

HP customer case study: Canutillo Middle School used the HP Technology for Teaching grant to enhance its math and science programs with compelling, hands-on field research projects.

Industry: Education

Real world education

Students acquire new self-confidence thanks to help from HP



“Expanding student horizons is so important in rural districts like ours. HP provided our students with opportunities to discover for themselves that they have enormous potential. It’s wonderful to see improvements in students’ academic performance. But even more important is their enhanced self-confidence, because that means that when they leave us they’ll be ready to take on the world.”

— Joe Bueno, Lead Technology Teacher, Canutillo Middle School

Objective:

Canutillo Middle School wanted to enhance its math and science curricula by leveraging mobile technology.

Approach:

HP Technology for Teaching grant.

IT improvements:

- Mobile Tablet PCs meant students could gather data in field
- Ink writing interface made field note-taking simple
- Internet access enhanced research opportunities

Academic benefits:

- Improved understanding of key science, math concepts, basic skills
- Improved self-confidence
- Improved technology comprehension



One of the concerns shared by organizations like The International Society for Technology in Education (ISTE), as well as U.S. teachers and administrators, is the “technology gap.” Students living in urban, affluent communities tend to have more access to technology than students from rural or less prosperous communities.

One school facing this challenge is Canutillo Middle School in Canutillo, Texas. Canutillo is a small town near El Paso, about 15 miles from the Mexican border. English is the second language for ninety percent of the school’s 700 students, and every student in the district qualifies for free or reduced lunch subsidies.

The district’s middle school, which accommodates 6th, 7th, and 8th graders, has had a computer lab for several years, but because the systems there aren’t mobile, their use wasn’t integrated into day-to-day classroom activities. And the students had very little exposure to other technology, like digital cameras.

Customer solution at a glance

Primary applications

Middle school classroom education

Primary hardware

- HP Compaq tc4200 Tablet PCs
- HP digital cameras
- HP digital projectors
- HP All-in-One printers

That began to change when Canutillo won an HP Technology for Teaching grant, which provided the school with professional development opportunities through The International Society for Technology in Education (ISTE) as well as five HP Compaq tc4200 Tablet PCs, five HP digital cameras, five HP digital projectors, and five HP All-in-One printers.

Into the field

After they received the grant, the teachers first met to discuss how they could incorporate technology into their curricula. Joe Bueno, the school's lead technology teacher, notes that the school wanted a project to give the students hands-on experience with the computer equipment. The teachers also wanted to enhance the school's math and science programs.

It was during one of these brainstorming sessions that a teacher came up with the perfect idea. "The school is located five miles from Franklin Mountain State Park, the largest urban state park in the country," Bueno says. "So when one of the students suggested a field research project that would emphasize math and science, we all got excited." The project had all of the elements they were looking for: opportunities to integrate technology in a cross-disciplinary project that would again energize Canutillo's curricula.

Having mobile computers was essential to the new program, Bueno explains, because the students could take the HP Tablets and digital cameras with them on their field trips to the park. To perform the research, they marked off a one-square meter study area at the park and counted animal and plant species found there. They took photographs and short video clips with their HP cameras to document what they found. They also took notes on the geography and geology of the area. Because the tablets support ink writing, the students could take their field notes without having to enter them via a keyboard.

Then, back in the classroom, the students worked with the data and information for a variety of related projects. In science, they analyzed soil samples they'd gathered. In math class, they learned how to calculate averages and percentages.

The field research was complemented by online research the students performed with their wireless PCs. "They created a library of plant species native to our local desert habitat," says Robert Martin, a science teacher at the school. "They loaded this information on their tablets to use as a reference in the field. If they found a plant that they didn't recognize, they would take a photograph of it, then do additional research later to identify it."

The work the students did studying rocks and rock formations, Martin adds, contributed substantially to helping Canutillo meet the state's educational standards, Texas Essential Knowledge and Skills (TEKS), for earth science.

Real world skills

The hands-on nature of the project also excited the students tremendously, Bueno notes, adding that student interest is key to learning. "When the students are engaged, they retain more of what they're taught." As with the first HP grant program, student surveys, pre- and post-assessments, and analysis of student work showed an increase in their understanding of core concepts and skills.

But perhaps the most compelling effect of the technology was in the way it enhanced the students' pride and self-confidence. "Many of our students are shy. They don't have a lot of experience talking in front of other people," Bueno says, adding that this can be detrimental later in life when they leave their home community and have to compete for college admissions and employment opportunities.

So as part of the project, students presented their data findings to each other, using the HP digital projectors to supplement their verbal reports. "Having the technology helped them feel more comfortable presenting," Bueno says. "It was truly wonderful to see them open up and show confidence in themselves."

Having confidence with their own skills and with technology, he adds, means these students will be better equipped to excel later in life. "They'll be using technology their whole lives. Thanks to HP, our school is giving them the experience they need today to succeed in the future."

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4AA1-7155ENW, December 2007

