

Features

CAHSEE STEM Institute



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 Sixteen-year-old Hispanic high school student, Elizabeth Mendoza, reveals why she spends her summers learning calculus, Cobol programming and physics in the NASA-funded Summer Enrichment Partnership which is organized by the Society of Hispanic Professional Engineers.

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Opportunity

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Chief Writer/Editor
 Tim Vargo

Contributing Writers
 Thomas Jones
 Gretchen Peeler

Design
 Luisa Palting

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By Gretchen Peeler

Elizabeth Mendoza is the normal 16-year-old; anxiously counting the days until her driver's license. She likes to go to movies and parties when she can and loves the Spin Doctors (especially the song Jimmy Olsen's Blues), computer games, vegging in front of the TV and hanging out with friends. She radiates that part of youth represented in the rose-colored memories of most adults. But during the summer, when every other 16-year-old turns in their school books for lazy days filled with TV, junk food and the pool, Elizabeth turns up her mind a notch, hops on the metro and goes to study pre-engineering courses, mathematics and science at a local college. Ask her why she forgoes the teenage season of freedom for days filled with calculus, C programming and physics and you'll get a typical, plain and simple, 16-year-old's response of, "I don't know ... it's just fun."

Elizabeth is enrolled in the Summer Enrichment Partnership (SEP), a National Aeronautics and Space

Administration funded program that runs for four weeks of the summer, eight hours a day and is organized by the Society of Hispanic Professional Engineers (SHPE) and the metropolitan Washington D.C. school districts. SHPE motivates and nurtures gifted Hispanic and other minority students by providing them with an educational enrichment program in pre-engineering and engineering management and advanced level courses in the physical sciences, mathematics and engineering.

This summer, Elizabeth's third year in the program, SEP took place at the School of Engineering and Applied Sciences facilities of George Washington University.

Any student who has a year-round bent toward academics, especially pre-engineering, science and mathematics, is generally thought to stand out from your normal high school crowd in dress or bearing. Elizabeth dispels this myth, however, wearing jeans and

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a beige-sweater with her mane of red hair tied back in a ponytail. Outwardly, she's nothing but normal. On the inside, however, she carries a disposition that views her summers of learning as, "fun." "SHPE's Summer Enrichment Program is not like school," she grins. "It's fun. It's not like I sit at a desk the whole time and study. Classes are three hours long and then they give you ten minute breaks."

Anyone who has ever attended high school, let alone summer school, knows that the basis of summer school fun can't be ten minute breaks. That's not even enough time to scarf down french fries and a candy bar. But, after hearing Elizabeth talk more about SHPE's Summer Enrichment Program, one gets the feeling that the only difference between the ten minute breaks and the classroom is the change of scenery. The fun, enjoyment, and any of the various other stamps of teenage approval that are part of this program, are a result of the interaction and interplay between the students and teachers. SHPE instructors aren't thought of as fierce authoritarian entities by their summer school charges. To Elizabeth Mendoza, these teachers are thought of as comrades, equals and then some. She explains herself, saying, "The (SHPE) teachers give you more attention. During the regular school year, teachers usually have four or more classes — they're pressed for time. But at SHPE, I've noticed a difference. The teachers aren't just educators — they're your friends. They know how to make learning fun. It was really relaxed. If you didn't understand something, you could say, 'I don't understand this at all,' and they would start from the beginning, never getting annoyed or bothered. They would really be able to help you."

Perhaps Elizabeth's opinion is a by-product of the Summer Enrichment Program's policy of enlisting graduate students as instructors and undergraduate students as teachers' assistants, giving the students teachers who are relatively close to their age, or, in other words, people who are fun. How else could you describe teachers that explore the streets of downtown

Washington with their students, making themselves available to talk with, laugh with, grab something to eat with, go to an arcade with — basically, in the parlance of the teenager, — just hang out with? And, as an added bonus, they're knocking off some of the anxiety that comes with the beginning of a new school year, getting their students acquainted with subjects like engineering, geometry, physics and chemistry. Elizabeth explains this benefit, saying, "I see this stuff again during the regular school year and I don't falter on it — I'm not as uneasy as I thought I would be because I've already been exposed to it at SHPE."

Elizabeth's happiness with the program and her respect for it run in tandem. And its apparent that much of her opinion has to do with the people who are involved with the program. This comes to light as she explains in a soft, spirited voice of conviction that Charles Vela, SHPE's Advancing Careers in Engineering and Science (ACES) chairperson, is among those that have made a major impact on her life. Vela's dedication is what Elizabeth admires most. "It's like he's made the commitment to do this — and what's in it for him really? The



program really benefits us, [the students]. He helps people and helping people is something that I really admire, because not everybody makes the time or commitment. I mean, once some people get to the top or reach their goal in life they'll usually just ignore everybody else. But Charles doesn't do that — he tries to help people get out of their hole. He tries to help Hispanic students get ahead."

Dedication is part of Charles Vela's personality. He explains his dedication as a necessity, saying, "The Hispanic community must achieve parity in the number of engineers and scientists we graduate by early in the next century. Otherwise we will never be able to close the gap. We are going to be stuck in low-end jobs, denying the nation an important pool of human talent." Vela isn't talking about the ability to use technology (such as computers), but the ability to understand and design it. "That's where the future economic opportunities are," he adds. Schools say that there are problems getting minorities into science and engineering, but that isn't really the case, according to Vela. He maintains that existing programs, sponsored by organizations like SHPE show that it can be done.

SHPE has over 150 professional and student chapters through out the United States and is part of a major national effort entitled Seeding the Hispanic Pipeline of Excellence in Mathematics, Engineering and Science (SHPE/MAES). The SHPE/MAES pipeline is organized by the Society of Hispanic Professional Engineers and the Society of Mexican Engineers and Scientists. In 1992, about 327 Hispanics were awarded Ph.D.s in science and engineering and one of the Pipeline's goals is to raise this statistic, eventually sending several thousand Hispanic Ph.D.s each year out into the economy. The program in Washington, D.C. constitutes a model for the nation.

During the school year Elizabeth attends Montgomery Blair High School in Silver Spring, Md. and is involved in the Montogomery County Magnet program which

focuses on a curriculum of math, science, computers and computer science for students who are academic achievers. The classes are harder and there are more deadlines, but according to Elizabeth, one of the hardest parts for her is maintaining her cultural identity. "I feel that I've lost touch with my culture so to speak. People tell me that I don't speak Spanish as much and there are other things too. Like I don't know how to dance certain dances...things like that. The SHPE program and my work as a tutor for other Hispanic students have kind of put me back in touch with my ethnicity."



Learning that Elizabeth is a tutor brings the question to mind of how, and why, she manages to do so much. From behind

wire rimmed glasses she blinks thoughtfully, before answering. "It's not difficult at all, I've made a lot of friends because my mom is in the public school system. A lot of the kids know her — talk about her like she is one of their friends also. She has really made a difference in some of these kids' lives. Really it's not at all like work, it's enjoyable and you're helping people also."

Up until now Elizabeth's answers have come easily, flowing from her like second nature, but something about the last one makes her stop and think, before talking more about her mother and her life in general. "My mom used to teach elementary school, but now she's a program coordinator for Transition — a program that helps the community. She works at schools serving low income and immigrant families, finding them medical care, delivering food, helping them to get a start in this country. And up until now I didn't realize how much I am surrounded by the concept of helping people — SHPE does, so does tutoring Hispanic

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students, and, of course, my mom does. I didn't realize what a big part the concept of helping people plays in my life."

It's obvious that amidst a time in her life when many kids are confused, unmotivated and fall into the category of fashionably surly, Elizabeth Mendoza is dedicated, strong, persistent, and as happy as the silver court jester charm that hangs from her neck. Looking ahead, she tells me that perhaps she will return to the SHPE program as a teacher's assistant and give the kids an "old fogie reminiscing session," saying things like, "You all don't know what I had to go through -- I was here for the first year of the program."

But before she has the opportunity to tell the kids how it was, she has to first deal with how it is.

"Not counting the kids in the Magnet and the SHPE program I think at one point I was affected by a certain type of stereotype in school. It did seem and sometimes it still does seem like a lot of kids have the attitude of 'I hate school -- I don't want to do it. It's like, 'Oh, you got an A. You must be a nerd.' In general it was like good grades weren't fashionable or something. It makes me think about why we as a race [Hispanic] are in the gutter scholastically. SHPE gives kids who really want to learn a supportive environment."

Elizabeth Mendoza's insight into the schizophrenic academic environment that many minorities must deal with is both a relief and a sad commentary. It is her insight that compels her to not only help herself, but also others around her. And, by the same token, it is her insight that points out the self-defeating, anti-academic mindset entrenched in many minority student communities that consider bad grades a fashion statement. But fashions change quickly, especially among teenagers, and looking at the way Elizabeth wears her education it's a sure bet that it looks good to the rest of her classmates. ■

The Summer Enrichment Program

is a demanding math, science and engineering program for talented Hispanic youths and other minorities. It is divided into a pre-college and a college component. The pre-college component is The Science, Technology, Engineering, Mathematics Institute.

Participants of this institute are 13 to 16 years old and have been identified as gifted and talented students representing the school districts of Washington D.C., Northern Virginia, and Maryland's Prince George's and Montgomery Counties. Applicants undergo a rigorous and competitive admission process. Selected students participate in four-weeks of intensive exposure to college-level mathematics, physics, engineering, computer science and engineering management, which emphasizes creative scientific experiences and critical thinking. The Young Educators Program is the college component of the program. This component is oriented to stimulate advanced Hispanic science, math and engineering college students to pursue graduate and doctoral degrees. Students receive instruction on how to develop lesson plans, manage a classroom, perform student assessment, and how to design homework assignments, reviews and grade coursework. Participants also prepare lessons in physics, digital logic, engineering management, computer programming, statistics, calculus, vectors and analytical geometry.

For more information on academic opportunities available through the Seeding the Hispanic Pipeline of Excellence in Mathematics, Engineering, and Science Project, contact Charles E. Vela at P.O. Box 34520, Bethesda, Md., 20827-0520 — phone (301) 299-0033 or (703) 883-6808. The internet address is cvela@tsfsrv.mitre.org ■