

Good News (for a Change) on the N.M. Education Front

BY DENNIS DOMRZALSKI

Robert Shane George hated math as a kid or, more accurately, figured that he wasn't smart enough to do it.

It didn't help that his teachers in Arkansas told him he was a slow learner who would be better off working in the saw mill. He tried college but quit because he couldn't get past the math and English courses, so he moved on to oil fields.

Now, George, 43, lives in Santa Fe and is a full-time student taking trigonometry and calculus. He's on his way to getting an associate degree in renewable, sustainable technologies from the Santa Fe Community College. Ironically, he's come to realize he likes math.

The turnaround comes courtesy of a program in Northern New Mexico that is teaching women, minority and other nontraditional students remedial math at an accelerated pace and preparing them to take college courses in STEM (science, technology, engineering and math) fields.

It's called the Accelerate Math Experience. Supporters who have come to call it "Math Camp" say it has achieved remarkable results and has potential to revolutionize the American educational system. The program was created as part of a U.S. Department of Energy economic development strategy for Northern New Mexico.

Math Camp is an eight-week program that combines intense tutoring, self-paced computer learning, hands-on robotics and, most importantly, a collaborative atmosphere.

Rather than standing in front of a class and lecturing students in the traditional "sage on the stage," style of education, teachers roam the classroom helping individual students with their problems. They encourage students to help each other with their class work and homework.

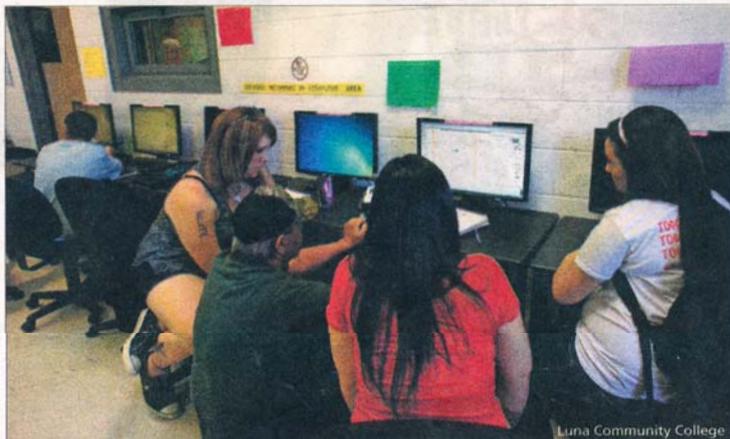
"It's not, 'Hey Ed, give me the answer,' it's 'Hey Ed, show me how to do this, and by the way, I got this answer, and what did you get and how did you get it? Is there an easier way to do it?'" said Michael Howland Davis, a Ph.D. sociology student at the University of New Mexico and a consultant who evaluates the program.

The average math competency score of students who entered the program in 2014 was 15.7 percent, Davis said. The average competency rate at the program's end was 63 percent. For passing students it was 70 percent; 84 percent of the students who took the program last year passed.

"For a clear majority of students to go from 15 percent to 70 percent is bloody amazing. This program changes lives and this will revolutionize education in the U.S.," Davis said.

How it began

The Accelerate program and its Math Camp launched in 2011 as part of DOE's effort to train workers in Northern New Mexico in STEM fields.



Luna Community College Robotics consultant Marvin Mascarenas (green shirt) helps Accelerate Math Camp students in the Robotics lab.

Individual successes

Greg Hassman drank and drugged himself out of college 13 years ago. Four years ago he got sober, and last summer he enrolled in the Accelerate Math program before entering Santa Fe Community College to pursue a degree in sustainable technology with a specialty in water treatment.

Hassman, 31, was good at math in his younger years but realized he needed a refresher course.

"I had been out of school for 13 years, and if you don't use it you lose it," he said. "So I expressed concern to my advisor and he suggested I go to the Math Camp."

Hassman credits his professor with making math tangible by showing how it works in the real world. "Personally, I don't benefit from lectures. I'm hands-on and need to be pressed

by being asked to go up to the white board and write the answer," Hassman said.

As a kid, Sheri Lopez loved the stars and space, but the Pojoaque native was discouraged from going into science because, well, women in northern New Mexico just didn't do that.

After dropping out of Eastern New Mexico University, she moved to California and ended up in retail, where she would have stayed had the recession not hit. Lopez, 28, enrolled in Accelerate Math Camp in 2013 after moving back to Pojoaque with her 3-year-old son.

After Math Camp, Lopez attended the University of New Mexico's Los Alamos' campus, then won a summer internship at Fermi Lab outside of Chicago. After that she got an internship at YXO Inc., a company that manufactures carbon-fiber structures for aerospace uses.

In the fall she'll transfer to the New Mexico Institute of Mining and Technology to pursue a four-year degree in mechanical engineering with minors in aerospace and physics.

"She always had that in her," Rachkowski said. "We helped provide the confidence and opened the doors to some opportunities that she otherwise would not have known about. She just took it and ran with it."

What's next?

The Accelerate program's five-year grant ends this year but its techniques are being adopted by community colleges and universities in New Mexico, and not just for remedial math courses. UNM Taos is considering offering an Accelerate-like program in the fall, Rachkowski said.

Davis believes that if the program goes national, it could help America regain its competitive edge in all aspects of the global economy. "If we were to implement this nationally, we would be the unstoppable juggernaut that people accuse us of being."

Student participants

- * 296 students
- * 28 years old average age
- * 78 percent nonwhite
- * 100 percent nontraditional students

Schools participating in Accelerate Math Camp

- * University of New Mexico Los Alamos and Taos branches
- * New Mexico Highlands University
- * Luna Community College
- * Northern New Mexico College
- * Santa Fe Community College

It is run by the Regional Development Corp., a nonprofit in Española comprising six colleges and universities. It has been funded by DOE at \$630,000 a year for the last five years.

"We are having difficulty in finding qualified workers in the area," said Accelerate Program Manager Carla Rachkowski. "Community colleges told us they don't have trouble getting students enrolled, but they have trouble graduating students, specifically in technical fields."

"They have trouble finding workers in New Mexico and so they end up hiring out of state," Rachkowski said. "We are trying to fill the pipeline with New Mexico workers in the area."

The program's pillars came from the six schools that partner with Accelerate. "The things and the ideas that came to us all came from the colleges — all the practices they know are effective. It's not like we are reinventing the wheel."