High-Tech Learning

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It was late in 2004 when the lights first appeared after hours outside Floydada Junior High School. People in neighboring houses didn't know what to make of them, but each night the lights were back, three or four small blue-white glowing spots against the exterior of the school walls. Not sure how to respond to this new phenomenon, they called the police.

Jerry Vaughn, superintendent for the Floydada Independent School District, chuckles at the memory of the police inquiry at the school. It turned out the mystery lights were the glow from laptop screens while students gathered around the school building to catch the wireless Internet signal from outside.

"People weren't used to seeing that," Vaughn said.

The school had just received a grant under Texas' Technology Immersion Pilot (TIP), which placed a Wi-Fi-ready laptop in the hands of every sixth-, seventh- and eighth-grader. Students would carry their laptop from class to class, and back home at the end of the day to finish their work.

The lights were also precursors of things to come in this small Panhandle town, 50 miles northeast of Lubbock. Floydada embraced its role as a TIP school more than most of the 21 others equipped with technology in the program. Three years since the mystery lights first appeared, technology immersion is a way of life. The school board, building on the TIP foundation, has pooled money to ensure a dedicated laptop or increased computer use for each of their 950 students, from pre-kindergarten through 12th grade. A citywide Wi-Fi network is expected to come online this year.

Floydada is one of the most dramatic examples of how the immersion grant has opened the doors to an entire community's ambitious adoption of technology. Clarksville is another example where the TIP grant allowed for the purchase of computers for every student in the town's school system. "It's just transformed the whole community because every student in town was part of this project," said Anita Givens, senior director for instructional materials and educational technology at the Texas Education Agency (TEA).

Improved Student Engagement

With each new school year under TIP, teachers and researchers say technology becomes increasingly a part of the school culture. Teachers are not required to use the laptops in any one way but are trained to use the educational software that comes bundled with the computers. The transition is tougher for some teachers than for others, but researchers say most get more comfortable with the laptops every year.

While student achievement, as measured by the Texas Assessment of Knowledge and Skills (TAKS), hasn't been influenced much by the program, TIP schools report fewer discipline problems, better engagement in classroom activities and students who show up early and stay at school late. "We're still seeing improved student engagement, and the teachers continue to get more comfortable with it," Givens said. Theft and damage has also been less of a problem than project leaders had anticipated, she added, probably because students know they'll be getting the same laptop back each year.

TIP includes 44 Texas middle schools. Originally half the schools were given laptops, software and training for teachers and administrators, at a cost of about $1,400 per student. The other half served as control schools - they were given equal funding but were told to spend the money on anything but computers or software. The state Legislature dedicates a portion of TEA's budget to funding TIP, and the program also receives federal support from the No Child Left Behind Act.

Even without seeing an increase in TAKS scores, lawmakers recognized the importance of offering a modern educational environment in Texas, and have chosen to expand the program.

In the 2006-2007 school year that ended in May, the opportunity presented itself for the first of the control schools to start buying laptops and training staff. The state Legislature voted to continue funding TIP through 2011, as part of their 2006 special session on education. So far, though, the program is limited to the original 44 schools. "There are a lot of schools that would love to do it," Givens said, "but at the present time we just don't have enough funding."

Because it's still in its pilot stages, TIP has been as much about research as it has been about passing out new equipment. The goal of the program is to understand the impact of a technology surge on schools, both on student achievement and on school culture. A team of researchers has been visiting TIP classrooms since the laptops arrived to see how teachers are incorporating the machines into their classroom routines. The goal is to better understand what makes an effective tech-heavy classroom, and to fine-tune a training program for teachers and principals as more Texas schools take the plunge.

According to Kelly Shapley, director of Shapley Research Associates, after three years of collecting data on the project, it's clear the schools that benefit most are the ones where teachers fully embrace the technology, and use it to do new things in their classrooms.

Providing the equipment may be expensive, but that's the simple part, she said. What matters more is what you do with the technology once it arrives. "Just putting a laptop into a student's hands does not make a difference unless teachers are ready to take advantage of that tool, and know how to model it to teach the students effectively," said Shapley, who is also the principal researcher for the **evaluation of the Texas Technology Immersion Project**.

Teaching With Technology

Whether or not students are comfortable with typing, playing games or social networking on computers at home, the goal is to teach students to use computers the way they'll use them once they're out in the work force - as a tool to complete everyday work, and not as a distinct class separate from writing, math or history. To make this work at a given school, though, Shapley said it's critical that most of the teachers support the shift. "That's a major shift for teachers from the way that they taught a class, and it doesn't come easily," she said. "For some, it really doesn't fit their style of instruction."

Some teachers have students doing self-directed Web research on multimedia projects; others give students electronic versions of the old worksheets they've been using for years.

Scott Person, an eighth-grade history teacher, said he assembles a Web page for each day's curriculum materials, and students who need more time outside of class, or who were absent, can review it later. "I'm sure it's changed me, but it hasn't been a big struggle. It's come pretty naturally," said Person, who teaches at Marvin P. Baker Middle School in Corpus Christi.

"Teachers actually have more resources than they can use," TEA's Givens said. "Even going into the third year, it just varies so much from teacher to teacher."

Givens said one of TEA's main goals is to offer as much professional development opportunities as possible for TIP schools. These include initial training in the Apple or Dell systems (school districts choose to adopt either platform), as well as tutorials in math or writing software, and strategies for managing student work electronically to help teachers get comfortable using the new equipment. "The human pieces are the most important," Givens said.

Looking at data from participating schools in the first two years, the changes to test scores have been minimal, Shapley said, adding that it's too soon to expect much change in scores. Following a minor dip in the first year of the program, TAKS scores from the second year of TIP trended back up by about the same amount. Shapley cautioned that it'll take some time for teachers to share what they've learned and adopt the best strategies in their own classrooms.

At Floydada, Vaughn said he's seen significant gains in TAKS scores, and attributes them to the way his district has embraced the technology, as part of a new way to run a classroom.

A program called My Access! proved especially useful in instruction of writing. The software prompts students to complete drills and short writing assignments, then grades students' work and offers them feedback. A suite of math and science simulations called ExploreLearning put the laptops to good use in those subject areas.

"Last year we really did see improved test scores, and this year we saw even greater gains," Vaughn said. "For those of us who are committed to it, you're seeing those kind of results. We needed some help, and we finally found something."

Floydada already had teachers interested in new classroom uses for technology, but before TIP it just wasn't possible when so many students didn't have computers to get the work done. Vaughn pointed out that 84 percent of his students are enrolled in free or reduced lunch programs. "I had teachers trying to teach at that level," he said, "but the students didn't have the technology to get there."

Floydada parent Abe Enriquez, who's also a custodian at Floydada schools, said he sees students at every level doing more in school thanks to the new technology - from design and advertising projects to research and math assignments. "I know for sure that a lot of these kids wouldn't have been able to do this without these laptops," he said.

Abe, whose son Abran graduated from Floydada High School in June, said the laptop enabled Abran to earn 12 college credits through distance learning courses that the local school couldn't offer. Abran took courses in English and government remotely, and is well on his way to a minor in Spanish. "That's nearly a semester of college we don't have to pay for," Abe said.

Abe, who has spent most of his life in Floydada, said he's pleased to see what the new technology has done for the town, and for his son. "I'm 50 years old, and I never did take any computer classes. It just makes me feel good seeing him do that kind of work on the computer.

"I'm surprised that it's happening for a small town like this," he continued. "Other towns are calling up to see how they can do what we're doing."