A MIGHTY WIND The environmental and economic impact of wind energy

ALSO FEATURED:

FAMILY TIES: HOW THE TCU INSTITUTE FOR CHILD DEVELOPMENT HELPS PARENTS AND KIDS CONNECT

HACKING CYBERCRIME

BENEFITS OF HEALTH CARE FOR THE HOMELESS

HELPING THE NAVY BUILD BETTER BOATS
Endeavors
ACADEMY. SCHOLARSHIP AND CREATIVE ACTIVITY

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The lipstick effect

A recession brings increased sales of beauty products.

When times are bad, women want to look good.

Dating back to the Great Depression, cosmetics companies have noticed that sales increase when the economy slides. For example, L’Oreal, one of the world’s largest cosmetic manufacturers, was somehow immune to the global recession of 2008, enjoying sales growth of 5.3 percent.

Journals have dubbed it the “lipstick effect” and Sarah Hill, assistant professor of psychology, dug deeper into the reasons women are willing to splurge on beauty products during a downturn. Her findings, published recently in the Journal of Personality and Social Psychology, confirmed that the lipstick effect is real, and is deeply rooted in female mating psychology.

“In this issue of Endeavors, you will find a broad representation of the quality of research being conducted at TCU. Learn more about the ideas and inventions being explored by our professors at research.tcu.edu.”

Bonnie Melhart, Ph.D.
Associate Provost for Research, Dean of Graduate Studies and University Programs
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New online academic journal highlights community journalism.

A s newspapers continue to evolve in a changing media landscape, even Superman’s Clark Kent has been driven from his desk at The Daily Planet. In a comic book issue released in October, the superhero’s alter ego decries the state of journalism and its focus on celebrities, then quits in front of the newspaper’s staff. Now as reporters look for new heroes as the industry grapples with new pressures, TCU’s Center for Community Journalism has launched a new online journal that offers insights into how community newspapers are evolving to serve their readers in a world shaped by social media and the 24-hour news cycle.

Tommy Thomason, publisher of the journal and director of the Texas Center for Community Journalism, said the journal has been established to encourage scholars to conduct research into the practices and issues of community journalism.

“We noted that most of the research in this field centered on metro dailies, and the community newspapers that make up the large majority of the nation’s press had not been studied adequately,” Thomason says. He also notes that of the approximately 100 newspapers in Texas, more than 510 hold community papers.

“The news landscape is changing dramatically,” he said. “There are all kinds of developments, like the use of social media to cover news and the growth of hyperlocal websites, that need to be examined more fully by researchers. Having this outlet should encourage scholars to take on projects related to community journalism.”

For more, go to journal.community-journalism.net.
Senior engineering students working on the Capstone Design Project.

**Engineering**

**Project runway**

Each year, TCU’s senior engineering students organize themselves into a small company of 15 to 20 employees. On the first day of the fall semester, they are given an engineering specification, a schedule of deliverables and a budget. Their job over one academic year is to design, build and test a product for an actual customer.

Called the Capstone Design Project, it’s a unique hands-on opportunity for students to sharpen real-world skills in design, production and project management.

The clients have included ExxonMobil, Bell Helicopter Textron Inc., RockBit Industries, Lockheed Martin Corporation, Sandia National Labs, Oncor Electric Delivery and several others. Clients provide funding for the projects in hopes of solving a real-world problem or need.

Last year’s seniors tackled a project titled “Investigation of a Coaxial Synthesis Display System” for Bell Helicopter, a Textron Inc. company based in Fort Worth. With a total budget of $60,000, students were challenged to build a better cockpit display that would provide visual cues to helicopter pilots of potential hazards during flight, such as unseen buildings, fog and trees. The students were to create a transparent cockpit display with a 180-degree field of view, a first never accomplished before.

“The team delivered a working system integrated into a 206-L4 helicopter cabin loaned by Bell and their system satisfied 90 percent of a very challenging specification. The engineers at Bell were very impressed,” says Tayag.

TCU’s senior design project has been active since 1995. In this year’s project, students are working with Comring Cable Systems to help develop a curing oven for fiber optic connectors.


**Sociology**

**Big love**

Professor studies how women’s body image relates to sexual satisfaction.

In the small film Bridesmaids, Melissa McCarthy soared to fame and critical acclaim as the bawdy bridesmaid Megan who doesn’t let her body weight affect her life.

That kind of acceptance can help those who identify themselves as fat to have a richer romantic life, according to recent research by Jeannine Gailey, associate professor of sociology in the AddRan College of Liberal Arts.

In her paper “Fat Shame to Fat Pride: Fat Women’s Sexual and Dating Experiences,” published earlier this year in the journal Fat Studies, Gailey writes that women who can accept and appreciate their bodies, embracing “fat pride,” can also positively affect their sex lives.

She interviewed women who identified themselves as fat about their body image, ability to accept their size and relationship histories. She found that three-fourths of those surveyed reported that when they embraced fat pride, they tended to experience an increase in confidence and better sexual relationships, whereas women who struggled to accept their body size tended to report less sexual fulfillment and were more likely to report that they felt men used them sexually.

“Women who accept their bodies, or are beginning to, not only experience freedom from the pressure to diet or change their bodies, but also tend to be sexual. As the women experience less body shame and increased confidence, they also seek out or attract partners who treat them better and truly appreciate them,” she writes. “Participants who have begun to see their bodies as beautiful and desired seem to enjoy their sexual relationships and have better experiences than those who do not.”

**Of NOTE**

**Adding it up**

Students who struggle with traditional classroom instruction may find it easier to learn new math concepts by working at their own pace on a computer.

That’s the approach being researched by Lindy Crawford, the Ann Jones Endowed Chair in Special Education in the College of Education.

Crawford is the principal investigator of a $1.5 million federal grant studying the Math Learning Company, a computer program that provides individual instruction to students with math-learning disabilities.

The program covers math for grades 3 to 6, allowing students to go back and repeat instructions. It also has interactive support, including a dictionary of key terms, Spanish translations, hints and other options like “need more help.”

“It really gives the student control over learning,” Crawford says. “I’ll go into the classroom and tell kids, ‘Have you ever wanted to stop and rewind your teacher because you didn’t understand something? Well, with this you can do that.’ They say, ‘Wow, that’s great.’ ”

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**Of NOTE**
by Kathryn Hopper

Texas is in the midst of an energy boom, but it’s not just oil and natural gas powering the resurgence; it’s the mighty winds that whip through the high plains from Amarillo to Abilene.

Energy companies are funneling millions into building and operating wind farms. Even search engine Google is getting into the act, investing more than $200 million to buy a stake in a West Texas wind farm. Favorable tax treatment plus the switch to greener energy options have propelled the growth of wind energy, which now generates 3 percent of the nation’s electricity and 7 percent in the state of Texas. For the last five years, TCU professors and students have been researching the impact these massive wind farms have on the local environment, economy and national energy equation. The research is part of a multi-million-dollar partnership with NextEra Energy Resources, one of the world’s largest generators of wind power, and Oxford University that was announced in March 2008.

“This grant has put TCU at the forefront of renewable research,” says Michael Slattery, director of TCU’s Institute for Environmental Studies and a professor in the School of Geology, Energy and the Environment. “Not from an engineering standpoint, but in terms of understanding the social, environmental, economic impacts.”

Along the way, the research has expanded to include other states and countries and added more institutional firepower as more universities and governmental agencies join in the effort. In addition to TCU and Oxford, the initiative now includes researchers from UCLA, Texas A&M University, the University of Oklahoma, Oklahoma State University, Kansas State University, the University of Minnesota, the U.S. Department of Commerce’s National Oceanic and Atmospheric Administration (NOAA) and the National Renewable Energy Lab in Boulder, Colo.

“TCU, because of our size and our teacher-scholar model, can do some things very well, but we can’t do everything well,” Slattery says. “There are things that we don’t have the expertise on, so we find collaborations in those areas and that has really helped us along, put us on the map.”

Now five years into the process, the data is being crunched and Horned Frog researchers are publishing the results of multiple studies in journals as diverse as Energy Policy, Renewable and Sustainable Energy Review and Southwestern Naturalist and presenting their findings at conferences from Cairo to Abu Dhabi.

“We’re at a really fruitful period here where we’re just writing papers, collating data from various research clusters and writing them up,” Slattery says. The initiative has also given TCU researchers a place at the table with industry and governmental officials as they formulate regulations over the nation’s growing wind industry. “This research isn’t just about writing papers,” he adds. “It’s driving policy on Capitol Hill. We’re using the research to get more renewable energy into our way of life.”

TCU’s five-year-old partnership with Oxford University and NextEra Energy Resources has put the university at the forefront of research examining the environmental and economic impacts of wind energy and its role in reducing carbon emissions.

Here’s a rundown of the major research findings in three areas of the Wind Research Initiative:

Socioeconomics

Led by Slattery and Becky Johnson, professor of professional practice at TCU’s School of Geology, Energy and the Environment, the socioeconomics team has conducted research in West Texas and Iowa on public perception and the economic impacts of large wind farms. Initial studies were conducted in rural Sterling and Cooke counties, which were then used to develop a protocol for more complex regions. As the project has progressed, the study sites have grown to encompass additional areas. The intent is that by end of the research, this movement from a more basic region of study to a more diverse and complex environment will allow the team to develop a protocol for studying the socioeconomic impacts of the wind industry not only in Texas but in other regions as well.

“The work we’ve done so far has focused on Texas, but now we’re involved in two other studies — one in Oklahoma and one in Kansas,” Slattery says. “We’re moving up the wind corridor.”

The team has developed a cross-sectional study that uses a multi-methodological approach that includes surveys, focus groups and secondary data analysis methods. Surveys have been used in communities in proximity to wind farms for evaluation of their opinions of wind energy. Focus groups have been used to gain specific details from specialized individuals, as well as general public opinions used to enhance survey questions. The secondary data analysis methods are used to review government and wind farm documents about economic impacts and wind farm documents about economic impacts.

Continued on page 10
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tonic and demographic information in the communities.

Texas A&M and UCLA have joined as partners in the socioeconomic research. The team of scientists have used several data sets to investigate how investments in wind farms affect community demographics, wealth and local school quality.

“If you’re the mayor of a town with a population of 5,000 and you’ve got a wind farm nearby, what does it mean to your town, to your schools, to the broader region and the state as far as jobs and economic growth?” Slattery says. “The news is good. These projects generate jobs, certainly during the construction phase, but they also generate long-term income for the surrounding community.”

The team has also surveyed public opinion and found that, by and large, local residents in Texas are supportive of the wind farms, adds Slattery.

“What we’ve found is a very, very strong acceptance of these wind turbines,” he says. “There’s not a very vocal opposition that you find in other areas.

“For the most part, (the residents) say they hope these wind farms will rejuvenate economies that are struggling.”

Birds and Bats

Led by Amanda Hale, assistant professor of biology at TCU, the over arching goal of the bird-bat team is to assess how wind power can coexist with bird and bat populations. In addition to investigating direct mortality from the wind facility, the team also explores issues related to habitat fragmentation and displacement.

The TCU team initially focused on bird-bat populations at Wolf Ridge Wind Energy Center, a 75-turbine wind farm owned by NextEra in Cooke County.

The species they found to be most impacted by the turbines were Eastern Red Bats and Hoary Bats, followed by a small number of Evening Bats and Tri-colored Bats. The number of bat bodies found at the base of the turbines peaked between mid-July and September, which is when the Eastern Red Bats and Hoary Bats make their way south from the northern United States and Canada to spend the winter in the southeastern United States and Mexico.

When they get too close, the nocturnal creatures can get wrinkled by the blades, which at the tips can reach speeds upwards of 120 miles per hour. Some bats appear to be killed by the blades while others may be sucked into a low-pressure area behind the spinning blades, rupturing the bats’ tiny lungs and causing internal bleeding.

Using their research and findings from similar studies, Hale hypothesized that reducing turbine usage during key migration times of the bats would help curtail mortalities. The good news is that the times of high bat activity tended to be days with low winds.

Based on the TCU team’s research, NextEra is reducing turbine usages during key times of bat migration in order to mitigate potential fatalities, Slattery says.

“The company has supported curtailment efforts, agreeing to shut down the turbines during the migration season to see if that mitigates against habitat fatalities,” Slattery adds.

Carbon and Ecology

The carbon team, headed by researchers at Oxford University in the United Kingdom, is exploring the carbon footprint created by wind energy as compared to other energy sources.

They have been exploring the following issues:

1) How wind and solar power can best be integrated into the power grid
2) The transmission and generation capacity required to support large-scale renewables
3) The spinning reserves required to support a clean energy grid
4) The cost of integrating renewables and whether there is a maximum threshold where renewables become uneconomical
5) Life-cycle greenhouse gas emissions from renewable and conventional generation technologies.

“It’s really trying to inform the public how a wind farm, how several wind farms, integrate and operate and how we deal with things like intermittency and uncertainty in the wind and controlling how much wind gets in the grid and all that,” Slattery says.

So far, the research has found that even using massive carbon capture and sequestration would not be enough to keep carbon emission levels at the desired targeted level, which is those of the early 1990s. He says the only way to significantly reduce the global carbon footprint is to use a combination of renewable sources, such as wind and solar, and tapping the growing sources of natural gas.

If you try to cut away all the political bias and the spin and the lobbying groups — everything that is associated with climate change — the reality is that, on a utility scale, a combination of wind and some solar plus natural gas is the only way we can reach our carbon reduction targets,” he adds.

For more go to wind.tcu.edu.
What is TBRI?

Developed by Professors Karyn Purvis and David Cross at the TCU Institute of Child Development, Trust-Based Relational Interventions (TBRI) is an emerging intervention model for a wide range of childhood behavioral problems. It has been applied successfully in a variety of contexts, and with many children for whom numerous other interventions have failed (e.g., medications, cognitive-behavioral therapies). TBRI is based on a solid foundation of neuropsychological theory and research, tempered by humanitarian principles. It is a family-based intervention that is designed for children who have experienced relationship-based traumas such as institutionalization, multiple foster placements, maltreatment, and/or neglect. The primary goal of the training is to present research-based interventions models for professionals that help at-risk children reach their full potential. Pragmatic and intensive application of research-driven intervention is the fundamental focus of this training, with the goal of empowering professionals to become healers for at-risk children on a micro and macro level.

“We’re creating an army of fiercely passionate advocates who are changing the world for children.”

Karyn Purvis, director of the TCU Institute for Child Development

Bonds of Affection

TCU’s Institute of Child Development expands its reach to help children heal emotional wounds.

by Kathryn Hopper

A baby cries and a caregiver responds with a warm bottle, fresh diaper or cozy snuggle. In developmental psychology that is called the attachment cycle and represents the first crucial bonds humans form with others.

“If a child learns their needs will be met, they learn to trust, which is the lesson of the first year of life. I see this,” says Karyn Purvis, co-founder of TCU’s Institute for Child Development and a best-selling author and worldwide authority on post-adoptive children.

“Attachment is an affectionate bond between a caregiver and that child,” she adds. “It’s the bond that tells that child they’re safe, their needs matter, they’re precious.”

But not every child gets that vital attention and affirmation.

“There are so many children in our society and globally in the world that have come from hard places; they’ve been harmed or abused, they’ve suffered trauma and endured hardships,” Purvis says. “For those children, their capacity to trust has been seriously harmed.”

Research by Purvis and David Cross, professors of psychology in TCU and cofounders of the institute, has shown how children who suffer from trauma, neglect, abuse or abandonment have altered brain chemistry that can make them more stressed and disconnected. But the good news is the right kind of nurturing can heal the brain, actually stimulating the parts of the brain that deal with regulating emotion, attention and attachment.

The institute conducts research to deepen our understanding of these complex children and to design and promote research-based models for practical interventions that help children heal emotional wounds and reach their highest potential.

The institute also offers extensive outreach to help families and aid professionals who serve them. Its latest initiative include:

• A new DVD aimed at parents titled Attachment—Why It Matters, that explores the critical role attachment plays in a child’s development.

• The Hope Convention Family Camp, a research and interventions summer camp for adopted children and their families.

• Professional training in Trust-Based Relational Interventions (TBRI), the emerging intervention model developed by Purvis and Cross to help heal a wide range of behavioral problems in children.

The institute is also working with schools and other agencies to train staff in the TBRI method. For example, the Kansas City, Mo. school system is rolling out online training for its teachers and staff. For those in remote areas of the nation and world, the institute is creating online training modules.

The institute is doing all this while also continuing its emphasis on hands-on undergradate training. The institute launched a new child development major that has already enrolled more than 70 students.

“We’re creating an army of fiercely passionate advocates who are changing the world for children,” Purvis says.

Purvis has lectured to groups all over the world to help improve services for all children from “hard places,” including adoptees and their families. Her work has brought acclaim and awards including the 2011 James Hammonsmith Award by Only Make Believe, a non-profit that performs theater for children in hospitals and care facilities.

Academy Award-nominee Hugh Jackman and his wife, Deborra-Lee Furness, brought Purvis to the attention of the organization after discovering her work during the Intercountry Adoption Summit in New York. Adoptive parents themselves, Jackman and Furness have praised the institute’s impact on their family’s well-being. The institute’s two-disc set is part of the Healing Families Series, which was made possible by grants from The Keen Jones Foundation, Harold Simmons Foundation, Lesley Family Foundation, The Meadows Foundation and the Mabel Peters Garth Fund at the Communities Foundation of Texas. Aimed at parents, the DVD explores the crucial role attachment plays in a child’s development.

“It matters because we know that children who have a history of secure attachments in their relationships with their caregivers do better in a variety of ways later in life,” says Cross. “They’re more socially competent, they’re more competent in challenging cognitive tasks, they do better in school, they’ll also be better parents themselves when it comes time for them to parent.”

Purvis says some parents worry they aren’t forming a healthy attachment with their kids, particularly if they have other families bringing about their kids doubts. But she says parents can learn better ways to communicate and relate to their children. She helps a lot of kids to learning to dance.

“A dance takes two,” she says. “If a child is disinterested from the dance, the probability is the parent doesn’t know how to lead the dance. The hopeful message is everyone can learn to change.”

The more parents can learn about their own attachment styles, the better they can help their children, particularly those whose earliest attachments were beyond their control, Cross says.

“The good news is wherever we are in our journey as parents, if we are challenged, we can become better if we choose to do so,” he says.

For information or to order the DVD, go to childbou.org. Comment at endevors@tcu.edu.
Don’t use a password that can be found in a dictionary. Ensure that your email passwords are different from any other (Facebook, especially) passwords. Change passwords from time to time. If you use your credit card for online purchases, don’t log out after each session. Think outside the box? “Hackers would rather burn the damn box and have a party around it,” Bachmann says. “Mysterious and sinister basement dwellers, clever, yet lonesome male adolescents whose computer wizardry compensates for social shortcomings,” is how most people tend to stereotype hackers, says Bachmann. But when hackers are mounting attacks on digital infrastructure with ever more frequency, solid profiling — not stereotyping — is crucial, both to help anticipate and to deter cybercrime. Bachmann found hackers to be sociable, creative risk-takers, with many of the most prolific attackers well past their teens. His survey examined hackers’ preferred targets, methods and success levels, as well as their personalities. "Hackers are typically thrill-seekers who derive pleasure and excitement from the chase, from overcoming barriers, and from gaining access to all kinds of areas where they’re not supposed to go." That’s why it’s necessary to have ethical hackers, also called “penetration testers.” Hired by government agencies and corporations to try their best to hack into systems to make them more secure, many of these “white hat” hackers are former cybercriminals. This brings up the question of punishment, and whether we should make use of their skills or lock them away. But first, we have to catch them.  "Michael was a self-starter," says then-head of University of Central Florida’s sociology department, Jay Connine. "He excelled at research methods, and devised his own instruments to profile the underground hacking community. He then asked organizers of a well-known hacker conference to distribute it to their participants." Bachmann fielded the first-ever quantitative survey of hackers in 2007 at SchmooCon, the second-largest hacker conference in the country. The result not only won UCF’s Outstanding Dissertation Award but also garnered Bachmann interviews with a Washington-based think tank. "Mysterious and sinister basement dwellers, clever, yet lonesome male adolescents whose computer wizardry compensates for social shortcomings," is how most people tend to stereotype hackers, says Bachmann. But when hackers are mounting attacks on digital infrastructure with ever more frequency, solid profiling — not stereotyping — is crucial, both to help anticipate and to deter cybercrime. Bachmann found hackers to be sociable, creative risk-takers, with many of the most prolific attackers well past their teens. His survey examined hackers’ preferred targets, methods and success levels, as well as their personalities. "Hackers are typically thrill-seekers who derive pleasure and excitement from the chase, from overcoming barriers, and from gaining access to all kinds of areas where they’re not supposed to go."

Think outside the box? “Hackers would rather burn the damn box and have a party around it,” Bachmann says. “When he’s not traveling to hacker conferences, taking training courses on identifying global terrorist threats, or leading study abroad trips to Germany, Bachmann teaches courses in crime-mapping, research methods, and deviance and crime. Ask his wife Brittany to describe Bachmann, and you begin to see why he’s so good at this stuff. “Michael never accepts ‘no’ or ‘you’re not allowed to do that or go there.’ He always wants to find a more direct route to get into the guts of a problem or system. He is never satisfied until he has found a way to achieve access, so he can understand how something functions and then he wants to tear it apart and build it back his way, which is invariably more systematic and more logical than the original.”

This isn’t surprising. Bachmann has the passionate curiosity and perseverance of an original hacker: Like those uber-smart guys from MIT who started it all, he sees technology as a way to reach the heights of artistic and intellectual creativity and improve the quality of life. But, as he explains, the more we’ve moved our lives online, the more opportunities have arisen for “black hat” hackers to undertake technological crime, “for which computers, be it the ones on your desk, in your cellphone, or in your car, will be the agent, facilitator or victim.”

That’s why it’s necessary to have ethical hackers, also called “penetration testers.” Hired by government agencies and corporations to try their best to hack into systems to make them more secure, many of these “white hat” hackers are former cybercriminals. This brings up the question of punishment, and whether we should make use of their skills or lock them away. But first, we have to catch them. Bachmann’s other research may be able to help with that, too. While his SchmooCon survey relied mainly on psychological profiling, there’s a much more common type being used by law enforcement, and Bachmann is an expert. "In geospatial crime analysis we use complex, map-based applications in combination with knowledge about criminological theories to identify likely offender residencies or to predict where a serial offender will strike next,” he says. Comment at endeavors@tcu.edu.
Benefits of Housing the Homeless

by Alison Rich

Social Work study shows perks of permanent housing for those in need.

A 36-month research study on the chronically homeless and medically vulnerable in Fort Worth revealed that providing housing to this cohort not only gives them safe shelter but also helps lessen their overall use of medical services and cuts the community’s cost to serve them.

The data, gathered by social work Assistant Professor James Petrovich and students, will supply community leaders and others with a uniquely granular snapshot into the effectiveness of providing permanent, supportive housing to the homeless in Fort Worth.

Working in tandem with the City of Fort Worth, the research team began in 2009 to recruit 100 local previously homeless people now living in city-funded housing in sites scattered across the city. The researchers then received permission to access the participants’ records at JPS Health Network, MedStar, Mental Health and Mental Retardation of Tarrant County (MHMR) and the Fort Worth Police Department.

“We knew the date they went into housing and looked 18 months on either side of it, evaluating their use of these different service sectors: Did they go, how often did they go and the hours worked?” Petrovich says. “We wanted to make sure that this intervention, this housing approach, is benefiting the people who are going to live in the apartments, as well as helping the community.”

Of the 100 people who started with the study, 81 remained in housing for the full 18 months after.

As for MedStar usage, it declined 28 percent, with charges incurred down 34 percent.

“What I feel good about is that we gave [the city] some solid data, which to me says it’s in the best interest of this community to fund supportive housing for the homeless,” he says. “It costs a considerable amount more to leave people on the street than it does to leave them in a home.”

Beyond the numbers, of course, there is the human factor. Petrovich and his team asked participants how the newfound security and feeling of being able to lock their door and the independence of being able to lock their door and the independence and freedom gained from living in an apartment changed their lives.

The response, he says, was overwhelmingly positive.

“It’s not just about putting people into an apartment — it’s about helping people regain their own dignity,” Petrovich says. “These people have inside of them everything they need to be successful in life and re-orient themselves. What housing does is give them that base to start working from.”

Comment at endeavors@tcu.edu.
MANAGING COMPLEXITY

Professor Tyson Browning is helping the U.S. Navy build a better boat

by Mark Wright

Tyson Browning is an expert in a modeling technique that engineers and businessmen in a broad range of industries are increasingly turning to in order to simplify complex processes and product designs.

What Browning, associate professor of operations management in the Neeley School of Business, knows about Design Structure Matrix (DSM) analysis just might help the U.S. Navy build a better boat.

In 2011, Browning received a grant from the Office of Naval Research to use DSM to help define and streamline the processes the Navy uses for designing a ship. What are all the decisions involved in ship design? And how do these relate to each other? Answering those questions using traditional charting methods might require a King Kong-sized PowerPoint presentation.

“This would look like an enormous flow chart on the side of a wall,” Browning says. “It would probably cover the side of a building. Ship design is perhaps even more complex than aircraft design, which is where my background is mainly.”

But DSM lays out all the relevant information on a small square grid that could easily fit on an eighth-grade geometry student’s sheet of graph paper. The elements of a system are represented by cells on the upper-left to lower-right diagonal, and off-diagonal cells indicate the relationships among elements.

And unlike node-link diagrams, which begin to look like a puzzling plate of spaghetti and meatballs when more and more elements are added, the DSM model maintains its clean, easy-to-read appearance no matter how many elements it displays, Browning says.

“This technique is really about managing complexity,” Browning says. “It’s about taking a bunch of complex elements that relate to each other and boiling it all down and showing it in a square matrix.”

Browning in his new book, Design Structure Matrix Methods and Applications (MIT Press, 2012), which he co-wrote with MIT management Professor Steven D. Eppinger, shows numerous examples of how NASA, Kodak, Mozilla and other companies and agencies are using DSM to model processes, products and organizations.

“Once things get big and complex, it’s too much for someone to understand all at once,” says Browning, who has been using DSM analysis for nearly 20 years. “So you need someone to give you the big picture all at once.”

In addition to his expertise in modeling the ship-design process, Browning is also using this matrix technique to help the Navy design its ships to be more modular and adaptable. The Navy, which wants to regain its freedom to power a ship or it might incorporate a new technology into an existing product design. The Navy might have a new way to power a ship or it might have a new weapon, a new control system or a new electrical system, but the way Naval vessels are currently constructed requires a massive overhaul to add or swap out a new element.

“Can we design almost a generic Navy ship that could be repurposed for disaster relief or combat or coast guarding — different missions that a ship could have?” Browning says. “Right now it’s designed for a specific purpose.”

Browning, who characterizes his Navy grant as very loosely defined and open-ended, has begun his latest project: a survey of recent academic work on the subject of DSM and how it applies to some issues the Navy is dealing with.

“In this age of the U.S. Navy not being able to afford many ships, each one needs to be a little more versatile,” Browning says. “And they’re being very thoughtful in how to do that, and this technique helps.”

Comment at endeavors@tcu.edu.

Spring 2013
Q&A with John Harvey

by Nancy Allison

Last year, after economic professor John T. Harvey sat an impromptu essay in Forbes.com, an editor there invited him to write a blog for the website. Harvey is of the mind that regular folks need to understand economics. Unfortunately, he says, many of us, and the politicians representing us, don’t. He tries through his teaching, writing, the Forbes blog, and even this Q&A to make economics make sense.

If you were given the power to do what you think is needed to rescue the economy, what exactly would you do first? Introduce a jobs program to get help to those who are most hurt as quickly as possible. Note such programs are expected to a) include training for new careers, b) be in lieu of much unemployment assistance, and c) be at wages slightly below the market equivalent so that once the economy is in expansion again, workers could exit the public sector. Then I’d implement tax reform to help address the income disparities and a reduction of regulations that curb speculative excesses in the financial industry.

What should the government’s role in the economy be? To supplement demand so that everyone who wants a job has one and to undertake those activities that are of social benefit but aren’t profitable.

What are the three most important factors to track (and over what time frame) to gauge if the economy has finally turned the corner? Unemployment is without question the big one and that would be within the year. Then middle class incomes over the next several years, and finally, the income distribution in general over the decade.

Politics aside, would high marginal tax rates be an effective check on excessive executive compensation? Of course it would depend on how high they were, but I am skeptical. I would rather focus more attention on the low levels of compensation for everyone else.

Are you pessimistic about prospects for the U.S. economy in the near and medium term? Yes, I am. The Obama administration has not displayed a desire to engage in the sort of economic reforms necessary and, with those they have attempted, they have been blocked by the Republicans. I am hoping the second term brings something new.

In a recent post you used charts showing unemployment as well as deficit spending by year and presidential administration. You went all the way back to 1920. What can we learn by past economics and administrations to help us today? That deficit spending can and has solved unemployment and did not lead to any fiscal cliff or burden on future generations. In addition, we have already seen how trying to balance the budget in the midst of an economic downturn can be disastrous.

You say on your blog: “I am a firm believer that economics can and must be made understandable to the general public, but that our discipline has done a very poor job in this regard.” You remedy that to a degree with your blog, but what else would you like to see being done? Within the discipline of economics, we need to spend more time talking about the real world and less simply playing with math. I always think of my PhD-level international trade class. I remember standing in line at a store not long after I had finished it, and a terrible thought struck me: The very things people in this line would expect me to know — with whom we trade, what we trade, how that has evolved over time, etc. — I couldn’t even begin to tell them. The class was basically matrix algebra. This is not the least bit uncommon and it has caused terrible problems for economic theory, the teaching of economics, and economic policy. In fact, economists bear some of the responsibility for the financial crisis.

How would you complete these sentences: Stop government spending and ... watch unemployment rise again. Run government like a business and ... be forced to shut down the unprofitable entities like police forces, fire departments, public libraries, the Army, the Navy, the Air Force, the Marines, the Coast Guard, national parks, child and family welfare, public schools, etc. etc.

Raise taxes on the rich, and ... have no impact on economic growth but see a correction in the income distribution. Over twelve million unprofitable Americans need ... the government to generate the demand necessary to get them jobs.

Comment at endeavors@tcu.edu.

Find Harvey’s blog, Pragmatic Economics, at blogs.forbes.com/johnharvey/

In November, Theatre TCU presented Born on a Sunday, an original work written and directed by T.J. Walsh about the prolific Swedish writer August Strindberg. The play investigates Strindberg’s “Inferno Crisis” in Paris in 1896, when he experienced a psychotic episode and felt his life was guided by “special powers.”

The production drew critical raves for the cast and Walsh, associate professor of theatre at TCU and co-founder and artistic director of the Trinity Shakespeare Festival. “Born on a Sunday is an amazing accomplishment and a real" noted D Magazine critic M. Lance Luk. “The fact that Walsh is able to fashion a production of such superior quality with non-professional actors in training is mind blowing. They handle this difficult and unconventional material with artomatic ease.”

Inspired by Nancy Allison

T.J. Walsh

Student performance of “Born on a Sunday”
An original score by eminent music professor Robert Garwell was heard in the concert of a concert in the prestigious Shanghai Concert Hall last summer. It was performed by TCU’s Sarah Robbins, left, and Associate Professor Yuan Xiong Lu, center, and TCU Artist-in-Residence José Feghali, right, at the prestigious Shanghai Concert Hall. Their July 22 concert featured the world premiere of Garwell’s “Shanghai Legend,” which was originally scored as a concerto for double bass and orchestra and revamped for double bass and piano for the performance.

**Building bridges for international women faculty**

International women faculty members encounter two distinct sets of challenges — one based on culture, one on gender — as they acclimate to U.S. universities and pursue equity in academia. The result is the “double jeopardy” of overlapping sets of obstacles to navigate in establishing a career. In Bridging Cultures: International Women Faculty “Translating the U.S.” Academy, coedited by TCU’s Sarah Robbins, the Lorraine Shelley Professor of Literature, six essayists relate their transitions to American higher education, and five respondents offer reflections. Robbins wrote the preface and coauthored the introduction, and TCU’s Rosangela Boyd, director of Community Involvement and Service Learning, coauthored one of the response essays.

While the essayists come from all over the world, including Africa, the Caribbean and East Asia, their transitions to the U.S. share common themes. International faculty must adapt to the less-formal relationships between American students and professors and shift from lecturing to a more conversational and project-oriented teaching style. They learn that American students may view themselves as consumers of knowledge and less knowledgeable about their field. Amid all these cultural adjustments, international women faculty face the same challenges as all academic women in America, including pay equity, child care availability and tenure clocks that support work-life balance.

The project emerged from a roundtable presentation by international women faculty at Kennesaw State University in Georgia, where Robbins taught before coming to TCU. Robbins and her two coeditors saw in the presentation the potential for a book that would help both women in the essayists’ position and the institutions that hire them. As more universities, including TCU, focus on global education, the presence of international faculty adds a global dimension to the academic experience, even for students who don’t study abroad. Understanding the challenges faced by international women faculty can help their institutions not only provide support but also engage them as a valuable resource for all students. — RR

**China’s energy relations with the developing world**

**by Manochehr Dorraj, professor of political science**

**edited by Carrie Liu Currier, associate professor of political science and director of Asian studies**

Continent

China, now the second largest oil-consum ing country after the U.S., has a growing need for resources that will affect its development as well as that of its neighbors and other developing countries. China’s Energy Relations with the Developing World will examine China’s access to the energy resources of the developing world and its impact on Chinese foreign relations through a series of essays.

The essays, contributed by experts in international relations and Chinese politics, look at China’s expanding relations with the Middle East, Africa, Central Asia, Latin America and India, and the security implications of China’s quest for energy resources; and, in impact on relations with world powers such as the U.S.

The book also asks whether China’s competition for energy resources will foster cooperation or conflict with other energy-consuming great powers. It has accessible text that will appeal to students, faculty, and policy makers seeking to understand Chinese policies, energy policy and the factors that may influence future geopolitical and security issues.

**Contemporary Dance in Cuba: Técnica Cubana as Revolutionary Movement**

**by Suki John, assistant professor of contemporary dance**

**McFarland Press**

The lens of dance can provide a multifaceted view of the present-day Cuban experience. Cuban contemporary dance, or tónica cósmica as it is known throughout Latin America, is a highly evolved hybrid of ballet, North American modern dance, Afro-Cuban tradition, flamenco and Cuban folkloric culture. Unlike most dance forms, it was created intentionally with government backing. For Cuba, a dancing country, it was natural — and highly effective — for the Revolutionary regime to link national image with the visceral power of dance.

John traveled and worked in Cuba from the 1970s to the present, so the book also provides an inside look at daily life in Cuba. From watching the great Alicia Alonso, to describing the economic trials of the 1990s “Special Period,” John uses history, humor, personal experience, vivid descriptions and extensive interviews to reveal contemporary dance and life in Cuba. People who are interested in politics and America’s foreign policy, who are interested in what’s happening in Cuba, will be interested in this book because it combines a lot of personal experiences with what it’s like to live and work in Cuba. It looks at the importance of art — especially dance and music — in a country where there is almost no material wealth but where there is huge cultural wealth,” John says.

**The CIA in Hollywood: How the Agency Shapes Film and Television**

**by Tricia Jenkins, assistant professor of film and television digital media**

**University of Texas Press**

Show us what you have, and we will use it. The Federal Bureau of Investigation (FBI) opened a Hollywood office in the 1930s to improve and control its image in film, radio and television shows such as CSI, which aired in 1998 and then The FBI, which ran from 1965 to 1974. In 1947, the Department of Defense opened a Hollywood office and was soon joined by all the branches of the armed services.

“What’s interesting to me about the CIA is, despite the fact that it’s existed since 1947, it actually didn’t start working with Hollywood until the 1940s and it didn’t have its own entertainment liaison officer until 1996,” Jenkins says. She examines why the CIA waited and what changed in the 1990s to get it engaged. She also asks about the CIA is, despite the fact that it’s existed since 1947, it actually didn’t start working with Hollywood until the 1940s and it didn’t have its own entertainment liaison officer until 1996,” Jenkins says. She examines why the CIA waited and what changed in the 1990s to get it engaged. She also asks about the CIA was actually late to the Hollywood scene, Jenkins says. The Federal Bureau of Investigation (FBI) opened a Hollywood office in the 1930s to improve and control its image in film, radio and television shows such as CSI, which aired in 1998 and then The FBI, which ran from 1965 to 1974. In 1947, the Department of Defense opened a Hollywood office and was soon joined by all the branches of the armed services.

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**The Slaves’ Gamble**

**by Gene Smith, professor of history**

**Palgrave MacMillan**

Long before the Emancipation Proclamation in 1863, the War of 1812 provided an opportunity for slaves to throw off their chains. In this vividly told story, Smith examines the growing conflicts between the fledgling U.S., Great Britain, Spain and various Native American groups, and how each, tried to mobilize the free black and slave populations in the hopes of defeating the other. Many of these struggles were played out in the central west region of the U.S. and the growing conflict between the fledgling U.S. and Great Britain, Spain and various Native American groups, and how each, tried to mobilize the free black and slave populations in the hopes of defeating the other.

The book also asks whether China’s competition for energy resources will foster cooperation or conflict with other energy-consuming great powers. It has accessible text that will appeal to students, faculty, and policy makers seeking to understand Chinese policies, energy policy and the factors that may influence future geopolitical and security issues.

The 22 concert featured the world premiere of Garwell’s “Shanghai Legend,” which was originally scored as a concerto for double bass and orchestra and revamped for double bass and piano for the performance.
Jacques d'Amboise, founder of the National Dance Institute, spent a week in September in the TCU School for Classical & Contemporary Dance as the Cecil H. and Ida Green Chair Professor of Dance teaching workshops, giving lectures and directing a performance of Horned Frog dance majors.