Teaching Kids to Love Math and Science

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On the cover
Illustration by Kevin Ghiglione

On this page
Photo by Patrick Dunn
Finally, football

It’s been a couple of years since I made it back to my own alma mater to attend a football game, but I watch every televised game and sometimes listen to the radio broadcasts online. Football is a big tradition there, and the four generations of my family who have attended the school are loyal fans. Here’s an example:

My grandfather (who was nicknamed Taterbug, for reasons too long to go into here) was a snare drummer with the 16th Infantry Regiment Band during World War I, and he reportedly began to play the cadence for the school’s fight song as the band entered Germany. His drum now is part of the university’s archives.

I don’t know that any of Taterbug’s descendants will live up to his fine example, but football remains a part of our family tradition. We’ve kept season tickets in the same section and row of the stadium for close to 40 years now; the university once offered Dad the chance to trade up our 10-yard-line seats for 50-yard-line seats, but he declined, since the move would have put us on the opposite side of the stadium and facing the afternoon sun. When my brother became a scholarship donor to the university, he earned a pair of season tickets in the stadium’s club level—where the food is free, the seats are more comfortable and the bathroom lines are much shorter—but he usually gives those tickets away, preferring to sit in our old seats on the lower level, closer to where all the action is.

When I was in college, my idea of a romantic date was going to a game at the school’s pair of Heisman trophies. As it turned out, I married a man who went to a different college in another state, one whose football program considers the season a wild affair if they make it to a bowl game in some place like Mobile, Ala. My family’s level of excitement over football is a continual source of amusement for my grandfather (who was nicknamed Taterbug, for reasons too lengthy to go into here) was a snare drummer with the 16th Infantry Regiment Band during World War I, and he reportedly began to play the cadence for the school’s fight song as the band entered Germany. His drum now is part of the university’s archives.

Let me make this clear: I’m not even that big a sports fan. But there’s something about rooting for a team and being part of its triumphs and losses that transcends bragging rights, entertainment value or even four generations of family history. There’s something about walking through a tunnel into the bright daylight of an 85,000-seat college stadium on game day, hearing the marching band play the fight song, seeing the crowd in your team’s colors and knowing that there’s a good chance, a darn good chance, that at the end of the day you and those 85,000 other people will be rejoicing together that overwhelms me and makes me tear up every time I do walk through that tunnel.

UTSA is a few years away from fielding its football team, and likely a number of years away from filling the Alamodome’s 65,000 seats to capacity. I’d be pleasantly surprised if the Roadrunners made it to a bowl game in Mobile, Ala., before 2020. Make no mistake, I am a fan and have been looking forward to UTSA football since I started working here nine years ago. But the UTSA football milestone I most look forward to could be a rather inauspicious one: the day when those “UTSA Football—Still Unbeaten!” T-shirts become obsolete. On that day, I’ll be watching and cheering and crying along with everyone else.

—Rebecca Luther
In a chilly February morning in 1983, the first UTSA Alumni Association 5K race, co-sponsored with the University Center Program Council, attracted approximately 400 avid runners. When UTSA Homecoming came on the scene in 1985, the race was dubbed the Hightailer 5K, going with the theme “Hightail It Home!” It continued as a 10K race until it became the Dollars for Scholars 5K Race in 1993. Now under the name UTSA Alumni Diploma Dash, the event marks its 25th anniversary in 2009.

On Feb. 21, more than 1,000 runners participated in Diploma Dash 2009 as part of homecoming festivities. The sponsorships and business partners have grown tenfold, and alumni, their families and UTSA students are active participants and volunteers. The race, now professionally chaperoned, continues to expand, adding corporate team, student team and ROTT team challenges; a wheelchair division was added this year.

Through the years, many dedicated volunteers stepped up efforts to make the fundraising event one of the premier races in South Texas. Roger Soler ’85 was instrumental in developing the race into what it is today, working tirelessly with volunteers to make sure the race attracts serious runners and maintains its reputation as a premier running event. Additionally, Soler was the men’s open champion in 1985, 1986 and 1990. It was renamed the San Antonio City Championship in 1997 and began attracting a large group of faithful participants, corporate sponsors, UTSA students and faculty, wellness providers, and retail sports and running stores to help make each race more successful than the last. The race officially was re-branded and trademarked Diploma Dash in 2000.

J.R. “Corky” Rubio, M.B.A. ’76, has run in the race for 20 years. He was a founding member and first vice president of the UTSA Alumni Association and was named the Alumnus of the Year 1984. “Diploma Dash is a signature event for me, and running each year makes me back to those crisp, cool days when we students were first admitted to the 1604 Campus,” said Rubio. “At time went on, I just enjoyed the camaraderie of the morning, especially seeing the crew of volunteers at work. Then the race became a big event, with several San Antonio mayors either running or shooting the starting gun. After all those years, I have quite a T-shirt collection.”

Another long-time runner is San Antonio Express-News editor Robert Rivard ’96, Alumnus of the Year 2000. “I ran my fastest 10K ever in Diploma Dash 1992 before the event was shortened to a 5K,” he said. “I was running the San Antonio Marathon the same year and was really ready. The 25th anniversary has me ready to strap on running shoes and train.”

The race also has attracted many elite runners through the years, and in 2008 Olympic marathon runner Liza Hunter-Galvan ’93, ’95, has clocked first in the women’s open division for a total of 10 years. A native New Zealander, Hunter-Galvan earned a track and field scholarship to UTSA and was coached by Shawn Ranagan. After graduating, she settled in San Antonio, married, raised a family and became a teacher. “I love the Diploma Dash,” she said. “I feel so indebted to UTSA—it’s just a very small thing to do to support UTSA. I’m going to do whatever I can to help. My experiences at UTSA changed my life.”

—Marco Mattingly

Diploma Dash celebrates 25th anniversary

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Southwest Guitar Festival attracts and rewards top talent

Some of the world’s best acoustic guitar performers and top student guitarists gathered in San Antonio Feb. 4-8 as the UTSA Department of Music hosted the 2009 Southwest Guitar Festival. The event, which is the largest acoustic guitar festival in the United States, has been directed by Assistant Professor Matthew Dunne since 1995. Fellow music department faculty member Michael Richter is assistant director.

The Southwest Guitar Festival was formed in 1991 by guitar professors at UTSA, Southwest Texas State University and UT Austin as a small regional festival for the guitar students of central Texas. In 1995, the festival moved permanently to San Antonio, where it has been held every two years or so. In 2000 the festival hosted the Guitar Foundation of America’s International Convention and Competition, bringing over 400 classical guitarists, teachers, guitar makers and aficionados to San Antonio. Nemanja Ostojic, a 24-year-old Serbian graduate student enrolled in the Jacobs School of Music at Indiana University, captured first place honors and the $5,000 prize at the 2009 festival’s international competition. The four-day competition featured 34 of the world’s top student guitarists representing 15 countries including Serbia, Norway, Armenia, Singapore, France, Bulgaria, Brazil, Peru, China, Romania, Columbia, Australia, Canada, Mexico and the United States. Among the 34 competitors were UTSA graduate students Jesus Garcia, Michael New and Tomas Vela and undergraduate student Michael Cohen.

Pablo Garziñ;o, from Mexico City and currently studying at Hochschule, Weimar, in Germany, won second place and a $2,500 prize. French student Florian Larousse, from the Paris Conservatory, took third place and $1,500 in prize money, and American student Moe Head, enrolled at Yale University in New Haven, Conn., finished fourth, taking home $1,000 in prize money.

“We were excited to hear these very inspiring young artists and felt that all the participants added something new to this competition,” said Dunne.

In addition to the competition, the festival also allowed the students to interact and hear performances by some of the world’s top international classical guitar performers, including the Brazilian duo Sergio and Odair Asaad, Romanian Dennis Ana Rus and the Los Angeles Guitar Quartet. The opening concert featured the world premiere of “Triquetra for Guitar, Horn and Chamber Orchestra.” The original piece, composed by UTSA Professor James Scott Balentine, was performed by UTSA Assistant Professor Matthew Dunne and conducted by UTSA Associate Professor Eugene Dowdy.

The Southwest Guitar Festival was presented in collaboration with Arts! San Antonio, the San Antonio Chamber Music Society and the San Antonio Symphony, with major support from the City of San Antonio Office of Cultural Affairs, the Augustine Foundation and UTSA’s President Ricardo Romo.

For more information, visit www.swgf.org.
Wolff, Groves honored at President’s Dinner

The sixth annual President’s Scholarship and Awards Dinner honored Nelson Wolff and Helen Kleberg Groves.

The 2006 President’s Award was presented to Wolff, who led the city for four years as mayor and has headed Bexar County as county judge since 2001. As mayor, he oversaw the creation of the UTSA Downtown Campus, construction of the Nelson W. Wolff Municipal Stadium and the development of the Central Library.

As county judge, Wolff worked to bring Toyota Motor Manufacturing and the PGA Village to San Antonio. In 2008, he was successful in convincing voters to approve a visitor tax-backed bond package of $415 million. The bond funds will help build up to 13 amateur sports facilities, a performing arts venue, improvements to the San Antonio River and future improvements to the AT&T Center and the Joe and Harry Freeman Coliseum.

The 2008 Tom C. Frost Award was presented to Groves, who is president of the Robert J. Kleberg, Jr. and Helen C. Kleberg Foundation, established in 1959 by her parents. The foundation has funded countless projects in Texas and across the country, particularly in the areas of biomedical research, health services, higher education, and veterans and military projects. UTSA has been the recipient of more than $3.7 million from the foundation and paid a hosting tribute to the Klebergs with the dedication of the Kleberg Commons on the 1604 Campus last March.

University adds football program

The University of Texas System Board of Regents in December approved UTSA’s Athletic Initiative Business Plan granting the university permission to expand athletics and add a football program. The plan calls for UTSA to develop an $84 million athletics complex and add an NCAA Football Championship Subdivision (FCS, formerly Division I-AA) football program. The intent is to advance the athletic department’s existing 16 intercollegiate sports programs plus football to an NCAA Football Bowl Subdivision (FBS, formerly Division I-A) conference.

“We are grateful to the Board of Regents for their support to enhance our entire sports program and bring UTSA football to San Antonio,” said UTSA President Ricardo Romo. “Additionally, UTSA would not be here today without the support of the leadership and citizens of San Antonio and Bexar County who approved $22 million in funding toward building the new Athletic Complex.”

UTSA will fund the athletic initiative through student fees, corporate and private support, and other revenue streams that do not draw from the institutional academic budget. In September 2007, UTSA students overwhelmingly supported a referendum to expand the athletics program and double the athletics fee over the next five to seven years from $1.00 per semester credit hour up to $20 per semester hour, capped at 12 semester credit hours.

What is the best-case timeline for UTSA football?

2009: Launch a fundraising campaign; hire a head coach and two assistant coaches

2010: Hire additional staff, sign first recruiting class in February and begin practicing with red-shirted inaugural team in August 2011: Expand team and play independent football schedule 2012: Play Southland Conference football schedule

When will the football team play home games?

UTSA has a tentative agreement with the City of San Antonio to use the Alamodome for home games.

When will construction begin on the Athletics Complex?

The goal is to begin construction on the complex (to be located at Loop 1604 at Macon Road) in February 2010. The completion phase one is slated for October 2011. Phase one will include NCAA Division I-quality facilities for soccer and track, roadways, surface parking and other related infrastructure. After that, depending on successful fundraising, practice football fields will be added.

How will football affect UTSA’s commitment to become a national research institution?

UTSA has long been a university of first choice and provides access to excellence for more than 28,400 graduate and undergraduate students, and it is still on target to become a national research university. That means there will be an increase in the number of academic programs, more contributions to the economic success of San Antonio and the region and enhanced student life. Now, a Division I football program is added to this list.

—Marianne McBride Lewis

FAQ

For updated information, go to www.utsa.edu and select Football from the Men’s Sports dropdown menu.
It bites and keeps on biting…

Researchers study how ticks transmit bacteria

If you've ever had a black tick—the size of a sesame seed—bite into your flesh, chances are you probably removed the blood-sucking insect with a pair of tweezers and had no ill effects.

But for more than 20,000 people in the United States each year, a bite from a tick can lead to fever, rash, fatigue, and pain and swelling of the joints, all common symptoms of Lyme disease. It's one of the most prevalent infectious diseases caused by arthropods that transmit Borrelia burgdorferi—the bacteria that cause Lyme disease—says a researcher with UTSA's South Texas Center for Emerging Infectious Diseases.

"The biggest problem is a lot of people won't get rid of the entire infection because organisms still are there [after the tick is removed] although in low numbers," says Janakarim Seshu, assistant professor of biology. "It's a chronic disease, and expensive treatment is involved because you have to take high levels of antibiotics to clear the bacteria."

Seshu recently was awarded $1.4 million to study how Borrelia burgdorferi, the causative agent of Lyme disease, interacts with mammalian host cells. His is one of 10 faculty research projects under the UTSA Minority Biomedical Research Support for Continuous Research Excellence program that received a five-year, $9 million grant from the National Institutes of Health (NIH).

Seshu and his team of postdoctoral, graduate and undergraduate students are examining how the organism is able to survive in ticks and is able to adapt to the conditions that are radically different in the mammalian host.

"Borrelia burgdorferi is in the gut of the tick," Seshu says. "Once the tick takes its blood meal, and [that meal] reaches the mid-gut, the organism senses that it's time to transfer from the tick to a mammal because of several factors or conditions present in the blood such as the temperature, pH, etc. We want to know what makes the organism do that."

Seshu and student researchers began by examining how the organism is regulated at the tick-specific temperature of 23˚C versus mammalian body temperatures of 37˚C. They are studying the genes that allow for the adaptation of Borrelia burgdorferi in mammalian hosts following transmission from ticks.

“There are a lot of genes that are increased in expression when you transfer the bacteria from in vitro cultivation at tick-specific conditions to mammalian host specific conditions," he says. "So we are inactivating those genes that are regulated in expression in the presence of mammalian host cells or conditions. We think those are the genes that facilitate successful transmission of Borrelia burgdorferi from a tick to a mammal.

The researchers are also involved in studying how the gene expression is regulated under these conditions.

The research on Lyme disease is being done with the assistance of three postdoctoral students who are pursuing careers in biomedical research, three doctoral students, two students who are pursuing master's degrees in biotechnology and three undergraduate students. Although funding for the project continues through 2011, Seshu says he already has begun gathering data and formulating ideas that will be included in a proposal to be submitted to the NIH for new funding.

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Talk this way

When Michael Ceppek arrived in eastern Ecuador some 14 years ago to live and work among the indigenous Cofán Indians, he didn't speak a word of the Ñanga language. He was able to communicate with several of them, however, because they spoke Spanish learned from missionaries.

The chief of the Cofán community soon put a stop to those conversations. "He told everyone, 'Mike needs to learn the language. Do not speak any Spanish to him.' So I was thrown into it," Ceppek says.

The chief’s strategy worked. Ceppek, an assistant professor of anthropology at the College of Liberal and Fine Arts, now speaks Ñanga and has been accepted by the Cofán, a community of about 140 people occupying 120,000 hectares in the village of Zabalo.

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Frozen assets

A team of UTSA engineering and business students traveled to the Canary Islands for the 2008 Campus of Excellence to present their innovative solution to one of the world's most pressing public health problems: transporting and storing vaccines. According to the World Health Organization, the cold chain system for storing and transporting vaccines from the manufacturer to the people being immunized is a logistical challenge. That's especially true in developing countries, where most individuals live in rural areas lacking good transportation and a steady power supply.

The UTSA group designed and developed the business plan for the LifeCube, a small portable storage box that uses a proven technology, ammonia absorption refrigeration, to lower temperatures below 10 degrees Celsius. To work, the LifeCube requires only a heat source, be it the sun or a small fire. Currently, vaccines are stored and transported in either solar-powered refrigerators or ice-based coolers. In contrast, LifeCube's technology is inexpensive, portable and self-sustaining. The UTSA team hopes to fully develop the product and then hand it off to a nonprofit organization to deploy.

"This project gave our students the opportunity to push their boundaries and learn the impact they can have on the world," said Cory Hallam, director of UTSA's Center for Innovation and Technology Entrepreneurship. "Social entrepreneurs not only create a viable business, but they do so in a way to effect change within society."

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Safety ‘Net

From the pages of UTSA Discovery

It’s no secret that organized crime is flourishing on the Internet. Cyber thieves pluck bank account, credit card and identity information by hacking into vulnerable systems or using fake Web sites and e-mail to trick users into divulging sensitive information. What many people don’t realize is that their own computer could be used in a cyber attack against other systems or even critical infrastructure—and they wouldn’t even know it.

The detection of botnets—networks of hijacked, or “zombie,” computers used to carry out crimes while making them harder to source—is a significant research area for UTSA’s newly created Institute for Cyber Security. Under the direction of world-renowned expert Ravi Sandhu, ICS has as its mission the protection of the cyber infrastructure through research and its commercial applications, as well as through education and service.

“We’re not just commercializing what we have,” Sandhu says. “We have to develop some cutting-edge stuff. It has to be something new.”

UTSA last year won a competitive $3.5 million grant from the Texas Emerging Technology Fund to create the institute and hire as its founding executive director Sandhu, who led the information security faculty at George Mason University to come to UTSA. He also received a $1 million grant from the University of Texas at Austin. The institute, which involves the departments of computer science, electrical and computer engineering, and information systems and technology management, has a half-dozen full-time equivalent researchers.

Reaching his goal of 10 to 15 full-time equivalent researchers would make UTSA’s cyber security program one of the biggest in the country among academic institutions.

—Kate Hunger

To read the full story and other stories about ongoing research at UTSA, go to www.utsa.edu/discovery.
COURTING SUCCESS

By Leigh Anne Gullett

Rae Rippetoe-Blair cannot fathom life without basketball. She tried it once back in 1985. Nearing graduation with a business degree from Oklahoma State, where she was a four-year starter on the women’s basketball team, Rippetoe-Blair was offered few job interviews. But she just couldn’t do it, couldn’t bear to walk away from the game she loves.

So Rippetoe-Blair ditched the business suit for a pair of Nikes and found an assistant coaching spot at Southern Nazarene University, despite her mother’s warning that she wasn’t going to like coaching. More than 20 years later, her heart is still in coaching, and her mother is one of her biggest fans. “She loves it,” says Rippetoe-Blair. “She just thought I wanted to be a career woman. I’m just in the coaching career.”

Her current role as head coach of women’s basketball at Southern Nazarene, then in 1987 became head coach at Phillips College. In 1992, she returned to her alma mater as an assistant coach for the first of eight seasons with the Cowgirls. It was her return to Stillwater that put her on Hickey’s radar. “She was kind of the worker bee,” says Hickey. “She was just very diligent in her work and always very, very personable.”

Former Roadrunners standout Nikki Hendrix remembers Rippetoe-Blair from those eight years at Oklahoma State, too. An all-state forward from Blair’s hometown of Ardmore, Okla., Hendrix regularly went to basketball camps at OSU. After high school, she joined Marsha Sharp’s famed Texas Tech Lady Raiders, but after her freshman season in Lubbock, Hendrix wanted a change. Meanwhile, Hickey had taken over as athletic director at UTSA, and the Roadrunner women’s basketball program was a shambles. Not only was the program desperate for wins, the graduation rates were low; of the 1993–1994 freshman women’s basketball players, only 33 percent had graduated six years later. Hickey needed more than just an “X”s and “O”s” coach. She called Rippetoe-Blair.

“I never doubted that I could come in here and—with the support we had—get things turned around,” says Rippetoe-Blair, whose 2008 graduation report has raised the rate to 73 percent. “It was one of those things that you come in and you set some standards. I challenged that first group of young ladies to start a tradition, to start pride, and they really bought into that.”

Rippetoe-Blair’s first Roadrunner team featured seven new players, three of whom came from Seward County Community College, where they had posted a 33-1 record. The team also featured Texas Tech transfer Hendrix, who also happened to be expecting her first child, Ian, that August. Rippetoe-Blair was with her in the delivery room. “She was the one taking pictures,” says Hendrix. Hickey was there, too, and it was Hendrix’s first time meeting the athletic director. “They were in the room when I had him,” says Hickey. “She’s just such a down-to-earth coach. I kind of struggled through school having a little one, but she stayed on top of me.”

Rippetoe-Blair credits a lot of her Roadrunner program’s current success to Hendrix and her teammates that first season. She says the group helped her set the work ethic that carried over to other players. “It took us a while,” says Rippetoe-Blair. “It didn’t happen overnight, but I think they started that work ethic. I think my second year we were No. 2 in the country in defense, so we really bought into the system of what we wanted to do here.”

The Roadrunners finished 7-7 in 1999–2000 with just three conference wins. In 2000–2001, their first season under Rippetoe-Blair, the Roadrunners went 16-13 overall and 13-7 in the Southland Conference (SLC). The following season, the squad went 16-12 overall and 15-5 in the SLC. Finally, in just her third season at UTSA, Rippetoe-Blair guided the Roadrunners to their first SLC regular season championship with a school-record 17 conference wins and an overall 28-11 mark. Despite the consistent regular-season success, it wasn’t until the 2007–2008 season that the Roadrunners finally broke through during SLC Tournament play and earned the school’s first NCAA Tournament bid, falling to Texas A&M in the first round. Yet, the message Rippetoe-Blair preaches this season is nearly the same as the one she started with eight years ago, when she inherited a losing program. “I’ve always told all of our kids that you can have the best athlete and the best talent in the world, but that isn’t going to win you ballgames.”

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Interdisciplinary by Nature

BY LYNN GOSNELL

It's 4 p.m. on a Monday and the normally energetic Heather Shipley is feeling the effects of her caffeine-free lifestyle. As she prepares for class, Shipley remarks that she is 10 hours into her day as an assistant professor in the Department of Civil and Environmental Engineering. As one after another of her students arrives, the roomy conference table slowly fills up with notebooks, papers, computers, and, yes, many versions of liquid caffeine.

Shipley will have to draw her late-afternoon boost from water—the topic of the day, not the drink. Along with air and soil, water is a key focus of the graduate class, Analysis of Environmental Problems (CE 6273). Water, and more specifically water treatment, is also Shipley's area of expertise.

Shipley's doctoral research in environmental science was carried out through the Center for Biological and Environmental Nanotechnology, a National Science Foundation (NSF) center at Rice University. A chemist by training, she researched the use of nanoparticles to remove arsenic, a significant groundwater pollutant, throughout the developing world. Shipley currently holds an NSF grant to research the application of nanotechnology to heavy metal contamination in water.

Before class begins in earnest, there's some business to attend to: student Penelope Wagner must reschedule her next in-class presentation. She's flying to St. Petersburg, Russia, to attend a training workshop in sea ice monitoring, the topic of her ongoing research. The only master's-level student in the class, Wagner received full funding to attend the international conference, one where she will get to meet polar ice experts from around the world. The class jokes about expecting souvenirs from their classmate.

Shipley requires every student to give two half-hour presentations each semester. The first focuses on environmental problems associated with water; the second is on air. The third major assignment for the class is a paper on soil or sediment.

For the fall 2008 semester, students researched and, in effect, taught their classmates about the latest scientific thinking on environmental issues associated with heavy metal contamination in water, ocean acidification, wetlands, acid rain, ozone, air pollution, and volcanic eruptions, to name a few topics.

The ability to understand and be able to communicate the significance of environmental problems and how the scientific community is addressing these issues are key goals of Shipley's class.

"It's important that students learn how to critically review the scientific literature and know what's been done, so they can make an impact through their own work," she said.

Besides diving deeply into the literature for presentations, once a week a student summarizes a current environmental problem, solution or new finding. Shipley finds that the topics are a good way to generate cross-disciplinary debate. As one student puts it, "We have engineers, chemical engineers, geologists and a couple of environmental scientists, so we approach problems very differently."

In today's class, Almoutar al-Hassan, one of the six international students in the class, presents his summary of an article from the periodical Geotimes (a publication of the American Geological Institute, since renamed EARTH) about bacteria's role in the making of rain and snow. Tiny ice crystals are the key to the world's precipitation, the articles states, but these crystals are dependent upon particles or nucleants to form properly.

"It was known that bacteria was one of the nucleants that generate rain," al-Hassan explains, but the new discovery is that bacteria is an initiator of ice crystals" from which snowflakes grow.

Although bacteria have long been known to form ice crystals on plants, this study is the first to link the bacteria more directly to precipitation around the world, raising enticing questions. Quoting from the Geotimes article, al-Hassan asks, "Does bacteria use the ability to initiate rain as a way to get around?" And does this mean that deforestation and land usage play more of a role in climate change than previously realized?

Shipley asks her students how they feel about the possibility of non-sterilized bacteria being used in cloud-seeding to increase rain during drought. Already, sterilized bacteria are being used in cloud-seeding for commercial purposes. Some class members remark on China's cloud-seeding efforts using silver iodide at the Beijing Olympics.

"It's an unnatural procedure," notes al-Hassan.

Student Danielle Wyrick wonders about the unintended consequences of cloud-seeding—what if it rains somewhere else than intended? Wyrick, a planetary geologist who works at Southwest Research Institute, is one of several working scientists in the classroom. For her next class presentation, Wyrick will discuss the impact of volcanoes on the ozone in the Earth's atmosphere.

The presentations and current events summaries enrich the lecture format, Shipley says. Because CE 6273 is one of just two core classes in the environmental science and engineering doctoral program, the lectures impart critical knowledge for the students who will be taking their qualifying exams this spring.

Today's lecture: Filtration and disinfection in the water treatment plant. In fairly short order, Shipley details filter mechanisms, typical filter media (for example, sand, coal, activated carbon and synthetic materials), effective backwashing, and the pros and cons of disinfection agents like chlorine and ozone. She also brings in photos of water treatment plants to put the material in a real-world context.

One student, Keith Muhlestein, asks about the use of carbon nanotubes in filtration, which generates a brief discussion about this promising area of research. Muhlestein is licensed by the State of Texas as a professional geologist. He operates a consulting firm that focuses on water quality and quantity issues, aquifer studies and regulatory compliance for government, manufacturers, realtors and others. His next class presentation focuses on ozone compliance issues in San Antonio and surrounding counties. For his doctoral research, he's using thermal imaging to study cave ventilation over the Edwards Aquifer recharge zone.

The diverse backgrounds of her students mirror the kind of interdisciplinary profile that real-world environmental problems require, says Shipley.

"Environmental problems are complex, and so to solve something you have to put together a team and a mix of collaborative backgrounds," Shipley says. "I don't think one technology is going to solve everything."
The word problem is familiar: A train leaves the station at 3 p.m. going at a speed of 65 mph. Two hours later, another train leaves the same station traveling the same direction at 80 mph. At what time will the second train catch up to the first?

"Who cares?" you might say—at least if you're American. It's no secret. The U.S. is lagging far behind the rest of the world in the number of professionals trained in science, technology, engineering and math, often called STEM fields. According to a 2005 study by the National Academies, which advises the federal government on issues of science and technology, 32 percent of U.S. undergraduates receive their degrees in science and engineering each year. Compare that to China, which boasts a rate of 59 percent, or Japan's 66 percent. In another study, called Tapping America's Potential, conducted by the nation's business leaders, more than 90 percent of all scientists and engineers in the world are expected to be living in Asia by 2010.

Educators, scientists, engineers, politicians and business leaders know that the ability to answer the simple word problem above is crucial to the nation's future. It's not because trains themselves are the issue, they say, but it shows a skill-set and critical thinking capability that American students lack today. And, as the saying goes, knowledge is power.

"Our dominance in the world—our economic dominance as well as military dominance—everything is based on our technological dominance, which started during the Second World War," says Mauli Agrawal, dean of the College of Engineering. "We have been No. 1 in the world. We create the new technologies, hence the new businesses. And that dominance is now not assured because other countries are catching up, and they have larger numbers in terms of people, so there will be a lot of competition."

As America's competitive edge plummets, it is followed by a decline in the number of jobs available in the country. Along with that comes a drop in average household income. To help curb this downward spiral, UTSA is making strides to increase the number of students involved in STEM fields, from elementary to graduate school.

"There's a very urgent need for more students in STEM areas," Agrawal says. "Our future, the future of this country, will depend on that."

The Pipeline
Changing the course of the nation won't be easy. In Texas alone, the numbers are grim. In 2000, the Texas Higher Education Coordinating Board adopted Closing the Gaps by 2015. The Texas Higher Education Plan. Among other things, it called for increasing the number of students completing bachelor's and associate degrees and certificates in STEM areas from 12,000 in 2000 to 24,000 by 2010, with an ultimate goal of 29,000 by 2015.

Yet in a 2009 progress report, the board reported that the number of degrees and certificates awarded from public institutions in technology, including the areas of computer science, engineering, math and physical science, had risen to only 12,666 in 2007. To stay on track, institutions must award 89.5 percent more technology degrees and certificates in the next year.

"We're trying to close the gap in a lot of these things, but we're not there yet," says Robert Gracy, UTSA's vice president for research. "It's not uniquely UTSA. It's all across the country and certainly in Texas."

If educators wait until students reach college to whet their interest in STEM fields, it's already too late. Many of the country's future scientists and engineers are being lost in second and third grade, says Aaron Cassill, director of STEM initiatives for the College of Sciences.

"We will succeed [at the college level] when we have the good clientele, the good students coming through the door," Cassill says. "In order to have the good students, we have to think all the way back to elementary school and make sure that there's a pipeline that goes from elementary to junior high through high school and then finally deposits to us students who are excited and ready to go on in our areas of study."

Why Jane and Johnny Can’t Factor a Polynomial

University taking steps to address the nationwide shortage of scientists and engineers

BY LETY LAUREL

Illustration by Kevin Ghiglione
It’s a popular theory. In every pipeline, if there are leaks anywhere within, there's nothing coming out of the tap at the end. So UTSA is tak- ing a multipronged approach. Get children interested—and suitably edu- cated—when they’re first introduced to math and science, and keep their interest until they graduate high school, enter college, receive their under- graduate degrees and then continue on to graduate-level coursework and, hopefully, careers. And “what drives the pipeline is teachers,” Cassill says.

Teachers can disseminate complex information to their students, and they can convey the importance of the information or skill. The greatest impact comes in the number of students they can influence. But there are holes in this part of the pipeline, too. According to the Closing the Gaps report, Texas also is lagging in the number of teachers certified in math and science. Since 2000, certifications have grown by 41 percent, but they needed to grow by 120 percent to stay on track to meet the state’s 2010 goal of a total of 5,400.

Another challenge is teacher retention. Nationwide, 44 percent of those teaching STEM courses in kindergarten through 12th grade leave within five years, according to the Business-Higher Education Forum, a group of CEOs, college and university presidents and others working to strengthen the nation’s educational infrastructure. That is higher than teachers of other subjects, says Joe Lazor, director of UTSA’s math and science teacher preparatory program. One reason attrition rates are so high for all teachers is the strain of working with children all day, with little or no adult interaction. But the reason it’s par- ticularly high among those teaching STEM fields is because of the miscon- ception that math and science are too difficult and, for some, unnecessary, Lazor says.

“There is a bias against STEM,” he says. “There’s a frustration built into math and science teaching because you’re looking out there and there are students who have the same perception: ‘I can’t do this.’ It’s a real task to teach math and try to convince an entire class that everybody can do alge- bra, not just the ‘smart’ ones.”

So in 2003, UTSA established the teacher preparatory program, which allows undergraduates to explore teaching careers in math and science while completing their degrees in the College of Sciences. By the first semester, students are already integrated in an elementary classroom, first observing and second grading and reading the class. From there, they go on to help teach high school classes. By the time they graduate, they have received a degree from the College of Sciences and teaching certification from the College of Education and Human Development. But more important, Lazor says, they have received class- room experience. So far, the program has about 80 students enrolled. Already almost all of the undergraduates have graduated and moved on to teach.

“I have that goal that we’ll be the biggest program producing science and math teachers in the state, and I think we can do that,” says John Frederick, provost and vice president for academic affairs.

To play a more active role in early science and math education, Cassill says this approach introduces children early to STEM fields but also expands curriculum to teach problem-solving skills over a seven-week period during the summer. It has been replicated nationwide.

It’s the same theory that drives another initiative spearheaded by UTSA, this one designed to bridge the gap between secondary and higher educa- tion. The San Antonio Math and Science Education Partnership is sup- ported by a two-year, $800,000 planning grant received from the National Science Foundation. Its purpose is to bring together educators citywide, from teachers and school district superintendents to faculty and staff from community colleges and universities, to meet with business leaders. Together, they tackle critical education and workforce development issues, such as the sometimes rocky transition from high school to college, and work to determine how to make students successful in STEM fields.

Educators know that while it’s important to attract and hold students’ interest in the STEM fields early, it’s also critical that all schools collaborate to align their curriculums so that when it is time for students to specialize in a field in college, they will be prepared.

“We must light the fire early but also keep the fire alive,” Agrawal says. If the partnership can demonstrate that citywide collaboration can make a significant impact on the number of those entering STEM fields, San Antonio could receive a $12.5 million grant from the NSF to launch a citywide program.

“Don’t Just Child’s Play
Math doesn’t have to be intimidating. And science and engineering can be enjoyable. But those messages seem to have been lost and forgotten, educators say. So they’re trying to fuel the fun factor. Individually, the col- leges of sciences and engineering have reached into elementary, middle and high schools to attract future UTSA students through science fairs, camps, math competitions and robotics challenges. And when the uni- versity’s new or renovated engineering building opens later this year, it will house the Interactive Technology Experience Center, which will cater to students from kindergarten to 12th grade by providing a place for them to explore the STEM fields using university-grade equipment.

“Our intention is to make it a go-to place where students from schools can come in and do some interactive things as well as some scien- tific experiments,” Agrawal says. “The goal is they leave the place saying ‘Wow, science and engineering are cool.’”

The center will house a $180,000 scanning electron microscope, allow- ing students to see specimens in micro levels they’d never see otherwise, he adds. In time, students will be able to link into the microscope from their classrooms through the Internet and manipulate images of their speci- mens. ITEC also will host robotic summits and mathematics competitions. This con- curring will eventually grow. Keeping students from all around the world to compete against each other.

Agrawal says the center will be part science museum, with machines and devices produced by UTSA engineering students on display, and part interactive learning center. George Perry, dean of the College of Sciences, says this approach introduces children early to STEM fields but also acquaints them with the university. It’s good exposure for them as well as for the school, he says.

“At the end of our science camp, two or three students thought UTSA was where they wanted to go,” he says. “Whether they come to us or don’t come to us, they are going to tell their cousins, siblings and friends at school positive things about us and we’ll be actively involved in the sciences.

“That’s how I feel we can change things. It’s not going to happen in one day but over a decade of effort of slugging it out and doing a good job.”

Similarly, the university’s Provost’s Freshman Engineering Program (PREP) has reached out to middle and high school students since 1979. Created by UTSA math professor Manuel Berriozabal, PREP provides an advanced curriculum to teach problem-solving skills over a seven-week period.

But even with those impressive figures, there’s still work to be done at UTSA and other institutions around the state. Closing the Gaps might be just a recommendation, but failing to work toward it will be detrimental to the country, and specifically to San Antonio, Perry says.

“We have a choice, and people don’t have to meet the goal, but what would be the consequence for our community? I think it would be incred- ibly negative,” he says. “UTSA is our community college, not meaning junior college, but it is a university that really reaches out to our commu- nity. And for our community—greater San Antonio and South Texas—to move forward requires that we embrace that.

“When companies want to relocate to San Antonio and share the won- derful culture that is here, they also have to look for an educated work- force. And that’s what UTSA’s role is, providing that educated workforce.”

To reverse the national downward trend of students involved in STEM fields will continue to take effort at local, statewide and national levels. But Frederick says the university is doing its part to churn out the world’s next engineers and scientists.

“I think that this institution has tried to rise to that challenge,” says Frederick. “I think one of the areas that we continue to focus on, though, is making sure that students are prepared when they come to the university. And so I think you’ll see us engaging in a lot of efforts to work with high schools and community colleges so that we are providing a good system of education for all of our students so that when they come to UTSA and encounter the rig- ors of our classrooms, they are ready to meet those challenges.”

Illustrated by Kevin Dinglone
Moving away to college used to mean packing up a typewriter, hot pot, desk lamp and a spare bath towel. Maybe a set of extra-long twin sheets, too, although John Kaulfus remembers that most of the boys in his dorm just slept in sleeping bags on top of bare mattresses. “When I went to college, I was able to fit everything I owned in the trunk of my car,” he says.

All that has changed, says Kaulfus, executive director of housing and residential life and associate dean of students at UTSA. When the 3,500 students living on the UTSA campus moved into their residence halls at the beginning of the fall semester, they brought microwaves, flat screen TVs, and matching comforter and sheet sets (the female students often go for coordinating window treatments, too, Kaulfus adds). “The students of today, they’re used to those luxuries at home and they’re not giving any of those up,” he says. “They don’t feel like they can live without their computer; they don’t feel like they can live without their PlayStation. . . . So when they come, they make this a home away from home—and it’s what we encourage, because if they’re happy, they’re more likely to stay.”

What hasn’t changed since Kaulfus went to college is the mementos that students still bring from home, security-blanket items that might not be a necessity for modern living but that they still don’t want to do without.

Sombrilla asked nine UTSA freshmen living on campus to share with us the items they brought to college that most remind them of home. Here are the things that they say ground them and guide them as they’re living on their own for the first time.

Clarisa Medina isn’t the first in her family to go to college, but she’s pretty sure she’s the first female on either her mother’s or father’s side of their large extended family to move away from the Rio Grande Valley. “It was a big deal for me to leave, because I’m a girl and I’m the youngest,” she says. Despite missing their youngest daughter, she says, her family has been supportive of her decision to go away to college. “I wanted to get out and experience life,” says Medina, a biology/prenursing student. “I knew if I didn’t get out of the Valley now, I wouldn’t have got out at all.”

What she brought to college to remind her of home is her Batman blanket, a gift from a friend during her freshman year of high school. One of her older brothers has long been a fan of the Dark Knight, and he passed his enthusiasm for Batman cartoons, action figures and movies to his little sister. “It’s kind of my security blanket; I had to bring it with me ‘cause it keeps me warm, and if I’m ever feeling lonely—especially because of college and I’m away from all my family and friends—it gives me comfort.” And even though it was her decision to move away from home, Medina insists, “I need my comfort.”

BY REBECCA LUTHER
All through high school, his Dell laptop was Anton Moczygemba’s constant companion.

Moczygemba graduated from the Engineering and Technologies Academy at Roosevelt High School in San Antonio (after transferring from Churchill so that he could take more technology courses) with more than a diploma. During high school, he also earned five certifications as a Microsoft Certified Professional, and he did all the work for those on his laptop.

“I’ve put this thing literally through laptop hell,” says Moczygemba, a computer science major who chose UTSA for its infrastructure assurance and security program, which he plans to minor in.

At UTSA, he is still the go-to IT guy among his friends, but now his laptop has been supplanted by new technology—his iPhone, which, he says, “has changed my life.”

“Three days after I got this, I didn’t even use my PC; I didn’t need it anymore.”

The laptop and the iPhone, Moczygemba says, are symbols of his past and his future, and even though the iPhone is his favorite new gadget, he says he’s not ready to let go of the laptop. “This reminds me of all I’ve been through.”

Kris McMeans of Austin says she can’t function without her wrist-watch and her laptop. She also has a baby photo of her younger brother that she cherishes now that she’s left home. But McMeans insists that the most important thing she brought to college was herself.

“I’m bringing my attitude and bringing my personal outlook on life, my openness to new things—basically my versatility as a person,” she says.

For McMeans, that means expressing herself through fashion, whether she’s wearing boy jeans or dresses. It means exposing herself to new experiences and meeting new people, something college affords lots of opportunity for: “You can be your own person, and everyone accepts you for who you are. And that’s why I love it so much, is that you get to be yourself,” she says. “I love that there’s no drama in college whatsoever.”

As for her college studies, McMeans also is remaining flexible and keeping her options open. She has considered business and criminal justice. A high school athlete whose primary indulgence is going to the Rec Center too often, she also has thought about kinesiology. Law school holds a lot of appeal, too.

But for all her flexibility, McMeans is diligent about certain things. She’s never late for class and keeps her cell phone turned off between classes so she can study. She doesn’t drink and “drugs are a flat-out no-no,” she says.

“I know not to go outside the lines. Well, OK, I go outside the lines, but I don’t go across the page.”

Sitting on a shelf in his room is the teddy bear that David Suarez’s mother gave him the night he graduated from Austin’s Lake Travis High School.

“I got a laptop, too, but this is more meaningful to me,” says Suarez. “It reminds me that I graduated from high school and succeeded in going to college.”

The cap-and-gown-wearing bear serves as another reminder, too, he says, that he needs to work hard in school so that he can take part in another commencement ceremony several years from now.

The inscription in Diane Gilbreath’s Bible is dated April 2006—when she became an evangelical Christian—and it reads, “Diane, God’s face shines upon you.” The Bible is a gift from her older brother, who intervened after she’d quit going to church a couple of years earlier.

“He could tell my life was not where it needed to be,” she says. “One day he woke me up and dragged me to church. I was hooked the first day I went. I felt like I finally had a purpose in life. I was saved a couple of months later.”

As she begins her college studies, Gilbreath, who is from Dallas, is as persistent in continuing to study her Bible, and notes that it contains as many notations and highlighted passages as her textbooks do.

“If I ever have doubts about things, I know that I can come to this and find truth in it,” she says. “It’s kind of like my safety blanket or my teddy bear. I like to look in it as often as I can, to keep me strong in my faith.”
**Megan**

“I picked a major when I was 10,” says Megan Moore. That’s when the Pflugerville native started paying attention to and analyzing television commercials. When she got a little older, she asked her mother to buy her a video camera and she began scripting her own commercials and recruiting friends to star in them.

Now majoring in marketing in the College of Business, Moore says she has requested that her roommates at UTSA not mute the television during commercials, and she enjoys it when people ask what her major is. “I say, ‘Oh, I’d love to tell you all about it.’”

Moore counts among her prized possessions a Willow Tree Angel of Learning figurine, a graduation gift from her aunt, who happens to do public relations for an advertising agency. “It’s really important to me to have someone that’s close in my life that’s doing something along the lines of what I want to be doing,” she says, adding that she calls both her aunt and her mom whenever she aces a test or completes a project.

The five-inch tall resin figurine is more than just a reminder to put everything she has into her schoolwork; Moore’s mother and aunt both collect Willow Tree and, with this gift, she feels like she’s been brought into their family tradition.

**Michael**

When his mother and aunt helped Michael Adame move from Houston into his new residence hall at UTSA, they were disappointed to discover that he’d brought with him what they considered a vestige of his childhood—his Harry Potter wand—and they made him promise he’d keep it hidden in a drawer.

“They said, ‘Do not take it out!’” Adame says.

The wand is a reminder of his childhood, he admits, and of the days he and his younger twin brothers spent running around their home on broomsticks, pretending they were students at Hogwarts School of Witchcraft and Wizardry. The wand was a gift from his father for Christmas four years ago, and Adame remembers it was the very last present he was handed that Christmas morning.

“My dad got me all these other things—and they were good things, too, like video games and stuff other people would have liked—but I had my mind set on this wand,” he says. “I was so happy … I walked around with it forever.”

Since he’s keeping his promise to keep the wand under wraps (except for the day of our photo shoot), Adame has another security-blanket item: a comforter cover he keeps on his bed, which, he notes, can also double as a Harry Potter cloak.

**Claudia**

When Claudia Olveda graduated from San Antonio’s Madison High School last spring, she became the first in her family to earn a high school diploma. Now she’s the first in her family to go to college and is doing so on a full-ride scholarship from the Houston-based Terry Foundation; Olveda is one of 16 freshmen attending UTSA on Terry scholarships this year and one of 36 Terry scholars throughout the university.

“If it wasn’t for the money that I got from the scholarship, I wouldn’t be here,” she says. “I’m so grateful to them.”

Hanging on the wall of her room next to a collage of photos is the tassel she wore on graduation night, which serves as a reminder that she’s away from home, Rivera says she is documenting her life the same way her mother used to—by carrying her pink Cyber-shot camera with her wherever she goes. And her memory card is full of photos of her friends—from high school and college.

“I can look back on my friends from home, but it also reminds me that I can make more new memories.”

**Stephanie**

When Stephanie Rivera went through sorority rush at the beginning of the school year, she had to go buy dress shoes to wear to rush parties. Disappointed that she wouldn’t be able to go along for the shopping trip, Rivera’s mother asked her daughter to indulge her with a simple favor: “E-mail me a picture of your shoes.”

Then, when Rivera pledged a sorority and her mother wanted to know all about pledge night, Rivera promised her, “I’ll just send you pictures, it’s easier to relate to you that way.”

Her mother has always been a shutterbug, Rivera says, and has an entire bookshelf dedicated to photo albums at their home in Corpus Christi. Now that she’s away from home, Rivera says she is documenting her life the same way her mother used to—by carrying her pink Cyber-shot camera with her wherever she goes. And her memory card is full of photos of her friends—from high school and college.

“I can look back on my friends from home, but it also reminds me that I can make more new memories.”
E"ntrant Bromley still has the 200 or so rejection letters he received when trying to land his first marketing job. They sit in a box in his basement and remind him of how hard he had to struggle and how far he’s come.

But they’re not just a marker of his success. They also symbolize the strides made in Hispanic marketing over the decades. As Bromley rose to become CEO of San Antonio-based Bromley Communications, one of the nation’s leading Hispanic marketing firms, ad spending toward the Hispanic market soared nationwide. Today, it is a $4 billion industry, one that has continued to post gains even with the country in the midst of recession. And, UTSA alumni who years ago identified Hispanics as the newest niche market are reaping the benefits.

"What you’re seeing is such a tidal wave of change in terms of the demographic shifts that have put this company in a great position," Bromley says. "Yes, we’re a Hispanic agency, but you know what? We speak English, too."

In 2007, there were 45.5 million Hispanics nationwide, comprising the largest racial minority group at 15 percent of the population. That number is expected to grow to 132.8 million by 2050, according to studies conducted by the U.S. Census Bureau. Along with the population growth comes an expected increase in purchasing power. Currently about $923 billion, it is expected to top $1 trillion by 2011, according to studies conducted by the University of Georgia and by market research groups.

In Bromley Communications’ 27-year history, the company has grown from three full-time employees to 140 in two cities. They serve more than 20 clients, including Procter & Gamble, General Mills, Toplist, Nestlé, Payless ShoeSource, Coors Brewing Company, AstraZeneca, Novartis, Babies ’R Us and BMW.

"It’s really becoming this new America that we talk about, and we really have to represent creative [messages] that are not stereotypical, but that have respect for that consumer," says Manny Flores, CEO of LatinWorks, a top-rated Hispanic advertising agency in Austin. "It’s not about sombrillas and Hispanic ladies in kitchens, cooking."

Instead, it’s about effectively communicating with a population that for so many years was underrepresented in advertising, these strategists say. Bromley, who received his bachelor’s in political science in 1978 and his M.B.A. in 1980 from UTSA, likes to use sketches to describe the dimensions of the Hispanic market.

"You have the total market, which they have been calling the general market," he says, drawing a large circle. Then, drawing a smaller circle within, he says, "Then you have the Hispanic consumer market. This little bubble has been growing. These folks have their cultural impacts that are way beyond their numbers."

Within the smaller circle is an even tinier group of Spanish-dominant Hispanics, for whom, Bromley says, the English message isn’t clear. It’s that population that his company targets.

Both Bromley Communications and LatinWorks have thrived. The trade publication Advertising Age ranked both within the top 15 Hispanic agencies in the U.S. in 2007 according to revenue. Bromley was listed at No. 5, with $22.6 million in revenue, a slight drop from the previous year. LatinWorks ranked ninth, with $17.2 million in revenue. That represented a 9.3 percent increase from the previous year.

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Flores’ LatinWorks, which he opened in 1998 with one other person, has now grown to 100 employees, and clients include Domino’s Pizza, the Spanish-language sports network ESPN Deportes, U.S. Cellular, Hyundai Motor Co., J.E & R. Lowy’s, MARS, the Texas Lottery, Kimberly-Clark, Budweiser, Bud Light Lime and Shell Motor Oil.

Tapping into Hispanic Roots

With a mother from Puerto Rico and a father from Canada, Bromley grew up in a bilingual as well as bicultural household in Pensacola, Fla. The family later moved to Mexico before relocating to San Antonio. That’s when they discovered the various colorful dialects spoken by U.S. Latinos.

"My brothers and I were struck by the fact that there were Mexican Americans that spoke beautiful Spanish, there were Mexican Americans that were bilingual, then there was a bilingual side that we didn’t quite understand—the Spanglish kind of bilingual," Bromley says. "Then there were Mexican Americans that spoke no Spanish at all and were completely English monolingual. For me, I was very intrigued by all that."

In college, Bromley studied politics and the history of the Southwest. After graduation, he worked as a pollster focusing on Latino voting behaviors. But after supporting liberal candidates who lost, he decided to return to UTSA for an M.B.A.

While working on his degree, Bromley began researching consumer behavior among Hispanics. "I positioned myself as an M.B.A. with an emphasis on cross-cultural marketing. And I wanted a market research job," he says. "So I sent my résumé out talking about this market and how it was growing, and the need for a bilingual cross-cultural market research expert in their research department. Nobody believed me."

That’s when Bromley accumulated his collection of rejection letters. In a bind, he accepted a job offer from UTSA to become a teaching assistant for a microeconomics class. Fearful that a student would ask a question he couldn't answer, he over-prepared for the course, which he now credits for a microeconomics class. Fearful that a student would ask a question he couldn’t answer, he over-prepared for the course, which he now credits with teaching him how to build a successful business.

A networking opportunity set him up with Lionel Sosa, a local advertising guru focused on the Hispanic market. Sosa was about to launch his own company, called Sosa & Associates, and offered Bromley a job with one large catch—no salary.

Bromley took it. For about six months, he juggled his teaching job with his position as a research analyst for Sosa. Then in 1981 they won their first account, for the Universal Studios film Zoot Suit, a movie set in 1940s Los Angeles about a group of Mexican American men rushed to jail for murder without substantial evidence.

"That movie has a special place in my heart because it funded my job, \( \frac{26}{27} \)
Four years later, Bromley was named a partner and chief operating officer in the company that would eventually carry his name. By 1998, he owned 51 percent of the company. The remaining 49 percent is owned by Publicis Groupe, a Paris-based holding company and the fourth-largest marketing communications service agency in the world.

At about the same time Bromley was offered his first marketing job, Manny Flores stumbled into the marketing world as well. He had entered a law school but was quickly recognized that in this part of the world, knowing both languages, as well as the values that make up the individual cultures, is important. Worldwide, the size of the Hispanic population of the United States is second only to Mexico’s, according to the U.S. Census.

“We know what they want, what they need and what they are looking for,” she says. “We are one of them.” And although many Hispanics may speak English at work and school, they’re living in a Spanish world at home. “You speak the language, but then you go home, listen to your country’s music, watch your country’s TV programs. You’re involved in everything that surrounds you that is American, but back home, it’s you and your roots.”

The Changing Market
Ethnic marketing is so effective because it sends a message of respect for different cultures, says Daniel Tablada, lecturer in the College of Business. “It’s pride in their roots, that’s the main reason. This marketing appeals to Hispanics,” says Tablada, who teaches the university’s Spanish-only marketing class, the first of four Spanish-language courses being offered in the College of Business. “In most instances, even though they do speak English and they do understand English, they feel that if you give it to them in Spanish, you’re respecting or understanding their roots and making an effort to communicate with them.

While Bromley and Flores had to work their way into an emerging and growing niche, UTSA business and marketing students today are in a prime position to enter the field. One such student, Michelle Ramírez, recently graduated from Texas Tech University and began working for a Dallas-based Hispanic ad agency Cultura. It was the company’s first acquisition.

Bromley and Flores didn’t meet expectations, “We wanted to do battle in that area and a lot of agencies at the time and most agencies back then really lacked experience and knowledge. They didn’t listen and managed resources poorly and didn’t meet expectations,” he says. “We wanted to do battle in that area and challenge the traditional mindset of clients in our space. We did just that.”

LatinWorks was founded by Flores and partner Alejandro Rielas in 1998 in a basement in St. Louis. In 1999, they moved to Austin and opened their fledgling business with Miller Brewing Company, Beech-Nut baby food and Ralston Purina Co. as their first clients.

In 2007, advertising conglomerate Omnicom Group Inc. bought a minority stake in the company. And this year, LatinWorks bought the Dallas-based Hispanic ad agency Cultura. It was the company’s first acquisition.

“For a long time, we’ve been a ‘go-to guy’ for Hispanic and contemporary adult marketing. A job as vice president of marketing development soon followed. After working for the company for almost two decades, Flores decided to open his own advertising agency with a friend. “We had worked with a lot of agencies at the time and most agencies back then really lacked strategic thinking. They didn’t listen and managed resources poorly and didn’t meet expectations,” he says. “We wanted to do battle in that area and challenge the traditional mindset of clients in our space. We did just that.”

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Jerry Deitchle, M.B.A.’75

Savoring His Role

F or one UTSA graduate, the year 1975 could be described in one word: exciting. That’s the year the university opened its main campus, allowing Jerry Deitchle to leave the Koger Center, where classes had been held, and take his final M.B.A. courses at the new site.

“That was really nice to be able to leave the Koger Center, which was an office park, and to really go to the main campus of the university. It was new and wonderful. It was just a wonderful time back then,” Deitchle, chairman and CEO of California-based BJ’s Restaurants Inc., continues to marvel at the growth of the university.

“In business today, a M.B.A. is kind of a union card. If you don’t have that union card, it’s very, very difficult to get a lot of positions in business. UTSA enabled me to have the opportunity to get that union card. It has significantly made a difference to me as I have worked throughout my career,” he says.

“At the reputation of the institution has grown, the value of that M.B.A. has also grown.”

As chairman and CEO, Deitchle oversees BJ’s, more than 75 restaurants (the 75th opened in San Antonio in 2008). The popular national chain features more than 100 locations, but Deitchle says he’s its signature: “Handcrafted beers and its Patokae dessert is its signature, and Deitchle says, his favorites. The John Marshall High School graduate has been married 37 years to Jefferson High graduate Sandra Schneiter; the couple has a grown son and daughter. Now living in Ventura County, Calif., Deitchle likes to golf, play the guitar and surf.

“When I grew up in San Antonio, we would watch the old Gidget movies and the Frankie Avalon and Annette Funicello beach movies; this was back in the mid-60s. So a couple of my buddies and I went down to Port Aransas and started surfing,” Deitchle recalls. “Although free time has become more of luxury over the years due to the demands of running a national restaurant business, it’s a business that can be easily identified and connected with the university,” he says. “It requires a lot of physical energy, a lot of mental energy, and it keeps you young. So I guess that’s kind of why I’ve been in it for over 30 years.”

—Lorne Stafford
Mary Reilly-Magee '90, M.A. '00

Making A Splash

When Mary Reilly-Magee '90 used to talk to parents about the English major, they would invariably ask, “What are you going to do with that? Teach?”

Her answer at the time was a vehement “no,” but sometimes after earning her undergraduate degree, she realized she really was a teacher at heart. She got her teaching certification and eventually went back to school to earn a graduate degree—in English. And she made a name for herself in San Antonio as a teacher. But not for teaching English. She teaches children how to swim.

In January 2006, Reilly-Magee opened the Love to Swim school in San Antonio's North Side as a way to prevent drowning among the twice as many children that are now dying than in the 1970s. In 2008, the school was named one of the top swim schools in the nation. She has gained perfect scores in the United States, Mexico, and Spain and has also performed in a variety of solo shows, including the San Antonio Symphony.

She's the head coach of the Love to Swim swim team, which has won over 30 Information Technology (IT) awards in the past five years. The firm specializes in guinea pigs.

The team found success in administering a chlamydia vaccine in mice, and testing is underway at UTSA to determine its success in guinea pigs.

Her two English degrees from UTSA now hang in her office, and when asked which she prefers, “The welds. I can open a book. I can read over 30 Information Technology (IT) awards in the past five years. The firm specializes in guinea pigs. The team found success in administering a chlamydia vaccine in mice, and testing is underway at UTSA to determine its success in guinea pigs. Her two English degrees from UTSA now hang in her office, and when asked which she prefers, “The welds. I can open a book. I can read over 30 Information Technology (IT) awards in the past five years. The firm specializes in guinea pigs. The team found success in administering a chlamydia vaccine in mice, and testing is underway at UTSA to determine its success in guinea pigs.
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Nothing but net

When UTSA moved from its leased space at the Koger Center to its permanent digs in the summer of 1975, the brand-new campus wasn’t exactly move-in ready. The John Peace Library Building was still under construction, as were the arts and science buildings. There was no parking, either; students and faculty parked their cars on the side of the road along UTSA Boulevard to the south of campus and were shuttled to the Humanities-Business Building (now the Humanities and Social Sciences Building, or more commonly, the HSS).

The only other structure on campus that was complete was the PE Building. And since the university didn’t yet have an athletics program, it was that facility that served as an administration building until the JPL opened in 1976. UTSA President Peter Flawn had his offices in the athletic director’s office, the locker room served as the bookstore, and the library was set up in the gymnasium. The university didn’t have many books of its own, so a courier made regular trips to Austin to pick up requested books from the UT library.

This 1975 photo shows graduate student Sheila Kries taking time out from her studies to practice her shot. Or, more likely, Sheila stood still for 20 minutes holding up her arm while the photographer stood on a ladder and dropped balls into the basket.

*Gil Barrera Collection of UTSA Photographs, Archives and Special Collections, UTSA Library*