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Message from the Dean

Research Strengthens Quest for the Best

I am pleased to report that we have had a very busy and productive year in the Office of Research and Graduate Studies. We have provided important funds to support the work of SMU faculty and graduate students; we have put in place measures to increase funding for external research; we have welcomed aboard a new Ph.D. program in English; and we have continued to patent and market the significant findings of the University’s researchers.

Research, which long has been a major SMU priority, was given fresh emphasis by the goal of President R. Gerald Turner and the Board of Trustees to make SMU a top 50 university. One of the key measures of that status is the quality and quantity of research, the amount of research funding for our faculty, and the number of Ph.D. students we graduate each year.

As a result, the upcoming Centennial Campaign, SMU’s plan for the future, places research, grants, and the quality of graduate programs at the very center of the University’s goals for the next decade, which will celebrate the founding of SMU in 1911 and its opening in 1915.

One attribute I always have admired about our University — among many — is the ongoing desire to improve, to set measurable goals, and achieve measurable results. “Getting better and better” at what we do is SMU’s mission; it is a challenge and a delight to be part of that experience.

I am honored to invite you to join us on this remarkable journey. Please sign up, for the results will be well worth witnessing. SMU, already a fine university, is moving to another level, and we are delighted to have your support and company on the trip.

Please accept my warmest welcome to another issue — the 13th, I am proud to say — of SMU Research magazine.

R. Hal Williams
Dean, Research and Graduate Studies
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On the cover: Broken families are given the opportunity to mend through research conducted by the Psychology Department. The story begins on page 10.

This page: The Division of Dance reconstructs Agnes de Mille's The Four Marys. See the article on page 8.
SMU Site Of New Laser Center

SMU has joined the University of Virginia and the University of Michigan as a site in the National Science Foundation Industry/University Cooperative Research Center for Lasers and Plasmas for Advanced Manufacturing. The center’s mission is to develop the science, engineering and technology base for laser and plasma processing of materials, devices, and systems for advanced manufacturing. The following companies and agencies are members of SMU’s Center for Lasers and Plasmas: Lockheed Martin Missiles and Fire Control, Halliburton Service Energy, General Motors, and the Army Research Laboratory. Radovan Kovacevic, the Herman Brown Professor of Mechanical Engineering at SMU, will serve as the center’s director.

Archiving The Digital Age

Texas Instruments Inc. and the Jack Kilby family have made two major gifts to the University, creating the Historic TI Archives and the Jack St. Clair Kilby Archives at SMU. The collection will be cataloged and stored at DeGolyer Library.

“The TI archives tell the story of the company responsible for many inventions that we take for granted in our everyday lives,” says Central University Library Dean and Director Gillian McCombs.

Included in the two collections is the world’s richest history in technology and engineering. Among the items are numerous firsts: the integrated circuit, the commercial transistor, the electronic calculator, the single-chip microprocessor, early digital watches, and early cell phone technologies.

In 2008 the SMU School of Engineering, with the DeGolyer Library and the Library of Congress, will host a yearlong celebration of the 50th anniversary of the birth of the digital age with Jack Kilby’s Nobel Prize-winning invention of the integrated circuit. Symposia and exhibits will examine the many ways in which technology and engineers have shaped the modern world.

For more information: www.smu.edu/cul/annotations/Annotations-8-1.pdf

Bumping Up Against The Glass Ceiling In Congress

Women in Gadsden, Alabama, may achieve many things on par with men, but election to the U.S. House of Representatives will not be one of them. Gadsden is the worst place for women running for Congress; New York City ranks as the best place, according to a new study by Dennis Simon, SMU professor of political science, and Barbara Palmer, a scholar with the Women and Politics Institute at American University.

Why is it taking so long for women to be elected in greater numbers to Congress when they’ve achieved so much in other spheres of American life? To answer that question, Simon and Palmer searched for clues to the political gender gap. Working from data that includes all elections to the U.S. House of Representatives in all 435 Congressional districts from 1956 through 2004, they found that upscale, urban, and diverse Congressional districts are more women-friendly, while rural, Southern, and traditional districts are the least friendly to women.

Since 1916 only 203 women have been elected to the U.S. House of Representatives. Another factor is incumbency. The study also found that in the past three redistricting cycles, women candidates have done better at getting elected to Congress, although not equally. Democratic women candidates have an easier time running for Congress than their Republican female counterparts. In addition, by using demographic data from 2002 and 2004, Simon and Palmer also assess the political fortunes of women in some of the key 2006 Congressional races.

“Palmer and Simon masterfully scour modern history for the smoking gun behind why women continue to be hindered in their quest for integration into Congress,” says Representative Debbie Wasserman Schultz (D-FL).


For more information: www.smu.edu/cul/annotations/Annotations-8-1.pdf
When an amateur fossil hunter picked up a handful of unusual fossilized vertebra at a suburban Dallas construction site in 1988, he could not have guessed that 16 years later his find would lead scientists to rethink the evolution of a group of extinct, ocean-dwelling lizards.

Last year researchers in SMU’s Department of Geological Sciences determined that the 92-million-year-old fossil belongs to a 3-foot-long swimming lizard that fills a significant gap in the evolutionary history of mosasaurs. Mosasaurs, lizards that evolved seagoing adaptations such as fins and a modified swimming tail, dominated the oceans during the last 33 million years of the age of dinosaurs, says SMU paleontologist Michael Polcyn. He and collaborator Gordon Bell Jr. of Guadalupe National Park reported their findings, along with other contributions by SMU researchers, in the proceedings of the First International Mosasaur Research Symposium published as a special edition of the Netherlands Journal of Geosciences (2005, vol. 84-3).

They named it Dallasaurus turneri, after the location of its discovery and for Van Turner, the amateur paleontologist from Central Texas who ensured that his finds were deposited into professional collections for study. Using Turner’s fossil, housed at the Dallas Museum of Natural History and the Texas Memorial Museum at the University of Texas at Austin, Polcyn and Bell pieced together Dallasaurus’ anatomy and an understanding of its natural history and relationship with other mosasaurs.

Dallasaurus sits at the base of a major branch of mosasaur evolution. It retained complete limbs, hands, and feet suitable for walking on land, while the limbs of later mosasaurs evolved into flippers, relegating them to life in the ocean. Dallasaurus lived during a time of globally warm temperatures and sea levels as much as 250 meters higher than today. During that period, the Dallas area lay at the floor of a shallow sea, and the shoreline was about 30 miles north of the metroplex.

Dallasaurus provides paleontologists with a window into the early evolution of only one group of extinct lizards but also provides insights into how lizards today may exploit new habitats. “Learning how Dallasaurus adapted to changing environmental conditions and why mosasaurs eventually became extinct may help us understand how environmental changes influence evolution and apparent success in some groups and catastrophic extinctions in others,” says Polcyn, director of SMU’s Visualization Laboratory in Geological Sciences.

SMU paleontologists, internationally known for their dinosaur discoveries, also have made significant contributions to the knowledge of numerous other groups, including mammals and crocodiles. The identification of Dallasaurus adds to their repertoire the relatively unexplored area of mosasaurs and other ancient marine life. Because of insights gained from Dallasaurus, SMU paleontologists are examining similar fossils found in Kansas. They also are beginning what they hope is a long-term project in Angola in western Africa that has yielded new mosasaur specimens.

The Dallasaurus discovery also underscores the important work of amateur paleontologists and their donation of fossils to museums and universities for study, says Professor of Geological Sciences Louis Jacobs, president of the Institute for the Study of Earth and Man. For more information: www.smu.edu/dallasaurus
Anthropology Professor Caroline B. Brettell has been named acting dean of Dedman College of Humanities and Sciences, effective July 1, 2006, to June 30, 2007. During that time, a search committee will conduct a national search for a permanent dean to succeed Jasper Neel, who is returning to full-time teaching in the Department of English.

Brettell, the Dedman Family Distinguished Professor, served as chair of the Department of Anthropology from 1994 to 2004. She joined SMU in 1988 and earned a B.A. degree from Yale University and M.A. and Ph.D. degrees from Brown University.

Brettell's research interests include migration and immigration, the cross-cultural study of gender, the intersections of anthropology and history, and European ethnography. She is the principal investigator for a project funded by the Russell Sage Foundation and another project sponsored by the National Science Foundation.

Doctoral Recognition

Susan Vandiver, a Ph.D. student in the School of Engineering, won the 2006 competition for the INCOSE/Stevens Doctoral Award, presented for promising research in Systems Engineering and Integration from the Stevens Institute of Technology.

Yan Wang, a Ph.D. candidate in Statistical Science, received a 2006 summer internship with the Educational Testing Service in Princeton, New Jersey. She was selected for one of the 20 positions out of nearly 280 applicants and will participate in a project called “A Hierarchical IRT Model to Estimate Population Characteristics.”

Two Ph.D. students, Catrina Whitley, Anthropology, and Marie Arrowmith, Geological Sciences, received a $10,000 scholarship each from the women’s service organization PEO for 2006-07. Based on research and advisers' recommendations, the competition for these national awards is steep — only 85 scholarships are awarded from a pool of more than 650 applications.

Ford Fellowships Honor Outstanding Scholarship

Nine SMU faculty members, representing outstanding scholarship in diverse fields, have received Gerald J. Ford Research Fellowships. The 2005 Ford Research Fellows are Douglas Ehring, Philosophy; William Orr, Biological Sciences; Carolyn Sargent, Anthropology; Abraham Smith, Theology; and Mitch Thornton, Computer Science and Engineering.

Ford Fellows for 2006 are Shelley Berg, Dance; Gary Evans, Electrical Engineering; Raj Sethuraman, Marketing; and Ryszard Stroynowski, Physics.

The Gerald J. Ford Research Fellowships, established in 2002 by the current chair of SMU's Board of Trustees, "are an excellent example of donor support of research," says Hal Williams, dean of research and graduate studies. "They provide $15,000 stipends to faculty to enable them to travel to conduct research in other archives or in the field, acquire state-of-the-art lab equipment, or hire assistants. They also help enhance the University's competitiveness in the recruitment and retention of outstanding faculty."
Rethinking India’s Postcolonial Influence

Associate Professor of English Rajani Sudan is pioneering a new approach to the study of British imperialism. Her research challenges a longheld theory that the British Empire brought technology and commerce to pre-modern India. Instead, Sudan, a scholar in postcolonial theory, says that India’s superior scientific and technical advances informed the development of science in Europe during the 18th-century Enlightenment.

With her current book, Mud, Mortar, and Other Technologies of Empire, Sudan focuses on the non-European origins of the Enlightenment. She has found her history of the British Enlightenment in the literary artifacts of the 18th century, from the correspondence of the British East India Company and the papers of the Royal Society to the poetry of Alexander Pope and novels of Daniel Defoe and Jane Austen. “This interdisciplinary study aims at turning our understanding of the Enlightenment and the rise of Europe upside down,” she says.

During the Enlightenment the East India Company brought from India exotic elixirs that English scientists explained in terms of alchemy, that superstitious “science” that present-day scholars say was displaced by the rational science of the 18th century. In their efforts to comprehend the foreign and the “exotic,” British scientists, just as earlier alchemists had done, acknowledged there was much in the world that they simply could not understand.

“They certainly couldn’t understand many aspects of Indian science, not the least being its sophistication,” Sudan says. “It was their own superstitions, fantasies, and reasons the British saw in Indian science. Enlightenment reason and science weren’t equipped to comprehend foreign places, people, and ways of understanding, and the British knew it.”

Sudan contends that the Enlightenment was born largely out of Europe’s sense of insecurity and inferiority in the early modern world. Only much later, at the height of the colonial empires, did historians use it to account for European hegemony, she says.

Initially interested in the origins of Romantic literature during the 18th and 19th centuries, Sudan turned her attention from Britain to the global encounters of the first British Empire. Her first book, Fair Exotics (University of Pennsylvania Press, 2002), traced the fascination with and fear of foreign people and places, sensibilities that influenced thinking in the Romantic era. The hallmarks of Romantic literature, Sudan argues, were forged during the Enlightenment, not afterward, as has long been assumed. Fair Exotics received a Godbey Award for outstanding research by SMU faculty.

The daughter of Cornell University faculty members, Sudan earned her B.A., M.A., and Ph.D. from Cornell. Frequent trips to India created an interest in literature reflecting Britain’s colonial rule. On research leave next summer and fall, Sudan will become one of the few Western scholars to analyze Indian archives of the East India Company in Madras, Calcutta, and Bombay.

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Unbugged: Can CAD Build Better Circuits?

Nowhere is the adage "Hindsight is 20/20" more applicable than it is in the business world. Giant chipmaker Intel realized that after it experienced a public relations nightmare in 1994 when it shipped processors with a flaw in the way they performed. The corporation later understood how much trouble it could have avoided if only it had ensured that the chip worked perfectly before it was shipped to market.

Associate Professor of Computer Science and Engineering Mitch Thornton has given much thought to avoiding such business migraines before they occur. He is helping to pioneer verification methods for electronic devices using computer-aided design to create and test complex circuits. His research, funded in part by the National Science Foundation and the State of Texas, is leading to software tools that will detect bugs in circuit design before they are built. In addition, his work was recognized with one of SMU's 2005 Ford Research Fellowships, acknowledging the potential of design verification research for successful industry application.

"The biggest problems with integrated circuits arise from their sheer complexity," says Thornton, who teaches courses in both computer science and electrical engineering in SMU's School of Engineering. "I can't think of any other device humans make that is composed of so many individual elements. It would be impossible for one person or even a group to figure out where every component is going to be and how they will interconnect. We have to use automated programs to help us do that."

Ordinary simulation is not practical for integrated circuits, Thornton says, "because there are so many components that it would take years to completely simulate the device. In fact, it would take longer to simulate it than its projected product lifetime. By the time we finished testing a device, it would be obsolete." CAD-based verification is the most promising way to ensure design correctness, he adds.

The benefits to industry are numerous, but the most significant is shortening the time to market. "A lot of time is spent ensuring correct design. Some companies have as many as four verification engineers for every designer," says Thornton, who employs six Ph.D. students as well as several computer engineering undergraduates in his research. "The sooner companies get a product onto the shelves, the more profit they make."

As devices grow smaller, verification raises more challenges. Thornton describes a new and growing issue called the cross-talk problem: "Circuits have shrunk to such a size that when a voltage level increases on one conductor and decreases on another, close both geometrically and in time, one circuit can interfere with the other, much like radio waves affect an antenna," he says. "This problem did not exist when we built integrated circuits at a larger scale. There's a lot of work out there for engineers who can manage challenges like this."

Those challenges present the best of both worlds for Thornton, who received his M.S. degree in electrical engineering from the University of Texas at Arlington, and an M.S. in computer science and Ph.D. in computer engineering from SMU. "I like to do software development as well as design circuit hardware. Verification research is a nice intersection of those disciplines."

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Since 1969 the National Assessment of Educational Progress – known as “the Nation’s Report Card” – has provided the only continuing measurement of what American schoolchildren know and can do. Students report information on everything from how many magazine subscriptions their households receive to how many books they read to how much TV they watch. Such background data may help determine why school programs pass or fail.

The report’s format, however, barely scratches the surface of information available from the survey, says an SMU statistician who is refining the analysis of what schools are doing well and what doesn’t work. “There’s a lot of data that isn’t being examined closely” simply because it doesn’t bear directly on the Report Card’s primary assessment, says Lynne Stokes, professor of statistical science in Dedman College.

The Nation’s Report Card obtains an average overall estimate for different groups, not a measurement on individual students, Stokes says. “It doesn’t pin down everything a student in a given school or state knows. But all together, the data provides a solid estimate of what proportion of students has either basic or proficient grasp of academic skills.”

To give precise results for states and some urban districts – as well as for individual demographic groups, such as African Americans, whites, and Hispanics – NAEP samples differentially. Such a sample may include more minority students than are represented in an area’s population, so the survey will include enough of that population to create an accurate statewide estimate.

“In an overall analysis, if you give all these data sets equal weight, you’ll have too many of one survey group and not enough of another,” Stokes says. For example, to gain a reliable sample of students from sparsely populated Wyoming, the Report Card selects a greater number of participants than Wyoming residents represent proportionally in the U.S. population. Assigning equal weights to Wyoming’s data and that of, say, Texas will produce an inaccurate picture of American children overall.

To give each data set its proper weight, Stokes and SMU statistician Ian Harris, along with graduate students Yue Jia and Prabu Bhagavatheeswaran, are refining a relatively new method called multilevel analysis. “It can help us learn how to measure things like proficiency variation among schools, or what school characteristics are associated with higher or lower scores,” she says. They are conducting their research under a two-year grant from the U.S. Department of Education’s NAEP Secondary Analysis Program.

Stokes, who earned M.S. and Ph.D. degrees in mathematical statistics from the University of North Carolina-Chapel Hill, joined SMU in 2001. She serves as associate editor of Survey Methodology and the Journal of the American Statistical Association, of which she also is chair-elect of the Council of Sections.

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Professor Bromberg is considered to be the leading scholar in the field of securities law,” says Lewis D. Lowenfeld, an attorney with Tolins & Lowenfeld in New York and Bromberg’s co-author. “He is regarded by securities lawyers and others as a lawyer of incorruptible integrity and a scholar rendering original and insightful analysis.”

When he is not interpreting the law, Bromberg often makes it. Substantial portions of the Texas statutes on corporations, partnerships, securities, and fraud crimes include his handiwork. He also co-chairs the Texas Business Law Foundation’s Legislative Committee.

A former senior fellow at Yale and visiting professor at Stanford Law School, Bromberg’s other books are Bromberg and Ribstein on Partnerships, Bromberg and Ribstein on Limited Liability Partnerships, and The Revised Uniform Partnership Act. He is of counsel to Jenkens & Gilchrist.

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Preserving The Legacy Of Dance

The legacies of painters, playwrights, and composers are preserved in museums and libraries worldwide, but dance is the only creative discipline in which masterworks are just now being saved. The efforts of Shelley Berg, a dance historian and associate professor at Meadows School of the Arts, and the dance faculty are helping SMU gain a national reputation for the preservation of important works by the 20th century's great choreographers.

"Unlike our sister arts of theatre and music, dance does not have a written history through scripts or musical scores," Berg says. "Dance is primarily an oral tradition, with roles and ballets handed down from master to pupil, choreographer to dancers. Dances that are not performed are often in danger of extinction, and even may disappear."

The National Endowment for the Arts awarded Berg a grant in 2005 from to preserve Agnes de Mille's The Four Marys, which had not been performed since the 1970s. De Mille, known for her choreography of Broadway musicals Oklahoma!, Brigadoon, and Carousel, is considered one of the architects of American ballet. For The Four Marys, which American Ballet Theatre debuted in 1965, de Mille reset a traditional Scottish ballad in the Old South. It tells the story of a slave who has a love affair with a plantation owner, conceives a child, whom she drowns, and is condemned to death. Choreographed at the height of the Civil Rights era, the ballet was a timely reminder of the African American struggle for emancipation.

"Its themes, the resonance of the material for today's culture, and the challenges it presented for student performers made this reconstruction an ideal project for a university dance division," Berg says. The reconstruction project, which took three years, was accomplished in cooperation with De Mille Productions, the organization responsible for authorized stagings of her work. It had worked with the SMU Dance Division in 2000, when, supported by a $30,000 grant from the NEA's Heritage and Preservation Fund, they restaged and documented de Mille's ballet Gold Rush, a suite of dances from the musical Paint Your Wagon.

With initial support from a University Research Council grant, Berg combed the archives of New York Public Library's dance collection and found three silent movies of The Four Marys, two of which had the images reversed; she also found a few handwritten notes from de Mille.

In September an original cast member of The Four Marys, Glory Van Scott, and de Mille's favorite dancer and ballet master, Gemze de Lappe, spent two weeks working with SMU students to restage the ballet. "These original interpreters, who are now in their 70s and 80s, still could transmit the kinesthetic, emotional, and dramatic elements of this dance and rely on their 'muscle memories' to help us recreate it as the choreographer intended," Berg says. The Four Marys was presented at the 2005 Fall Dance Concert and documented through video and still photography. The Dance Division is seeking funding to record the dance in Labanotation, a complex dance notation system akin to a musical score.

Berg, who joined SMU in 1990, earned a Ph.D. in performance studies from New York University. She danced professionally with the London Festival Ballet, Slovene National Ballet in Yugoslavia, and Les Grands Ballets Canadiens of Montreal. She also has been a dance consultant for the NEA, and recently completed a four-year term as president of the Society of Dance History Scholars. She received a Ford Research Fellowship for 2006.

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Managing B2B Relationships With Internet Technology

In the rush to make customer service more efficient, managers need to know when technology is interfering with the personal relationships that grease the wheels of commerce. "This is especially critical in the world of business-to-business (B2B) commerce, where personal relationships are considered important," says Ulrike Schultze, who conducts research on the effects of self-service technology and the related social interactions.

"It's rare that an individual consumer would have a personal relationship with a clerk in the local grocery store, for instance. In B2B, however, companies are interested in building strong relationships, because they mean more repeat sales and referrals," says Schultze, associate professor of information technology and operations management in Cox School of Business.

Schultze is analyzing how the Internet can make it easier for business customers to place orders and receive support, enabling the sales staff to spend more time cultivating relationships. "Using the Internet to allow customers to place their orders is more complex than we might expect," she says. "Some customers rely on the sales staff's expertise to help them know what to buy. Others are happy to see less of the sales staff. They know their products and don't want to be pressured into buying something that doesn't interest them."

Knowing how far to go with such technology-mediated service designs can be difficult for a manager, says Schultze, whose studies give her access to companies' internal operations. She talks to sales staff and customers and observes how they work and interact to gain insight into the new technology-enabled division of labor and how it affects work practices and customer-provider relationships.

In an increasingly competitive environment, customers are regarded as resources that contribute labor and knowledge to the design, production, and marketing of products, Schultze says about her research with Cox Assistant Professor of Management and Organizations Anita Bhappu. In effect, customers more and more are co-producing the products and services that they themselves consume.

Smart companies not only make it easier for customers to buy their products by using the Internet, but they also find ways of using the Internet to allow customers to test products under development, provide immediate feedback on service, and help support other customers. Schultze says.

"Technology is changing the customer-firm interaction, and this impacts both the customer's and the firm's work practices, as well as their relationship. We are analyzing the impacts of Internet technology on co-production in different service environments."

Schultze joined SMU in 1997 after earning her Ph.D. from Case Western Reserve University. She since has developed expertise in the effect of information technologies, particularly knowledge management and Internet technologies, on work practices and customer-firm relationships.

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'Good News' On The Mean Streets

The mean streets of South Bronx, New York, shaped Harold Recinos' understanding of God and later defined his scholarly research as a theologian. When his impoverished Guatemalan father and Puerto Rican mother abandoned him at age 12, he lived in deserted tenements, city parks, and Greyhound buses where "I discovered the God who offers hope and restores dignity to those who have been pushed to the edge of society," he wrote in a Dallas Morning News article (Dec. 25, 2005).

After Recinos lived for several years on the streets in New York, Los Angeles, and Puerto Rico, a Presbyterian minister and his family took him into their home. The minister introduced Recinos to 'A Theology of Liberation: History, Politics, and Salvation' by Gustavo Gutierrez, a book that greatly influenced him. He enrolled in the College of Wooster (Ohio), his mentor's alma mater, and later earned an M.Div. from Union Theological Seminary, a D.Min. from New York Theological Seminary, and a Ph.D. from American University.

Nearly 40 years later, Recinos, professor of church and society in Perkins School of Theology, studies race, ethnicity, and the effects of religion on U.S. society, particularly on its most marginalized groups.

His latest book, Good News From the Barrio: Prophetic Witness for the Church (Westminster John Knox Press, 2006) calls upon mainline Christian churches to broaden their thinking about evangelism among the poor, particularly Latinos in the United States. He believes that the message of the church needs to address the national climate of racial polarization by challenging people "to choose between standing with those social groups who wish to shatter dreams, or walking with others who long to build society of the beauty of its diversity. What will make our differences possible in the United States is a politics of crossing cultural and racial borders in the interest of securing a more inclusive community."

For his latest research, Recinos is studying how youth, which he considers as more than a transitional period from childhood to adulthood, give voice to and interpret their social reality and produce their own forms of culture. He is looking at the music, films, art, and literature embraced by young people from a variety of ethnic communities.

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Psychology researchers Renee McDonald and Ernest Jouriles work from their new offices in Expressway Tower, which overlooks the campus at Yale and Central.
One man loads a machine gun in front of his wife and children. Another tells his wife, “I don’t have to kill you, I can get someone else to do it.” In one of the most heinous cases, a husband scalps his wife in front of their five children.

Psychology researchers Ernest Jouriles and Renee McDonald have seen families suffer the most extreme cases of domestic violence.

The women and children who retreat to shelters generally have endured horrifying violence, says Paige Flink, executive director of The Family Place in Dallas. “If these women are willing to leave [home], they’re generally at a high stage of chaos.”

Each year more than one million children in the United States are brought to shelters such as The Family Place, says Jouriles, professor and chair of the Psychology Department in Dedman College. “The average family that goes into shelter reports over 60 acts of aggression, such as pushes, shoves, hits, or kicks, during the past year. More than half of the families report an incident in which a knife or gun was used.”

They are driven by the vulnerability of children in these circumstances and the lack of scientific knowledge about how to reduce the risk for poor outcomes among them. Jouriles and McDonald have devoted their careers to understanding how severe levels of domestic violence affect children and, more importantly, what can be done to help them.

A married couple with a 12-year-old daughter, the mild-mannered scholars reveal their fierce advocacy for a vulnerable segment of society when talking about their research. “It would be very disappointing if our research died on the bookshelf in some library,” Jouriles says. “We’re doing work that we hope will better serve children in very high-risk environments.”

Help For The Helpless

To help these victims start anew, the researchers have developed and evaluated Project SUPPORT, a home-based intervention. Project SUPPORT’s intensive, targeted services, offered to families after they leave the shelter, help mothers start new lives apart from their abusers and learn parenting skills critical in guiding children with serious behavior problems. After receiving Project SUPPORT, the children have shown significant decreases in clinical levels of behavior problems for up to two years — the length of time tracked by Jouriles and McDonald.

In fact, only 15 percent of children who received the intervention exhibited clinical levels of conduct problems two years after the services ended, according to McDonald and Jouriles’ recent paper following up on the effects of the intervention. This compares with 53 percent of children in the comparison group, whose families received monthly follow-up calls, referrals to community services, and donated goods, but did not receive the home-based intervention program.

In addition, children who received Project SUPPORT were “viewed by their mothers as being happier, having better social relationships, and exhibiting lower levels of internalizing problems than children in the comparison condition,” states the paper, in press with the Journal of Family Psychology.

The Office of Juvenile Justice and Delinquency Prevention (OJJDP), part of the Department of Justice, has recognized Jouriles and McDonald's work as one of 15 “most promising practices” nationally in helping children exposed to violence. The researchers received a four-year grant from the OJJDP to implement their interventions in Dallas in conjunction with The Family Place. Funding for the first two years is nearly $420,000, and the final two years, awaiting approval, will be close to the same amount.

“The federal government recognizes that children growing up in these violent families are the kids at risk for later delinquency and criminal activity,” Jouriles says.
“They see that we need to do something to prevent these risks from being realized.”

**The Consequences Of Violence**

As expected, children often suffer serious consequences from exposure to domestic violence. Even children exposed to less extreme forms of violence between parents are at higher risk for problems, Jouriles says. “Common couple violence,” which he defines as marital conflicts that escalate into a few pushes and shoves two to five times a year, occurs in 10 to 15 percent of couples each year in the United States.

“So the prevalence of serious clinical problems among kids who get brought to shelters is very high,” Jouriles says.

Problems range from aggressive behavior and other types of delinquency, such as cheating and stealing, to drug abuse, relationship problems, and poor grades.

Although exposure to domestic violence as a child is not always linked to violent adult behavior, it increases a child’s risk for myriad problems in adolescence and adulthood, Jouriles and McDonald say. “One of the things we do know is children who are acting aggressively and engaging in other forms of antisocial behavior are more likely to grow up and engage in various criminal acts, including domestic violence,” Jouriles says. “Also, we’re finding that these children are very prevalent among families that go to shelters.”

Jouriles and McDonald often are asked what they consider a fair question: “Why don’t these women leave their abusers?”

“If you spend any time in a shelter, you clearly understand the lack of options these women feel,” says McDonald, associate professor of psychology. “The average income among shelter women that we have worked with is $8,000 a year, and they usually have multiple children. Many are young, poorly educated, and have few, if any, job skills. Oftentimes they feel like their choices are to leave and be on the streets or stay and at least be able to feed their kids through whatever income their husband is providing.”

Also, if women try to leave, they often receive from abusive partners threats of bodily harm, of taking the children away, or of personal ruin through deportation or harassment at work. For many, personal safety is a major issue.

“There is some empirical evidence indicating that the time homicides are most likely to occur is when women are trying to break off these relationships,” Jouriles says.

**A Life Independent**

Jouriles and McDonald target for their interventions women who leave shelters and whose children are showing clinical levels of behavior problems. As they start out on their own, the women continue to face new and pressing issues of survival. For this reason, the first component of Project SUPPORT focuses on helping mothers meet basic needs.

“Often they don’t have diapers or formula. They have no furniture. They need utilities,” McDonald says. “We help them access community resources to get things they need.”

Jouriles and McDonald have counseled families in sheltering in sweltering Houston apartments. They’ve driven mothers to the food bank or to court for protective orders and provided them with beds and other donated furniture.

Jouriles laughs in recalling a home visit when he stood up from the couch and the cushion, freshly stained with peanut butter, stuck to his leg. “Going into homes gives service providers a better understanding of the family’s circumstances,” he says.

For an hour a week for six months, the family receives joint visits from a service provider and a mentor. The service provider works one-on-one with the mother while the mentor interacts with the children.

The intervention depends on the family, Jouriles says. “Some of it, for example, is getting on the phone [with social services] and showing the mother how we get the runaround, too. Service providers go shopping with mothers to help them learn how to make cost-effective decisions. A lot of the first part of the intervention is helping these families get back on their feet.”

McDonald adds, “It’s also about helping the mom get to the point where she can think beyond the next meal and about, ‘OK, how can I help the kids?’”

**Creating New Behaviors**

Once the family has gained some stability, the intervention moves on to the second component—teaching the mother child management skills based on the strengths and weaknesses of mother and
child. The service provider and mentor model these skills in their interactions with the children. Mothers practice through role play and homework and receive feedback from service providers.

Service providers begin with positive behaviors, showing mothers how to play with their kids, how to listen, and how to give praise and positive reinforcement. "For many of these women, they’re so stressed and so bogged down with the day-to-day that they’ve either never learned or have forgotten that, for kids, it’s important to have fun," McDonald says.

By strengthening positive aspects of the relationship, the child often begins to improve in behavior even before mothers have learned more punitive skills, which are exclusively nonphysical. "Physical punishment does not seem to help these kids, and it maintains the cycle of behavior," McDonald says.

The 24-month research follow-up shows that mothers who received the interventions were less likely to use aggressive forms of punishment than mothers in the comparison group.

Working with the mothers is the key to change, the researchers say. "When the mom’s the one trying to change the child's behavior, she realizes she can have a positive impact," Jouriles says.

Circle Of Influence

Abeer Monem was an undergraduate psychology major when she began assisting Jouriles and McDonald at the University of Houston. As part of their research, Monem worked with children at the Fort Bend County Women’s Center in Richmond, Texas. She also worked as a mentor for Project SUPPORT.

Today Monem is director of programs at the women’s center in Richmond. "Seeing how many children came through and the positive impact on them made a big impression on me," Monem says. "When the time came for the children to exit the shelter, they didn't want to go. They would hug you and hold onto you, and it warmed my heart."

Because Jouriles and McDonald moved to Dallas and SMU in 2003, the Fort Bend County Women’s Center no longer offers home-based interventions. Most agencies receive funding based on the number of client contacts, so even if they see the benefits of home-based care, phone contacts and office visits are more realistic, McDonald says.

However, the center has incorporated into its programs some of the Jouriles-McDonald principles. Staff members have been added to follow up with clients after they leave the shelter and to assess children for behavior problems. When clinical levels of problems are found, children can receive nonresidential counseling after they leave the shelter. In addition, play-care staff members have been added and trained in positive reinforcement skills to work with the children in the shelter.

Children growing up in these violent families are the kids at risk for later delinquency and criminal activity.

"This is not just a research project for [Jouriles and McDonald]," Monem says. "They really want to help these children. Their passion drew me in."

Beginning this spring, Jouriles and McDonald will work with The Family Place to identify 160 families for the research project funded by the OJJDP. Eighty families will receive Project SUPPORT and 80 will compose the comparison group.

SMU students will be among those assisting the project as mentors and service providers. Laura Minze worked at The Family Place for nine years before coming to SMU to pursue a Ph.D. in psychology. "This will be a new experience for me as a therapist. I've never worked in home-based services," says Minze, a licensed professional counselor. "It can be difficult for women in major transitions to come to an office, so this provides an opportunity to meet them where they are."

Home-based care also is new for Paige Flink of The Family Place. "I'm curious to see if home-based intervention is a good mode of treatment," she says. "In 28 years, The Family Place has never been able to do home-based programming."

Jouriles and McDonald hope their research could help change the way agencies are funded to make home-based intervention a viable option for shelters. Working with the OJJDP is a "big step" toward that goal, McDonald says. "In terms of society bearing the cost, this is much more effective in the long run because we're reducing behavior problems down the road. These kids won't be in jail or dropping out of school or into drugs."

Jouriles and McDonald taught and conducted research at the University of Houston for more than 15 years before coming to SMU. Jouriles earned his Ph.D. in psychology from SUNY at Stony Brook and McDonald earned her Ph.D. from the University of Houston.

For more information:
www.smu.edu/psychology/faculty/ejouriles.html
www.smu.edu/psychology/faculty/rmcdonald.html
Then-undergraduate Travis Glenn documents the crater from a mining explosion.
Among the ripple effects of earthquakes are the enduring, immeasurable ones that propel SMU seismologist Brian W. Stump. They have spurred him to travel far, search widely, and engage broadly in numerous efforts to better understand the Earth’s crust and mantle.

Stump, the Claude C. Albritton Jr. Chair in Geological Sciences in Dedman College, has expanded his international vistas during the past several years by undertaking research in China and South Korea. His scientific view also has amplified as he has attuned himself to the role of the atmosphere as well as the Earth in wave propagation, an area of expertise. And serving on the board of directors of the Incorporated Research Institutions for Seismology (IRIS) (www.iris.edu) has transformed him into an advocate for the increasingly collaborative nature of his discipline.

Collaboration is one purpose of a joint U.S.-China research project [“Study of Regional Broadband waves from Earthquakes and Man-induced Events in NE China”] north of Beijing where Stump has focused research attention since 2002. Sponsored by the U.S. Air Force Research Laboratory, SMU researchers and those from the China Earthquake Administration’s Institute of Geophysics have deployed a network of 15 seismic instrument stations to record broadband waves radiating 100 to 1,000 kilometers from earthquakes and such man-induced events as mining explosions.

The study sites incorporate areas of frequent earthquake activity, including Haicheng, where the first successful earthquake prediction was made more than 30 years ago. As forecast, a magnitude 7.3 quake struck Haicheng February 4, 1975, whereupon 90 percent of all buildings there collapsed. But “as a result of the prediction and evacuations in the days preceding the event,” Stump recalled in a Dedman College Master Lecture delivered last year, “no lives were lost in a region of three million inhabitants.”

In late July the following year, however, without any warning a magnitude 7.8 quake hit Tangshan, a city southwest across the Gulf of Liaoning from Haicheng. Nearly 250,000 people died.

“Earthquakes in that region aren’t understood very well,” says Stump, who earned his Ph.D. in geophysics from the University of California, Berkeley. That knowledge deficit has spurred project scientists to better understand the seismicity of that part of the world, with hazard reduction as one ultimate goal. More immediately, however, “the major emphasis is trying to understand the crust and mantle in this area,” he says.

Stump returns to China in July to attend the American Geophysical Union’s Western Pacific conference in Beijing. Post-doctoral fellow Rongmao Zhou will present a paper on the crust and upper mantle at each site.

Stump identified Zhou, a 2004 SMU Ph.D. recipient from China, as “the key person” on the project. Zhou says he chose SMU over other universities because of Stump’s personality and reputation. “He always is supportive of his students and colleagues. And he encourages us to explore new ideas and directions.”

Although Stump and fellow SMU geophysics professors “make our geophysical program notable to the world,” Zhou says, it isn’t only with peers that Stump shares his enthusiasm.

Aileen Fisher served as Stump’s teaching assistant last fall for an introductory class, Earthquakes and Volcanoes. “Even though the students were freshman and sophomore nonmajors, he made the class interesting and versatile. I know he spent at least two or three hours a week outside of class talking with some of these intro students who were just interested in the topic.”

Since 1999 another topic of interest to Stump and fellow SMU scientists has been a research project in South Korea, in which some experiments focused skyward. They followed sound waves through the

By Kristine Imberr
atmosphere with acoustic gauges, as well as vibrations through the ground with seismometers. Sponsored by the U.S. Department of Defense and conducted jointly with the Korea Institute of Geoscience and Mineral Resources [www.kigam.re.kr/eng], the project follows the pioneering work of SMU's Schuler-Foscue Professor of Geological Sciences Eugene Herrin in combining seismic and acoustic observations, Stump says. "We call it seismo-acoustic analysis."

The South Korea project initially focused on locating and identifying industrial blasting events because Herrin had discovered that certain wave generators, including explosions and earthquakes, create not only seismic waves but also infrasound waves. Based on that discovery, Herrin was one of the first proponents of using seismo-acoustic analysis to identify mining explosions.

"Every country in the world uses mining explosions every day," Stump says. Because blasts, a standard mining practice, are so prevalent, particularly as "small events below magnitude 4," the ability to distinguish their wave characteristics from those of earthquakes is important, he adds. Equally important is the ability of seismologists to differentiate mining detonations from nuclear weapons tests.

Stump says that he knows of no weapons tests that have occurred since India detonated five and Pakistan six underground nuclear explosions in May 1998. However, two SMU-installed and -operated seismic stations – one in the Big Bend area of Texas and one in Nevada – continue in service to the International Monitoring System [www.seismo.ethz.ch/bsv/cbto/ims.html] of the Comprehensive Nuclear Test-Ban Treaty Organization in Vienna.

North Korea's recent announcement to obtain and build nuclear weapons "makes understanding such a test event even more important," Stump says. "Certainly stating that they will develop the weapons and actually testing are two different things."
This difference drives the continuation of negotiations with the Koreans."

Stump, who in 2004 was honored with the yearlong Dedman Family Distinguished Professorship, joined SMU in 1983. From 1994 to 1996 he assisted in the development of nuclear test-ban verification technology for the

Department of Energy (DOE) at the Los Alamos National Laboratory in New Mexico. He also served as a DOE technical adviser to the U.S. delegation to disarmament negotiations in Geneva.

That experience made it logical for the Seismological Society of America to tap him as one of two experts to convene special gatherings at a significant meeting in San Francisco in April. For the 100th Anniversary Earthquake Conference Commemorating the 1906 San Francisco Earthquake, Stump and William R. Walter of the Lawrence Livermore National Laboratory assembled studies and presenters for the “Nuclear Explosion Monitoring Anniversary Sessions.” The sessions took a retrospective look at nuclear monitoring seismology, the branch of science that came into being when seismographs detected the first atomic bomb test in New Mexico in July 1945.

Looking forward, Stump expresses excitement about EarthScope [www.earthscope.org], a more than $200 million initiative to study North America’s crust and mantle as well as the processes that control its earthquakes and volcanoes. Funded by the National Science Foundation, EarthScope brings together space, geoscience, telecommunications, and other specialists to compile a 3-D portrait below ground using seismometers, global positioning satellite receivers, satellite radar imagery, strain meters, and other collection and analysis instruments.

IRIS, the consortium of university and not-for-profit organizations committed to seismological research on whose board Stump serves, is responsible for managing the data sent in from a network of 100 fixed and 400 transportable EarthScope seismic stations.

"It’s only through collaboration and multiple participants is [EarthScope] able to be accomplished," Stump says. "[The collaboration] is improving the way seismology is being done. This is exciting because it changes the way my profession does business."

For more information:
www.smu.edu/geology/stump.htm
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1 Brian Stump, Chris Hayward and Rang-niao Zhan conduct a seismic refraction survey at a copper mine in southeast Arizona. 2 Seismic stations in northeast China jointly operated by SMU and the Institute Of Geophysics, China Earthquake Administration. 3 Mining seismicity in the United States. 4 Seism-acoustic stations in the Republic of Korea operated by SMU and the Korea Institute of Geosciences and Mineral Resources. The location of a large earthquake near Hokkaido, Japan, that generates infrasound signals is also noted. 5 Velocity model of region northeast of Beijing, China, developed from observations at the SMU-IGCEA stations. 6 Seismograms from a regional event in northeast China recorded at SMU-IGCEA stations. 7 A two-dimensional velocity model for southeast Arizona developed from mining explosion observations. 8 Undergraduate Travis Glenn installs seismic instruments at a copper mine in northeast Arizona.
Righting Reading Wrongs

Youngest Readers Succeeding With New Teaching Methods

An estimated one in five adults in the United States is considered illiterate. Such a statistic is sad in light of a recent study by Patricia G. Mathes, the TI Endowed Chair in Reading Research and director of SMU's Institute for Reading Research. She found that reading failure can be eliminated if struggling readers are identified early and given intensive intervention.

Mathes' study of 300 Houston students demonstrated that two vastly different approaches to reading intervention are equally successful as long as both incorporate the same critical content proven effective in scientific studies, she says. Students who received the interventions scored overwhelmingly better than those in the control group who were provided only enhanced classroom instruction.

Her research may help end the battle among educators over the "best" way to help struggling readers, and, more importantly, it may keep some of those students out of special education classes in later years. "Interventions
built on science are effective. There doesn’t have to be one best approach, but there are better approaches,” Mathes says.

The study found that nearly all the first-graders who met in groups of three each school day for 40 minutes of intense work on the core components scored in the average range for reading by the end of the year. When the results are extrapolated to the entire student population, the use of reading interventions would have resulted in less than 2 percent of students struggling at the end of first grade, Mathes says.

The Texas Education Agency reported last year that 6.4 percent of first-graders were held back in the 2003-04 school year. Based on Mathes’ research, that number could have been cut by at least two-thirds if programs similar to interventions used in the Houston study could be expanded statewide. That level of improvement would save schools millions of dollars in special programs in the later grades, she says.

SMU researchers and investigators at the University of Texas at Austin have developed an ambitious research project that looks at implementation of those successful interventions on a grander scale. Project Scale-Up, a five-year, $6 million study funded by the U.S. Department of Education, is being conducted in 57 schools – from urban to rural, affluent to impoverished – in the Dallas-Fort Worth and Austin areas. The study tests the effectiveness of three kinds of teacher support: on-site, on-demand, and on the computer, an option called the “Virtual Coach.”

Each school chooses one of two approaches to use: Proactive or Responsive Reading. Both methods incorporate the same critical content that has been proven to work in earlier research studies. That content includes phonemic awareness, teaching a sensitivity to the sounds in words; the print-speech connection, connecting the sounds to the letters students see; practice reading individual words and connected text that uses those words; focus on fluency; automatically recognizing words and reading faster; and reading for meaning, the ultimate goal of all reading.

Each method is highly structured, although Proactive scripts every moment of the fast-paced lessons. The less overtly structured Responsive gives teachers more leeway by guiding their choices from a list. The students are equally busy, but use more manipulatives such as magnetic letters that they push together to form words.

Both methods also require frequent assessments to track student achievement. Responsive teachers must assess each student at least once a week. This is done by choosing one child as “star student” each day. The teacher assesses that child and gives a private lesson on a needed skill while the other children read to one another. Then, the whole group receives instruction on the skill taught to the previous day’s star student in a continuous pattern of teaching and reteaching.

All teachers receive several days of initial training with two additional days scheduled throughout the year. In addition, Project Scale-Up teachers receive coaching and mentoring from SMU or UT staff. The actual type of coaching a teacher receives is randomly assigned. Project Scale-Up asks: How much support do teachers need to implement new interventions well? And, can the support be provided using technology?

Teachers receive support from three coaching models – on-site, on-demand, and Virtual Coach, says Melinda McGrath, who participated in the Houston study and now serves as a Project Scale-Up coach. As an on-site coach, McGrath visits the schools assigned to her at least once a week to observe and provide instructional support. For on-demand coaching, the teachers contact her with any concerns. As a virtual coach, McGrath answers e-mailed queries and helps run a message board where teachers can discuss their concerns and successes.

All teachers receive a CD called the “teacher’s tutor,” which allows them to view video of various teaching techniques being delivered and hear each sound pronounced correctly. [To read correctly, students must hear correctly. That means some teachers must learn to drop their drawls, changing their own “puh” pronunciation as in “puh-ig” to “p” in “pig.”]

The Proactive method is used at Dan D. Rogers Elementary, a Dallas Independent School District campus where nearly 95 percent of students qualify for free or reduced-price lunches and more than half of the first-graders are identified as “at risk,” Mathes says.

“The teachers in that building face huge challenges because they have such a large number of students who are coming to first grade without the required skills,” she says. The principal is very supportive of their research, she adds, and has assigned three teachers to conduct reading interventions.

Nancy Freeman has taught at Rogers for 14 years, first as a kindergarten teacher and now as a full-time reading and math enrichment tutor for grades one through six. Her four students file into the classroom quietly and sit around a horseshoe-shaped table across from their teacher. McGrath, who arrived early to discuss the class and work with Freeman, sits behind the students, observing her teacher.

Freeman is concerned that one boy’s speech problem and lack of attention are caus-
ing him to mispronounce and misread words. She is concerned about another child who seems to swap the beginning and ending sounds in words. Her greatest anxiety, however, is caused by the difficulty of the previous day’s lesson on the three sounds made by the “-ed” ending: “ed,” “d” or “t.”

McGrath whips out graphs showing the results of each child’s most recent assessments. All slope upward. This immediate feedback seems to reassure Freeman as she plunges into the lesson. She holds up a spiral-bound version of the Proactive curriculum, written by Mathes and Joseph Torgesen of Florida State University and recently published by SRA-McGraw-Hill as SRA’s Early Interventions in Reading.

The students, in an astonishing display of attention and effort, stay busy for the next 40 minutes. Freeman guides them through about six activities that include reading, listening to the number of sounds in words, spelling those words, and back to reading the words. During the spelling activity Freeman slowly says a word and each student taps a different finger against his or her forehead for each sound heard.

When the students are sure of the number of sounds they hear, they write down the word. At the end of each activity, the teacher puts either a purple sticker or a check mark in her assessment book.

Mathes describes the Proactive approach as being “like baby steps.” Ideally, little new information is added each day so the students gain a continuous sense of mastery and seldom encounter the kind of failure that might cause them to stop trying.

The minutes whirl by, ending with Freeman congratulating the students on their hard work. The students leave looking tired but confident. McGrath and Freeman go over the day’s lesson. Freeman has discovered the difficulty of correctly reading words with “-ed” endings when saying them as slowly as the technique requires. McGrath promises to provide a phonetic “key” for that lesson.

Mathes says that research shows pretty clearly that every dime spent in the early grades pulling struggling readers up to par is money saved on extra services later, because entrenched failure is harder to overcome.

“Children who leave first grade behind their peers almost never catch up,” she says. “If we don’t intervene in kindergarten and first grade, it just gets harder and harder.”

For more information: http://www.smu.edu/teacher_education/faculty/mathespatria.asp

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**6.4 percent of first-graders were held back in the 2003-04 school year.**

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**Reading Institute Attracts National Recognition**

In 2003 SMU responded to the national literacy crisis by creating the Institute for Reading Research. The Institute’s mission is to provide teachers and schools with cutting-edge information about how to prevent reading failure and how to handle reading failure once it has occurred.

Funding for research projects, which totals more than $10 million, comes from the U.S. Department of Education, National Institute of Child Health and Human Development, and the Texas Instruments Foundation. Projects include developing interventions for children at-risk for reading failure in public schools; teaching children with mild to moderate mental retardation how to read; determining best practices for ensuring that Spanish-speaking children develop high levels of English literacy; preparing preschool children raised in poverty for the academic rigor of elementary school; examining how to increase reading fluency among children in upper elementary grades; and creating a computer-administered reading assessment to provide continuous progress feedback to teachers.

Institute fellows primarily teach in the School of Education and Human Development’s undergraduate teacher certification and Master of Education programs, which include the Master Reading Teacher program. Plans for a doctoral program are under way.

The Institute has gained national recognition as faculty members report their findings at conferences and in journals. Further, teachers are using curriculum developed from various projects. In addition, the Institute’s work has expanded into collaborations with the Florida Center for Reading Research, the Vaughn Gross Center for Reading and Language Arts at the University of Texas, and the Bilingual Education Program at Texas A&M University.

For more information: http://www.smu.edu/teacher_education/irr/index.asp
Attempts to control scientists and their work are not new. Recall that Galileo lived out his years under house arrest for promoting Copernican cosmology after the Catholic Church had declared it to be heresy in 1616. In recent years — and more insistently in recent months — scientists are complaining that scientific enterprise in the United States has become more politicized than at any time within living memory.

Just as most political questions in America become, sooner or later, judicial ones, political issues often turn into scientific or technical questions. As a result, the federal government for years has been the nation's largest single source of research funds, both through its own research and grants to others. Recurrent funding controversies in the arts show that the government on occasion will impose its will on the recipient community through reductions in overall appropriations, the discontinuation of funding for disfavored projects, and the imposition of conditions on the receipt of federal funds.

The consequences of such funding patterns can be particularly damaging in the sciences. Nobel laureate and Rockefeller University president Paul Nurse wrote in the journal Cell that “[s]top-go funding policies are set to damage a whole generation of young research workers, and the negative impact on recruitment of the next generation of research scientists will be seen for years to come.”

Beyond funding controversies, however, compelling evidence exists of overtly political manipulation of scientific research, including the silencing of NASA's top climate scientist to keep his views on CO2 and global warming out of his published papers, lectures, and interviews; the FDA's decision to postpone indefinitely action on Barr Laboratories' application to allow over-the-counter sales of its Plan B emergency contraceptive, despite the positive recommendation of two FDA advisory committees; the replacement of members of federal advisory committees when they have differed with core policies of the administration; the decision to limit federal funding of stem-cell research to “Presidential cell lines” that were in existence before the new policy was announced in August 2001; and numerous instances when the administration's preference for abstinence until marriage has influenced immunization policies for STDs, AIDS research and education, and sex-education and birth-control programs in budgets for foreign aid and domestic educational programs.

The federal government awards more than $28 billion a year in grants through the National Science Foundation and National Institutes of Health — only two of the more than 20 agencies that fund research in science, medicine, and technology at colleges and universities worldwide, including SMU. When cuts in funding are made for reasons that are more political than science-based, the losers not only are university faculty and students, but the rest of society, which depends upon research in science and technology to protect and preserve its health, safety, economic system, and basic freedoms.

The ability of science to tackle the big issues of our time may well turn on the willingness and ability of political leaders to correct what Paul Nurse has diagnosed as “stagnation in research funding and the failure of the political leadership to take science seriously.”

Associate Professor of Law Tom Mayo is director of SMU's Maguire Center for Ethics and Public Responsibility. An associate professor of internal medicine at the University of Texas Southwestern Medical Center at Dallas, he has been recognized nationally as an expert in health care law. He has written extensively on the legal and ethical implications of AIDS, abortion, right to die, and numerous other issues.

For more information:
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2006 SMU Research 21
In academic year 2004-05, sponsors awarded $14,675,605 to SMU for direct and indirect costs of research and sponsored projects. Totals in recent years were $19,658,689 in 2003-04, $13,752,118 in 2002-03, and $11,010,791 in 2001-02.

Funding sources for the $14,675,605 were federal agencies, $13,124,599 (93.4 percent); corporations, $444,189 (3.0 percent); foundations, $453,192 (3.1 percent); and state and local government agencies, $65,765 (0.4 percent).

Dedman College received $9,315,179 in 49 awards; the School of Education and Human Development, $3,110,049 in 13 awards; the School of Engineering, $1,942,877 in 26 awards; and Meadows School of the Arts, $90,000 in one award. Nonacademic departments reporting to the Provost Office received six awards for a total of $217,500.

Of the 70 project directors/investigators, 37 received $100,000 or more in aggregate funding. They are listed in alphabetical order:


David Blackwell and Maria Richards, Geological Sciences, "Texas Geothermal Outreach – Getting the Heat Out (Texas State Energy Conservation)," Department of Energy.


Nell Carvell, Learning Therapy, "LEAP for Dallas Kids," Department of Education.

Marc Christensen and Jerome Butler, Electrical Engineering, "Active Optical Filter Development" (contract with Photodigm Inc.), National Reconnaissance Office.


Scott Douglas, Electrical Engineering, "Launching the Texas Engineering Education Pipeline: Deploying The Infinity Project Statewide," Texas Higher Education Coordinating Board.

Eugene Herrin and Paul Golden, Geological Sciences, "Infrasound Calibration Explosions from Rockets Launched at White Sands Missile Range," Army; "Operation and Maintenance of the TXAR Array," Air Force; "The Operation and Maintenance of Three IMS Primary Seismic Arrays," Comprehensive Test Ban Treaty Organization (CTBTO); "Operations and Maintenance of the U.S. IMS Primary Seismic at Mina, NV (PS47)," Army; "Site Selection, Preparation, Construction, Installation, and Operation of Infrasound Station in North Mississippi," Army; "Proposal for the Continuing Operation and Maintenance of Infrasound Data Acquisition Stations TXAR and NVAR Imbedded in the U.S. IMS Primary Seismic Arrays at Terlingua, TX TXAR (PS46), and Mina, NV NVAR (PS47)," Army.

Richard Jones, Biological Sciences, "Polycomb-Group Genes and Gene Regulation (year 12)," National Institutes of Health.

Ernest Jouriles and Renee McDonald, Psychology, "Domestic Violence and Child Aggression," National Institutes of Health (NIH); "Preventing Abuse in Adolescent Dating Relationships," NIH.


Paul Krueger, Mechanical Engineering, "Hydro and Aerodynamic Pulsed Jet Micropropulsion," National Science Foundation (NSF); "Ontogenetic Changes in Swimming Squid: An Integrative Examination of Jet Structure and Muscular Mechanics (with New York Institute of Technology)," NSF.
Patricia Mathes, Reading Research, "English Language Acquisition Evaluation Research Program (Project ELLA), Department of Education.

Patricia Mathes and Jill Allor, Reading Research, and Ian Harris, Statistical Science, "Maximizing Literacy Learning Among Children with Mild to Moderate Mental Retardation (Project Maximize)," Department of Education.

Patricia Mathes and Deborah Diffily, Reading Research, "Texas Instruments Model Demonstration," Texas Instruments Foundation.


Sukumaran Nair and Marco Marchetti, Computer Science and Engineering, "System Security Engineering Capability Maturity Model Applications," EWA Information and Infrastructure Technologies Inc.

William Orr, Biological Sciences, "Thioredoxin Peroxidases, Oxidative Stress, and Aging," National Institutes of Health; "Glutathione: Oxidative Stress, and Aging," NIH; "Cellular Aging and Oxygen Free Radicals," NIH.

Geoffrey Orsak and Tammy Richards, Electrical Engineering, "Institute for Engineering Education: Expanding Engineering Programs to the National Stage," Department of Education.


William Pulte, Education, "Master's Program in Bilingual Education with Gifted and Talented Focus" and "Supplemental Certification in Bilingual Education," Department of Education.


Ne'Shaun Robinson-Jones, Pre-college Programs, "Upward Bound Program" and "Upward Bound Supplement," Department of Education.

Lawrence Ruben, Biological Sciences, "TRACK Regulates Cytokinesis in Trypanosoma brucei," National Institutes of Health.


Ryszard Stroynowski and Jingbo Ye, Physics, "G-Link System," Brookhaven Science Associates, LLC.


Pia Vogel, Biological Sciences, "The Stator Subunits of the ATP Synthase," National Science Foundation.

James Waddle, Biological Sciences, "Longevity and Metabolism Mediated by Fasting," National Institutes of Health.


R. Hal Williams, Research and Graduate Studies, "Graduate Research Fellowship Program (for five students)," National Science Foundation.


Funding Sources

- Federal/$13,712,459
- Foundations/$453,912
- Corporations/$444,189
- State/Local/$65,705

Compiled by Larry Smith, Director of Research Administration and Technology

2006 SMU Research 23
Thomas Arp, English (Emeritus), received the Robert Adger Law Prize for the best Shakespeare presentation at the annual Conference of College Teachers of English in Corpus Christi. His paper, "Is 'To be, or not to be' a Soliloquy?" The prize includes a cash award as well as publication in CCTE Studies.

Annemarie Weyl Carr, Art History, received a 2006 Distinguished Teaching of Art History Award from the College Art Association.

Zhangxin (John) Chen, Mathematics, received the Chang Jiang Chaired Professorship, the highest academic award given by the Chinese Ministry of Education.

Dennis Cordell, History, was made an honorary Quebecois, a special award from the Canadian Association of African Studies/Association canadienne des etudes africaines, presented at its annual meeting in April 2005, for his promotion of bilingualism in CAAS.

Anthony Cortese, Sociology, has been nominated for the 2006 Gustavus Myers Outstanding Book Award for his book Opposing Hate Speech (Praeger Publishers, 2005). The awards identify and review books published each year analyzing bigotry and discrimination and advancing human rights.


Robert Frank, Music/Composition/Theory, premiered "Figaronacht Overture" in Salzburg, Austria, at the opening concert of the 2005-06 Mozarteum Music Program, under the auspices of the Salzburg Summer Music Festival to celebrate the 250th anniversary year of Mozart's birth. The work was commissioned by Eduard Schmieder, Music/Violin, who also conducted the premiere.


Michael Hawn, Theology, served as music director for worship at the 9th Assembly of the World Council of Churches in Porto Alegre, Brazil, in February 2006.

Roy L. Heller, Theology, has been presented the Golden Mustang Award for Outstanding Faculty for 2005-06. The award of $1,000, which supports the advancement of teaching and learning, is given annually to a junior, tenure-track faculty member.

Carol Leone, Music/Piano, was named the Texas Music Teachers Association's 2005 Collegiate Teacher of the Year.

Geoffrey C. Orsak, Engineering, has received the EE Times ACE Award for Educator of the Year, which recognizes an individual who brings leadership, creativity, and inspiration to students through an engineering or science curriculum at colleges or secondary schools. He serves as executive director of SMU's Institute for Engineering Education.

Tony Pederson, Journalism, received the Lifetime Communicator Award in the 2005 Novell Slater Communication Awards from the DFW Chapter of the Religion Communicators Council, a national interfaith organization of professional communicators.

William Pulte, Bilingual Education, received the 2005 Higher Education Honoree Award from the Texas Association for Bilingual Education.

Willard Spiegelman, English, won the PEN Nora Magid Award for his high literary standards and sustained guidance in editing the Southwest Review literary journal.

Jay Sullivan, Art, received the 2005 University Scholar/Teacher-of-the-Year award from The United Methodist Church's General Board of Higher Education and Ministry.

David J. Weber, History/Clements Center for Southwest Studies, received the Orden Mexicana del Águila Azteca from Mexico's President Vicente Fox in fall 2005. The award is the highest honor the Mexican government bestows on foreign nationals. In February 2006 fellow historians elected him to a three-year term on the Executive Board of the Organization of American Historians, the premier organization for historians of U.S. history.
Expressions of a Poet

Poems are from Routine Heaven (Texas Review Press, 2005) by Jack Myers.

BLUE SKIES
Thich Nhat Hanh says
insight is always there
like a clear blue sky.

Its pleasure is to feel
it has just been born,
ours, that we have just given birth.

Like when father used to yell at me
Stop walking backward!
mother would say he's not walking
backward,
he's backward-walking.

THE ACHIEVEMENT TEST
In my dream
I'm taking an achievement test
with my students.
But I'm not doing well.
Although it's multiple choice -
yes, no, none of the above -
all my answers feel ambiguous.

The proctor marches up to me
and says
you don't have to take this test,
you're the teacher.

I run outside, I'm the teacher!
and wake relieved to be in real life.

I look outside. There's the sun
drifting above the clouds like
a pale moon,
like a half-wrong answer.

I don't know how to stop this test.

HOW DO YOU LIKE MY HAIR?
Shampooing her hair,
my wife explains, the universe
is just a bubble floating in a
foaming mass of other bubbles
while God's mind is everywhere
at once.

This, she says while rinsing it clean,
accounts for all the little blips
we experience
like mental telepathy and
transubstantiation.

Do you believe in ghosts? she asks
while blow-drying her matted hair
into auburn cotton candy.
Yes, I say, and bend down and
stare godlike
at a bubble left shining on the
drain's steel rim
where my wife and I are reflected
talking on it, talking,
before it slips soundlessly over
the abyss.

So how do you like my hair?

Jack Myers, professor of English, teaches poetry writing at SMU. Myers
says he began writing poetry at age 12 - "that great transformative
and troubling age - because it seemed the right vessel for carrying
strong emotions contained within a small space (me). As I progressed in
skill and understanding, and my thinking became more metaphorical and
analogical, poetry became a sort of high-intensity beam I could shine on
whatever intrigued, puzzled, deeply interested, eluded, or moved me.

Now, in my advancing years, it again has transformed itself for me into
a vehicle for inner growth, spiritual quest, and self-discovery, all of
which attests to the old saying: 'Life is short, art is long.' Aside from
my loved ones, I can think of no better companion through the years."

The 2003-04 Texas Poet Laureate, Myers is the author of 17 books
of and about poetry and winner of The Violet Crown Award, the Texas
Institute of Letters Award, recipient of two National Endowment for the
Arts Fellowships, a National Poetry Series Open Competition winner, and
distinguished poet-in-residence at several universities. Myers served as
the vice president for Associated Writing Programs from 1993-95, as well
as permanent trustee of The Writer's Garrett, a Dallas literary center.
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