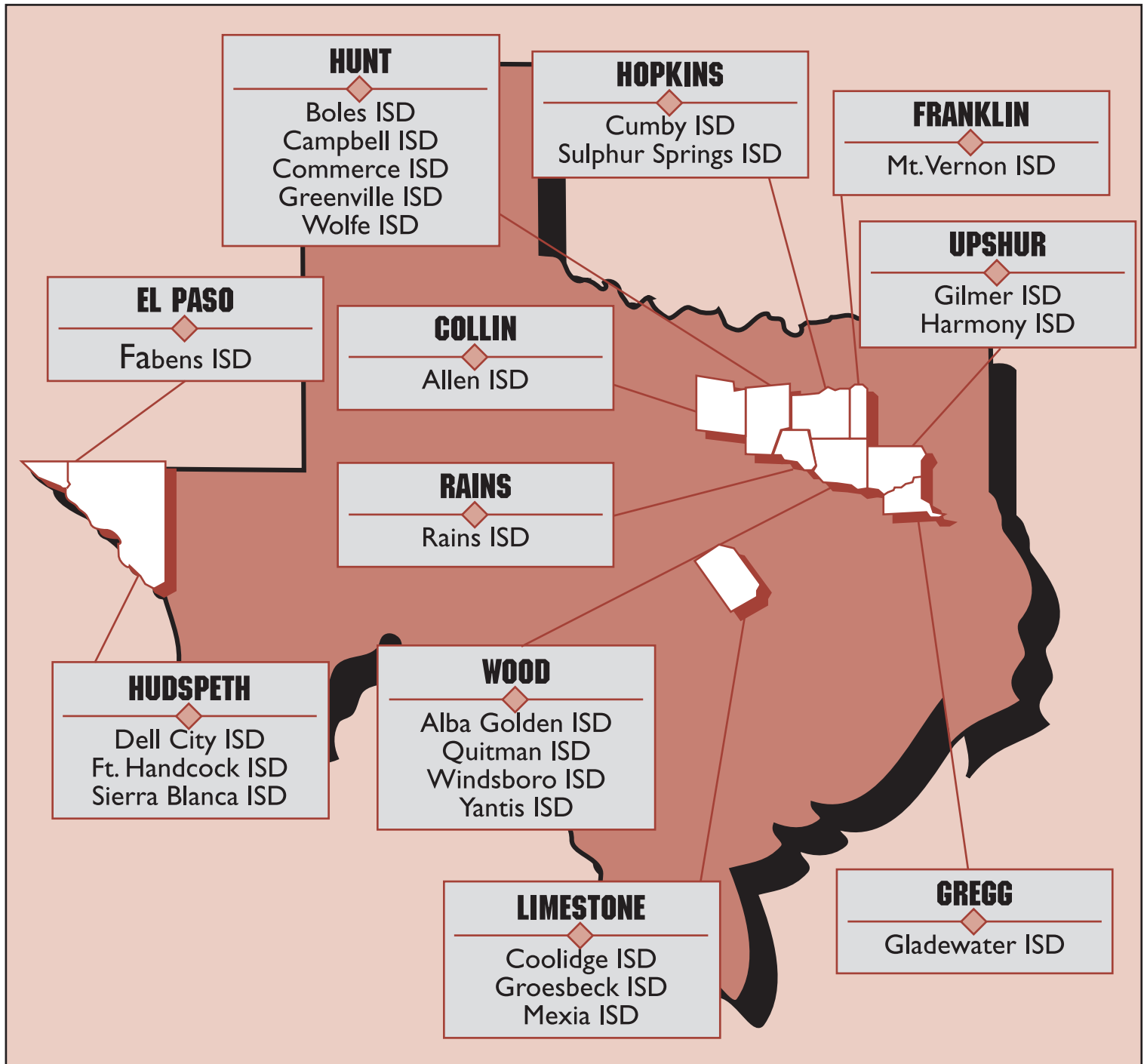


IMAGES

...OF TECHNOLOGY IN TEXAS SCHOOLS



...published by the
Texas Center for Educational Technology
University of North Texas



IMAGES of Technology in Texas Schools is published by the **Texas Center for Educational Technology**, a part of the Academy for Research and Professional Development in the **College of Education** at the **University of North Texas**.

This series of TCET Reports features Texas educators who each possess several common characteristics: a willingness to take risks, a drive to see the potential of all students realized, and a belief in the power of educational technology.

Inside the pages of each report, you will see how Texas teachers and administrators are developing new ideas about teaching and learning using technology. You will get a glimpse of how their ideas took form, how they got funding, and how they built their technology infrastructure. You will hear about their search for results, and their hopes of expanding each child's intellectual capital by bringing multimedia global information into each classroom.

You will hear the stories of new Texas pioneers, educators who bravely travel new, uncharted electronic highways, in order to take their students to a new century. ♪

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Twenty-four Texas School Districts Are Creating Connections With One Another

Introduction

School is no longer an institution — it is a center!

Rita Dobbs, director of the *Creating Connections* distance learning project explained: “We have used the word *institution* too long. It is a word I do not like because it has negative connotations. We refer to our schools as *institutions* of learning, *institutions* of higher learning. That implies that learning can take

place only in that building.

“What we would like to have as the norm is that learning occurs anywhere, everywhere, all of the time. With electronic delivery, there is no limit of time and place, and there is no restriction for any child or any person. Our children are not limited to an institution and only to what that building has to offer inside its walls.”

According to Peggy

Meathenia, director of the East Texas School-to-Work Partnership and former director of *Creating Connections*, “Schools are centers of information, resources, and activities. However, we’ll always need experiences in learning to work together and in team building. But this collaboration will have to be stronger than it has been in the past.” Dobbs extended the concept: “Now there is the opportunity also to learn to build teams at a distance and build relationships with people at a distance.”



Peggy Meathenia, (l), and Rita Dobbs (r) point out the extent of the *Creating Connections* Project.

“With electronic delivery, there is no limit of time and place, and there is no restriction for any child or any person.”



The *Creating Connections* Consortium

Creating Connections is an alliance of twenty-four school districts, six regional service centers, and two universities from 11 counties in East, Central, and West Texas, with the primary goal of implementing an interactive electronic learning system. Based on an expansion of ET-LINC, *Creating Connections* currently connects twelve school districts in the East Texas area, three districts in Limestone County, and four Far West Texas districts in El Paso and Hudspeth Counties. ET-LINC, under the leadership of Linda Porter, President, is the consortium of schools that submitted the *Creating Connections* grant proposal to TEA.

In 1994, ET-LINC applied for and received a planning grant for \$25,000 from the Texas Education Agency. In April, 1995, the Texas Education Agency awarded \$1 million to this consortium for the purposes of developing the electronic system and of delivering training, curriculum, and systemic change to schools via distance learning classrooms. In addition, the collaborative project has received another \$1 million worth of donated equipment and \$3 million in-kind contributions from schools and telephone companies.

The *Creating Connections* development is proceeding on a

phased basis. Initially eleven ET-LINC school districts and two universities, Texas A&M at Commerce (formerly East Texas State University) and Jarvis Christian College, were linked by a fiber-optic backbone. Texas A&M – Commerce is already offering college courses on-line. Jarvis Christian College doesn't yet have fiber optics, but there is the potential for cultural transmissions from Jarvis, as well as college classes. The consortium also wants to work with junior colleges to provide on-line courses.

By the end of September, 1996, eight of the eleven *Creating Connections* districts were broadcasting and receiving on-line: Alba-Golden, Cumby, Harmony, Rains, Yantis, Greenville, Quitman, and Winnsboro. Gladewater and Mt. Vernon ISDs joined the other schools on-line on January 6, 1997, and students from those schools started receiving dual-credit courses from Texas A&M at Commerce the following week. Gilmer ISD also came on-line in January.

The other East Texas districts in the project are Boles, Campbell, Commerce, Wolfe City, and Sulphur Springs. These districts will be seeking funding to develop on-line classrooms from a variety of sources. *Creating Connections* mentored a consortium of three schools in Limestone County — Coolidge,

Groesbeck, and Mexia. These schools have been awarded a \$250,000 grant from TEA to build their network in 1997. Gilmer, already on-line, is partially funded through the *Creating Connections* grant, which will provide consulting costs, training, and materials.

The West Texas districts are Fabens in El Paso County and Dell City, Ft. Hancock and Sierra Blanca in Hudspeth County. Three of the four El Paso area schools currently have T-1 systems operating. The emergence of these networks will accelerate because of funds that are being made available through the Telecommunications Infrastructure Fund (TIF).

Peggy Meathenia directed the *Creating Connections* project until July, 1996, when Rita Dobbs assumed that position. Meathenia became director of the East Texas School-to-Work Partnership when that project received funding to use the interactive network to expose students K-12 to a range of career opportunities through electronic communication and experiences.

The ET-LINC consortium meetings usually have two to three members from each district team. The group has bylaws and soon will become a 5013(C) organization in order to facilitate their plans. The ET-LINC is very cohesive, according to Meathenia. It has developed a common understanding of roles and



“Districts participating in *Creating Connections* very often list the ability to offer college courses for high school students as a major benefit.”

responsibilities, and it has a common mission; there is a high level of agreement because they have planned everything carefully.

Some of the anticipated course offerings include: a course from UT-Health Center, originating from Gladewater; French I, II, and III; Spanish III; Latin; health careers courses; SAT/ACT preparation courses; and TAAS math remediation.

The groups will also share faculty development sessions from a variety of sources. The Texas Alliance for Education and the Arts is working to set up staff development in math and reading. The group is also planning three cultural transmissions — in February for black history month, in May for Cinco de Mayo, and one other of the Alliance’s choice.

Opportunities in *Creating Connections* Classrooms

Districts participating in *Creating Connections* very often list the ability to offer college courses for high school students as a major benefit. “A vision for the future” is the reason Rains ISD became involved with the project, according to Cathy Killingsworth, technology contact person. Alba-Golden ISD assistant superintendent Ferrell Wright includes opportunities for adult continuing education classes through their interactive system as one of the reasons for participation in the project. “Future benefits seem to be limited only by creative planning from those involved,” Wright commented.

Mt. Vernon hopes to offer graduate and undergraduate courses to the community at night. “We see this as a great opportunity for our community to receive educational training without having to commute for two hours to a college campus,” said technology administrator Judy Lindley.

Greenville ISD is on-line with a fully operational distance learning classroom as of January, 1997, according to Linda Porter, technology coordinator for the district. One of the biggest challenges is coordinating all of the potential uses of the network among the various sites. Since not all schools operate on the same class schedule, beginning and

ending times of classes must be coordinated and adjusted.

Gladewater and Gilmer students can take classes from Kilgore Junior College which sends a teacher to the Gladewater site, and the class goes on-line to Gilmer.

Yantis ISD’s interactive classroom has been operational for more than a year. Lisa Burchfield, assistant administrator, said that technology has support from the Yantis community. The district is working with community colleges to try to reduce tuition costs, and talking with the PTA about possible scholarships so more students can take courses. Yantis hopes to achieve three goals when providing courses for the district’s students: (1) to offer courses that were once taught but are not now offered because of low enrollment, (2) to provide courses that are not practical for a small district to offer, and (3) to limit the need to transport students off-campus for

“Future benefits seem to be limited only by creative planning from those involved.”



courses.

Winnsboro ISD became involved with the project in order to meet the needs of the college-bound and gifted/talented students by providing upper-level classes, according to teacher coordinator Faye Gode. The district also has plans for continuing education classes for the community. Harmony has been on-line for about a year. Bob Davis,

technology coordinator, said that students are excited about being able to take college classes while still in high school.

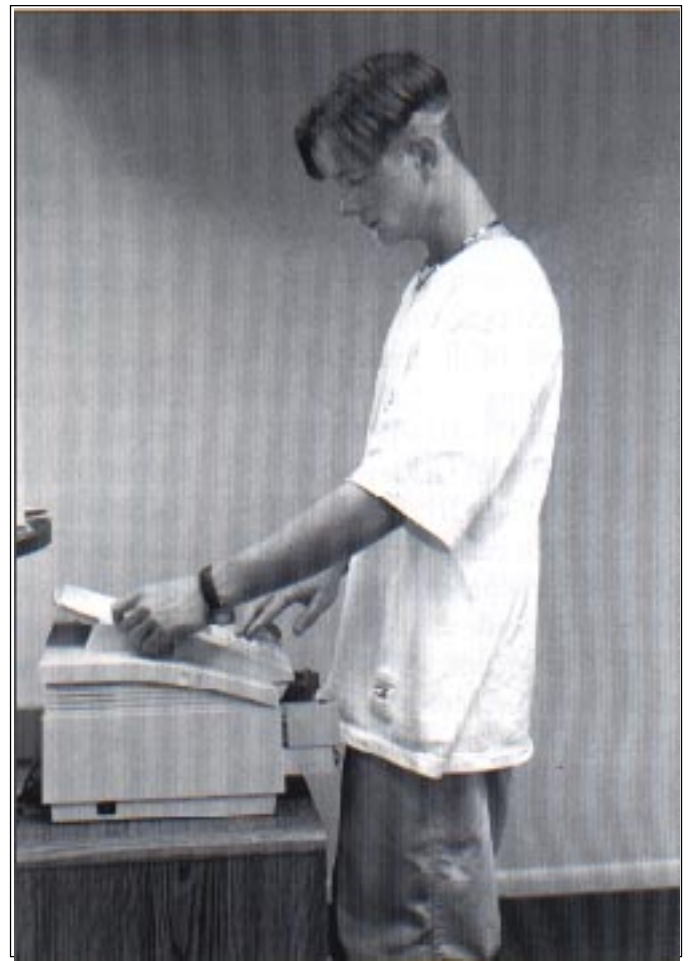
In the fall of 1996, Texas A&M – Commerce taught freshman English as a dual-credit course on a Monday-Wednesday-Friday schedule. There were about ten students at A&M and about 12 students at sites in Harmony, Alba-Golden, and Yantis. A psychology

course taught at 11:00 a.m. on Monday-Wednesday-Friday included students at Commerce, Yantis, and Alba-Golden.

Yantis High School senior Nathan Marshall is taking the college English course so he can get ahead. Nathan says that it's a challenge, but a really good opportunity that he enjoys. "You can't get away with anything," Nathan explains. Unlike someone



Lisa Burchfield explains that several Yantis teachers like to use the equipment in the "blue room," even though their class is not on-line with another site.



Yantis High School senior Nathan Marshall prints an assignment for his college English course.



on a regular television screen, the professor can see and interact with students at all sites. Also, if a student is absent for some reason, the site facilitator can tape the class for viewing when the student returns. Students can exchange papers for peer editing by faxing the papers to their A&M professor or to other sites. Nathan says this process helps writing by allowing a peer to offer a different point of view.

Joe Gonyea, a senior at Yantis ISD, reacts positively to his experiences in concurrent enrollment courses. "I love it. It's great," he said. He wants to accrue college credit while in high school. Without the interactive classroom,

his only options would be correspondence courses or night classes, which would involve commuting. Joe says that there's still a lot of personal interaction. And, as with regular classes, "You only really get out of a class what you put into it."

Dr. Mary Hendrix of Texas A&M - Commerce said the university has a special interest in offering graduate courses to meet the interest and needs of teachers and other adults who wish to pursue a master's degree or a doctorate. Teaching over an interactive system is challenging, Hendrix said. The good teacher will become better, through better planning and timing. Teachers

have to work harder to get students involved in the class. Psychology professor Dr. Mack Walling accomplishes this through his use of humor, PowerPoint for displaying important points, and through calling on students at all the sites. He also likes to zoom in on students in his own classroom while they answer questions, so that students at other sites can see them better.

Boles ISD provides access to the Internet through Netscape and TENET. Paula Kirby, Boles technology coordinator, sees the main benefit for their students as research capabilities. Sulphur Springs joined the project to keep track of the latest advances in distance learning and to participate in long-term use of distance learning technologies, according to technology contact Sara J. Blakemore.

In West Texas, Dell City became involved with *Creating Connections* because of the training opportunities and the possible connection with districts on the other side of the state, according to Kenneth Rohrbach, high school assistant principal. Because Fabens is a rural district, a migration into distance learning was a natural movement, according to Martha Veale, technology coordinator. Activities in Fabens have included student council discussions with other districts and a driver's education class. Sierra



Joe Gonyea, a senior at Yantis ISD, reacts positively to his experiences in concurrent enrollment courses.



In Yantis ISD, senior Joe Gonyea (right) attends a college psychology class conducted by Dr. Mac Walling (visible on the second monitor from left).

Blanca's superintendent, Lewis Rogers, commented, "I have been interested in the possibilities for this kind of educational system since the early 1980's. When the opportunity presented itself to get into the consortium, I jumped in." Sierra Blanca has a long list of hopes and dreams when they get on-line, with two classrooms equipped for two-way interactive instruction. Lewis expects to

vastly enhance the high school curriculum, including the technical vocational area.

Even without actually being on-line, the on-line classrooms are in demand because of their equipment. Gladewater classes are already using the classroom, according to Meathenia. "Even when we're not on-line, we have classes there because they want the use of the teacher's workstation, and the sound is terrific." In Yantis, the accounting teacher

uses PowerPoint for class presentations. The yearbook sponsor and students use the computer for their work. Students learn to improve their reading by being video-taped as they read stories. Storytelling groups also hone their skills by watching tapes of themselves. The third-grade recorder band likes to practice in the "blue room" so they can watch themselves on the monitors and on

video tape. Other sites report similar situations in their districts—many teachers see the advantages of being in the classroom, even without on-line instruction.

Planning

Meathenia believes there is a misconception in the state that in a year or eighteen months, an entire distance learning system can become fully operational. For ET-LINC, it has been a hard two years of implementation after the planning, which itself took about two and a half years. There can be a variety of delays. Even the weather can be a factor — the ground is too hard or too wet. It is a long process, because everyone in the schools — teachers, counselors, and administration — have to rethink everything that is going on. Curricula, lesson content, delivery styles, reporting, and many other considerations are involved.

"In the future, the students will be doing one of two things: they will either be sweeping around technologies, or they'll be working on them. We'd better be teaching students to work on them."

Students have liked their planning involvement with ET-LINC. *Creating Connections* has had students involved from the beginning as advisors. They ask, “Why didn’t you have this sooner?” The teacher coordinators were well-trained early in the process, and provisions were made for stipends.

Meathenia and Dobbs conducted a review of all the planning and technology implementation projects submitted to TEA in the spring of 1996.

“We’re going to have to rethink all the rules, procedures, and laws that currently bind us. . . . We’re now seeing the death of geographical distance.”

“And twenty-five per cent referenced us or had talked with us or had come to orientations with us as a model to help them in their efforts. Part of the reason we received a grant initially was the strong modeling efforts built into the program. We mentor whoever is interested — by phone, visits here, visiting with other consortiums, orientation sessions, presentations at conferences — it is

a variety of things. One of our goals is to help others shortcut the time and effort to build a similar system.”

Meathenia commented, “You have to stick your neck out, be willing to put a lot on the line, professionally and personally. In the future, if you consider the role of computers and advanced technologies in our public schools, the students will be doing one of two things: they will either be sweeping around technologies, or they’ll be working on them. We’d better be teaching students to work on them.”

Meathenia sees the advent of advanced telecommunications in our public schools as leverage for major change, which will require major breakthrough rethinking. “All of our rules, policies, and procedures and the way we operate as a global society have been based on maps and geographic lines. Here’s a township, here’s a county, here’s a state, here’s a country. All of our rules and procedures are geographically based. If you look at a globe connected by various telecommunication systems both aerial and terrestrial, they are not geographically bound. We’re going to have to rethink all the rules, procedures, and laws that currently bind us. We are now seeing the death of geographical distance. And that is what this project is about. We are only in

the initial stages of understanding of what this means to public schools.”

David Sharp, Gladewater superintendent during the planning phases, said that his former district’s interest in distance education is a result of a common vision in which the district creates more opportunities for students and extends classrooms beyond walls. Sharp’s advice for other superintendents: “It would be extremely difficult for any small school to venture into distance

“We need to use more consortiums and collaboratives to be successful, especially in technology.”

learning without a lot of outside expertise. We need to use more consortiums and collaboratives to be successful, especially in technology. The groups we need to consult are those like Texas Center for Educational Technology (TCET) and Cathey, Hutton & Associates, people who are not one-vendor specific, who will give you advice you can trust.”



“Unless we stay current, there’s no way we can address the needs of our students in public schools.”

Training

A major *Creating Connections* focus is training and professional development of teacher coordinators in the twenty-four schools in East, Central, and West Texas to help them become agents and leaders of change. Effective training of users is essential, especially for the Central and West Texas educators who have not had the benefit of prior experience with ET-LINC.

Training has played a very important role in *Creating Connections*, according to Dobbs. “We knew we needed training in order to make this work because technology is wonderful, but there is a fear of technology. Some of our students know so much more than we do, since many of us did not have the advantage of going through school and learning about this technology. Unless we stay current, there is no way we can address the needs of our students in

public schools.”

The project has provided training for all schools, beginning with orientation sessions in December, 1995, and continuing with additional sessions since that time. All schools in the ET-LINC consortium have participated in a minimum of five days of training on the use and applications of the system. Additionally, teams of teachers and administrators attended a three-day training session at Commerce in June, 1996. Schools in West Texas received stipends for teacher training, and trainers have conducted joint sessions. The Limestone consortium and ET-LINC schools participated in training at the Teletraining Institute in Stillwater, Oklahoma. In addition, El Paso area schools, Limestone County, and ET-LINC schools received stipends and travel expenses to send teachers to Texas A&M – Commerce for training in the summer of 1996.

All teacher coordinators received Trainer of Trainers manuals and an ET-LINC Interactive Classroom Operations Manual written and compiled by a consultant and the core team members from the districts. Customized manuals will be provided to the Limestone County and the West Texas Schools.

Orientation sessions have been customized for superintendents, education service

center staff, teachers, students, community representatives, and school board members. Dr. Carol Marshall provided training during the summer months on learning styles and how to utilize multimedia in class presentations. George Snider of the Teletraining Institute in Stillwater provided training for teachers in how to prepare to teach on-line and involve students at other sites.

In November, 1996, *Creating Connections* sponsored a workshop, “Internet for Audio/Video Classrooms,” which was offered at several ET-LINC sites for the convenience of the participants.

On December 12, fifty teachers and administrators received further staff development at the Greenville, Commerce, Yantis, and Harmony sites.

In December, 1996, Dr. Jerry Abraham from Upsala, Minnesota, used the Texas A&M – Commerce site to provide training for approximately 35 people from all 24 schools. Dr. Abraham is well-known nationally for his leadership and has been involved in networking for more than 12 years. He addressed pitfalls to avoid and provide ideas about what the system may look like five years from now.

Designing The On-Line Classroom

“You’re looking at the



future and how to get there," said Meathenia, as she looked over the soon-to-be-completed electronic classroom in Gladewater. Dobbs said their system is about half the usual cost of a packaged system, primarily because the monitors and cameras are off-the-shelf items. They designed their system this way to show that a school can develop a system with many off-the-shelf resources. "The key is the engineering behind it," Dobbs said. "Our engineer took the off-the-shelf materials and put them together in the classroom configuration for the ET-LINC schools." Cathey, Hutton and Associates of Austin designed the classrooms, which were then put together by subcontractor Ed Wood of Media College in Wimberley, Texas. The control panel that actually runs the classroom came from Media College. It is being redesigned now to make it simpler, easier, and more compact. The two local phone companies furnished the latest codec technologies for each site. (A coder/decoder is a device that converts signals to digital and splits them into audio and visual signals.) The approximate cost of each electronic classroom has been about \$48,000 to \$57,000 depending on the customized features.

The technology and the design of the classroom are customized to each district, although each will have basically

the same equipment. The Gladewater classroom has a teacher multimedia workstation at the front of the room. Above are four monitors, one for projecting materials to the teacher's class and three so local students can see remote students at up to three other sites. The monitors for the teacher's viewing are on the opposite wall.

The classroom has a full stereo sound system with a cordless mike for the teacher and recessed ceiling mikes. The audio system is programmed so that each time it comes on, it reconfigures the sound waves in that room, based on the locations of the tables and chairs.

There are three cameras in each classroom. One is a

document camera that will zoom in and out and focus on materials placed on the workspace by the teacher. The second camera is focused on the teacher, and the third camera is focused on the students. The last two cameras can zoom in and out, and also move up, down, to the left, and to the right. The sending teacher controls the image that goes out to the other sites. A facilitator at the receiving sites can control the view from the student camera that other sites receive.

The teacher's multimedia workstation has a computer with CD-ROM drive and a video player/recorder. The control panel also has a place for a laser disc player, should a district want to include



Peggy Meathenia checks on the progress of installation of the scores of wires required to make all the connections for a multimedia classroom at Gladewater ISD.



one. Other equipment includes a combination fax machine, copier, and printer; and a telephone connection for the Internet. The computer has software such as Windows '95, Adobe PageMaker, Microsoft Office Professional, and Print Shop Deluxe CD. It will also have a video capture device. Each classroom will have a laptop which can be checked out by teachers who teach electronically.

Connecting The On-Line Classrooms

Two local telephone companies, People's Communications, Inc. and ETEX Cellular Co., Inc., installed all the fiber optics at no cost to the schools. Installation costs run about \$17,000 per mile in rural areas and more in cities because of right-of-ways. The two companies charge monthly fiber fees at a flat cost, rather than a fee based on usage. They also provided the latest codec technology for each site.

People's Communications, Inc., at Quitman, has invested more than \$2.2 million in the ET-LINC project. Peoples supplied the switching equipment, costing more than \$200,000. Max Newton, CEO of People's, was raised in a family of educators, and he sees this project as a way of giving back to education. People's Communications laid the fiber optics for Quitman, Alba-Golden,

Rains, Greenville, Cumby, Yantis, Winnsboro, Mt. Vernon.

ETEX Cellular Co., Inc. in Gilmer has contributed more than \$500,000 to the project. Bob Hackette, CEO, pointed out that the equipment the companies are installing for this project is the best. ETEX provided the fiber optics for Gladewater, Gilmer, and Harmony. ETEX has also provided \$8,700 in scholarships for Harmony, Gladewater, and Gilmer. These funds allowed 21 students to take dual credit courses in the spring semester, with some students taking two courses.

According to Meathenia, most video-conferencing systems in the state have a T-1 connection, or a half or even a quarter of that capacity. *Creating Connections* uses a DS-3 signal transmitted over fiber optic cable. There are 24 regular phone lines in a T-1 line, and there are 28 T-1s in a DS-3 signal. "It's the amount of information coming down the pike. It's the speed, but it's mainly the amount of digital information that can be transported live. Not only did we get one of the DS-3s, but we have a build-out of three of these." The DS-3 connection means there is no compression, time delay, nor distortion in the video and audio.

"The other thing we are able to do because of the switching equipment that People's Communications has set up for us,"

Meathenia explained, "is to split it into three audio/video channels and one data channel, which is how we are connecting to the Internet. So we'll have three of these running simultaneously." The switching equipment is a DV-45 from Nortel (Northern Telecom).

Currently the consortium uses clusters of schools for transmissions. Four sites can be on-line at one time at any one site – one sending and three receiving – because that is the number of monitors built into the system. All eleven sites can be on-line at the same time, but not in the same cluster. For example, one cluster can have four sites (classrooms) on line at 9:00 am, while another cluster has four other sites on-line at the same time. The composition of the clusters can be changed as desired.

Even without fiber connections, the Central and West Texas districts are quite active with the resources they do have. "What we have right now in the West Texas area is a T-1 system because fiber is not readily available," said Dobbs. "The Limestone schools have the same problem in that there's no fiber in that area. The Limestone County Co-op received a \$250,000 grant, based on the work they've done with us. We've mentored them, and they received money to install district learning classrooms."





Students have four monitors (three showing) to view students at other sites and to view documents or images which the teacher projects from the camera, computer, VCR, or laser disc.



Karry McGhehey (l), career transition specialist, discusses the School-to-Work Project with Lynn Phillips and Nikki Seimears (r) teachers-in-residence who are developing publications and curriculum materials for K-12 classrooms.

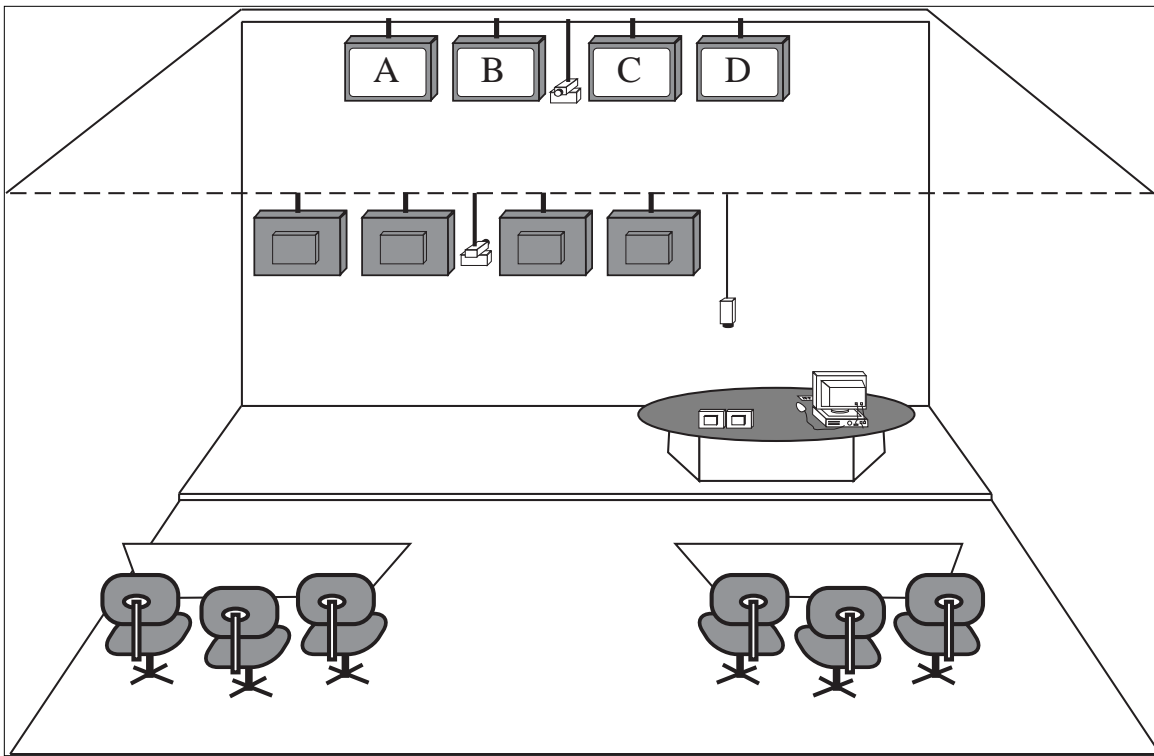
Dobbs said that the Muenster schools have had a T-1 analog system through their independent telephone company, which is considering adding fiber optics and the latest switching equipment and codecs in order to tie in to the ET-LINC system.

“The smaller phone companies are really leading the way,” Dobbs said. Meathenia agrees. “What we’ve seen in the state is that the independent phone companies for a number of years have been trying to provide the systems to the schools. Some have picked up the opportunity; others have not understood the opportunity. The TIF money has created an interest, finally.”

Additional Projects

Two additional *Creating Connections* projects, both of which are funded by grants, are deserving of mention at this point.

The Texas Alliance for Education and the Arts recently received a three-year grant from the Meadows Foundation in the amount of \$105,000. The grant will provide funding for five sites, including *Creating Connections*. The Texas Alliance will develop creative learning courses for summer and the regular school year for students in grades two through eight. Teachers, local artists, and teacher aides will be trained to implement these classes at distance learning sites.



Although electronic classrooms in the on-line districts have some differences, they have the same basic components: four monitors for the teacher, four monitors for the students, a document camera, a camera on the instructor, a camera on the students, teacher multimedia workstation, and microphones. (Courtesy of Cathey, Hutton and Associates, Inc., Austin, Texas)

The East Texas School-to-Work Partnership grant will use the telecommunications capabilities of ET-LINC to implement a career education program for the districts that are part of the consortium in East Texas. Objectives of this new program are to develop a K-12 curriculum that will align the foundation of academic skills with work-readiness skills and to expose students to a range of career opportunities through the telecommunications system. The Partnership is developing ways to connect electronically to various workplaces.

Elementary students will learn about the world of work and meet many kinds of workers,

electronically. Middle school students will find out what they're good at doing, learn what it takes to do well on a job, and electronically visit work sites. High school students will develop career plans that link today's choices with tomorrow's opportunities, take college-level and Partnership courses via distance learning technologies, and gain on-the-job experience.

Summary

Creating Connections, an outgrowth of ET-LINC, has provided an interactive distance education network involving twenty-four school districts, six regional service centers, and two universities throughout East,

Central, and West Texas. With a \$1,000,000 TEA development grant and an additional \$4,000,000 of donated lines and equipment, *Creating Connections* offers leading edge technology coupled with successful prior experience in distance education. Current participants are excited about the project's potential and are working enthusiastically to assure its success. ☺

TECHNOLOGY PROFILE OF The Creating Connection Project

LOCATION AND DEMOGRAPHICS: *Creating Connections* is an alliance of twenty-four school districts, six regional service centers, and two universities from 11 counties in East, Central, and West Texas, with the primary goal of implementing an interactive electronic learning system. Based on an expansion of ET-LINC, *Creating Connections* currently connects seventeen school districts in the East Texas area, three districts in Limestone County, and four Far West Texas districts in El Paso and Hudspeth Counties. Districts currently on-line are Alba-Golden, Cumby, Gilmer, Gladewater, Greenville, Harmony, Mt. Vernon, Quitman, Rains, Winnsboro, and Yantis. Also part of the consortium and expected to come on-line by July, 1997 are Allen, Boles, Campbell, Commerce, Coolidge, Groesbeck, Mexia, Sulphur Springs, and Wolfe in East and Central Texas. In West Texas, Dell City, Fabens, Ft. Hancock, and Sierra Blanca have also joined the consortium and will soon be on-line. Texas A&M - Commerce is the hub of the ET-LINC network on which *Creating Connections* is based. Jarvis Christian College will soon be on-line also.

TECHNOLOGY SUMMARY: The ET-LINC cooperative is managed in clusters of four sites with simultaneous audio and data, as well as continuous presence video. Users can select any combination of up to four sites to view simultaneously. The management of the networked sites is accomplished via a digital switch at People's Communication, Inc. in Quitman, Texas. People's Communication, Inc., along with ETEX Cellular Co., Inc. in Gilmer, have made significant contributions to the project.

Because all sites can see and hear one another in a synchronous setting, the arrangement is called a continuous presence network. Digital fiber optics services providing full-motion video, with simultaneous audio, data, and multimedia is achieved using DS-3 level services. A codec (coder/decoder) receives the signal and breaks it into sound and motion for transmission over T-1 lines.

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Texas Center for Educational Technology

The Texas Center for Educational Technology (TCET) stands as one piece of an impressive infrastructure created by the Texas Education Agency to bring the benefits of technology to Texas public schools. At the heart of TCET's research and development agenda lies its mission: to promote research and development collaboration between industry and education in order that technologies and applications can be integrated into the public school system.

TCET's organizational structure is uniquely collaborative. Public school educators, teacher training institutions, and technology vendors work together, sharing perspectives and creating a dynamic environment aimed at restructuring Texas public schools to meet the challenges of the 21st century.

All school districts in Texas receive a *free* membership in TCET. Corporations, non-profit entities, out-of-state educational organizations, and individuals are invited to join.

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