TEACHING AND LEARNING

Learning for the 21st Century requires new skills, new tools, and new knowledge. Students today must learn different ways to work with tools, different ways to work with information, and different ways to work with people. Our students will function in ever-changing and richly diverse workgroups that often cross national boundaries. One of the greatest challenges our schools face is ensuring that each student is equipped to flourish within a wide array of learning and work communities. Today's world demands this and technology facilitates it. Schools must also foster flexibility, for the 21st Century will demand that its citizens are able to deal with continuous and significant change. Finally, precisely because of ongoing change, Texas students must learn to learn. They must develop skills and habits of learning that will serve them for a lifetime.

Texas students are beginning this journey in our classrooms today. Students are using digital technology tools to access, analyze, and evaluate information; work to solve problems; and communicate in multiple formats with diverse audiences. For example, science is more engaging for students in Klein ISD as first graders illustrate the difference between spiders and insects using their laptops and productivity software. This level of technology literacy is accomplished through the Technology Applications TEKS integrated throughout the curriculum in Grades K-8 and in specialized courses in Grades 9-12. Integration strategies that began with the adoption of curriculum standards, continued when the State Board of Education called for instructional materials for Technology Applications. Instead of traditional print textbooks, these materials are subscription-based with a focus on electronic components, including online and/or CD-ROM lessons and activities.

Teaching and learning are also being transformed in numerous classrooms across the state through several innovative pilot projects. The Technology Immersion Pilot (TIP) was established to explore the impact of technology immersion on student progress by providing each student with a wireless mobile computing device and integrating software, online resources and other appropriate learning technologies that have been shown to improve student achievement.

The Texas Primary Reading Inventory (TPRI) pilot explored the use of a handheld personal digital assistant (PDA) to collect student performance data as teachers assess individual students using the TPRI. This pilot developed an application that saves teachers approximately 4.6 hours of time per class administration. The mClass TPRI is now in use in over 35,000 classrooms in 40 states. The Biology and Social Studies pilots explored the use of online resources aligned to adopted textbooks and correlated to TEKS and Texas Assessment of Knowledge and Skills (TAKS) objectives.

The benefits of online learning were first examined through the Virtual School Pilot and now will be extended through the Electronic Course Pilot scheduled for implementation in the spring of 2005. Quality of Service Guidelines and an evaluation matrix for determining the quality of online K-12 courses were developed through the IQ Pilot project.

The Texas STaR Chart is a planning tool that has been developed around the four areas of the *Long-Range Plan for Technology, 1996-2010* and is designed to help campuses and districts determine their progress toward meeting the goals of that plan. The following chart shows Texas STaR Chart results for the 2003-2004 school year in Teaching and Learning.

2003-2004 Texas Campus STaR Chart
Teaching and Learning

Early Tech **385 campuses** **5.4%**

Instruction is teacher-centered and students occasionally use software applications and/or use tutorial software for drill and practice. No technology integration occurs in the foundation subject area TEKS. Some K-8 Technology Applications TEKS are met; high schools offer at least four Technology Applications courses.

Developing Tech **4,173 campuses** **58.1%**

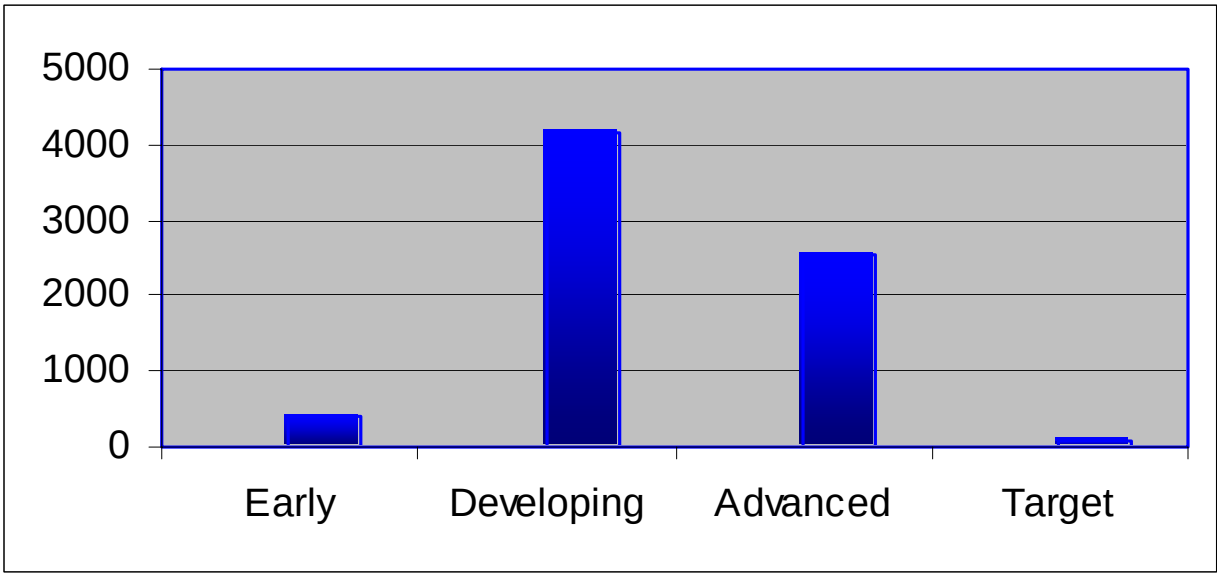
Instruction is teacher-directed and students regularly use technology on an individual basis to access electronic information and develop communication and presentation projects. There is minimal use of technology in foundation TEKS. Most Technology Applications TEKS are met K-8; high school campuses offer at least four and teach at least two Technology Applications courses.

Advanced Tech **2,535 campuses** **35.3%**

Instruction is teacher-facilitated and students work with peers and experts to evaluate information, analyze data and content in order to problem solve. Technology is integrated into foundation area TEKS, and activities are separated by subject and grade. All Technology Applications TEKS are met K-8; high school campuses offer and teach at least four Technology Applications courses.

Target Tech **93 campuses** **1.3%**

The teacher serves as facilitator, mentor, and co-learner. Students have on-demand access to all appropriate technologies to complete activities that have been seamlessly integrated into all core content areas. All Technology Applications TEKS are met K-8; high school campuses offer all Technology Applications courses and teach at least four courses.



Technology Applications Across the Curriculum

The Technology Applications curriculum includes the teaching, learning, and integration of digital technology knowledge and skills across the curriculum, especially in the core curriculum areas, to support learning and promote student achievement. “Digital technology” is the use of computers and related technologies such as digital cameras, handheld digital devices, scanners, and probes. Technology Applications is a required enrichment curriculum specified in Texas Education Code (TEC) §28.002. This curriculum defines the technology literacy and integration recommendations in the *Long-Range Plan for Technology, 1996-2010,* and the requirements for students and teachers specified in No Child Left Behind Act of 2001, Title II, Part D (NCLB). This curriculum was built on the premise that students acquire Technology Applications knowledge and skills in a continuum beginning at the elementary level and continuing through the secondary level.

There are Technology Applications student standards for Kindergarten through Grade 12. The Technology Applications TEKS are found in 19 Texas Administrative Code (TAC) Chapter 126 for Grades K-12. The goal of the Technology Applications TEKS is for students to gain technology-based knowledge and skills and to apply them to all curriculum areas at all grade levels.

In addition to the Technology Applications TEKS, Pre-kindergarten Guidelines for Technology Applications were made available to schools in early 2000. They communicate what three and four-year-old students should know and be able to do using digital technology.

The TEKS are divided into grade clusters for Grades K-2, 3-5, 6-8, and courses for Grades 9-12. The Technology Applications TEKS are divided into four strands for all grade levels.

Descriptions of Technology Applications Strands

I. Technology Foundations

Through the study of technology applications foundations, including technology-related terms, concepts, and data input strategies, students learn to make informed decisions about technologies and their applications.

II. Information Acquisition

The efficient acquisition of information includes the identification of task requirements; the planning for the use of search strategies; and the use of technology to access, analyze, and evaluate the acquired information.

III. Work in Solving Problems

By using technology as a tool that supports the work of individuals and groups in solving problems, students will select the technology appropriate for the task, synthesize knowledge, create a solution, and evaluate the results.

IV. Communication

Students communicate information in different formats and to diverse audiences. A variety of technologies will be used. Students will analyze and evaluate the results.

The Technology Applications TEKS describe how to use digital technology as specified throughout the foundation TEKS. For example:

- in English language arts and reading, students use technology to produce communications such as a class newspaper, multimedia reports, or video reports;
- in mathematics, students can use technology to solve problems by collecting, organizing, displaying, and interpreting data such as through the use of charts and graphs;
- in science, students use computers and information technology tools to support scientific investigations; and
- in social studies, students use digital technology to differentiate between, locate, and use primary and secondary sources to acquire information.

Students should demonstrate proficiency with the TEKS before they exit the benchmark Grades of 2, 5, and 8 as identified in the TEKS grade clusters. Every student at Grades K-8 should be taught the Technology Applications TEKS and applying these TEKS should be a part of their classroom curriculum. Rigorous state curriculum standards in Technology Applications specify student expectations for the technology literate eighth-grader in Texas as required in NCLB.

Technology Applications TEKS continue to be applied across the curriculum in Grades 9–12. In addition, there are eight Technology Applications high school courses.

The courses offer opportunities for in-depth study of technology at the high school level. The courses are designed to give students the knowledge and skills they can use while in high school as well as to prepare them for higher education or wherever they may go after high school. Students can learn advanced Technology Applications knowledge and skills in the context of the academic curriculum areas. For example, students:

- expand Desktop Publishing knowledge and skills in the context of English language arts as students develop a school newspaper or yearbook;
- expand Digital Graphics/Animation knowledge and skills as students bring physics concepts and principles to life;
- expand Multimedia or Web Mastering knowledge and skills through the context of world geography, where students use the technology to examine people, places, and environments at local, regional, national, and international levels; and
- expand Video Technology knowledge and skills in the context of mathematics as students develop video lessons teaching mathematics concepts to classmates and/or students in earlier grades.

Many Technology Applications teachers are certified in the curriculum areas of mathematics, science, social studies, and English language arts as well as in fine arts.

NUMBER OF STUDENTS ENROLLED IN TECHNOLOGY APPLICATIONS HIGH SCHOOL COURSES

Course Name	**1997-1998**	**1998-1999**	**1999-2000**	**2000-2001**	**2001-2002**	**2002-2003**	**2003-2004**
Computer Science	26,318	31,320	29,070	26,645	26,136	23,912	21,128
Desktop Publishing	271	3,125	4,907	7,495	10,044	13,650	13,226
Digital Graphics & Animation	20	1,405	2,401	3,892	5,333	8,602	10,328
Multimedia	142	4,649	5,687	6,398	7,882	10,643	11,068
Video Technology	54	789	1,037	2,146	3,247	5,252	6,125
Web Mastering	46	7,114	11,050	16,176	21,785	25,129	24,189
Independent Study	43	780	1,926	1,683	2,949	2,676	2,994
Total Courses	26,894	49,182	56,078	64,435	77,376	89,864	89,058

Source: PEIMS Data

Curriculum Requirements in Technology Applications

Districts must ensure that sufficient time is provided for teachers to teach and for students to learn the essential knowledge and skills in Technology Applications for Grades K-12. Curriculum requirements for this area are specified in 19 TAC Chapter 74.

The Texas Education Code requires school districts, as a condition of accreditation, to provide instruction in the TEKS at appropriate grade levels in all subjects of the required curriculum, effective September 1, 2003. The required curriculum includes both the foundation and enrichment subjects. Prior to the passage of SB 815, the TEKS were required in providing instruction in the foundation curriculum (English language arts, mathematics, science, social studies); whereas the TEKS were required only as "guidelines" in providing instruction in the enrichment curriculum (languages other than English, health, physical education, fine arts, economics, career and technology education, technology applications). This requirement impacts Technology Applications as an enrichment curriculum area. In Fall 2004, amendments to 19 TAC Chapter 74 addressed the change in enrichment area TEKS.

In Subchapter A of Chapter 74, the curriculum requirement related to Technology Applications at the high school level is provided. Districts must offer at least four of the Technology Applications courses in 19 TAC Chapter 126. This clarification became effective September 1, 2001. There are multiple avenues for offering the Technology Applications courses including distance learning. Many schools have taken advantage of dual credit/concurrent enrollment in colleges and universities to provide instruction in the courses. The results of these efforts have made it possible, especially for small, rural schools, to teach the Technology Applications courses.

All high school graduates are required to have one Technology Applications graduation credit under all graduation plans. The SBOE approves courses to satisfy the Technology Applications graduation credit. Students who take any of the eight courses in Technology Applications receive this credit. In addition, there are courses in Career and Technology Education that students can take to earn this credit. Students who complete three credits, including two or more state-approved Career and Technology Education courses, and pass a credit by examination in Technology Applications, may also receive this graduation credit.

Instructional Materials

Computer literacy and computer science materials were made available to schools in textbook adoptions based on Essential Element courses in the early 1990s. However, there were no adopted instructional materials in schools based on the Technology Applications TEKS at the elementary, middle, or high school levels until Proclamation 2001. Data collected from the Texas Campus STaR chart indicate that there is a need for these instructional materials in schools to ensure that students and teachers are learning to appropriately use the technology in their classrooms.

Technology Applications instructional materials, called for in Proclamation 2001-Volume I, were adopted by the State Board of Education in November 2003. This is the first time in Texas history that there was a call for subscription-based instructional materials in the area of Technology Applications. There are now adopted Technology Applications instructional materials for Grades K-12**,** including materials for all students at Grades K-8 and students in specific Technology Applications high school courses. The Technology Applications materials will provide all stu

dents and teachers at the K-8 level with the resources that they need to gain digital technology knowledge and skills while improving learning in English language arts/reading, mathematics, science, and social studies. The materials are intended to be used in each classroom for Grades K-8.

In addition, these materials will help campuses and teachers meet the Target Tech expectations, especially in the Teaching and Learning area, of the Texas Campus STaR Chart.

The majority of the materials adopted by the Board for Grades K-12 have electronic components, including online and/or CD-ROM lessons and activities. The Technology Applications materials are priced for every student at Grades K-8 to ensure that all students and teachers in each classroom have access to the electronic resources. At the high school level, they are priced per student based on course enrollment. The subscription-based pricing model allows for slight changes to be made, new information about a technological change to be included, or new student activities that address TEKS in the same manner as the original product to be added throughout the six-eight year adoption cycle. The response to this call was significant. A list of the adopted materials can be found at: www.tea.state.tx.us/textbooks.

The materials were scheduled to be available in schools in Fall 2004, but due to budget shortfalls, they have been delayed a year to Fall 2005 unless funds become available. School districts were encouraged to proceed with the local review, evaluation and selection of all Proclamation 2001 instructional materials.

Texas Campus STaR Chart Data for Column E, Integration of Technology Applications TEKS		
		Campuses
I.	Early Tech Within each grade cluster K-2, 3-5, 6-8, some but not all Technology Applications TEKS are addressed. At least 4 high school courses offered	1,636
II.	Developing Tech Within each grade cluster K-2, 3-5, 6-8, most of the Technology Applications TEKS are met. At least 4 high school courses offered and at least 2 are taught	3,641
III.	Advanced Tech Within each grade cluster K-2, 3-5, 6-8, all Technology Applications TEKS are met. At least 4 high school courses offered and at least 4 are taught	1,604
IV.	Target Tech Within each grade cluster K-2, 3-5, 6-8, all Technology Applications TEKS are met. Grade level benchmarks K-8 are met. All high school courses offered and at least 4 are taught	305

Source: 2003-2004 STaR Chart

Resources to Support Technology Applications

Schools have been using the Texas Campus STaR Chart as a tool for technology planning, budgeting for resources, and evaluation of progress in meeting the goals of the *Long-Range Plan for Technology, 1996-2010* and NCLB requirements that all students and teachers be technology literate. The Texas Teacher STaR Chart, released in August 2004, assists teachers in assessing needs and setting goals for the use of technology in the classroom to support student achievement. These two tools provide teachers, campuses and districts with valuable information that can be used to demonstrate compliance with these federal and state programs. The STaR Chart provides measures for assessing where schools are in ensuring that their students and teachers are proficient with the Technology Applications standards and that students have significant opportunities to take Technology Applications courses.

There are several funding opportunities that can support the Technology Applications curriculum. The Technology Allotment has provided $30 per student per year since 1992. With this allotment, schools can purchase hardware, software, and training to support the teaching of Technology Applications TEKS. Through the Enhancing Education Through Technology program in NCLB, there are funds that flow directly to schools by formula and through competitive grants. The TARGET Grants (Technology Applications Readiness Grants for Empowering Texas students and teachers) focused on serving high need students by accelerating local efforts to implement the recommendations in the *Long-Range Plan for Technology, 1996-2010* and meet the goals of NCLB. The grants support the Technology Applications curriculum, especially to assist schools in preparing for the subscription-based Technology Applications instructional materials that will be provided by the state through Proclamation 2001. In addition, there are state and federal grants focusing on specific curriculum areas and statewide initiatives that can be used to support the use of technology and the Technology Applications curriculum in Texas schools.

Technology Applications Website

The Technology Applications website provides official information and resources for implementing the Technology Applications curriculum. It includes information about the state and federal requirements, Technology Applications curriculum, Technology Applications TEKS, Technology Applications educator standards and certification, professional development, instructional materials, and Technology Applications graduation credit. Visit www.tea.state.tx.us/curriculum (Select Technology Applications).

Technology Applications Teacher Network

Beginning in 2002, the Texas Education Agency has provided technical assistance to all teachers through the Technology Applications Teacher Network. This web site provides resources for implementing the Technology Applications TEKS—addressing the technology literacy and integration requirements of NCLB for students and teachers. Resources include:

- Best Practices Videos;
- Professional Development Resources and Training Events;
- Certification Opportunities;
- Sample Classroom Lessons; and
- Technology Applications TEKS Resource Center.

To access these resources visit www.techappsnetwork.org .

Technology Immersion Pilot (TIP)
Evaluation of the Texas Technology Immersion Pilot (eTxTIP)

Technology Immersion Pilot (TIP)

In order to explore the relationship between student performance and educational technology in Texas public schools, the Technology Immersion Pilot (TIP) was enacted by the 78th Texas Legislature in Senate Bill 396. The purpose of the pilot project is to explore the impact of technology immersion on student progress by providing each student with a wireless mobile computing device and integrating software, online resources, and other appropriate learning technologies that have been shown to improve student achievement. Technology immersion is characterized by all of the essential components planned and implemented together in a coordinated approach.

These essential components include:

- wireless mobile computing device for every student and teacher;
- productivity tools;
- online curriculum resources;
- online formative assessment tools;
- professional development on all the components; and
- on-demand technical support.

TIP provides students and teachers the opportunity to integrate technology into all aspects of teaching and learning as outlined in the *Long-Range Plan for Technology, 1996-2010* and supported through the Technology Applications TEKS and State Board of Educator Certification Standards. These strategies also meet the student and teacher requirements in Title II, Part D of NCLB.

Evaluation of Texas Technology Immersion Pilot (eTxTIP)

The purpose of the Evaluation of the Texas Technology Immersion Pilot (eTxTIP) is to conduct a scientifically-based evaluation at the state level to test the effectiveness of technology immersion on middle school student achievement in core academic subjects. In particular, the evaluation will examine the association between technology immersion and student technology use, as well as the effect on the school environment, personnel, and parent and community partnerships. Most importantly, the research will determine the effect of technology immersion on both intermediate and long-term student outcomes. Outcomes include technology proficiency, performance on the Texas Assessment of Knowledge and Skills (TAKS), student attendance and dropout rates, as well as students' personal goals and aspirations.

The outcome of the TIP project holds great value to educational policymakers and leaders not only in Texas, but across the nation. The Agency was awarded a federal grant from the U.S. Department of Education in October 2003 to evaluate a component of this project using scientific research methods to provide evidence of the effectiveness of educational technology in K-12 education. In doing so, TEA will help increase the capacity of state and local education agencies across the nation to design, conduct, and procure high-quality evaluations of educational technology projects by demonstrating how scientifically based evaluations of educational technology interventions can be conducted.

Texas is one of only nine states to receive a grant under the federal Evaluation of State Educational Technology Projects (ESETP) program. The Texas Center for Educational Research (TCER) will serve as TEA's primary partner in the evaluation. The eTxTIP project will study 44 middle schools over a four-year period (two funded through ESETP), with 22 immersed in wireless technology and the other 22 serving as control campuses. The evaluation will examine the relationships that exist among contextual conditions, technology immersion, intervening factors (school, teacher and student), and student achievement in core subject areas. A theoretical framework identifies school, teacher, and student variables that may lead to student academic achievement.

In addition to employing a scientific research design with assignment of eligible middle schools to experimental and control groups, researchers will test the efficacy of empirical methods, practices, and instruments used to assess the impact of the technology intervention on student achievement and other indicators known to be associated with student success. The evaluation relies on a mix of qualitative and quantitative methods, including:

- document reviews;
- site visits involving interviews, focus groups, and classroom observations;
- teacher and student technology proficiency assessments;
- technology use logs;
- student, teacher, and parent surveys; and
- school and student data from the Texas Public Information Management System (PEIMS), the Academic Excellence Indicator System (AEIS), and the Texas STaR Chart.

PROJECT PLANNING

A major advantage of these companion projects has been the ability to plan the immersion pilot and the evaluation at the same time. In October 2003, the TEA and all the partners involved in the evaluation grant began developing the process for selecting schools to participate in the TIP project. In January 2004, the Agency released a request for Applications (RFA) for school districts to participate in the TIP project followed by a Request for Qualifications (RFQ) for vendors to provide technology immersion packages for comparability in the federal evaluation study.

REQUEST FOR APPLICATIONS (RFA)

Districts applied to be part of TIP in one of four configurations: as a whole district (all campuses); as a vertical team of campuses (one elementary school, one middle school, and one high school within a feeder pattern); as a single secondary campus (a campus serving any combination of Grades 6 through 12); or as a middle school campus serving only Grades 6 through 8. A total of approximately $14,500,000 was available July 1, 2004 for TIP grants for the combination of the 2004-2005 and 2005-2006 school years. There were 23 districts who were awarded TIP grants in amounts ranging from $232,000 to $950,000. These grants include (a) one whole district, (b) one vertical team (c) one secondary campus, and (d) 22 middle school campuses serving only Grades 6 through 8 (funded as experimental—or immersed—campuses). In addition, 22 middle school campuses were awarded $50,000 to serve as control campuses for the eTxTIP project. For more information, please visit the TIP website at www.txtip.info.

REQUEST FOR QUALIFICATIONS (RFQ)

To ensure comparability across the immersion campuses, TEA issued a Request for Qualifications (RFQ) to the vendor community in late February 2004 for technology immersion packages that included specific hardware, software, and other appropriate learning technologies, including professional development models, that have been proven to increase student academic achievement in the core content areas. The Agency established a rigorous review process for these proposals to ensure the quality of technology immersion packages being implemented in the evaluation study. As a result of this process, five technology immersion packages were approved by TEA for the Technology Immersion Pilot.

TIP Leadership Meeting

To ensure project implementation fidelity, the TEA hosted a TIP Leadership Meeting in Austin, Texas in July, 2004. This meeting provided critical information to Texas schools participating in the TIP and eTxTIP projects. Superintendents, principals, project directors, grant managers, technology coordinators, teachers and technology integration specialists were among the district participants. Information was shared on the evaluation requirements, the implementation process, potential local school district policy decisions, the grants process in general, and other related issues.

Schools participating in the study as immersed campuses had the opportunity to meet with their self-selected immersion package vendor, the TIP management team, and the TCER team to learn more about roles and responsibilities of each party involved. Districts participating as control campuses in the eTxTIP project received information about their participation in the study, data collection, maintaining the status quo and other issues. They also had opportunities to meet with the TIP management team and the TCER team to learn more about their roles and responsibilities.

My district, Clarksville ISD, received the only whole district TIP grant in Texas, and we are very grateful for having been selected. Eleven of us attended the TIP Leadership Conference in Austin. We were given the specific information we needed to implement, manage and evaluate the grant project. The staff made us feel comfortable and answered every question we had. This year will be my 23rd year as a superintendent, and I have never experienced this type of helpfulness from TEA.

Elaine Ballard, Superintendent
Clarksville ISD

Project Implementation

The TEA began issuing Notices of Grant Awards (NOGAs) in August of 2004. As districts began receiving their NOGAs, professional development activities began on those immersed campuses and teachers began receiving laptops. It was expected that all teachers on the immersed campuses would receive their laptops by early October 2004. Once all teachers on a participating immersed campus were trained on how to successfully use the technology immersion package bring implemented, the students at those participatin campuses received their laptops. Full technology immersion should begin once all students laptops have been deployed on a particular campus. All TIP campuses should be fully immersed by the end of December 2004. While participating TIP schools are gearing up for project launch and implementation, our research partners at TCER are visiting schools and collecting baseline data about technology use in the TIP schools. The evaluation activities which will examine the effect of technology immersion on student progress will not begin until the spring of 2005.

Project Dissemination

The TEA and project partners have also engaged in a number of dissemination efforts including presentations at both the state and national level at a number of conferences and meetings. A special TIP website, www.txtip.info, was launched in June 2004 to provide information to the general public. A companion site, www.etxtip.info will debut this fall to share more specific information regarding our evaluation efforts. TEA also participates in the State Educational Technology Directors Association (SETDA) Technical Assistance Project (TAP) which includes virtual roundtables with other Evaluating State Educational Technology Programs (ESETP) participants and provides opportunities to share information about our project with other states.

Districts Participating in TIP and eTxTIP

Whole District

Clarksville ISD is a small rural school district in Red River County on the Oklahoma border. The TIP project in this district will serve 969 students at Clarksville Elementary, Middle, and High Schools. The project is aimed at all pre-kindergarten-12th grade students in the district. The goal of the TIP project in this district is to move teaching into the 21st Century and prepare its students for the world in which they must live. Clarksville ISD will institute a multi-pronged approach toward increasing student achievement that will help prepare students for higher education and/or the workforce.

Vertical Team:

Irving ISD is a large urban school district located in the Dallas/Fort Worth metroplex. The TIP project in this district will serve 3,883 students and 315 teachers at Lively Elementary School (Grades K-5), De Zavala Middle School (Grades 6-8), and Irving High School (Grades 9-12). The project is aimed at all K-12 students within this vertical team. Irving ISD has been steadily moving toward technology immersion across the district for the past four years. The goal of Irving ISD's TIP project, *Learning for the 21st Century* (L21), is expansion of technology immersion to a vertical team of campuses within a feeder pattern.

Single Secondary Campus

Ysleta ISD is a large urban school district located in El Paso. The TIP project in this district will serve approximately 657 students and 40 teachers at Hillcrest Middle School (Grades 7 and 8). Ysleta ISD is committed to ensuring academic success at Hillcrest Middle School by using a technology-infused curriculum and a constructivist approach to teaching and learning. Their border population is heavily economically disadvantaged.

Middle School Campuses (participating in TIP and eTxTIP):

- **Brady ISD** is a small rural school district located near the center of the state in McCulloch County. Brady Middle School serves 291 students and 25 teachers.
- **Bryan ISD** is a large school district located in Brazos County. Stephen F. Austin Middle School serves 940 students and 83 teachers.
- **Charlotte ISD** is a small school district located in Atascosa County. Charlotte Middle School serves 118 students and 22 teachers.
- **Corpus Christi ISD** is a large urban school district located in Nueces County. The port city resides along the coast of Corpus Christi Bay. Baker Middle School serves 635 students and 22 teachers, whereas Cullen Place Middle School serves approximately 482 students and 25 teachers.
- **Dublin ISD** is a medium sized school district located in Erath County. Dublin Middle School serves 304 students and 21 teachers.
- **Floydada ISD** is a small school district located outside the Lubbock area. Floydada Junior High School serves 234 students and 22 teachers.
- **Fruitvale ISD** is a small rural school district located in Van Zandt County. Fruitvale Middle School serves 100 students and 10 teachers.
- **Galena Park ISD** is a large urban school district located in Harris County. Woodland Acres Middle School serves 412 students and 38 teachers.
- **Houston ISD** is the largest district in the state. However, Kaleidoscope is a district charter school with 120 middle school students and 6 teachers.
- **Laredo ISD** is a large urban school district sprawling more than 13.83 square miles, located in Webb County. The district is steeped in history and tradition. Joaquin Cigarroa

Middle School serves 1,617 students and 104 teachers and Memorial Middle School serves 918 students and 60 teachers.

- **McLeod ISD** is a small school district located in Cass County. McLeod Middle School serves 127 students and 9 teachers.
- **Memphis ISD** is a small rural school district located near Lubbock. Memphis Middle School serves 116 students and 13 teachers.
- **Monte Alto ISD** is a small rural school district located in deep South Texas right on the border of Mexico. The district is bordered by farmland all around. Located in Hidalgo County, Monte Alto Middle School serves 164 students and 15 teachers.
- **Morton ISD** is a small school district located outside the Lubbock area. Morton Junior High School serves 120 students and employs 18 teachers.
- **Newton ISD** is a medium sized school district located in Newton County, the easternmost county of the state. The town is located along the Sabine River of East Texas. Newton Middle School serves 287 students and 27 teachers.
- **Port Arthur ISD** is a large school district located in Jefferson County. Woodrow Wilson Middle School serves 837 students and 56 teachers.
- **Post ISD** is a small school district located in Garza County. Post Middle School serves 207 students and 19 teachers.
- **Presidio ISD** is a medium sized school district located in Presidio County. Franco Middle School serves 351 students and 29 teachers.
- **Riviera ISD** is a small school district in South Texas within Kleberg County located on U.S. Highway 77 fifteen miles south of Kingsville. De La Paz Middle School serves 129 students and 14 teachers.
- **San Diego ISD** is a medium sized school district located in Duval County. Bernada Jaime Junior High serves 360 students and 46 teachers.

Middle School Campuses participating in eTxTIP as control sites

Control schools are to continue with their current plans for integration of technology into teaching and learning and are not required to do anything differently because of the pilot. The evaluation will report the overall results of immersed and control schools and will not single out individual campuses or teachers.

The following districts have participating control sites:

Brownsville
Bryan
Cameron
Coleman
Corpus Christi
Cotulla
Edgewood
Galena Park
Hamlin
Harleton
Houston
Laredo
O'Donnell
Odem-Edroy
Ore City
Port Arthur
Seagraves
Skidmore-Tynan
Slaton
Timpson
Wellington

Texas Primary Reading Inventory (TPRI) Pilot

The Texas Primary Reading Inventory (TPRI) pilot project explored the use of a handheld personal digital assistant (e.g. PDA, such as a Palm Pilot) to collect student performance data as teachers assess individual students using the TPRI. A software-based version of the TPRI was developed for the pilot that runs on a PDA.

A teacher uses the PDA-based TPRI to assess the student. The student reads from print-based TPRI materials. Once assessment is complete, the PDA is synced with a computer and the software program uploads individual student data to a secure database via the Internet. The database then aggregates data for all students in a classroom and then makes it accessible back to the teacher on a secure web site. This web site offers various data analysis tools and recommended teaching intervention strategies that are tied to certain student performance benchmarks.

Project Goals

The primary goals of the project were to develop the handheld and secure web site applications, deploy them to a variety of classroom types across multiple school districts, successfully use them for TPRI administrations, and provide more useful student performance data immediately to teachers.

Other goals include:

- time and cost savings in administration of the TPRI;
- improvement in the reliability of teacher assessment activities;
- improvement in the depth and extent of teacher diagnostic analysis of student performance;
- improvement in the extent of teacher usage of assessment data to inform and adjust instruction;
- development of appropriate reporting formats for analysis of TPRI data;
- demonstration of effective integration of TPRI data into existing district and TEA systems; and
- demonstration of the ability to target teacher professional development based on needs identified through analysis of TPRI data.

Partners

The project involves a partnership between TEA, the University of Texas Center for Academic and Reading Skills, Region 4 Education Service Center and Wireless Generation.

Project Implementation

The goal of Phase I was to create TPRI software for the handheld and test this concept with teachers. To that end, work focused on creating a product that will allow teachers to administer the TPRI on a handheld device and analyze the results on both the handheld and the web. A competitive bid process was conducted to select a vendor to develop software applications for the handheld computers. Wireless Generation was selected as the vendor from this bid process.

During Phase I, a group of 25 teachers and administrators from three campuses were trained: Poe Elementary (Houston ISD), Roosevelt Elementary (Houston ISD) and I.M. Terrell (Fort Worth ISD). Since the TPRI is administered in Kindergarten, first and second grade, all teachers of those grade levels on each campus were included in the pilot. The first step on these campuses was to train participants to use the handheld. Since handheld devices were new technology for most participants, it was important to train teachers on the handheld before application training. This ensured that participants were comfortable and capable with the device itself. Teachers were then trained to use the initial TPRI handheld software.

After training, Wireless Generation conducted usability testing with a subset of these teachers to identify potential user problems and make changes to the application before finalizing the technology. Once the software was fully developed and tested, the system software was installed on each campus, and participants were trained on application usage.

Once trained, teachers used the TPRI application and administered five or six mock TPRI tests with students in their classes. Although this was not part of the official TPRI testing on these campuses, the mock TPRI tests were sufficient for testing user-friendliness and feasibility for actual TPRI administration. Initial estimates showed a potential time savings of 20-30 minutes per teacher per student.

The project entered its second phase of work in June of 2002. Phase II included refinement of the TPRI PDA application, training and website, and expansion to a significantly larger teacher population for actual use in fall administration of the TPRI. The pilot campuses administered the TPRI in the fall and reported great success.

The pilot was expanded during the spring of 2003 to include an additional 20 campuses, representing all 20 Education Service Center regions of the state. Reading specialists at each ESC were trained to provide professional development and support the use of the handheld application for teachers in their region. Pilot expansion campuses were trained by mid-April in order to administer the spring TPRI examination.

In addition to the pilot campuses, a number of districts expressed interest in using the handheld application during the spring of 2003. In order to accommodate this growing interest, a number of districts participated as "Early Adopters" and purchased the software and handheld devices. Teachers on these "Early Adopter" campuses were also trained by mid-April in order to administer the spring TPRI with the handheld application. The project was opened to all interested districts during the 2003-2004 school year. Due to the immediate success of the initial pilot, the mClass TPRI is now available to districts in Texas and across the nation. Over 35,000 classrooms in 40 states are using this tool. The Spanish version, the Tejas Lee has also been released and is used in many classrooms as well.

Project Evaluation

To help guide the implementation of future technology pilot projects, a list of critical success factors were established as a result of the initial Ed Tech PILOTS (1999-2001). Because the TRPI was structured around these components, the project was evaluated according to these critical success factors. In order to conduct the evaluation, staff from TEA engaged in on-site visits with participating campuses, conducted online teacher and student surveys, and interviewed project partners about their experience with the pilot.

In my 19 years of teaching this is the first tool that actually saves me time.

Jane Sophia, 2nd grade teacher,
Dezavala Elem. San Marcos CISD

Teacher Recommendations

Even though 87 percent of teachers participating in the pilot said they had no prior usage of handheld devices, 88 percent of teachers said they found the mCLASS: TPRI application easy to use. This comfort level that teachers experienced can be attributable to the high-quality training they received from their ESC personnel. In fact, 88 percent of teachers said they found the training to be extremely helpful and worthwhile.

The level of anxiety that teachers experience when implementing a new educational technology project is often high. The premise is that before teachers receive access to the hardware and/or software and participate in professional development activities, the anxiety level is at its highest point. This theory held true for the TPRI pilot. Before teachers received their hand-held devices and went through the mCLASS: TPRI training, the teachers were anxious about this new tool. After the training, 84 percent of teachers said they felt confident about administering the first assessment. Then, after the first assessment, 88% of teachers said they felt very confident about administering the set of assessments to students. After the first

administration, 94 percent of the same teachers said they were very confident in continuing to use this type of assessment in the future.

Perhaps, the more value-added concept for teachers is the amount of time saved using this electronic method of TPRI administration compared to the paper version. In fact, teachers experienced an average of 4.62 hours of time saved per class administration including data entry and aggregation. This equates to approximately 15 hours of teacher time saved per teacher per calendar school year.

When participating teachers were asked whether they would continue to use this method to administer future TPRI assessments, ninety one percent of teachers said they would. In addition, 93 percent of teachers said they would recommend the mCLASS: TPRI to another teacher. Because of this verbal affirmation by teachers, the value of this pilot project has spread to teachers not only in Texas, but across the nation. The Educational Technology office at TEA receives frequent inquiries from school administrators requesting information about this project because their teachers are advocating for this tool.

A key factor in implementing any new educational project is the support of the local school district administration. Ninety two percent of the teachers participating in the pilot said that their local administrators were very supportive. In addition, the participating teachers said that the level of support that they received from the vendor, Wireless Generation, was impeccable. The ESCs in Texas also served as a positive and important support role across the state for this pilot study.

We have used Wireless Generation for 2 years. I wish all our district programs worked as well as the TPRI! Great experience...this year, the program is completely teacher supported. I have not had to DO anything to assist them in adding new teachers, setting up classrooms, implement testing, or finalizing reports.

Joy Rousseau, Technology Director
Arp ISD

Biology and Social Studies Pilots

The Biology and Social Studies pilot projects explored the use of a Web interface as an access point for Biology and Social Studies-oriented curriculum materials that are aligned to the state Texas Essential Knowledge and Skills (TEKS) learning standards and learning objectives on the state Texas Assessment of Knowledge and Skills (TAKS) test. The curriculum materials themselves were drawn from the state's Texas Library Connection (TLC), which supported the K-12 learning community by providing access to online resources for teachers, students, and parents. The online education curriculum resources were specifically associated with individual Biology and Social Studies textbooks on the state's approved textbook list and were leveraged and aligned as lesson plans to cover TEKS/TAKS learning objectives. The ClassTrac interface allowed teachers to readily locate these materials within the Texas Library Connection web site.

Project Goals

The goals of the project were to:

- provide resources in key areas in which students fail to meet minimum expectations on Biology End-Of-Course Exams;
- provide resources in key areas in which students fail to meet minimum expectations on 11th grade TAKS Exam;
- provide teacher resources for TEKS in 8th grade US History, World History and World Geography aligned with TAKS;
- demonstrate time savings for teachers in locating and using relevant resources for targeted Biology and Social Studies TEKS and

TAKS objectives; and
- develop a successful model for methods of information dissemination and implementation training that capitalizes on existing human and technology resources.

Partners

The project involved a partnership between the Texas Education Agency, Region IV and VI Education Service Centers, the Gale Group, and the Publisher's Resource Group. Approximately 200 teachers from 46 school districts participated in the pilots.

Project Implementation

The initial customized web interface and Biology and Social Studies lesson plans using the Texas Library Connection resources were developed by the Gale Group and Publisher's Resource Group, respectively, during the spring of 2002. The prototypes were field tested with a small group of teachers and feedback was utilized to further refine the web interface and guide future lesson plan development.

The web site was consistently updated to reflect new and revised lessons. There were approximately 70 lessons loaded online, which cover both the Social Studies and Biology TEKS objectives that are tested on the TAKS test.

Training for the pilot was ongoing for pilot participants throughout the duration of the project; however, the formal training session took place via a videoconference in October of 2002. The project partners carefully planned to involve all levels of district administration (i.e. superintendent, curriculum coordinator, technology coordinator, campus principal, project director, librarian, etc.) in this project. All the pilot partners provided technical support for existing and piloted technologies to the participating campuses.

To help guide the implementation of future technology pilot projects, a list of critical success factors were established as a result of the initial Ed Tech PILOTS (1999-2001). Because the Biology and Social Studies pilots were structured around these components, the projects were evaluated according to these critical success factors. In order to conduct the evaluation, staff from TEA engaged in on-site visits with participating campuses, conducted online teacher and student surveys, and interviewed project partners about their experience with the pilot.

Evaluation

Data was collected regarding teacher and student use of pilot and TLC resources throughout the duration of the pilot. This data was continuously monitored by all project partners and adjustments were made as needed.

Project partners analyzed the data and changes were made to the project implementation plan during the monthly project collaboration meeting. Changes were immediately communicated to participating teachers.

The Biology and Social Studies pilots had an extensive planning phase where clear goals and objectives were established for the project. There was recognition that policy issues may arise that would need to be addressed during the pilot and each project partner appointed a project coordinator to dedicate time for pilot activities. A project timeline was created that allowed for collaboration, communication, adjustments, and feedback during the course of the pilot. A communication plan was developed to ensure all pilot participants were kept well-informed of project activities, including changes if any were encountered.

An evaluation plan was designed to measure the impact on participating students and teachers.

According to a survey of pilot teachers:

- 84 percent of teachers said this project had a moderate to major impact on their students' preparedness for the Biology or Social Studies portion of the TAKS exam;
- 89 percent of teachers said this pilot had moderate to major impact on students' engagement in learning;
- 88 percent of teachers said this pilot had a moderate to major impact on the students'

basic understanding of the concepts addressed;
- 81 percent of teachers said this pilot had a moderate to major impact on the students' ability to apply the concepts addressed;
- 91 percent of teachers said they had a home computer or a laptop they used to plan instruction; and
- 55 percent of all students in the pilot have an Internet-connected computer at home.

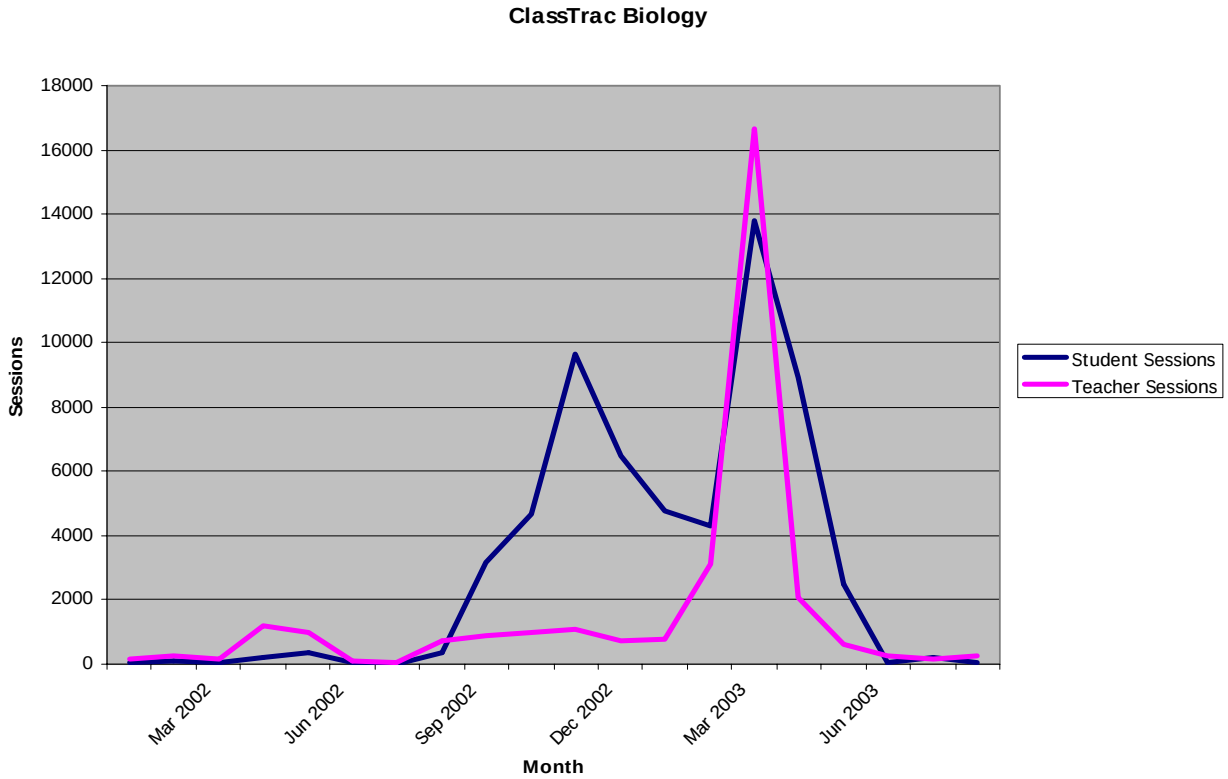
Teacher Recommendations

Most teachers recommended that to enhance this project, additional lessons need to be created to close the gap in lesson content and that more graphics and interactivity would help engage students. Teachers also requested additional instructional technology-related hardware for their campus so their students would have adequate access to these resources.

Other teacher recommendations are:

- specific technology professional development should be integrated into the project implementation plan to eliminate the pertinent knowledge gaps among participants;
- lack of technology expertise hindered their ability to effectively carry out this project;
- all necessary project hardware, software, connectivity and peripherals should be examined by project personnel to make sure they exist and are fully functional prior to the pilot; and
- timely access for students to use the technology is essential.

As of August 2004, ClassTrac2 was in development by the Gale Group, incorporating many of the lessons learned in these pilots along with additional functionality and content.



Distance Learning

Districts across the state are learning to use the power of technology to expand distance learning opportunities in ways that provide equitable access to a quality education for all students, and professional development opportunities to all educators, regardless of a district's geographic size, location or wealth.

Distance learning, accessible to Texas students through satellite, videoconferencing, and the Internet as well as through a blending of multiple technologies, gives schools the power to expand their curriculum offerings to students of all ages and to offer middle and high school students for-credit courses that wouldn't be available to them otherwise. It allows schools of all sizes, all economic means, from all corners of the state to overcome the limitations of their local resources. Educators can receive critical professional development in their home town—at school or at home—rather than by traveling to a distant location. Students can have the educational opportunities they need—from electronic field trips to credit recovery to courses required for the Recommended and Distinguished Achievement High School Graduation Plans.

The ready accessibility of the Internet has dramatically increased the ability of Texas schools to leverage this particular tool to make electronic courses a widely available option for students. The state's most recent program, the Electronic Course Pilot, focuses on exploring appropriate ways for the state to provide greater support to online learning.

For the 2003-2004 school year, 16,130 students received credit for courses delivered via distance learning.

Electronic Course Pilot

Senate Bill 1108 passed by the 78th Legislature calls for the Commissioner of Education to "*…establish a program to examine state policies, requirements, or restrictions impacting school districts that offer students enrolled in the district an electronic educational program or course that includes use of the Internet or other electronic media in which the student and a teacher are in different locations for a majority of the student's instructional period.*"

Through the Electronic Course Pilot (eCP) program, designed to implement TEC Chapter 29.909, TEA will gather data to develop and support recommendations that enable high-quality online learning and identify appropriate state funding mechanisms for these courses and instructional programs. The eCP recognizes that electronic courses and the Internet allow students to move beyond the limitations of the classroom and the limitations of time and space to receive instruction anywhere at anytime—not just at the school campus, during the traditional school day. This instruction may come from a teacher who is located half way across the state or nation. It recognizes that the state's current funding system is based on students' Average Daily Attendance (ADA) in a traditional classroom located at the school campus during the traditional school day.

This pilot also recognizes that the state must explore new funding models that give schools the financial support necessary to make use of the Internet to expand the increased learning opportunities available to their students through electronic courses. No funding was provided by

the Legislature for the Texas Education Agency to administer the eCP but the Commissioner was given the authority to charge schools applying to the program a fee.

Texas public school districts and open-enrollment charter holders interested in participating in the pilot program must submit an application. Schools selected to participate are allowed to waive restrictions for receiving Foundation School Program (FSP) state funding based upon ADA in order to be eligible to receive up to full state aid for students taking electronic (online) courses while off-campus.

The eCP Terms of Participation are available on the Texas Education Agency website at www.tea.state.tx.us/technology/ecp

Virtual School Pilot

The eCP builds upon the lessons learned from two earlier pilot programs, the Virtual School Pilot (VSP) and the Investigating Quality of Online Courses (IQ) Project. The VSP, which ended August 31, 2003 focused on restrictions impacting schools offering electronic courses to local middle and high school students who were not physically present for all or part of these courses.The VSP enabled the TEA to study methods of tracking student participation in online courses to establish the feasibility of state funding for these courses. The goal of a parallel program, the IQ Project, was to establish and pilot quality of service guidelines for online courses to provide assurance to the state and schools that courses meeting the guidelines will be of the highest quality, address student achievement and academic excellence and be aligned with the state's curriculum standards, the Texas Essential Knowledge and Skills (TEKS). A report with information about the 2001-2002 VSP and the IQ Project was sent to the Texas legislature December 2002. This *Report on Electronic Courses and Virtual School Programs* is available on the TEA website at: www.tea.state.tx.us/technology/wbl/index.html

Additional VSP Data Gathered Since the 2002 Report to the Legislature

Virtual School Pilot Number of Sites Submitting Funding Claims for VSP Students And Number of Sites Paid Additional State Funding		
	Number VSP Sites Submitting Funding Claims for Additional State Funding	**Number VSP Sites Paid Additional State Funding**
2001-2002	7	3
2002-2003	4	3
Total	**11**	**6**

Total number sites accepted into VSP—2001-2002: **24**; 2002-2003: **23**

Virtual School Pilot State Funding Summary			
Site	**Funding Model***	**Number Students For Whom Additional State Funding Paid**	**Approximate Additional State Funding Paid**
2001-2002 VSP			
Ranch Academy Charter School	A	8	$5,996
Southwest Preparatory Charter School	A	58	$45,305
University Charter School Online Campus	A	164	$158,466
Total		**230**	**$209,767**
2002-2003 VSP			
Ranch Academy Charter School	A	22	$19,970
Southwest Preparatory Charter School	A	161	$336,642
Water Valley ISD	A	7	$7205
Total		**190**	**$363,817**
Grand Total		**420**	**$573,584**

**Funding Model A, Contact Time—funding based on documented days of student participation in instruction within a 180-day instructional calendar.*

2002-2003 Virtual School Pilot VSP Students Enrolled Full-Time and Part-Time*			
	Number of VSP Students for Whom Claims for Additional State Funding Were Paid		
Number of Sites	**Full-Time** Enrolled in five or more electronic courses**	**Part-Time** Enrolled in three or four electronic courses**	**Total**
2002-2003 VSP 3 Sites			
Ranch Academy Charter School	9	13	22
Southwest Preparatory Charter School	161	0	161
Water Valley ISD	1	6	7
Total	**171**	**19**	**190**

*Students may enroll in a combination of electronic and traditional courses. Students enrolled in fewer than three courses are not eligible to receive additional state funding and are not shown.

2002-2003 Virtual School Pilot

Summary Data
For 2002-2003 VSP Students
for Whom State Funding Claims Were Submitted

Total Number of Distinct Electronic Courses in which VSP Students Enrolled: 31

Average Number of Electronic Courses in which a VSP Student Enrolled: 4

Top 15 Electronic Course Selections

In descending order

VSP Course Title	Number VSP Students Enrolled
1. Integrated Physics and Chemistry	70
2. Geometry	64
3. Algebra I	63
4. English II	59
5. US History	55
6. Biology	51
7. World Geography	50
8. English I	49
9. English III	41
10, Government	41
11. Economics	40
12. Algebra II	39
13. Mathematical Models with Applications	28
14. English IV	28
15. Sociology	28

VSP Student Grade Levels

Grade*	Number VSP Students
7	1
8	1
9	56
10	43
11	49
12	45

*A few students began at one grade level and advanced to another over the course of the year.

Instructional Setting

VSP Students for Whom Funding Claims Were Submitted	Traditional Classroom	Virtual: Onsite	Virtual: Offsite/Home	Virtual: Offsite/Other
193	0	11*	182	0

*Three of these students took some courses onsite but the majority of their courses were taken in a Virtual: Offsite/Home setting.

Investigating Quality of Online Courses Project

In August 2001, TEA began the Investigating Quality of Online Courses (IQ) Project to develop and implement a set of guidelines and an evaluation instrument for determining the quality of online K-12 courses. The goal of the IQ Project is to provide assurance to the state, school districts, parents and students that courses meeting the IQ guidelines are of the highest quality in all respects and that they address student achievement and academic excellence. Courses must compare favorably with the rigor and richness of traditional classes.

An increasing demand for online learning opportunities and a corresponding increase in the number of course providers in the state indicated a need for these quality assurance measures. No procedures existed at the time to evaluate online courses and to ensure the ability of these products and services to meet the needs of Texas' students, teachers, and schools. The IQ Project provides a mechanism to compare courses to a set of Texas-specific quality standards.

A set of standards was developed at the beginning of the project, the Quality of Service Guidelines for Internet-Based Courses, establishing research-based, best practices-informed criteria for high-quality online courses. These criteria include: alignment with state curriculum guidelines, instructional design, instructional activities to promote active learning, validity of assessment procedures, course delivery and support, security and administrative features, and degree of interactivity.

The IQ course evaluation instrument, known as the Quality of Service Guidelines for Online Courses Evaluation Matrix, incorporates the IQ Guidelines and was based on the work of Sonwalkar (2002) who developed an evaluation instrument for courses. The Quality of Service Guidelines for Online Courses and the Evaluation Matrix developed by the Texas IQ Project are online at http://www.iqstandards.info.

Validation Study

Most recent IQ Project activities include a validation study of the Evaluation Matrix instrument developed in earlier phases of the project. Use of the Evaluation Matrix results in a numeric quality score for each evaluated course. There must be assurance that the scores are fair and accurate representations of course quality. In order to determine if the scores are fair and accurate, validity and reliability of the instrument was investigated.

The study sought to formatively evaluate the IQ instrument by converging quantitative and qualitative data in a mixed methods approach. Results of the research were used to develop a set of recommendations to improve the validity and reliability of the IQ course evaluation instrument.

Scope of the Study

A sound instrument should demonstrate validity and reliability through consistency of results, correlation to results of independent evaluations that measure related qualities, and agreement of experts on the appropriateness of the instrument's content, format, organization, and language. The following research questions were explored in this validation study:

- Do IQ scores represent statistical consistency between evaluators and across courses?
- What are expert reviewers' perceptions of the ability of the IQ instrument to determine online course quality?

Correlation to evaluation results using another valid instrument was not investigated at this time.

Methodology

Evaluation of archived course evaluation scores from the IQ Project and new data generated during this study were examined. The archived data was used to perform statistical analyses of scores. Expert reviewers, recruited from a national pool of distance education professionals with extensive knowledge in the field of interactive online education, examined the Evaluation Matrix for evidence that it:

- identifies criteria known to be indicative of quality in online courses;
- is comprehensive in its listing of quality criteria;
- is logically organized;
- is presented in an appropriate format; and
- is presented in language that is clear, precise and unambiguous.

This mixed methods design resulted in the collection and analysis of both quantitative and qualitative data.

Conclusions

The data collected in this validation study suggest the IQ instrument requires some revision and additional pilot testing to make it maximally effective and able to produce results meaningful to the intended audiences. Statistical analysis of the Phase III data indicated moderate reliability of the instrument overall (the degree to which results are dependable and consistently measure particular quality criteria). This indicates that the instrument is probably capable of accurately measuring quality. The high degree of variability between evaluators, however, indicates a problem with the use of the instrument that must be corrected. Possible solutions include stricter selection of evaluators, more training for evaluators, simplification of the evaluation instrument, or changes to the evaluation procedure.

The wide differences in the ratings of similar subject matter areas presented by different providers may or may not be an area for consideration. Even through casual observation, it was apparent there were wide differences in the quality of online courses evaluated during this project. There were also differences in the types of online courses submitted. It is not surprising therefore, that analysis of evaluation data would show wide differences in course quality scores.

Intraclass reliability measures for the 11 subject areas that had multiple providers were mixed. The highest reliability ratings were achieved in the areas of Spanish I and Geometry. Upon examination of these evaluations, it was noted that all Spanish I and all Geometry course evaluations were performed by the same sets of three reviewers. Conversely, few of the courses in the lowest rated areas, English I and English II, were rated by identical sets of reviewers. This would suggest the importance of limiting the number of reviewers in any given subject area.

In general, expert reviewers of the IQ instrument indicated agreement that the IQ Guidelines accurately describe measures of K-12 online course quality. The design of the instrument with regard to the calculation methods used and the number of guidelines rated was questioned however. According to the expert reviewers consulted, changes to the instrument are necessary to ensure its validity.

A detailed report of the validation study is being prepared and plans are underway to improve the Evaluation Matrix and continue the important work of the IQ Project, as resources will allow.

Interest in online courses is expanding across the K-12 education system and strategies for examining the quality of online courses continue to gain importance. Many states, districts, universities, companies, and other entities develop and deliver online courses to K-12 students. Parents, teachers, school leaders and students seek ways to examine the quality and content of online courses as they consider the investment of time and resources into this delivery method. The Quality of Service Guidelines and Evaluation Matrix developed through this project is a first step in meeting this need in Texas.

School Libraries

The Texas Library Connection

From 1995 through 2003, the Texas Library/ Learning Connection (TLC), administered by the Texas Education Agency, provided students, educators, and parents access to online full-text databases at no charge to schools. The TLC databases included electronic magazines, reference materials, newspapers, maps, encyclopedias, and a catalog of over 5,000 school library holdings including over 50 million items. These databases were accessible twenty-four hours a day, seven days a week no matter the size of the school, geographic location, or economic status. The databases were accessible from the classroom, the school library, and from the students and educators' homes.

Students learned how to access and use these online databases as needed for classroom research projects and were provided instructions including identification and passwords to access the resources from their homes. Parents could

utilize the resources for their own information needs. As of February 2003, TLC served: 4,101,278 students; teachers/librarians at 5,944 campuses; and 1,052 Texas Independent School Districts and Charter Schools.

TLC was a statewide educational technology initiative developed in support of the *Long-Range Plan for Technology, 1996-2010.* This initiative was authorized by Senate Bill 5, Rider 61, 73rd Legislature. Due to budget shortfalls in the 78th Legislative Session, TLC was not funded. After August 31, 2003, the full-text TLC databases (magazines, reference materials, newspapers, maps, and encyclopedias) were no longer provided to Texas schools by the state. Because TEA owns the data in the TLC Union Catalog (catalog of over 5,000 school library holdings including over 50 million items) and because of its use in public school libraries across the state, TEA authorized a license agreement to make the data available through a cost recovery model to Texas public and charter schools. Auto-Graphics began offering the catalog through cost recovery in February 2004.

School Library Services

Texas public school libraries can build the capacity of Texas school library programs to support learning, especially in the core curriculum areas and enable students to achieve their potential and fully participate now and in the future in the social, economic, and educational opportunities of our state, nation and world. The role of school librarians or library media specialists has evolved from "keepers of the books" to that of "information providers". Library media specialists plays an integral part as they collaborate with teachers and students to demonstrate the ways in which research and technology skills support student success in an exemplary school library program.

For students to be information literate they must be engaged in extended, inquiry-based research. School libraries provide students and teachers the opportunity to develop information literacy and digital technology literacy (Technology Applications). School librarians have been valuable resources in using the information and technology literacy knowledge and skills gained in the library to strengthen student achievement in English language arts & reading, mathematics, social studies, and science. The role of the library media specialist has expanded to include utilization of

the following resources: library books, reference resources, access to databases, Internet connectivity for computers, multimedia, and information in all formats, electronic as well as print.

The library program supports the acquisition of foundation curriculum area TEKS. Examples of how library programs support learning include:

- students are taught that they have many print and electronic resources in the library to view media and implement the skills of analysis, interpretation and production in English language arts;
- students have access to a variety of rich material such as biographies; folktales, myths, and legends; and poetry, songs, and artworks to support learning in social studies;
- students research scientific topics with the librarian's assistance and use computers and information technology tools to support their investigations as a part of learning in science; and
- students build a foundation of basic understandings in number, operation, and quantitative reasoning; patterns, relationships, and algebraic thinking; geometry and spatial reasoning; measurement; and probability and statistics through examples provided in resources in the library as a part of learning in mathematics.

In addition, the library program supports the acquisition of information literacy and technology applications proficiencies through the following activities:

- students and staff understand how to collect and retrieve information;
- students develop the ability to manage or use an organizational scheme such as the classification arrangement of library database resources;
- students can interpret, summarize, compare, and contrast information;
- students make judgments about the quality, relevance, usefulness, or efficiency of the information; and
- the creation of new knowledge is demonstrated by adapting, applying, designing, inventing, or authoring information.

The TEA Division of Curriculum supports school libraries and the efforts of their library media specialists as they facilitate the integration of all TEKS, including the Technology Applications TEKS, into collaborative teaching and learning opportunities for Texas students and teachers.

School Library Standards

TEA worked with the Texas State Library and Archives Commission (TSLAC) on the development of new school library standards. School library standards originally were adopted in 1994. They were revised by a statewide committee composed of building-level librarians, school board members, teachers, university and Regional Education Service Center librarians, members of the public sector, staff of the TSLAC and TEA. In accordance with Texas Education Code § 33.021, the Texas State Library and Archives Commission, in consultation with the State Board of Education, shall adopt standards for school library services.

The Texas State Library and Archives Commission approved the revised School Library Programs: Standards and Guidelines for Texas on March 19, 2004. Staff at TEA reviewed the revised Standards and Guidelines and recommended changes. The SBOE will consider the revised standards and guidelines at their September meeting. The standards will be available to districts after approval and review by the Texas State Library and Archives Commission.

TSLAC will work with TEA to make sure the school library standards are broadly disseminated and to provide training for school librarians.