studies, science, communication, and the arts. They complement findings of the Secretary's Commission on Achieving Necessary Skills (SCANS), and emphasize competencies required by the job market. Students learn to plan schedules and budgets, improve interpersonal skills, conduct research, communicate information, locate career data, and use technology to facilitate learning. The Johns Hopkins University Center for Technology in Education and the Institute for Policy Studies, and the University of Maryland at College Park coordinate training in which teachers use new technologies to create customized curriculum products

2) Work

The Baltimore Learning Communities project connects schools to the workplace through two-way interactive video connections and digital networks. Through this system, work supervisors at retail stores, supermarkets, restaurants, and other places of business interact with school professional staff to learn how to transform work experiences into learning experiences. Participating businesses develop learning-rich tasks that lead to "Service Certificates" for student employees. Supervisors receive guidance from Bell Atlantic instructors adept at the change process, and are supported by Johns Hopkins University staff knowledgeable about adolescents and the transition from school to work. In addition, "Magic Me," an AmeriCorp national service and learning organization, is recruiting and training parents to participate in this element of the program

3) Connections

The Baltimore Learning Communities project utilizes Internet connections to provide school and career information. Students query existing labor market databases to explore opportunities and salary structures in a wide range of occupations; teachers use electronic resources in planning and building curriculum products; and parents provide assistance at schools and community centers where interactive video and computers are available. This element of the Baltimore Learning Communities project contains job opportunity benefits for both students and their parents.

4) Digital Video on Demand

Discovery Communications, Inc. (The Discovery Channel and The Learning Channel) is providing about 100 hours of educational video material for use in the project. This information, which is specially selected and indexed, includes professionally produced documentaries and other programming with valuable instructional content. It also contains professional development material created for programs such as "Teacher TV," which has aired on the Learning Channel. DCI is digitizing this programming to permit on-demand retrieval and high quality display via the Internet. All content is indexed to state and local learning goals, and can be located by keywords and phrases. Teachers may select segments of

video material to meet specific instructional needs. Materials from other sources, such as the National Archives, are also available.

Partners in the Baltimore Learning Communities project contribute to the program's success in a variety of ways: Apple Computers and Bell Labs are providing significant contributions in hardware and resources. Learning Matters, Inc. is producing CD-ROM's in support of the SCANS element. The Maryland Business Roundtable is facilitating the use of two-way video to allow students to "shadow" workers in a variety of occupations. The Maryland Institute, College of Art is helping middle school students produce TV programming through Baltimore Youth Television. The American Training Standards Institute, a non-profit organization, is linking school local area networks with a wide area network. The Educational Film Center is providing interactive multimedia, software, videodisks and video/print curriculum series. The Pelavin Division of the American Institutes for Research will perform ongoing evaluations, covering all four major elements of the project. Results of the evaluations and educational materials developed for the project will be disseminated through the Internet, professional publications, and documentary television.

Consortium Partners

AIR/Pelavin Associates, Inc.
American Federation of Teachers
American School Counselors Association
American Training Standards Institute
Apple Computers, Inc.
Bell Atlantic
Citizens Information Technology Education Center
COMCAST, Inc.
Discovery Communications, Inc.
Educational Film Center
Johns Hopkins University
Learning Matters, Inc.
Magic Me
Maryland Business Roundtable
Maryland Institute College of Art
Maryland Public Television
Maryland State Department of Education
Maryland State Teachers Association (NEA)
National Archives
NEA Center for Innovation in Education
Restaurant Association of Maryland
Space Telescope Science Institute
University of Maryland at College Park

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Newaygo County Intermediate School District

White Cloud, Michigan

Newaygo County Advanced Technology Service

The Newaygo County Advanced Technology Service (NCATS) consortium has been established to develop and maintain an advanced fiber optic cable telecommunication network that will enrich the education process throughout the county. The network's education program enhances educational opportunities for over 9,000 disadvantaged students and adults; improves the training and mutual support of the teaching staff in county schools; provides a delivery mechanism for improved curricula; and supports a unified effort among all county service agencies to coordinate their actions in dealing with the social, educational, and economic needs of local families. The network supports data, video, and voice communications capabilities that are available to all county residents. It connects all the county schools, the county seat, the hospital, libraries, private non-profit agencies, and area businesses. It provides student access to higher level curriculum in science, mathematics, and modern languages, and it supports professional development opportunities for teachers. NCATS is a replicable program with strong school-home, school-community, and school-work components. The program was specifically designed to help meet student outcomes envisioned in the Goals 2000 Act.

The need for this program is urgent. Newaygo County is one of the most rural, isolated and poor counties in Michigan, and almost half of its students live in poverty. The students of this county consistently score below state averages on the Michigan Educational Assessment Project (MEAP) in the fourth, seventh, and tenth grades. The consortium's program, which reaches over 9,000 students and their teachers, utilizes educational technologies and specialized program content designed specifically to help overcome these problems.

Specific objectives of the program include:

- Providing teachers and students access to network technology
- Increasing student achievement levels to state averages on standardized tests
- Giving parents and community members tools to assess student readiness for work
- Establishing a "single point of intake" system for County service agencies
- Creating a centralized data bank of student assessment tools and lesson plans for teachers
- Providing a county-wide profile of student achievement for use in professional development activities for teachers
- Creating electronic work groups where teachers collaborate to meet student needs
- Creating a delivery system for advanced courses in higher education
- Building an automated management system for teachers
- Establishing county-wide student outcomes in math, language arts, science, and social studies that conform to the Goals 2000 Act and the Michigan Core Curriculum for High School Graduation
- Creating new partnerships within the county that address educational and employment needs of area businesses.

The Fremont Area Foundation, the largest rural-based community foundation in Michigan, provides funding for the construction of the fiber optic network. The Gerber Companies Foundation provides support for the video distance learning component of the network. At appropriate locations throughout the county, the Newaygo County

government provides network access points where members of the public who do not have access to computers can pursue personal interests, check their children's school records, and obtain access to County services.

As the program grows, every teacher in Newaygo County will be provided a personal classroom workstation, and there will be a minimum of four workstations in each class for student use. Each school will be provided two computer lab settings where large class projects can be conducted. Video transmissions of specialized courses and other educational support products will be delivered through a broadband CATV network. The school district is equipping classrooms, a broadcast studio and a video production facility to coordinate video distribution, maintain production archives, and capture educational programming via satellite.

The District has entered into an agreement with Western Michigan University to conduct an evaluation of this project. The evaluation uses a variety of techniques, such as test scores, portfolios, focus groups, and surveys, to collect information pertaining to the effectiveness of the program. Data on qualitative and quantitative measures are collected, and feedback information is made available to project staff and stakeholders about the strengths and limitations of the project. This information is used to ensure that revisions and improvements are made in programs and processes.

This project brings together a strong consortium of public, private, and nonprofit institutions to implement a comprehensive plan to improve the education process in a rural school district.

Consortium Partners

Fremont Public Library
Fremont Public Schools
Gerber Memorial Hospital
Grant Public Schools
Hesperia Public Schools
Newaygo County
Newaygo County Multi-Agency Consortium
Newaygo Public Schools
White Cloud Public Library
White Cloud Public Schools

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Westside Community Schools

Omaha, Nebraska

The Community Discovered

"The Community Discovered: Integrating Art and Technology in K-12 Education" is a multi-element education program that uses technology to bring art museums and other educational resources to K-12 classrooms in Nebraska and 10 other states. The program targets over 40,000 students in rural and urban settings. Its main goal is to strengthen a nationwide community of educators engaged in creating integrated art-focused curricula in all core subject areas. The program contains a strong professional development component, fits within the framework of the Goals 2000 Act, and offers a broad range of extended learning opportunities. There are five major components:

1) The Electronic Art Museum in the Classroom

The Smithsonian Institution, the Getty Museum, the Joslyn Museum, the Sheldon Museum and the Museum of Nebraska Art are making more than 750 art images available to schools through the Internet, along with curriculum and contextual information for use by educators and students. Museum educators are providing educational outreach programs that use technologies such as the Internet, kiosks, and interactive multi-media.

2) Computer-Based Educational Strategies

In collaboration with private companies, educators of disadvantaged and underrepresented students are evaluating educational software for applicability to classroom settings and instructional objectives. In addition, a technology mentor cadre of 13 educators is producing a comprehensive Internet guide to arts and technology resources available in print, and through ARTnet, an electronic communications network managed by the Nebraska Department of Education and Prairie Visions: The Nebraska Consortium for Discipline-Based Art Education. These mentors conduct workshops to promote project activities, provide technical assistance via the Internet or telephone, and provide guidance in the selection of computer hardware and software.

3) Professional Development and Support for Educators

Through this program, educators of rural and urban disadvantaged students participate in two-week museum-based institutes to enable them to design curricula that use technology to integrate art and other core subjects. Students use electronic portfolios to record progress, and evaluators review the portfolios to provide guidance in improving art curricula. Participants access curriculum modules, digitized images and other museum resources through ARTnet. Through these activities, teachers gain valuable experience in reviewing, analyzing and integrating resources via the Internet. The program includes a comprehensive mentoring system, in which each teacher is assigned a technology mentor to assist with hardware, software and networking, and a curriculum integration mentor to assist with curriculum development and implementation.

4) Curriculum, Instruction and Assessment Strategies

A minimum of 632 curriculum modules are being developed and implemented, with a target of 90% teacher participation. The modules incorporate Internet digitized images and museum resources, multi-media projects, electronic portfolios, and other computer applications. Target student goals include improved attendance rates, improved student attitudes, and higher student performance. Students from up to 100 Nebraska districts will experience art modules developed through project activities.

5) Nationwide Community for art and Technology Integration

The program is stimulating cross-state partnerships with the goal of replicating project activities throughout the country. The project is

supporting four learning communities of educators and students. Each community is engaged in educational activities which integrate the arts and technology with other core subjects to enable students to achieve high academic standards. The communities are: 1) Nine Nebraska school districts serving isolated and disadvantaged students; 2) The nearly 100 school districts, nine colleges and universities, and four museums and art centers that comprise Prairie Visions; 3) Teams of arts education leaders in Colorado, Utah, Wyoming, Montana and Kansas; and 4) Regional institute grantees sponsored by The Getty Center for Education in the Arts at universities in California, Florida, Texas, Ohio, and Tennessee. A comprehensive evaluation of the entire project has been arranged through the Far West Laboratory in San Francisco.

The Westside Community School District has organized an effective consortium of museums, educational institutions and private industries that is using modern technology to bring some of the world's finest art into classrooms throughout the country.

Consortium Partners

ArtsEdge Arts and Education Information Network
Apple Computer, Inc.
Digital Visions, Inc.
Far West Laboratory for Educational R&D
Getty Center for Education in the Arts (and Grantees)
J. Paul Getty Museum
Joslyn Art Museum
Lexington Public Schools
M Power Multimedia Design Corporation
Museum of Nebraska Art
Nebraska Art Teachers Association
Nebraska Department of Education
Nebraska Educational Service Units #3, #7, & #13
Nebraska Indian Community College
Pacific Imaging Center
Prairie Visions: The Nebraska Consortium for
Discipline-Based Art Education
School District of Grand Island
Sheldon Memorial Art Gallery & Sculpture Garden
Smithsonian National Museum of American Art
The Kennedy Center
Winnebago Public Schools

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Manchester School District

Manchester, New Hampshire

The Manchester Challenge

The Manchester Challenge is a large-scale education reform effort that is integrating instructional technologies into the curricula of elementary, middle, and high schools in the greater Manchester, New Hampshire area. The project is being implemented in collaboration with the Manchester municipal government, nearby school districts, colleges, businesses, industries and technology vendors. Project technologies include instructional television, satellite broadcasts, multimedia telecomputing, and administrative applications. The program addresses recommendations of the Goals 2000 Act, and has strong school-community and school-work components. Over 28,000 students benefit from project activities.

The program is designed to provide all students equitable access to information technology, facilities and training. All participating educators are provided the equipment, training, time and on-going support to enable them to use information technology effectively. All schools throughout the district are being interconnected with a state-of-the-art network for voice, video, and data. Educators and students enhance the learning process with two-way video and audio distance learning classrooms, workstations in all classrooms, instructional television via cable, video production/reception via building institutional loops connected to media centers, multimedia workstations, high speed telecomputing, and a variety of other learning technologies. There are four major program elements:

1) Professional Development

The first year of professional development activities is directed at the high school level, and the remaining years are directed at both middle and elementary school levels. The program offers teachers a series of sequential professional development programs leading to the successful operation of multi-media workstations for classroom instruction. Teachers form learning teams in which more proficient teachers provide instruction and support for the less experienced. Training activities include instruction in the use of the Internet, the World Wide Web, and other technologies.

2) Curriculum Development

University faculty and education consultants assist Manchester teachers with curriculum development. Teams of teachers work independently to carry out curriculum development needed for interdisciplinary, thematic student projects. Teams are developed around common planning time and common student course enrollments. Curriculum units and projects are shared among teacher teams in all participating schools.

3) Technology Implementation

Utilizing the Manchester Challenge telecommunication network, students at all project schools may participate in distance learning classes that would not otherwise be offered due to low enrollment. Each distance learning classroom is equipped with multiple cameras, video displays, and a teacher control station. These classes are augmented by data networks through which faculty and students can share text materials and access relevant databases.

4) Partnership Activities

Consortium members contribute to the Manchester Challenge in a number of ways. The Manchester School District and the municipal government have made a strong commitment to the purchase of new hardware and software. All the other project partners contribute funding and/or in-kind services.

Goals of the project include better teaching, increased learning, organizational efficiency, enhanced communications, improved accountability, and reporting, improved community development, support for life-long learning, access to learning programs by citizens, sustained partnerships between educational and business

organizations, the exchange of information with other educational organizations, shared resources with business and public institutions, and an improved economic viability for the community.

Consortium Partners

Audubon Society of New Hampshire
Bedford School District
Cabletron
Central Paper Products
CHAMPS-Parent Group
Coca Cola
Community Improvement Program
Computer Learning Center
Continental Cablevision
Cyber-Space
Goffstown School District
Gossler Park Parent Teacher Group
Granite State Credit Union
Hallsville Parent Teacher Group
Lavalley/Brensinger Professional Associates
Manchester Chamber of Commerce
Manchester School of Technology
McLane, Graf, Raulerson & Middleton
Memorial High Booster Club
Morgan Press
Multimedia Systems Inc.
New Hampshire College
New Hampshire Department of Education
New Hampshire Public Television
Northwest Parent Teacher Group
Notre Dame College
NYNEX
Optima Health, Inc.
Parkey-Varney Parent Teacher Group
Public Service of New Hampshire
Queen City Sound
State Department of Education
Tech PC
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U.S. Army
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Pueblo of Laguna Department of Education

Laguna, New Mexico

Four Directions

"Four Directions" is an education reform project that blends American Indian culture with new educational technologies to revitalize curricula and instruction in Bureau of Indian Affairs (BIA) schools. Based on their urgent need, eight schools representing tribal groups in eight states have been selected as pilot sites for the project. Within five years the program will expand to include 24 BIA schools in locations throughout the country. The project involves K-12 students, parents, and members of their communities. The program has strong School-Home and School-Community components, promotes extended time for learning, and provides extensive professional development opportunities for teachers. Project activities include:

- Restructuring curricula to incorporate local cultures and values
- Collaborating across sites through on-site training, on-line tutoring, and cooperative teaming
- Creating networked "virtual communities" with Internet presence
- Encouraging life-long learning by extending technology support to communities surrounding project schools
- Maintaining a network database of teaching, assessment, professional development, and student-created resources
- Creating a research-based evaluation model

As the core of this project, each school develops an advisory team consisting of students, parents, teachers, paraprofessionals and community members. It is the responsibility of each team to develop authentic learning tasks that are relevant to students and that are drawn from the unique cultural context of each tribe. These tasks are then developed into "thematic cycles," central components of core curricula that allow the presentation of subject matter within a cultural context, and allow the cultural theme to be integrated into other subjects. As members of the team, parents and community members, including elders, are involved in the development of curricula and are involved in the evaluation of the project and its relevance to the traditions of the tribe. Targeted curriculum areas include art, mathematics, science, social studies, economics, geography, language arts and fine arts.

An integral part of this program are communications services provided through the Educational Native American Network (ENAN), an Internet communications service for all BIA schools. Each school is utilizing ENAN to produce World Wide Web (WWW) home pages that describe the school, its history and current activities. Technical support for the WWW effort is provided by the University of Kansas through the Unified Network InformaTics for Education (UNITE) system. The WWW pages also contain information about each American Indian group participating in the project. This information is shared with other schools and with non-Native American schools via the Internet. The WWW pages offer a look at the unique aspects of each American Indian group from the perspective of its own people. This provides students with a focal point for problem solving and for sharing the important cultural contributions made by each of the tribes. The project uses the WWW to disseminate project tasks, curriculum ideas, school information, tribal histories, and project results. Project technologies are used by students to perform research on thematic issues, develop learning activities on the themes, explore other disciplines that are part of the theme cycles, and provide access to their results for authentic assessment. Information and programs developed through Four Directions are available to a wide audience

through the Internet. Access to project technologies is available after school hours to students and their families, in a program to extend learning opportunities to the entire community.

This project contains a strong professional development component. Teams from each of the schools attend a 10 day training session held at the Southwest Indian Polytechnical Institute in Albuquerque, New Mexico. This training covers the development of thematic units based on authentic tasks, the integration of these units into the curriculum, and the use of technology. In addition, the project sponsors two technology training workshops annually at each of the schools.

Best practices reports, as determined by ongoing evaluation of the project, are made available through national conferences, the Educational Resources Information Center (ERIC), the National Clearinghouse for Bilingual Education (NCBE), the Eisenhower National Clearinghouse, and the World Wide Web.

The Four Directions project is a unique program that uses modern technologies to create enriched, integrated learning environments designed around Indian children's real life experiences.

Consortium Partners

Ahfachkee Day School, Clewson, FL
Dilcon Boarding School, Winslow, AZ
Fond du Lac Ojibwe School, Cloquet, MN
Hannahville Indian School, Wilson, MI
Heard Museum of Native Culture & Art, Phoenix, AZ
Indian Island School, Old Town, ME
Intel Corporation
Laguna Elementary/Middle School, Laguna, NM
Mathematical Association of America
Microsoft Corporation
Museum of Northern Arizona, Flagstaff, AZ
Quileute Tribal School, LaPush, WA
Sandia National Laboratories, U.S. Dept. of Energy
Southwest Indian Polytechnic Institute,
Albuquerque, NM
Takini School, Howes, SD
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Summit County Educational Service Center

Cuyahoga Falls, Ohio

NEW³: New Technology, New Knowledge, New Work

NEW³ is a broad consortium of educational institutions, government agencies, private businesses and philanthropic organizations dedicated to the goal of transforming teaching and learning in Summit County, Ohio by the year 2000. To meet this ambitious objective, the consortium has developed a program through which students use technology to complete substantive *new work* that meets high educational standards set forth by new local curricula, and the Ohio K-12 Competency Based Education standards. Utilizing the talents of business and community representatives, the project promotes life-long learning, through the use of technology, fits within the framework of Goals 2000 objectives, supports school to work principles, and has a strong professional development component. More than 88,000 students benefit from the program.

The NEW³ project addresses the needs of approximately 88,500 students in 18 school districts in and around Akron, Ohio. Six of the school districts have high percentages of economically and educationally disadvantaged students. The project centers on transforming the tasks used in learning and will include all grades, K through 12. NEW³ requires the collaborative efforts of the entire community, including educators, parents, and students.

A critical premise of the program is that school work needs to be redesigned so that it engages students in learning that they view as relevant to their world today and tomorrow. The Challenge Grant enables the Summit County Educational Services Center consortium to develop and implement a plan to design *new work*, to support a Technology Academy for teacher development, and to develop and implement a Technology Work Experience Program for high school and college students.

The first and primary goal of the program is to design *new work* for students -- work that engages, work with which children persist, and work that results in a sense of accomplishment. Learners develop competencies by engaging in authentic, meaningful and rewarding experiences that are valued by parents, community, and society at large. *New student work* is being designed and developed jointly with learners, communities, and the Center for Leadership in School Reform of Louisville, Kentucky.

The second goal is to expand teachers' understanding of how to create *new work* in partnership with students through coursework at the Summit County Office of Education's nationally acclaimed "Technology Academy." Here teachers learn about using technologies in the context of what children do, not what machines do. More than 2300 teachers will graduate from the Academy's intensive one year, 73 hour course of study in the five years of the NEW³ project.

The third goal is to design, develop, and operate a Technology Work Experience program through which high school and college students participate in educational and work experiences while maintaining and operating the classroom technologies supporting the NEW³ project. This program enhances school-to-work transitions by providing authentic technology-related experiences for participants. NEW³ has arranged for a major upgrading of school and classroom technology infrastructure. Improvements include computer network installation, electrical upgrades, new computer workstations, and acquisition of video equipment. The Work Experience Program is formed as a nonprofit company, operated by students, and dedicated to rapid response support for

this classroom technology. Funding for the classroom hardware is provided largely by the Ohio SchoolNet program.

The fourth goal is to develop educational software to support *new work*. Partnership with LOGAL of Cambridge, Massachusetts on the development of simulation-based, *new work* software is an important component of the NEW³ project.

A final goal is to provide teachers the opportunity to acquire the skills and knowledge needed to instruct students. Professional development activities are supported by the University of Akron, Kent State University and Ashland University. This includes developing performance standards relating to *new work* and technology. These standards are to be used in considering the employment of new teachers.

In addition, national panels of experts in mathematics, technology, language arts, science and other content areas are involved in assessing curricula and effectiveness. Ameritech, a cellular telephone service provider, is funding and operating two community-based computer centers in the City of Akron in support of NEW³.

By the year 2000, students will use technology to complete substantive *new work* that meets high standards; resulting in transformed schools, and, ultimately, self-sustaining communities of life-long learning.

Consortium Partners

Akron Regional Development Board
Ameritech Ohio
Ashland University
Center for Leadership in School Reform
Eighteen School Districts (Akron Area)
Galen A. Roush Foundation
Kent State University
LOGAL
Summit County Educational Service Center
Summit Education Partnership Foundation
University of Akron

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School District of Philadelphia

Philadelphia, Pennsylvania

Philadelphia's Technology Challenge Consortium

Philadelphia's Technology Challenge Grant Consortium has developed a comprehensive program to invigorate K-12 and adult education programs through the imaginative use of educational technologies. Incorporated within the Philadelphia School District's systemic reform effort, "Children Achieving," the program utilizes many of the latest developments in telecommunication, multimedia, and computer instruction to build new teaching and learning processes within small learning communities. The resulting "Virtual Schools" represent a fundamental and radical transformation of teaching to emphasize interaction and inquiry in the learning process. Over 55,000 students will benefit from the program in the first two years, and in the following three years the program will be expanded to include more than 210,000. The program encourages the development of infrastructure and partnership among the municipal government, the local school district, community service providers, and educational institutions at all levels. This is a replicable program with strong school-home, school-community, and school-work components. It provides effective support for professional development activities, addresses targets of the Goals 2000 act, and offers unique opportunities for extended learning. There are four primary goals:

1) Infrastructure/Networking (Universal Access)

This initiative builds an electronic communications system to connect students, parents, teachers and community members. The system enables citizens to enjoy easy access to the administrative and instructional staff of the School District of Philadelphia, and other local, national and global on-line information resources. The system may be accessed at three key school locations: library areas for parent and student access; teacher areas for faculty and support staff access; and office areas for administrative access.

2) Access to Information

There are two major components of the program's on-line resources: The Teaching and Learning Network (TLN) and the Family Resource Network (FRN). The TLN is a key link to an "effective practices" database which includes information on local and national curriculum resources, sample lesson plans, information on standards and assessment, discussion group opportunities related to teaching and learning issues, cross-referenced lists of all teaching and learning resources on the Internet, and on-line homework assistance. The FRN assists schools in identifying and providing health, mental health and social services to students and families.

3) Professional Development

Each school in Philadelphia employs a Subject Area Specialist in technology (SAS) who is responsible for organizing and supporting education technology efforts in schools, leading the effort to integrate educational technologies throughout the curriculum, and training other teachers at each school in how to use educational technologies effectively. A portion of the funding from this grant will be used to purchase additional professional development services, and to provide professional leave days for teachers to receive training from their school's technology SAS.

4) Virtual Schools

Using the new communications system implemented through this grant, the program distributes curriculum, instruction, and assessment information electronically through on-line centers of instruction called "Virtual Schools." These electronic classrooms offer services to adults seeking diplomas, homebound students, prison inmates, and other hard-to-reach populations. With the cooperation of Consortium partners such as Public Television Station WHYY, the Private Industry Council of Philadelphia, the Community College of Philadelphia, and others, Virtual Schools

offer General Education Degree (GED) coursework, English as a Second Language (ESL) coursework, and other curricula.

The other Consortium partners support "Effective Practice Sites" established within six clusters of high schools and their feeder schools. These sites are demonstration and evaluation laboratories for technology systems and educational strategies developed as part of the project. At one high school, the University of Pennsylvania and Bell Atlantic are developing an Internet communications system to support voice mail, E-mail, professional development, and curriculum development. Temple University is helping students at another school learn how to use the Internet as a resource for English, social studies, and other subjects. IBM is working with three schools to utilize new technologies to assist special education students and students for whom English is a second language. Public Television Station WHYY is lending another school its expertise in production, communication and technology to create a "virtual school." Drexel University students are assisting schools in the integration of new technologies across the curriculum, and emphasizing improvements in math education through the use of computer labs. Moore College of Art is enabling students to develop a wide variety of curricula on CD-ROM, utilizing student-edited video, still images, recorded sound and text. Materials can be distributed via a city-wide network that can support small electronic learning communities.

This project brings together a powerful consortium of public, private and nonprofit institutions to implement a comprehensive plan to improve the education process in an urban school district.

Consortium Partners

Bell Atlantic
City of Philadelphia
Community College of Philadelphia/Private
Industry Council of Philadelphia
Drexel University
IBM
Moore College of Art
Philadelphia Education Fund
School District of Philadelphia
Temple University
Unisys Corporation
University of Pennsylvania
WHYY Public Television

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Towanda Area School District

Towanda, Pennsylvania

New Vision

"New Vision" is a consortium of school districts, post-secondary institutions, museums and private industries that demonstrates the dynamic ability of emerging technologies to expand and improve educational opportunities in rural, remote, poor school districts. Under the leadership of the Towanda Area School District, New Vision is establishing "distance learning centers" at 23 local education agencies (LEA), six post-secondary institutions, and the State Museum of Pennsylvania. These sites are being linked electronically to a network of 40 schools and agencies committed to sharing local educational resources through interactive videoconferencing. Through its network, New Vision can offer high-level classes that are not commonly offered due to low enrollment; use exemplary teachers to cover hard-to-fill positions in several districts at once; conduct unique student workshops; and offer advanced placement courses. The project is establishing one of the largest interactive networks in the country, involving over 54,000 students in Pennsylvania, New Jersey and New York. Each of the LEA's has demonstrated its commitment to the project by agreeing to match 50% of all equipment costs with local funding. This program addresses recommendations of the Goals 2000 Act, emphasizes school to work training, and contains strong professional development and evaluation elements.

New Vision builds upon the success of the Northern Tier Rural Distance Learning Consortium, a distance learning organization established in 1992. This model program consists of six rural school districts in Northern Pennsylvania, and it is funded by a grant from Commonwealth Telephone Company. (No Technology Learning Challenge funding is being used to support Northern Tier programs.) The basic governing bylaws of the Northern Tier Consortium have been adapted for New Vision to form a network of regional consortia alliances consisting of the Cape May Consortium (New Jersey), the Adirondack Consortium (New York) and the Southeast Consortium (Pennsylvania). These organizations have agreed upon a four-phase implementation plan for New Vision:

1) Establishing Distance Learning Centers

Equipment purchases and inventory controls are centrally managed through the Northern Tier Consortium. All equipment purchased through New Vision is the property of each individual school district. All learning sites are fully equipped with the technology required to support distance learning classes.

2) Linking Schools

In cooperation with College Misericordia and the Northern Tier Consortium, New Vision provides a training program for coordinators at all sites to ensure understanding and proficiency in using the system. Training conferences create opportunities for all schools to define strategies for expanding participation of other districts and to modify the program to meet the needs of schools new to the program.

3) Sharing Resources

Each post-secondary participant provides services, programs and activities that can be shared cost-effectively with LEA's. Service components include adult evening programs, career counseling, academic counseling, dual credit high school courses, electronic field trips, peer tutoring programs, staff development, pre-college and pre-technical education, and curriculum development projects.

4) Linking to State Museums

The Pennsylvania State Museum offers electronic field trips, a teacher-to-historian information exchange program, curriculum development initiatives, and program packages that deal with issues and developments in state history and culture. New Vision is working with New York and New Jersey to develop a tri-state exchange agreement

between museums, historic sites, science centers, and participating school districts.

Each of the partners in the New Vision consortium provides a unique contribution to the program. College Misericordia conducts dual-credit college level courses. Penn State (Wilkes-Barre and Harrisburg campuses) offers college courses for adults, professional development, career counseling, and guest lectures. Lackawanna Junior College presents Adult Basic Education programs over the network, and provides network connections to the National Tele-Consortium and the Mid-Atlantic Consortium. Commonwealth Telephone company provides free bridging access and is assisting in linking the full consortium. The Pennsylvania Rural Electric Association is helping to disseminate information on New Vision throughout the country. Mansfield University is promoting post-secondary educational opportunities through the network. Atlantic County Community College (New Jersey) is providing technical/vocational training opportunities via New Vision. The PictureTel Corporation is establishing a videoconferencing system at the State Museum of Pennsylvania, assisting with network optimization, and helping to adapt the network for connection to such resources as historic battlefields, zoos, aquariums, science centers, and performance centers. The Center for Rural Pennsylvania is supporting a staff position to operate a networked cultural awareness program. Also, through the network, the State Museum of Pennsylvania provides links to its exhibits, planetarium, and other comprehensive educational resources.

New Vision is a comprehensive, replicable program that utilizes the technology of telecommunication to expand and improve educational opportunities in isolated school systems in Pennsylvania, New York and New Jersey.

Consortium Partners

Atlantic Community College
Center for Rural Pennsylvania
Claverack Rural Electric
College Misericordia
Commonwealth Telephone Company
Community Education Council
Harrisburg Area Community College
International Paper Company
Lackawanna Junior College
Mansfield University
Northeast Pennsylvania Tech-Prep Consortium
Penn State University (Wilkes-Barre & Harrisburg)
Pennsylvania Rural Electric Association
PictureTel Corporation
State Museum of Pennsylvania
Towanda Area School District
and 28 other school Districts in PA, NJ, and NY

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Black Hills Special Services Cooperative

Sturgis, South Dakota

Technology in Education Challenge for Rural America (TEC-RAM)

South Dakota's "Technology in Education Challenge for Rural America" (TEC-RAM) consortium has organized a state-wide, community-focused education program to advance the effective use of technology in restructuring schools by: 1) introducing innovative educational technologies in a statewide redesign of K-12 curricula, instruction and assessment; and 2) capitalizing on new technologies to promote student achievement. The program will impact over 14,000 rural students in the first year, and over 35,000 throughout its duration. Designed to respond to the Improving America's Schools Act, the Goals 2000: Educate America Act, and the School-to-Work Opportunities Act, this program integrates technology into a systemic educational reform effort that improves teaching and learning and leads to the attainment of challenging standards by all students. There are six critical elements of the program:

1) Restructuring

The initiative builds upon efforts by local school districts and communities to restructure school programs to conform with challenging state education standards and locally determined student outcomes. Through the integration of technology into this process, a broad cross-section of community leaders will participate in the articulation of a shared education mission.

2) Utilization

The project uses a collaborative approach for the design and evaluation of technology-enhanced curricula, instruction, and performance assessment. Teams of teachers, curriculum specialists, technology specialists and private software developers identify and implement interdisciplinary projects and strategies that engage students as active learners involved in authentic, community-based learning experiences. Some of the technologies being utilized include CD-ROM and other "open architecture" applications for student-directed learning experiences; interactive, multimedia applications developed by private business partners; multimedia educational materials developed by student/teacher teams; and inquiry applications that utilize the Internet.

3) Professional Development

TEC-RAM collaboration teams work directly in classrooms to model, involve, and support teachers in the process of integrating technology into effective standards-based curriculum and instruction. The collaboration teams include pre-service teachers, so that a major portion of both in-service and pre-service educational technology training can take place in actual classroom settings.

4) Replication

The program is designed to encourage replication in other rural school districts in South Dakota. The initial six demonstration districts serve as models for an additional 12 replication districts that will participate in TEC-RAM through an RFP process.

5) Inclusiveness

The program design is fully inclusive of all students, reflecting an even geographic distribution across the state. One of the initial demonstration districts serves an Indian reservation, which is located in one of the 10 poorest counties in the nation.

6) Access

TEC-RAM emphasizes access to innovative, cost-effective technology and telecommunication resources that enhance teaching and learning. This requires the development of cost-effective, interactive, multi-media applications that extend experiential

learning beyond the limits of the classroom and small rural communities. For schools located in isolated settings with limited communications access, TEC-RAM is implementing packet radio as an alternative to telecommunications via telephone line.

All partners in the TEC-RAM consortium contribute substantially to the human resource capability of the project. Based on their proven readiness, six local school districts have been selected as the initial TEC-RAM consortium demonstration sites. These districts contribute the time and expertise of administrative and specialist staff, along with the substantial, uncompensated time of direct educational staff. The Black Hills Special Services Cooperative, Technology and Innovations in Education (TIE) provides services through its Technology Demonstration and Training Center, the TIE Preview Center, and the TIE Curricula Center. TIE also provides access to South Dakota's Rural Development and Educational Network and several statewide programmatic resources. The South Dakota Department of Education and Cultural Affairs provides access to South Dakota's Rural Development Telecommunications Network. Spring Creek Productions provides video production expertise for the development of products to support project activities and for video-related training activities at the local sites.

The TEC-RAM project brings together a broad range of school systems, communities, state agencies and private industry for the purpose of introducing innovative educational technologies into a rural school system.

Consortium Partners

Aberdeen School District 6-1
Black Hills Special Services Cooperative
Black Hills State University
Dakota State University
Douglas School District 51-1
Hot Springs School District 23-2
Huron School District 02-2
Lake Central School District 39-2
South Dakota Dept. of Education & Cultural Affairs
South Dakota Dept. of Labor
Spring Creek Productions
Todd County School District 66-1

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Socorro Independent School District

El Paso, Texas

A Community of 21st Century Learners for El Paso

"A Community of 21st Century Learners for El Paso" is an ambitious program using technology to rejuvenate the schools in El Paso, Texas. The program goals are to produce within five years: 1) Ten restructured partner schools and a teacher preparation institution, fully connected to the Internet and its resources; 2) 120 teachers who integrate acquired technologies and national standards into the curriculum, and who serve as teacher trainers at 70 other schools; 3) 10,000 students from impoverished neighborhoods who bridge the academic performance gap in state and national standardized tests; 4) 1,000 Hispanic parents utilizing laptop computers in a program to provide technology knowledge and skills; 5) 100 business partners serving as mentors for 200 disadvantaged elementary and high school students; and 6) A "Community of Learners" development change model with emphasis on access to technology to be exported to the 55 schools that are members of the "El Paso Collaborative for Academic Excellence." The program has a strong School to Work component, integrates objectives of the Goals 2000 Act, and ensures ongoing professional development of teachers, administrators and university faculty. There are five major components of the program:

1) Connectivity

Through this grant, the consortium provides computer network connections in 110 classrooms in 10 partner schools. These connections are supported by appropriate software and hardware which includes CD-ROM capability, scanners, color printers, LCD projection panels, video cameras, VCRs, Newton notebook computers, and QuickTake cameras. Additional laptop computers are borrowed by low-income parents for use at home. Technical support is provided by two educational technology experts employed as non-tenure faculty.

2) Staff Development

The program provides resources for 120 teachers to obtain university certification in either of two programs: the Texas Technology Endorsement, or the Instructional Specialist Master's Degree program with emphasis on educational technology and curriculum integration. Each participant will train at least three other teachers in the effective use of educational technologies to improve academic achievement. Funding from this grant will enable the University of Texas at El Paso to provide a course of study uniquely structured for the needs of the participants.

3) Technology Access for Low Income Parents

Each participating school is developing a Parent Center designed to provide parents with training opportunities in English speaking skills, parenting skills, computer use, and instructional support skills. Families may borrow computers for extended periods of time in order to stimulate student achievement, promote parent awareness of the education process, enhance job potential for parents, and involve parents in school activities.

4) E-Mail Business Mentors

The consortium has organized a "Community and Business Liaison" project that is developing a business mentor program at each participating school. Each school is assigned 10 mentors from local businesses, and each mentor is assigned two students. Mentors will

demonstrate the many uses of electronic communications, and will maintain E-mail contact with students throughout the year, providing assistance with school work, and serving as a role-model example of the value of a good education.

5) Sustainability.

At the end of five years, all participating schools will have established an advanced level of network connectivity that will remain useful long after the project has ended. The program's post-graduate instruction opportunities will continue to be available at the University of Texas El Paso, and university faculty will continue the integration of technology and standards into their course curricula. Parent development activities will continue, including the role of parents as trainers of teachers for home visits. The El Paso Collaborative for Academic Excellence will disseminate information about the program.

The project provides for a detailed assessment of participants' performance within the university training programs, teacher performance in the school faculty development programs, and student achievement within the core curricula. Student performance is measured against national content standard guidelines for the arts, civics and government, English, foreign languages, geography, history, math and science. The project also provides for evaluations of parent participation and business mentoring support.

The El Paso Challenge Grant consortium is part of a city-wide collaborative for academic excellence, taking advantage of school, home, government and business resources. The program promotes a major systemic reform agenda for education in the El Paso region.

Consortium Partners

El Paso Chamber of Commerce
El Paso Collaborative for Academic Excellence
El Paso Community College
El Paso Hispanic Chamber of Commerce
El Paso Independent School District
El Paso Interreligious Sponsoring Organization
Region XIX Education Service Center
University of Texas at El Paso
Ysleta Independent School District

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Southeast Education Service Center

Price, Utah

State of Utah Resource Web (SURWEB)

The State of Utah Resource Web (SURWEB) is a telecommunication project providing educational opportunities for Utah students who live in poor, rural, or culturally disenfranchised communities. The program was conceived and implemented by a consortium of public and private agencies including Utah's educational service centers, institutions of higher learning, the Far West Laboratory for Educational Research and Development, museums, state parks, national parks, and Native American tribal councils and agencies. The program fits within the framework of the Goals 2000 Act, encourages school reform, and provides comprehensive professional development opportunities. More than 400,000 students will eventually be impacted. There are five major goals of the program:

1) Building Connectivity

SURWEB is a natural extension of two existing educational telecommunication projects in Utah: the Southeast Utah Regional Wide Area Network (SURWAN) and the UtahLink Project. Both networks have a proven record of providing dependable service to schools. The SURWEB project builds on these networks, and adds a World Wide Web capability that enables schools to develop on-line educational resources and applications.

2) Developing Curriculum Applications

A Curriculum Advisory Committee (CAC) guides the development of units of study supported by SURWEB. The CAC is composed of teachers, parents, business representatives, a Utah State Office of Education curriculum specialist, university curriculum specialists, educational service center directors, and information specialists from state agencies. Using state and national school reform goals as a guide, the CAC develops thematic instructional units which integrate subject matter disciplines, introduce real-life issues, and capitalize on local and state resources. Unit subjects include dinosaurs, red rock formations, Native American cultures, ecosystems, pioneering history, and other topics related to the region. This educational material is made available to Utah schools and schools throughout the country via SURWEB and other state networks connected to the Internet.

3) Providing Staff Development

SURWEB is developing and piloting a teacher training program called Utah Internet Institutes that provides instruction in utilizing the resources of the Internet. The Institutes train teachers to access resources via telecommunication, integrate resources into teaching and learning, and evaluate student projects completed over the Internet. In addition, the teachers learn to create their own Internet resources for dissemination on-line. The technical production laboratories at Southern Utah University and the College of Eastern Utah provide training components for the Institutes and assist in the production of related WWW resources.

4) Scaling Up SURWEB

As SURWEB's lead agency, the Southeast Education Service Center (SESC) is working with the other Utah education service agencies to expand the program throughout the state. In the first year of the project, the other service agencies are conducting a series of planning meetings in each of their regions to strengthen regional educational technology planning, coordinate planning across agencies, and integrate the SURWEB project into their plans. In subsequent years, SURWEB will install WWW servers at appropriate sites in each service center, so that these organizations may utilize SURWEB applications in educational technology programs.

5) Evaluating SURWEB

The Far West Laboratory for Educational Research and Development has developed and will implement an evaluation plan for SURWEB. The evaluation design calls for focus group reviews of the program, and large scale mail surveys of students, faculty, parents and community members. The evaluation process is designed to measure the value of SURWEB in changing in the way people seek information, the way they teach, and the way they learn.

Members of the SURWEB consortium are providing support for the program in numerous ways: the Southeast Education Service Center has contributed hardware and software acquired through a Rural Electrification Administration grant; Southern Utah University provides facilities and content specialists in support of professional development activities; the Utah Education Network is contributing the services of an Internet specialist; the Utah State Office of Education is providing ongoing high school maintenance support and Internet training for all teachers in the state; Far West Laboratory is developing and implementing an evaluation plan; the national and state parks and the Indian agencies are providing information specialists; US West is providing technical assistance for a user friendly WWW network. Novell, Inc. will extend education discounts to maximize funds and give more students access to the project.

Consortium Partners

Dinosaur National Monument

Far West Laboratory

Indian Councils/Agencies

National Parks System

Arches

Bryce Canyon

Canyonlands

Capitol Reef

Zion

Novell, Inc.

Office of Museum Services

Service Centers:

Central Utah Educational Services

Northeastern Utah Educational Services

Southeastern Educational Service Center

Southwest Educational Development Center

Southern Utah University

US West Communications

Utah Education Network

Utah State Office of Education

Utah State Parks System (includes 45 parks)

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Montpelier School District

Montpelier, Vermont

The WEB Project

The WEB Project, subtitled "Creating a WEB of Evidence of Student Performance in Nonverbal Inquiry and Expression," is a consortium of state agencies, private industries, and educational institutions that are utilizing new technologies to effect systemic reform in school systems throughout Vermont. The project utilizes multimedia telecommunication 1) as an educational environment for student inquiry and expression, 2) as a medium for presenting and evaluating student work, and 3) as a virtual faculty room for fostering professional discussions about standards of excellence in education. The focus of the WEB Project is the arts, humanities and the social sciences. More than 200 students are participating in the first year, and within five years the program will expand to involve over 2,000 students throughout the state. This program fits within the framework of the Goals 2000 Act, promotes professional development, contains strong evaluation and dissemination components and is designed to merge with the overall state education reform initiative. The program has three major elements:

1) Cooperating School Districts

In three pilot Vermont school districts, the WEB Project is demonstrating the connections between educational standards, curriculum, instruction and assessment. Each school district is provided five "computer suites" for use in central locations within schools. Students use these high performance computers to digitize text, graphics, and full motion video files for use by other students in a variety of educational projects. The program enables classes to:

- Focus on the articulation of K-12 standards of performance
- Prepare students to create multimedia presentations and electronic portfolios to demonstrate learning
- Digitize images of student performances as benchmarks of standards, and publish the images on the World Wide WEB (WWW) for assessment and feedback
- Increase student understanding of the roles of technology and its application
- Introduce or upgrade multimedia authoring technology and provide training in its use

2) Professional Organizations

With the cooperation of the Vermont Arts Assessment Project and the Vermont Alliance for Arts Education, the WEB Project is providing educational standards-based training to teachers who represent school systems across the state. These teachers receive computers and video cameras that are used to digitize educational materials for review, and they learn to assess student work according to the Vermont Arts Assessment standards. Their training and expertise are shared with other teachers in their districts.

3) Action Researchers

The WEB Project trains instructors to utilize multimedia in teaching dance, music composition, multimedia authoring, and other skills. Training is conducted by "action researchers," stationed at "action research sites" throughout the state. Action researchers provide technical support for the WEB Project, keep journals of student activities, and digitize performance information.

Through the WEB Project, students use technology to build on their knowledge and skills, and they are provided opportunities to practice what they have learned. They come into contact with a wide range of adults in teaching and mentoring roles, particularly working artists, writers, composers, videographers, dancers, historians and others. They expand peer relationships through

sharing work and reflecting on the work of others. They learn to evaluate their own work based on objective standards of quality. They learn specific skills related to using telecommunication and multimedia, designing World Wide WEB (WWW) pages, presenting their work via telecommunication, writing, problem solving, and making valuable connections between art, humanities, sciences and social sciences.

Through the WEB Project, teachers are provided numerous opportunities for professional development. Local schools release teachers for professional training, and provide time and resources needed to take advantage of the local capacities being built by the program. A core group of teachers in each participating school is given time every day to support project activities. Statewide partners include WEB Project schools in summer institute plans, follow-up activities and networking support.

The IBM corporation is working closely with the state of Vermont to support its educational reform initiative. Each of the WEB Project schools is receiving educational technology funding from IBM, as well as technical assistance in developing record-keeping software that may be marketed nationwide. The Vermont Institute for Science, Mathematics and Technology (VISMT), through a National Science Foundation grant, is helping to coordinate WEB Project activities with other education reform projects in the state, and conducting statewide professional development programs to promote the use of technology in education.

Through the use of technology, the WEB Project is helping to renew the teaching of arts and humanities, promoting systemic education reform, and encouraging professional growth in school systems throughout the state of Vermont.

Consortium Partners

Franklin Northeast Supervisory Union
IBM
Montpelier School System
Proctor Junior-Senior High School
Vermont Arts Assessment Project
Vermont Institute for Science, Mathematics, and Technology (VISMT)

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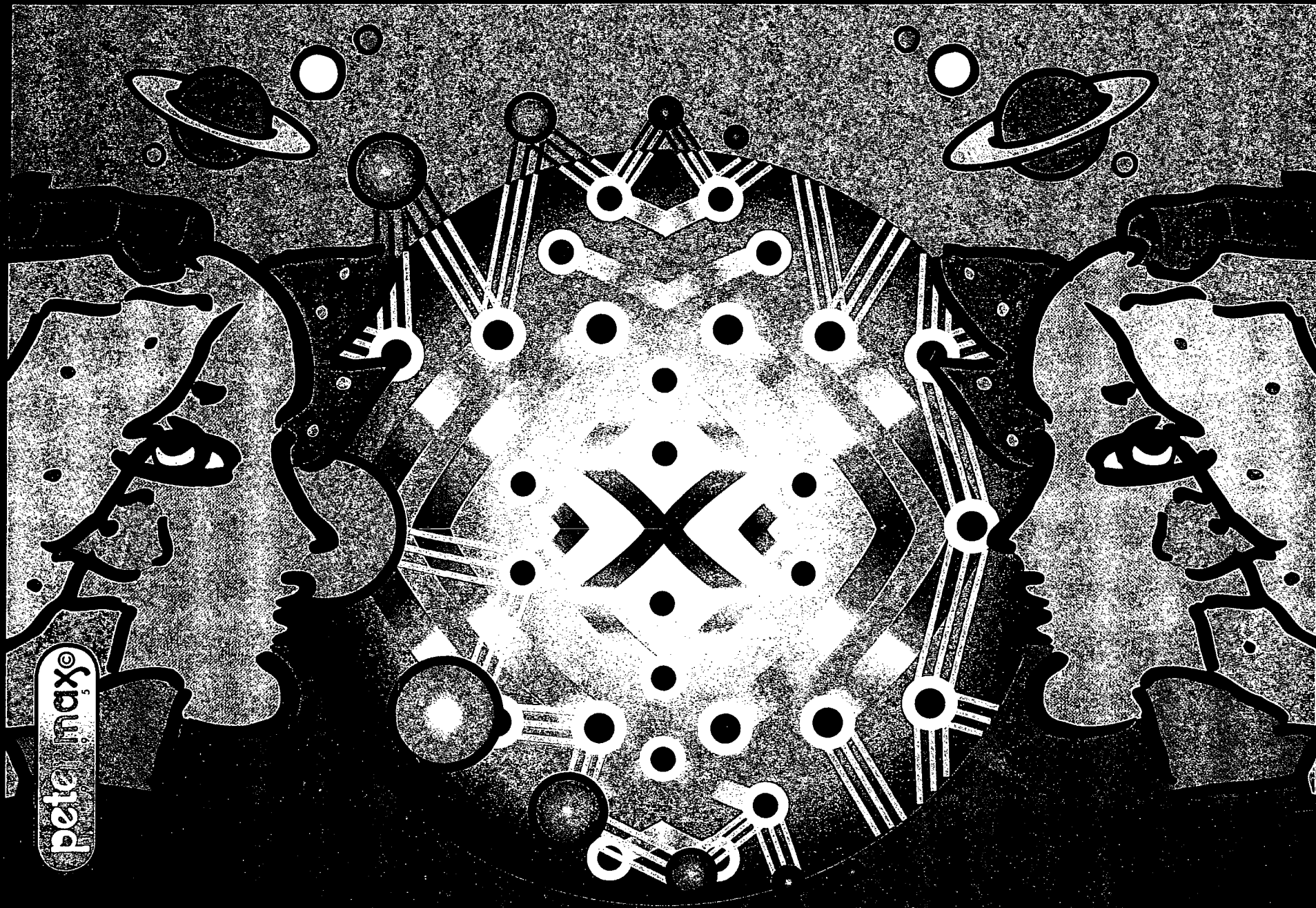
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pete max⁵

TECHNOLOGY LEARNING CHALLENGE