

## Regional

# Teaching students to overcome a fear of math

For many people, math is a four-letter word. Mathematics has a reputation as being a tough subject to learn – as well as to teach. There are, however, a number of scholars and teachers who think otherwise and demonstrate it with both facts and passion.

"I started doing well in math at the high school level and just continued on," said Tammy Voepel, an associate professor in the department of mathematics and statistics at Southern Illinois University Edwardsville, "which is one reason for all the degrees. I just couldn't figure out when to stop learning. I found it easy, but I know my students struggle, so my job is to try and find techniques to make it easier for them to understand it a little bit better."

A native of St. Louis, Voepel earned two bachelor's degrees in mathematics from Truman State University in Missouri, two master's degrees in mathematics, one from Truman and another from the University of Missouri and a doctorate in mathematics, also from the University of Missouri. When asked if the reputation of math being a tough subject to learn is deserved, she answered no. "But I know a lot of my students do," she quickly added. The key to a successful math student, she said, is a good math teacher.

"I think all subjects need good teachers," she said. "It is important across the board. I think it takes an interesting teacher, a helpful teacher to draw the students into the subject." This does not mean, she added, that it is an easy subject to teach.

"Because when we are teaching we are always trying to look at where the students are having difficulties and where those misconceptions are potentially going to develop," she said. "And we try to give extra help and extra hints when we get to those areas. As a strong teacher you are always looking for ways to keep it interesting and to keep the students engaged, but to also help them get over the pitfall areas."

Voepel's favorite areas of mathematics have always been geometry and algebra. "They go along with the courses that I'm teaching and they're the content courses for our teachers, either the elementary teachers or the middle school teachers or



Dr. Tammy Voepel at work.

the high school teachers." One wonders if to be a good math teacher you have to have backgrounds in both the subject matter and in pedagogy, or the art and science of teaching.

"In my opinion, yes. They should have a strong foundation in content so they know what they are talking about, but you also want a strong foundation in pedagogy so you know how to address it in the classroom and how to handle things that come up," said Voepel.

A report released recently showed that

American 15 year olds come in at number 24 in the world for math literacy. Not very good for a developed country like ours that has always been so proud of our science and technological advancement. So what is going on here?

"A couple of things," said Voepel. "It could be that in some countries not every student is being tested, while in other countries all students are being tested. So when you take a small sample of one country and compare to an entire population of another country, they are not going

to be equivalent." Yet, she recognizes that the way math is taught in different countries is different.

"In my pedagogy class I have my students watch a video that shows what they call a typical lesson in a Japanese classroom, in a German classroom and in a United States classroom. And the teaching style, the structure of the lesson, everything is very different in those three videos. So it's an eye opening experience for how things are being taught.

"Yes, the (American) scores were not

## Aldemaro Romero Jr. College Talk

very strong," she said. "The hope is that it improves. We keep trying to look at new ways to teach things. We have to remember that we are teaching good mathematics, we are teaching good science, we are teaching good English and we want to continue with that trend and teach them what we believe is good content and hopefully it will help our students."

Voepel and some of her colleagues recently received a \$1 million grant from the National Science Foundation. That program will be used to help graduate and certify 24 talented and diverse secondary mathematics teachers with the knowledge, skills, and dispositions to become teacher leaders in the southern Illinois region.

"We are so excited to have this opportunity because this grant is providing scholarship opportunities for our students," Voepel said. "So we will be able to take in students who maybe in the past hadn't thought about math education, or maybe did think about math education but didn't have the funding to continue their program. So this will provide scholarship opportunities for them."

"We want to get the students through the program," she said. "We want them to be highly qualified teachers. We want them to have a wonderful experience at SIUE, but also a very rewarding and full experience here with their student teaching, with their observations." And there is no question of the role that she sees herself playing.

"We go into teaching because we want to help people learn, we want to be out there and be positive role models for others in our area," Voepel said. "So this will help them get out there, see the students, see the teachers, and see what it takes to be a teacher in a classroom."

*Aldemaro Romero Jr. is the Dean of the College of Arts and Sciences at Southern Illinois University Edwardsville. His show, "Segue," can be heard every Sunday morning at 9 a.m. on WSIE, 88.7 FM. He can be reached at College\_Arts\_Sciences@siue.edu.*

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