<< back

2001

Maria Elena Zavala

It was probably intended as a compliment and the first grader took it with pride. “I told my mom,” recalls Maria Elena Zavala, “‘I’m Mexican and I can read.’ And my mom said, ‘Who told you that?’ I said, ‘My teacher.’ And my mom said, ‘Mexicans can read. Everyone in your family can read’.”

Reading was not remarkable in the Zavala household in LaVerne, California, about 30 miles east of downtown Los Angeles. Enjoying math was not remarkable in her mother’s house, nor was playing the clarinet or having a great-grandmother next door who was a cuarandera, a herbalist and masseuse whose medicinal garden was ablaze in unusual flowers and heirloom vegetables. It wasn’t re markable when Maria Elena chose the sand-filled bed of her father’s old pick-up for a controlled trial to see whether seeds would grow better in shade or full sun. “That was my first experiment,” Zavala says with a laugh. “I think I was five. All I learned was that you had to remember to water them.”

Happily, her experimental skills have also grown. Today Zavala is Professor of Biology at California State University at Northridge, working on signalling path- ways in plant embryology development. She is also President of the Society for the Advancement of Chicanos and Native Americans in Science, a major voice for minority participation in science. She is the first woman president of SACNAS and remains active in the Women in Cell Biology Committee of the ASCB. Yet her own family comes first. She is wife to educational consultant Jim Parker (“It’s a mixed marriage,” she quips. “He’s a social scientist”) and the working mother of 12-year-old, piano-playing, seventh grader, Daniela. She’s also the surrogate mother of a far-flung network of chicano and other minority students who’ve gone through the Minorities Access to Research Careers program at Northridge and onto lives in science. As if there were spare time, Zavala is also a recreational tap dancer. “I have two left feet,” she claims, “but it makes my brain work in a very different way and it is a whole lot of fun.”

Tap dancing through academia, research and national science policy requires agility. On her way up, Zavala says, there were those who did not think a fourth-generation Mexican-American had the wits for science. Others didn’t think that science was a suitable career for girls. “But I just didn’t care,” she recalls. “I was odd. I was a chicana. I could tell that some people didn’t expect me to do well. But it was just not seen as weird in my family that I wanted to do math or science.” Both her parents were denied the opportunity of a formal education. One of six children herself, Zavala reflects about her parents, “they felt if any of us wanted to be educated they would do what they felt they needed to do.”

Zavala earned an AB in Botany from Pomona College in 1972 and a Ph.D. in Botany from UC Berkeley in 1978. Her post-doc took her to Indiana University in Bloomington, to the USDA Western Region Research Center in Berkeley, and then a Ford Foundation-funded Fellowship at Yale. In 1986, Zavala was awarded the Rosa Parks/Cesar Chavez Visiting Professorship at Michigan State University. The Biochemistry Department there was well known, well funded, and friendly to plant science with nearly 120 faculty in the field. By the time she arrived at MSU, working with immunologist David Brandon in 1983, Zavala had been one of the first to localize a plant growth hormone in situ, using monoclonal antibodies against the cytokinin zeatin, in corn.

Zavala surprised her colleagues by choosing an academic home where teaching would dominate and her students would not be working toward doctorates. Even she did not realize at first how few lab resources there were at Northridge. They had a tiny budget for start-up funds, about $10,000 to establish a lab. “But they gave me everything I asked for, which shows their commitment,” Zavala recalls. Still she says, “it was the students who sold me on Northridge.” They reminded Zavala of herself.

Zavala knew how important it was to students to see scientists who looked like themselves. In 1980, she went to her first SACNAS conference. “It was spectacular,” she recalls. “After sessions, everyone went to the bar. It was just like my uncles used to do around my mother’s kitchen table, telling these really outrageous stories and jokes yet these were all great scientists. I felt connected to others who looked like me. I think that I met my first fellow chicana Ph.D. there. It was awesome.”

Zavala discovered that at the time she earned her doctorate she was only the second chicana to earn a Ph.D. in plant sciences in the U.S. She saw that as a pathetic statistic and was determined to change it.

Zavala never regretted her choice of Northridge. Sometimes she gets discouraged because her students come to her with far less academic preparation, less family support, and many more personal and financial problems than Zavala ever faced at their age. Nothing in her long training as a biologist ever taught her how to untangle such complex human problems. Still, at Northridge, she’s managed to juggle life as a teacher, a mentor, a researcher, and a mother. She even juggled her way through the January 1994 Northridge earthquake that destroyed her lab and the frozen monoclonal antibodies for cold stress-induced proteins that she’d accumulated over 18 months of hard slogging. “I couldn’t get in to refill the

nitrogen," she remembers with a sigh. "I begged. I was almost on my knees in the mud but they told me that the building was dangerous. I'd done what they always tell you to do with important samples, put them in two different places, but both places were knocked out. It was really tough."

After the earthquake, colleagues urged Zavala to abandon ship. Her research would be outmoded by the time she recreated her lost materials, they said. NIH rang up to see if she would be returning her grant as she no longer had a lab. But, two friends at UCLA, Ann Hirsch and Elma Gonzales, gave her and her students lab space until her labora- tory was restored. "It showed the students that everything else might be chaotic but that doing science can provide an ordered feeling," a lesson many are learning today.

Now, Zavala and her Northridge students are looking at how cold stress affects the accumulation of cytokinins in beans and corn plants. "First we quantified what happens to the cytokinins when the plants are moved into cold stress environments, and now we're looking at the enzymes involved in that metabolism," Zavala explains.

For her students, the Zavala Experience can be life changing. Julissa Sosa was an undergraduate physics major when she heard about the dynamic chicana in biology. Under Zavala's tutelage, Sosa became a botany major and went on to earn her Master's. Today Sosa is a biotech researcher. "I wouldn't be in sci ence today if it wasn't for Maria Elena," Sosa says gratefully. "I've gotten to travel the country and publish papers. She gave me the background that's gotten me to where I am today."

Eric Villegas was also an undergraduate at Cal State Northridge when he was accepted into the Northridge MARC program. He'd been vaguely pre-med when Zavala steered him into a lab and got him hooked on the challenges of the bench. She packed him off to minority student science conferences and then to summer internships at Yale and the NIH. "She tells you to go away in the summer and go see someplace," says Villegas. "She's a big believer in networking and she's right." After graduation, Villegas wanted some time off from school and took a tech job in private industry. Zavala waited three months and then hired him back to Northridge as a lab tech. But to Zavala it was part of a bigger plan. "I was quite content to be a lab tech but after six months she began encouraging me to apply to grad school," Villegas recalls. "She was not con- tent with me being a lab tech. Like a mother, she wanted me to do more. But in a nice way," he adds. Villegas successfully defended his thesis in parasitology at the University of Pennsylvania and is now a post-doc in the Department of Molecular and Cell Biology at Berkeley.