

**The Texas Technology Literacy Challenge Fund Initiative (TLCF)
Technology Integration in Education (TIE) - Year Five**

For Year 2001 TIE Grant Recipients

DUE: October 31, 2002

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Grant Recipient Name: SAISD	Grant ID: 163000121403411 (enter last 4 digits)	NCES Code: 4838730
Project Name: Technology Integration in Education	Award Amount: \$1,840,456.00	

The information you provide will be used to evaluate and promote the success of the TIE program as well as the success of the subgrantee. Therefore, we ask that you complete this form as accurately as possible. Please be as specific as possible and answer every question. The form will allow the text you write to wrap around to the next line if needed.

- **National Goals**

Please list each grant recipient goal(s) under the national goal to which it is most closely related.

National Goal 1: All teachers will have the training and support they need to help all students learn through computers and the information highway.

Supporting recipient goal: a. The proposed program will provide mathematics and science teachers with the tools and skills needed to design explorations that are inquiry-based, learner-centered and engaging. b. The proposed program will provide teachers with professional growth opportunities through the use of proven staff development models.

National Goal 2: All teachers and students will have modern computers in their classrooms.

Supporting recipient goal: a. The proposed program will provide mathematics and science teachers with the tools and skills needed to design explorations that are inquiry-based, learner-centered and engaging. b. In order to increase student achievement of all students in mathematics and science, the proposed program will engage students in discovering patterns and making connections between concrete experiences and abstract models that describe real and simulated data. The program will provide for inquiry-based investigations that are enhanced by technology tools.

National Goal 3: Every classroom will be connected to the information superhighway.

Supporting recipient goal: The proposed program will provide mathematics and science teachers with the tools and skills needed to design explorations that are inquiry-based, learner-centered and engaging. The proposed program will provide for online collaboration among parents, students, educators and other community members.

National Goal 4: Effective and engaging software and on-line resources will be an integral part of every school curriculum.

Supporting recipient goal: In order to increase student achievement of all students in mathematics and science, the proposed program will engage students in discovering patterns and making connections between concrete experiences and abstract models that describe real and simulated data. The program will provide for inquiry-based investigations that are enhanced by technology tools.

- **Usage and Impacts**

Please check the appropriate boxes to indicate how the district used the TLCF subgrant award during this reporting period:

1. Use of Funds:

Please check the appropriate boxes to indicate how the district used the TIE subgrant award:

Professional Development
(Use and Skills)

Estimated percentage of funds 8%

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- Professional Development (Integrating technology for instruction) Estimated percentage of funds 9%
- Hardware Estimated percentage of funds 51%
- Connectivity: (Wiring and Infrastructure) Estimated percentage of funds 3%
- Distance Learning Estimated percentage of funds
- Connectivity: (Costs for Services) Estimated percentage of funds
- Maintenance and Technical Support Estimated percentage of funds
- Software and On-line resources Estimated percentage of funds 26%
- Administration and Operation Estimated percentage of funds 1%
- Evaluating Impact Estimated percentage of funds 2%
- Other: (please specify) Estimated percentage of funds

Percentages must total 100%

2. What grade level(s) were primarily affected? (Click on PK to select range)
Grades **6th** through **12th** were primarily affected.
3. Which content areas were affected?

<input type="checkbox"/> English	<input checked="" type="checkbox"/> Mathematics
<input checked="" type="checkbox"/> Science	<input type="checkbox"/> History
<input type="checkbox"/> Geography	<input type="checkbox"/> Reading/Language Arts
<input type="checkbox"/> Foreign Language	<input type="checkbox"/> Economics
<input type="checkbox"/> Social Studies	<input type="checkbox"/> The Arts
<input type="checkbox"/> Civics/Government	<input type="checkbox"/> All
<input type="checkbox"/> ESL	<input type="checkbox"/> Technology Applications
4. How many students were impacted? **13,500**
5. How many teachers were impacted? **90**
6. How many administrators were impacted? **75**
7. How many campuses were impacted? **23**
8. What are you able to do now that you were unable to do prior to TIE funding?
The infusion of TIE money to half the campuses in each district brought the necessity of raising the technology available to teachers in all the districts' schools. Both districts provided technology dollars for the remaining campuses; thus, all campuses now have access to technology tools for conducting mathematics and science investigations.
9. How did this ability allow you to redirect funds to other areas?
Availability of TIE funds made possible a higher level technology in all schools rather than spread local funds across all district campuses.

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10. How did you maximize the use of funds through the use of technology? The use of the SATEC website enabled both TIE and nonTIE schools to have access to quality technology-centered lessons in both Math and Science without having to publish these in paper form.
11. What were the benefits to the teachers? Teachers in the project have enhanced their technology and instructional skills. Technology to conduct investigations that develop students' conceptual understanding is now readily available for teacher use.
12. What were the benefits to the students? Better understanding of mathematics and science concepts through engaging experiences; increased willingness to participate in classroom activities; increased interest in continuing math and science studies; improved technology use skills.
13. How did TIE improve student achievement?
 - a. Quantifiable impacts- Study of student End-Of-Course data indicates an increase of 42 points on the Algebra End-Of-Course Test in classrooms where teachers implemented the SATEC curriculum.
 - b. Qualitative impacts- Having a rich technology set available, including image analysis devices and real time data collection sensors, provides students the opportunity to become personally engaged in the learning process.
14. Give Specific examples of how your grant activities impacted the following key area categories established by the Long Range Plan for Technology. Please provide concrete data.

Teaching and Learning- Instructional materials and technology instruction were developed or piloted in these science courses: Middle School Science, IPC, Biology, Chemistry and Physics. In mathematics, instructional impact occurred in Middle School Mathematics, Algebra I, Algebra II and Geometry.

Educator Preparation- We trained 90 teachers in the development and use of technology-centered instructional materials.

Administrative Support- 107 administrators from multiple districts attended an introductory session on technology integration in math and science.

Infrastructure for Technology- We purchased a total of 393 computers to be distributed across 23 campuses, which directly impacted 90 teachers. Campuses were also provided with LCD projectors, printers, scanners, digital cameras and camcorders, and data collection interfaces and devices.

15. How were statewide technology initiatives such as Tech Apps, TLC, T-STAR, PAI, and TETN impacted by your grant activities? Not Applicable

- **Collaborative Efforts and Partnerships**

1. Please explain how the use(s) of the TIE award and partnerships with businesses, libraries and other public and private entities have helped the subgrantee accomplish its goals: Not Applicable.
2. Please describe any contracted agreements and/or arrangements made with partners. A memorandum of understanding was signed by all partners and included an agreement to support the aims of the grant and to have UTSA provide evaluation services. SAISD was designated as fiscal agent for the grant.
3. List all collaborative partners: San Antonio ISD, North East ISD, the San Antonio Urban Systemic Initiative, the University of Texas at San Antonio and the Archdiocese of San Antonio.

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4. Comment on the satisfaction of the collaborative partners involved. All school districts were pleased with the amount and level of technology provided to their schools. UTSA was pleased to serve as host to SATEC/TIE events. The San Antonio USI regularly used SATEC trainers and materials in its Math/Science/Technology integration effort.
 5. What kind(s) of input was received from district/regional clients? Grant planning was conducted by representatives from all entities in the partnership. Each partner receiving funds determined the nature of equipment and specifications to match its own standards. Staff development efforts were coordinated with each district.
 6. What safeguards and/or checks and balances existed to ensure proper use of funds? Grant expenditures were monitored by the funds management officer of the fiscal agent. The Budget and Planning Office of the fiscal agent coordinated budget preparation. The partnership governing board met quarterly and approved expenditure plans. The San Antonio ISD School Board required the use of district policies for all purchases and reviewed/approved any expenditure over \$25,000.
 7. What methods were used in acquiring equipment? (Buy, Lease, Other) All equipment was bought and added to the inventories of the receiving schools. Any purchase over \$5000 required three quotes from vendors. Partner personnel assisted in the development of standards for materials purchased.
 8. What factors were used in determining contractor selection? Quality of equipment, warranty availability, history of satisfactory delivery and price.
- **Evaluation**

What were three (3) major impacts the TIE funds had on the teaching and learning process? (Not necessarily the Teaching and Learning category).

Impact 1: Instruction has shifted from strictly lecture to hands-on investigations. What evidence of this impact do you have? Both public school districts have invested additional dollars to make real-time data collection experiences available to all science students. These districts have also increased the number of instructional technology specialists to assist teachers in using technology to help students create their own knowledge.

Impact 2: Student focus on learning enhanced by technology experiences. What evidence of this impact do you have? Focus group and survey responses from teachers regularly report that they find it much easier to keep their students engaged in the learning activities due to their interest in the equipment, the opportunity to manipulate it, and the visual effects the technology makes possible.

Impact 3: Higher levels of reasoning and problem solving are possible. What evidence of this impact do you have? Students using the SATEC curriculum and technology are able to observe and measure things going on in the world around them, explore effects of changing experimental variables, then make predictions and test them. They then express their findings using multiple representations of the relationships they have discovered, thereby developing a deeper understanding of concepts and a large variety of problem solving skills. Data collected in Algebra classes using technology-centered materials revealed that students have a 1.5 times greater passing rate on the End-of-Course Exam than students in traditional classrooms.

- **Current Needs**

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For each question, please choose the appropriate number from the Likert Scale to indicate the subgrantee's progress toward the 4 pillars for educational technology as a result of all funding sources (federal, state, and local):

Pillar 1: All teachers in the nation will have the training and support they need to help students learn using computers and the information superhighway.

Range:

1 = No members of teaching workforce participating in ongoing training & receiving support

3 = Half of the teaching workforce participating in ongoing training & receiving support

5 = Entire teaching workforce participating in ongoing training & receiving support

Please select the most appropriate rating: **4** (Click on the 1 to select rating)

Comment: Both districts report increased use of technology, requiring additional training in the use of curriculum management software, web access, and real time data collection. Math, Science and Social Studies departments have major initiatives to incorporate technology in instruction and conduct regular training at the campus and district level.

Did the TIE fund contribute to progress toward this pillar? TIE teachers can claim far greater technology skills than most of the teachers on their campuses.

Pillar 2: All teachers and students will have modern multi-media computers in their classrooms.

Range:

1 = All classrooms with a student to multi-media computer ratio greater than 21:1

3 = All classrooms with a student to multi-media computer ratio of 13:1

5 = All classrooms with a student to multi-media computer ratio at or less than 5:1

Please select the most appropriate rating: **4** (Click on the 1 to select rating)

Comment: Both districts report classroom computer ratios in the range of 10:1 to 6:1.

Did the TIE fund contribute to progress toward this pillar? Every TIE classroom has an average ratio of 4:1 or better.

Pillar 3: Every classroom will be connected to the information superhighway.

Range:

1 = Less than 14% of classrooms connected to the information superhighway

3 = 55% of classrooms connected to the information superhighway

5 = All classrooms connected to the information superhighway

Please select the most appropriate rating: **4** (Click on the 1 to select rating)

Comment: One district reports 100% connectivity and the other reports 95%. The second district is implementing a bond issue which will provide 100% connectivity by the year 2005.

Did the TIE fund contribute to progress toward this pillar? Every computer in each TIE classroom was connected to the Internet through network cables or wireless access points.

Pillar 4: Effective and engaging software and on-line learning resources will be an integral part of every school's curriculum.

Range:

1 = Effective and engaging software and on-line learning resources not in use in any core content areas

3 = Effective and engaging software and on-line learning resources in use in half of the core content areas

5 = Effective software and on-line learning resources in use in all core content areas

Please select the most appropriate rating: **3** (Click on the 1 to select rating)

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Comments: Both districts have major efforts to improve instruction through the use of content-specific software, curriculum management systems, online assessment tools and web-based test preparation and course work.

Did the TIE fund contribute to progress toward this pillar? TIE teachers received mathematics and science software that enabled engaging student activities to promote the development of mathematics and science concepts.

- **Future Impacts**

1. Please describe the process for the ongoing evaluation of technology integration and its effect on student achievement and progress toward meeting the National Education Goals and State content and performance standards: In the spring of 2003 the Level of Technology Implementation survey will be administered to the teachers in at least one district, as well as the campus level Star Chart evaluation and implementation survey. The districts are also using campus-based technology plans to determine needs.
2. What will you do differently now that the grant period has ended? Responsibility for maintaining teacher skill level in technology implementation will be shifted entirely to the districts' mathematics, science and instructional technology departments.
3. What are your next steps to further your goals? Districts will be using various strategies such as bond issues, allocation of local funds, and securing of grants and donations to continue to enhance technology experiences for children.
4. How will you sustain and further the goals you attained through the implementation of the TIE grant? Districts are upgrading the technology skills of their core area teacher specialists to sustain support for technology implementation at the campus level.
5. Please provide any additional comments from the district's perspective regarding its TIE award that would be important to know.
Since the TIE grant impacted only a portion of each district's schools, a disparity of technology availability has resulted. Each district is seeking funding solutions to raise all campuses to the level of technology available in math and science classrooms funded by the TIE grant.
6. Discuss the impact of this grant on changes that occurred in your classroom, campus, district, and/or community. Be as specific as possible.
The TIE grant accelerated the movement towards math and science investigations in instruction. Availability of equipment provided by the TIE grant has facilitated the implementation of standards-based curricula by making possible many activities not possible using traditional paper-and-pencil methods.

- **Comments**

If this grant represents a collaborative effort, please provide comments from **collaborative members**. Include member districts.

Please include comments from at least 5 **students** regarding the effect of TIE and technology on their scholastic experience. Please indicate their grade level.

Student 1: 8th grade Algebra I: I like the different software programs such as Graphical Analysis, MathXpert and Green Globbs because I can see how things work in the activities we do and then I understand the algebra.

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Student 2: 8th grade Science: I really enjoy the lessons we do with the technology because we can actually watch things happen and manipulate things to see what happens.

Student 3: High School Algebra I: The curriculum has shifted from being textbook driven to lab or project driven. Labs focus on real life experiences, shadows, sundials, bridges, basketball, and swings. It just makes sense to me!

Student 4: High School Physics: Gathering data with the probes and computers is faster and a lot more accurate, and we can see patterns quicker--it's easier when we see the graph instantaneously, and the visuals help us understand.

Student 5: Having the computers to do our lab reports was great--we can insert graphs and other visual effects into our presentations and make them look professional.

Please include comments from at least 5 **teachers** regarding the effect of TIE and technology.

Please indicate their subject and grade level taught.

Teacher 1: Middle School Math 6, Math 8, Algebra I: The SATEC/TIE initiative has done wonders for my classroom. SATEC courses have taught me many things I didn't know about technology and introduced me to software programs I can apply to my curriculum. The students feel very comfortable using the computers for Math projects.

Teacher 2: High School Geometry: The computers that we received have been exceptionally convenient to use. We not only use them to introduce, reinforce and expand on math concepts, but we use them for research and evaluation purposes such as the interim exams. I wish to express my gratitude to those responsible for bringing in this equipment.

Teacher 3: High School Physics and Chemistry: The computers and probes allow us to do experiments that were previously impossible like timing very fast events with a photogate. We can also analyze images with the computer by looking at a filmed event frame by frame; for example, projectile motion: for the first time, students can clearly see that the x-motion is constant while the y-motion is accelerating. The connection to the internet has allowed my students to save valuable time by gathering information much more quickly, and we have been able to take advantage of the many simulations, tutorials and other learning resources available on the web for a wide range of topics. My students have also greatly increased the quality of their presentations because of the software that is now available to them, i.e. Power Point, Hyperstudio and Movie Works.

Teacher 4: High School Science: My campus received a laptop lab and it was well used. We also used them to show student projects at a parent night off-campus. The event was a "browse-around and look at things" format, and allowing multiple student projects to be shown at one time was very helpful.

Teacher 5: High School Chemistry: My students love balancing equations on the computer; it was sometimes a chore getting them to do it using the paper and pencil method, but on the computer, they love it!

Please include comments from at least 1 **campus administrator** regarding the effect of TIE and technology on their campus. Include their position title.

Administrator 1: High School Principal: The TIE grant has enabled our instructors to more effectively teach our minority-majority student body. Without the hardware, software, training, and share time, our instructional abilities would have been less relevant and interactive. The share time and training were valuable not only for what was learned by the teachers involved, but also for the bonding and mutual support they experienced.

Administrator 2: Campus Instructional Coordinator: The technology provided by the TIE Grant has been extremely beneficial at our school. Grade 8 Math/Algebra teachers have appreciated the hands-on tools. 8th Grade Science teachers have used the tools for direct classroom instruction including as a presentation tool. All math and science students have access to the equipment but 8th grade has integrated much more since the tools are housed in their rooms.

Administrator 3: Magnet School Coordinator: Equipment provided by the TIE grant has allowed our school to seamlessly integrate technology into the core curriculum. It has provided our teachers with appropriate training and support in order to make using technology every day become a reality.

Administrator 4:

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Administrator 5:

Please include comments from at least 1 **district administrator** regarding the effect of TIE and technology on the district. Include their position title.

District Administrator 1: District Science Specialist: The TIE grant has really impacted the two middle schools and high school in the Roosevelt Cluster. The teachers are incorporating technology in their teaching every day. So much so that they have asked their principals for more. The IPC teachers at Roosevelt were able to write curriculum to coincide with the Algebra the students were taking at the same time. The grant gave them the much needed time and extra person to accomplish a technology rich curriculum. The teachers who were trained during the grant have been able to extend the skills learned during the grant to new teachers this year.

District Administrator 2: District Science Specialist: The equipment has been a tremendous boost to Nimitz and Jackson this year. I received a comment the other day from one of my High School Biology teachers about the technology preparedness of the class that just entered. She said that the students from these feeder schools were knowledgeable about how to use probes and inquiry in science. Her job in training the students on how to use the technology was greatly reduced. This teacher said she has seen great improvement in this year's incoming freshmen. This is quite a testimony!

District Administrator 3: District Instructional Technology Specialist: The grant enable the science teachers to explore and gain experience in using technology in the curriculum and learning process. The TIE teachers are now the leaders in helping new teachers use and adapt the technology in the classroom. I don't think this would be the case if the grant were not available. The laptop cart TIE provided is utilized almost every day in biology and IPC, and the teachers are requesting more probe training.

District Administrator 4:

District Administrator 5:

Please include comments from at least 1 **community member** impacted by the TIE grant. Please include their occupations.

Community Member 1:

Community Member 2:

Community Member 3:

Community Member 4:

Community Member 5: