MARCH/APRIL 2007

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Going Mobile With Motorola's Ed Zander

317

Research on a Mission

Teaching All Types of MBAs





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From the Editors

Beauties and the Freak

I recently read Freakonomics: A Rogue Economist Explores the Hidden Side of Everything by economist Steven Levitt and *The New York Times* writer Stephen Dubner. I'd like to say I was inspired to read this fascinating book by an insightful review or a professor's recommendation—but I can't. Here's my sordid admission: I read the book after seeing Dubner's appearance on the decidedly intellectually undemanding American reality television show "Beauty and the Geek."

For those unfamiliar with its premise, "B&G" pairs socially backward but intelligent men with beautiful but, well, not-as-intelligent women. Teams work together to complete tasks that go against their types, vying to win a large cash prize. Imagine my surprise when, in one episode, the beauties were given *Freakonomics* as assigned reading. They then were asked to interview Dubner himself about the book's content.

Since most of the participants hadn't read past the contents page, the "interviews" were predictably amusing. But I was more fascinated by Dubner himself. There he was, a highbrow writer for *The New York Times*, discussing research that he and an esteemed economist had co-authored, on a television show that neither highbrow writers nor esteemed economists tend to frequent in large numbers.

Just as Dubner and Levitt posit macroeconomic questions in *Freakonomics*, I asked some questions of my own: Could Dubner's brief appearance on such fluffy fare as "B&G" influence the public's perception of business research? Could repeated exposure to business research have an impact on how people view its relevance to their own lives and work?

I'm not the only one asking such questions. In our article in this issue, "Research in Action," we found that business schools with mission-based commitments to research are inventing new strategies to disseminate their faculty's knowledge to more diverse, and often nonacademic, audiences. They are translating the technical underpinnings of business inquiry into a language that's more accessible to a broader group of people. In this way, they hope to expand the scope and impact of their faculty's work.

So, yes, it was strange to see the women attempt to engage Dubner on topics about which he knew so much and they so little. Still, while these women may not be part of many business schools' expanded target audience, some of the show's viewers are. Dubner's appearance, however seemingly mismatched with the medium, brought a taste of business research to the mainstream.

I'm not sure if more people picked up a copy of *Freakonomics* as a result of Dubner's appearance on reality TV, but I do know he sparked my interest in the book. That may be what many business schools have in mind. They want to spark interest, make connec-



tions, and create avenues of communication between business faculty and the rest of the world. Such avenues, many believe, can ensure that business research is not a closed system. Instead, by reaching a broader audience, schools can make sure their research achieves greater real-world impact. Moreover, they do their part to enhance the public's understanding—and appreciation—of business.

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Headlines

AACSB Meeting Set For Tampa

Business school deans and faculty from

around the world will meet in Tampa, Florida, April 22 through 24 for the International Conference and Annual Meeting (ICAM), organized by AACSB International. The event also marks part of the celebration of AACSB's 90th anniversary.

More than 1,400 representatives from about 40 countries are expected to attend the conference, which will be held at the Tampa Convention Center near AACSB's new world headquarters. The conference hotel is the Tampa Marriott Waterside, with additional lodging avail-



able at the Westin Tampa Harbour Island.

On the agenda will be topics such as accreditation, faculty development, research, ethics, technology, globalization, and the future of business schools.

One keynote speaker will be Robert Reich, economist and former U.S. Secretary of Labor, who will speak on "China, India, and the Future of Everything." Also on the program will be Ronald S. Burt, Hobart W. Williams Professor of Sociology and Strategy at the University of Chicago Graduate School of Business. His topic will be "The Competitive Advantage of Social Capital," which determines the ways in which work relationships can enhance the effectiveness of enterprises.

A daylong guest program on Monday offers visitors a chance to visit top art collections and shop in historic St. Petersburg. Other attractions in the Tampa area include Busch Gardens, the Florida Aquarium, the Tampa Bay Performing Arts Center, the Museum of Art, and the Museum of Science and Industry.

Additional information and registration forms are available at www. aacsb.edu/conferences/annual07/.

The Global Business Climate

Global climate change offers challenges and opportunities for businesses looking to seize a competitive advantage, according to three institutions that are partnering to launch "The Climate Academy." The academy, designed to educate business executives about how to succeed in a world with a low-carbon economy, has been organized by Duke University in Durham, North Carolina; the University of Cambridge in the U.K.; and The Climate Group, an international nonprofit organization based in the U.S., the U.K., and Australia.

The academy will feature a Cliate Leadership Program that will combine the universities' knowledge of climate science and policy with



The Climate Group's insight into business leadership. Business leaders will learn to proactively address a global need to reduce greenhouse gas emissions. "With changes of the magnitude required by climate change, there will be economic winners and losers," says Tim Profeta, director of the Nicholas Institute for Environmental Policy Solutions at Duke. "We want our enrollees to be the winners."

Duke's Fuqua School of Business and Nicholas Institute will co-host a three-day pilot course on Duke's campus beginning May 15. The course will cover scientific, political, and business challenges associated with climate change; technologies



Students at Texas A&M University in College Station say goodbye to the former president of their school — Robert M. Gates, who has just taken a post as the nation's new secretary of defense. Close to 50,000 students and alumni can boast that their diplomas have been signed by the secretary of defense. Handing out diplomas for December graduates was one of Gates' final acts before flying to Washington, D.C., to be sworn in.

In 2003, Gates championed a \$40 million faculty reinvestment plan that is expected to bring more than 400 new professors to campus by the end of 2008. So far under the new plan, 39 new tenured and tenure-track professors have joined the Mays Business School, and ten more are on the way.

Headlines

that can minimize greenhouse gas emissions; and changes attendees can implement at their own organizations. The academy partners plan to offer the Climate Leadership Program twice annually, once on each of the two university campuses. A third campus is planned in China in the near future.

Twelve Schools Achieve First-Time Accreditation

Twelve institutions of higher learning from

five countries have earned international accreditation from AACSB. The newly accredited U.S. schools are Delaware State University, Fayetteville State University, Fayetteville State University, North Carolina Central University, Sacred Heart University, Siena College, Utah Valley State College, Virginia State University, and West Chester University. Institutions from outside the U.S. are the University of Glasgow in the United Kingdom, the Institut Químic de Sarrià in Spain, the National Chengchi University in Taiwan, and the University of Technology, Sydney, in Australia. This raises to 540 the number of institutions that have earned specialized AACSB accreditation for their business schools.

In addition, 15 AACSB-accredited institutions in the U.S. have successfully completed their maintenance of accreditation review in business and/or accounting. All AACSB-accredited schools must

go through a peer review every five years in order to maintain their accreditation. Those schools maintaining accreditation in business are Arizona State University, Fort

Lewis College, Georgia College & State University, Gonzaga University, University of Hawaii at Manoa, Marshall University, Northern Kentucky University, San Jose

BizEd Surveys Its Readers

BizEd readers find the magazine full of useful information about the management education field—and they like its looks, too. Surveyed late last year in an online forum conducted by Readex Research, more than 250 *BizEd* readers gave the magazine high marks on content and appearance.



Seventy percent of respondents agreed that the magazine provides a valuable service to the management education community, and 87 percent ranked the overall attractiveness of the publication high. The magazines are closely read, as well. The majority of respondents noted that they spend nearly an hour looking through a typical issue, and they share their copies with an average of 1.9 other people. Favorite topics deal with key issues in the industry, from ethics and globalization to faculty salaries and the doctoral shortage.

As part of the survey, *BizEd* awarded a \$250 Visa gift card to one random respondent. The winner of the gift card was Karen A. Tarnoff, assistant professor and director of assessment at East Tennessee State University's College of Business and Technology in Johnson City. State University, the University of West Georgia, and the University of Wisconsin-Parkside.

Maintaining their accreditation in business and accounting are the University of Arkansas, Grand Valley State University, Idaho State University, and North Carolina A&T State University. The College of William and Mary has maintained its accreditation in accounting.

Johns Hopkins Opens Business School

William Polk Carey has donated \$50

million through the W.P. Carey Foundation to establish the Carey Business School at Johns Hopkins University in Baltimore, Maryland. The new school began operations in January and immediately initiated a search for a dean. The new Carey School will grant joint master's/ MBA degrees and add a five-year BA-BS/MBA option for liberal arts and engineering majors. The existing W.P. Carey Program in Management and Entrepreneurship will now be offered under the auspices of the business school.

The gift to Johns Hopkins marks Carey's second \$50 million gift in support of business education. His 2003 donation to Arizona State University endowed the W.P. Carey School of Business in Arizona and in China. The new Johns Hopkins Carey Business School is named for James Carey of Loudon, an 18thand 19th-century Baltimore shipper.

"A key to economic health is quality management education, and this school will be able to generate leaders for many important enterprises, be they in business, education, medicine, government or another field," says Carey.

Cabrera Advises Global Compact

Ángel Cabrera has been appointed to an initial 12-month term as senior adviser for the Global Compact on Academic Affairs. Cabrera is president of Thunderbird, the Garvin School of International Management, in Glendale, Arizona. He will lead the task force that will develop the Principles for Respon-



sible Business Education to be presented at the Global Compact Leaders Summit in July.

The Principles for Responsible Business Education are intended to help academic

Ángel Cabrera

institutions partner in the advancement of good corporate citizenship. Academic institutions from around the world joined forces with the United Nations Global Compact in October 2006 to help draft some of these principles. Participating groups included AACSB International, the Academy of Management, the British Academy of Management, the British Academy of Management, the European Foundation for Management Development, and the European Academy of Business in Society.

Following the July summit, a Global Council for Responsible Business Education will be created to link academic activities to local operations. The Council's goal will be to stimulate research and case studies, while providing technical support and promoting responsible corporate citizenship worldwide.

COLLEGE OF BUSINESS Delivering Innovation

The Washington State University College of Business is developing *globally competitive* business leaders with the skills to deliver *transformational innovations*.



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Headlines

What Professors Earn

Business faculty continue to command

robust salaries, thanks in large part to the ongoing decline in doctoral degree production in the U.S. According to the 39th annual Salary Survey conducted by AACSB International, the average full-time faculty nine-month salary across all ranks and fields increased 5.2 percent last year, to \$101,000 from \$96,000.

Among those teaching college business courses, the ones who experienced the biggest increase in average salary were those holding the rank of instructor, who saw a rise of 8 percent across all fields. Gains were solid both for incumbent faculty, who netted average raises of 5 percent, and new hires, whose average salaries went up by 5.5 percent. Those new hires continue to have an impact on the overall salary base as more schools are bringing in new faculty. In this survey, the portion of full-time faculty classified as new hires increased to 9 percent from 8.5 percent the previous year. On average, each school welcomed 4.9 new faculty members in the fall of 2006, which was up from 4.4 in 2005.

The survey also shows that the distribution of hiring activity has shifted over the last ten years. The disciplines picking up market share were accounting, economics, and finance, while information systems has shown a steady decline from 17.6 in 2000 to 6.8 in 2006.

According to the survey, non-tenure track positions account for only a small fraction of the openings at the professor, associate professor,

Average Salaries by Rank and Discipline					
Field/Discipline	Professor	Associate Professor	Assistant Professor	Instructor	New Doctorate
Accounting/Taxation	123.8	104.4	104.1	58.8	113.5
CIS/MIS	119.5	98.8	94.78	55.9	93.4
Economics/Managerial Economics	113.4	83.3	77.6	55.2	81.0
Finance/Banking/ Real Estate/Insurance	134.0	113.1	115.0	66.3	118.0
Management/ Behavioral Science/ International Business/ Strategic Management	123.8	97.8	92.0	58.1	93.6
Marketing	125.1	99.7	95.6	58.2	100.7
Production/Operations Management	124.6	101.4	98.1	59.3	95.6
Quantitative Methods/ Operations Research/ Statistics	119.5	94.1	84.2	52.6	93.2
Combined (all fields and disciplines)	123.8	99.0	95.8	58.4	100.4
All amounts in thousands of dollars. Source: AACSB International Knowledge Services					

All amounts in thousands of dollars. Source: AACSB International Knowledge Services

and assistant professor ranks. However, this year the portion of fulltime faculty designated as "instructors"—where most of the non-tenure track positions are clustered—rose to 13.6 percent from 12.5 percent. More than one-quarter of the new hires in 2006 held the instructor rank. This may signal a potential trend as business schools look for ways to add teachers without breaking the budget.

At administrative levels, salaries have also increased. In 2006, the mean salary for a dean was \$185,700. For associate deans, that number was \$148,500, and for assistant deans, \$89,300. Other administrative positions that broke the \$100,000 mark were assistant deans or directors of development, with a mean 2006 salary of \$103,200; accounting department chairs, \$141,300; director of the accounting school, \$157,500; academic department chair, \$136,400; assistant dean or director of the executive education department. \$114,000; director of the EMBA program, \$100,500; director of research, \$115,400; and director of distance education, \$103,400.

Survey results were calculated based on the responses of 491 participating schools. They provided information on 26,768 business faculty members across all ranks and 28 business fields, as well as 5,000 administrators in 25 positions normally found in business schools. The overview report of the survey is available to all participating or subscribing schools in the downloads section of DataDirect on www.aacsb.edu/datadirect. The overview report also can be purchased through the Knowledge Services report catalog, which can be found at www.aacsb.edu.



WHERE BUSINESS & TECHNOLOGY INTERSECT

CASE STUDY 2: BETHLEHEM, PENNSYLVANIA

When it comes to coral reefs and clown fish, the difference between *thrive* and *survive* is a matter of degree. 1°F, to be exact. But thanks to some student ingenuity, a new pump system designed for saltwater aquariums has the issue under control.

Using Lehigh University as a catalyst, the next generation of technical entrepreneurs are starting companies like EcoTech Marine. It's what Lehigh's Integrated Product Development program is all about. Hear EcoTech Marine tell its story and see how Lehigh integrates business and engineering at www.lehigh.edu/integration.



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Students can register up to 24 hours in advance at www.mba.com



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SHORT TAKES

NEW APPOINTMENTS

■ Patrick Harker has been named president of the University of Delaware in Newark. Harker has been dean of the Wharton School of Business at the University of Pennsylvania in Philadelphia since 2000. While at Wharton, Harker led more than 300 faculty members and 4,600 students, while overseeing a fund-raising campaign that netted \$450 million in five years. Harker replaces David Roselle, who retires in May after 17 years as president.

■ Jorge Talavera has been named president of ESAN University in Lima, Peru. He previously held positions



at the Adolfo Ibañez University in Chile and the San Ignacio de Loyola University in Peru. Talavera is

also president of CLADEA, the Latin American Council of Management Schools.

■ The Community of European Management Schools and International Companies (CEMS) has elected **Bernard Ramanantsoa**, dean of HEC School of Management in Paris, as its new chairman. Ramanantsoa takes over from Paul Verhaegen as chairman of the strategic alliance of 17 European business schools, four non-European academic associate members, and 56 international companies.

■ Blair H. Sheppard has been named the new dean of Duke University's Fuqua School of Business in Durham, North Carolina. The appointment is effective July 1. Sheppard succeeds Douglas Breeden, who returns to a full-time faculty position after six years as dean.

Ashok Rao has been named dean of the E. Philip Saunders College of Business at Rochester Institute of Technology in New York. His appointment was effective February 1.

■ Troy Eggers has been named associate dean for executive education at Columbia Business School in New York City. He has held previous positions as assistant dean and director of administration for the executive MBA program.

Andres Fortino has been named associate provost and dean of the Westchester, New York, campus of Polytechnic University. Fortino was formerly dean of the School of Management at Marist College.

■ The Smeal College of Business at Pennsylvania State University in University Park has named **Michael Rothkopf** the next Smeal Chaired Professor of Supply Chain and Information Systems and **Raghu Garud** the new Alvin H. Clemens Professor of Entrepreneurship.

The Reims Management School in France has appointed international wine expert **Stephen Charters** as the head of its Champagne Chair.



■ Greg Filbeck has been named professor of finance and the first Samuel P. Black III Professor of Insurance and Risk Management in the Sam and Irene Black School of Business at Penn State Erie, The Behrend College.

HONORS AND AWARDS

James G. Tompkins IV has been chosen as a Fulbright Senior Specialist



to Greece. Tompkins is a professor at the Coles College of Business at Kennesaw State University in Georgia. He will

teach and conduct seminars on writing and researching case studies at the University of the Aegean.

Joseph A. Alutto received an award from China's Ministry of Education and the Asia-Pacific MBA Association for being a "Prominent Figure to China's MBA Education." Alutto, dean of The Ohio State University's Fisher College of Business in Columbus, was recognized for his contribution in developing the first MBA program in China. In 1984, Alutto, then a dean at the State University of New York-Buffalo, founded the SUNY-Buffalo-China MBA program. The two-year program was established through an agreement between the U.S. Department of Commerce and the State Economic Commission of the People's Republic of China.

COLLABORATIONS

■ Three universities have partnered to establish a governance consortium that crosses sectors. The School of Public Administration and Policy at the **University of Arizona's** Eller College of Management in Tucson, the Daniel J. Evans School of Public Affairs at the **University of Washington** in Seattle, and the School of Policy, Planning and Development at the

Headlines

SHORT TAKES

University of Southern California in Los Angeles have teamed together to create the Consortium on Collaborative Governance (CCG).

ESSEC Business School in Paris has launched a Private Equity chair in partnership with Barclays Private Equity, Grant Thornton, and corporate law firm Linklaters. The first chair-holder is finance professor José-Miguel Gaspar.

■ The **Ohio University** College of Business in Athens has signed a memorandum of understanding with UNIMED of Brazil, a medical cooperative with more than 120,000 doctors. Together, the institutions will create two programs: an executive seminar series for UNIMED physicians and managers, and a future MBA program focused on healthcare.

Babson College of Wellesley, Massachusetts, has partnered with

Fundação Getulio Vargas, Escola de Administração de Empresas, in São Paulo, Brazil, to develop educational,



professional, and intercultural activities among students and faculty of both schools.

San Diego State University's College of Business Administration in California has announced a one-year MBA program in Global Entrepreneurship that takes students around the world to four different countries. Corporate partners QUALCOMM, Invitrogen, Microsoft, Intel, and KPMG have joined with the school

to give students real-world experience in how companies operate in different countries, as well as expose them to current issues and trends within each corporate sector.

Grenoble Ecole de Management in France, ESCA (Ecole Supérieure du Commerce et des Affaires de Casablanca) in Casablanca, and business software provider SAS have formed a partnership to create a North African business intelligence hub built around training, research, and knowledge dissemination.

GIFTS AND DONATIONS

Ohio University in Athens has approved the official naming of the Ralph and Luci Schey Sales Centre after the couple made a \$2.2 million commitment to support the center and its students.

DePaul University's College of Commerce in Chicago has received \$2 million from the Keeley Family Foundation, founded by investment manager John L. Keeley Jr. and his wife, Barbara. The gift will establish the Christopher L. Keeley Endowed Chair in Investment Management.

Georgia State University's J. Mack Robinson College of Business in Atlanta has received a \$1 million scholarship-mentorship endowment from Sandra and Douglas Bergeron to endow the Bergeron Women in Technology Leadership Fund. The scholarship will be awarded annually to five female undergraduate or graduate students who have demonstrated high potential for leadership careers in technology.

The Fox School of Business at Temple University in Philadelphia, Pennsylvania, has received a \$1 million gift from Raza Bokhari, a 39-year-old entrepreneur. In recognition of his gift, the suite housing the school's Innovation and Entrepreneurship Institute will be named after him.

Carnegie Mellon University's Tepper School of Business in Pittsburgh, Pennsylvania, has created the PNC Professorship in Computational Finance aimed at supporting outstanding junior faculty. The new professorship is made possible



through two contributions: \$1 million from the PNC

Foundation, the philanthropic arm of the PNC Financial Services Group; and \$250,000 from PNC executive management.

Texas A&M University in College Station has received more than \$1 million from Barnett L. Gershen and his wife, Sam, to establish the Barnett L. '69 and Sam Gershen Learning Endowment at Mays Business School.

NEW PROGRAMS

Last fall, the College of Commerce at **DePaul University** in Chicago launched an undergraduate major in multicultural marketing for the Hispanic marketplace. The goal is to help business professionals develop the expertise to reach the large and growing Hispanic-American population, which is expected to have a purchasing power of \$928 billion by the end of 2007.



■ Thunderbird, the School of Global Management in Glendale, Arizona, is launching a redesigned Executive MBA program format this fall. The new program, which will be shortened from 21 months to 16 months, will combine weekend classes in Phoenix with four weeklong modules delivered in the U.S., Europe, and China.

OTHER NEWS

■ Thunderbird recently announced that it would change the name of its business school as part of its Thunderbird 2010 strategic plan. Previously known as Thunderbird, the Garvin School of Management, the school will now be named the Thunderbird School of Global Management. The Garvin name will now be used for a newly established position, the Garvin Distinguished Professor of Global Management Research.

■ Last fall, **Temple University** broke ground on its new facility, Alter Hall, the future home for The Fox School of Business and Management. The \$79 million hall was designed by Michael Graves and his Philadelphia



partner, Burt Hill Kosar Rittelmann. The new sevenstory building will contain over 200,000 square feet. The \$8 million

technology budget will help equip the school with smart classroom design, one of the longest stock tickers in the United States, and a trading room/business simulation center. The hall is named for Dennis Alter, the chairman and chief executive officer of Advanta Corp., and his wife, Gisela, who donated \$15 million to the school. It is expected to be open in September 2008.

■ Western Carolina University in Cullowhee, North Carolina, will create

a new Center for Entrepreneurship and Innovation to spur new ideas for business ventures in the region. In addition, to better reflect its increasing role in providing technical assistance to regional business and industry, the

school has renamed its Center for Integrated Technologies as the Center for Rapid Product Realization.

The Mays Business School at **Texas A&M University** in College Station has become the new home for two academic journals and a new entrepreneurship journal. Management department head R. Duane Ireland has been named editor elect of the Academy of Management Journal, while management professor Lorraine Eden will become editor-inchief of the Journal of International Business Studies. Distinguished professor Michael A. Hitt is serving as founding co-editor of a new journal called the Strategic Entrepreneurship Journal.

■ University of Richmond's Robins School of Business in Virginia has been admitted to membership in the Latin American Council of Management Schools (CLADEA). The international organization facilitates the study and teaching of business in Latin America and is composed of more than 100 universities and businesses worldwide. Only ten other U.S. colleges and universities are members of CLADEA.

Case Studies

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www.icfai.org

The CEO of **Accessibility**

Motorola's **Edward** J. Zander wants to shrink the world to the size of a cell phone, so all users are just a call or a click away from the people and information they need.

by Sharon Shinn

d Zander believes in connections. The CEO and chairman of the board of Motorola Inc. is a passionate proponent of "seamless mobility," a confluence of technology and connectivity that allows consumers to access their phones, homes, offices, friends, and Internet accounts no matter where they are or what they're doing.

With products such as the MOTORAZR phone and the MOTO Q wireless device, Motorola is at the forefront of this drive toward unlimited accessibility. "We are enabling people to link and sync with what matters most in their world—anytime, anywhere, from any space," he says.

Things weren't quite so rosy at Motorola in 2004 when Zander stepped into the head offices in Schaumburg, Illinois. The company that had invented the Six Sigma method of improving quality was falling behind in the race to produce new products for the communications revolution. Zander was instrumental in managing the company's turnaround, overseeing the launch of the RAZR and the Q, and hammering home the message of constant innovation. Zander also orchestrated Motorola's acquisition of Symbol Technologies, which handles products for mobile computing, radio frequency identification (RFID), and wireless infrastructure. By 2005, Motorola had achieved \$35.3 billion in sales.

The company is both shaping and profiting from the explosion of new technology that is transforming the communications industry. "Everything is getting digitized, everything digital is going mobile, and broadband is becoming as pervasive—and as essential—as air," says Zander. Enabling the digital society, he says, are technologies such as ad-hoc and mesh networking, mobile TV, and enterprise mobility. And while those terms might sound mysterious to anyone outside the industry, Zander is wholly at ease with the new systems and what they can do.

In fact, technology has been his guiding passion ever since he received his bachelor's degree in electrical engineering from Rensselaer Polytechnic Institute. An MBA—and later, an honorary Ph.D.—from Boston University followed, but the business education has been used primarily in service of technology. Before joining Motorola, Zander held a range of positions with Silver Lake Partners, a private equity firm that invested in technology; Sun Microsystems; Apollo Computer; and Data General.

Throughout his career, he's been a proponent of innovation, and he believes an innovative mindset is crucial for any top executive. "You should never be complacent, no matter how successful you become," he says. "Companies that don't innovate don't survive, and leaders who don't innovate are replaced by those willing to take risks. The key to success is to drive innovation." That's advice that both CEOs and Ph.D.s can take to heart.



The next set of business school students will be people who have grown up communicating in a variety of different ways. Ninety-five percent of them use **instant messaging**, own their own **mobile phones**, or have a **broadband** connection at home.

When you joined Motorola, you spoke of your commitment to the notion of "seamless mobility." It seems like we're almost there already. What's left to fall in place? What's next, I believe, is extending seamless mobility to more and more users. When we talk about connecting the next billion, we're referring to the half of the population that has yet to make a phone call, wired or unwired. We're also talking about the millions of opportunities that connectivity can bring to enterprises.

By cutting across devices, infrastructure, applications, and services, enterprise mobility delivers information in all

forms to people and things in motion. And it delivers that information across the supply chain—to mobile workers in the office, out in the field, in the factory, and at retail.

Many business schools already have wi-fi capability on campus. They provide lectures via podcast, content over the Web, blogging opportunities on their sites, and many other services. What should business schools be looking at as the next technology that either will change the way they educate students or create a sense of community among them?

Social media is the next step. It's a perfect example of what seamless mobility is all about—anywhere, anytime communications.

The next set of business school students will be people who have grown up communicating in a variety of different ways. For example, we have statistics about the people who are currently between the ages of 12 and 21. Ninety-five percent of them use instant messaging, own their own mobile phones, or have a broadband connection at home. More than one-third have access to all three of these connections.

It's no surprise that, compared to adults, these young people exhibit starkly different behaviors and attitudes about mobile phones. Among these users, content consumption is moving from individual to tribal groups or communities, as people want to interact with others who have similar interests. Coupled with this trend is the Internet's move toward user-generated, easily shared content—the "wiki" concept. All the major players, such as MySpace.com or Friendster. com, know that there's a lot of benefit to be gained by getting users involved in content.

We're researching how content can be shared to create greater networks of people and create social communities. A community within the business school or a class would be a great application of this technology.

The MOTORAZR can perform so many functions

that it blurs the line between communications and technology. It's a phone, a camera, and a wireless high-speed Internet device that's also capable of downloading music and videos. As convergence becomes the watchword of the tech industry, how can any company stay on top of the changes and remain successful?

One key to success is creating cool designs and cool experiences for consumers around the world. The real challenge is not to generate ideas with breakthrough potential; it is to select and manage those ideas to become actual commercial breakthroughs. To succeed, companies must set clear innovation goals, select the right ideas for development, and create an agile organization to drive ongoing innovation.

I'm guessing that one reason you're so comfortable with technology is that you earned a degree in electrical engineering before pursuing your MBA. If today's students want to work for tech-driven companies, do they also need a deep grounding in technology or engineering? Given the rapid pace of change and growing complexity in the technological sector, additional training in engineering or technology, while not mandatory, is beneficial. With some technological understanding, managers can speak the same language as product developers and enhance their insight and effectiveness.

I started an extensive series of meetings with customers. I hoped to make Motorola a company that was led more from the **outside**—that is, by **customers**—than from the inside.

How can business students learn to stay ahead of rapid technological change once they're in the workplace?

Change is happening at an ever faster pace. Around the world, new ideas, disruptive technologies, and new companies are emerging and shaping the global market.

The U.S. must take action to maintain its leadership position. Business schools can play a key role by partnering with the government and corporations to proactively strengthen the education system and aggressively develop research programs.

Students will naturally embrace change, but a solid understanding of the fundamentals of math and science remains critical. What's important for universities—as well as for businesses—is the creation of an environment that fosters and supports innovation.

Speaking of change, Motorola made a big one by acquiring Symbol Technologies in 2006. Other techoriented companies like Google and AOL have implemented high-profile mergers and acquisitions, some of them successful, and some of them disastrous. Why do you believe the acquisition of Symbol was crucial for Motorola?

One of the reasons we were so attracted to Symbol was the depth and breadth of its product offerings. Because our products and services are highly synergistic, we could combine our adjacent assets, expertise, customer bases, supplier bases, and products.

The acquisition of Symbol Technologies was Motorola's largest transaction since I have been CEO, and large acquisitions can be risky endeavors. Our primary acquisition strategy has been to acquire small companies that are developing cutting-edge technologies. These companies are not only aligned with our vision of seamless mobility, but offer opportunities for future growth.

How can business schools can help students analyze which M&As will be good for their companies and which might be terrible?

I've found that most transactions are grounded in a compelling strategic rationale, but the trickiest part of any deal is valuation. The transactions in which companies overpay are the ones that wind up failing to create value.

When you came to Motorola in 2004, the company was struggling financially and dealing with aging technology. What strategies did you use to turn the company around?

First, Motorola had made a lot of good progress before I arrived. But I found it necessary to drive change at Motorola, as the status quo was obviously not delivering the desired results. This was not easy, since Motorola was a 75-year-old company with an established culture and history. But it was manageable. Early on, I recognized the importance of having a strong, cohesive leadership team. Part of the success of the turnaround has involved fostering the talent of this team.

It was the management team that recognized the profit potential in the MOTORAZR phone, which was being developed by a couple of engineers as part of a side project. It has gone on to do quite well.

It was also important to shift the focus of Motorola. When I took the CEO position, I started an extensive series of meetings with customers. I hoped to make Motorola a company that was led more from the outside—that is, by customers—than from the inside. This type of interaction has enabled us to create products that meet and exceed customer expectations.

Although Motorola's handsets were the hot topics during this period, we did not ignore our other businesses. We combined divisions to create a more streamlined organization, and we divested ourselves of our automotive business. At the same time, we further sharpened our strategic focus on communications solutions to improve seamless mobility.

Another one of your goals was to make the company more nimble and open to innovation. How can you push a long-established company in that direction?

The initiatives I just mentioned were part of the transition process that enabled us to become more nimble. But another important asset in this area has been Motorola Ventures, which is our global venture capital investment arm. Motorola Ventures has made more than 100 investments since its first deal in 1999, and it currently invests in approximately 25 companies and 20 to 30 follow-on rounds a year.

With Motorola Ventures, we're seeking to invest in companies with technologies that complement Motorola's. Sometimes these investments lead to acquisition opportunities or business partnerships. By investing in early stage companies, we accelerate access to new technologies, markets, and talents. This allows us to innovate faster than we could if we developed these technologies through traditional research and development channels.

You also strove to break down organizational walls by stressing the value of teamwork, a concept that is highly emphasized in business schools. How can a business

school prepare students to be ready for a team-oriented working style?

Collaboration is the cornerstone of teamwork. At Motorola, where we are scientists, artists, and business leaders, everyone contributes to our common goal of bringing cuttingedge technology into everyday life, with style.

Business schools can, and do, prepare students for the real working environment through team-oriented projects. Breaking students into arbitrary teams to tackle a project with real time pressure can help them appreciate the skills and talents that other people bring to the table. Working with and incorporating local businesses into these projects can further enhance their realism.

Drawing on the lessons you've learned in your own career, what advice would you give to business students who might also be asked to solve large problems and deal with rapid change?

At the height of success, break your business.

This may not seem logical at first, but it is an important and useful method for maintaining a thriving company. for use, and accelerates the commercialization of our products. Externally, our venture capital arm looks for innovations outside the company and helps make them a reality.

Many people view Motorola's turnaround as a completed success story—a great case study for the business school classroom. But for you, the story is still ongoing. What next steps are crucial to the company's ongoing success?

We have been able to take the cell phone and make it something that not only is desired and coveted, but also is an intuitive, easy-to-use device that is a seamless extension of the individual consumer. We will continue to build upon our strengths and further drive the momentum we have created with our seamless mobility platform.

What are some of the key issues you see facing business schools today, and how should business schools address them?

Business schools need to ready their students to operate with the same level of comfort in New Delhi as in New York. Cur-

At the height of success, **break your business**. This may not seem logical at first, but it is an important and useful method for maintaining a thriving company.

I've learned that innovation drives success—not just in the technology sector, but in any industry. Successful companies are always creating new business models and new technologies that allow them to expand into new markets and offer higher value goods and services. Successful companies need to be more concerned and more innovative than the competition.

So when a company reaches the height of its success, a good leader will shake things up by "breaking" the business. When things are going well, it's time to make new investments, adopt new strategies, and find new markets. Drive innovation by moving people around. Changing the company's organizational structure allows different people to interact and new, innovative ideas to take shape.

You can also "break" the business by investing strategically, both internally and externally. Internally, we make huge investments in research and development. Our R&D portfolio of more than \$3 billion is aimed at creating innovative technology, architectures, and software that will deliver commercial value. In addition, our Early Stage Accelerator group incubates ideas that cross business units, licenses them ricula and actual experience are always key, but a deeper understanding of various cultures and politics will be of even greater importance for tomorrow's business school grads.

MarketWatch named you its 2005 CEO of the Year for the way you handled the turnaround of Motorola. But you've said you think the best CEOs are those who are quietest and who don't appear often in the news. What would you tell students who want to become top business leaders?

The global market is now more fiercely competitive than ever, and the pace of change has dramatically accelerated. The key to running a global business in this environment is the ability to adapt and innovate.

Successful corporate leaders need to be willing to make big bets. Sometimes you will be right, other times you will be wrong. But you never win without being bold.

You also should never stop learning—it's a lifelong process regardless of the diploma you're receiving today. Keep reading and learning from those around you—they'll inspire you to innovate.

Research in Action

Business schools with **research-driven** missions are building buzz about their faculty's best work and promoting their intellectual brands.

by Tricia Bisoux

n case you haven't noticed, business research has been getting more exposure lately—and not just in the daily news. Business schools are using print publications, podcasts, electronic newsletters, and even lunch meetings to get their faculty's best research into the hands of academics, students, business managers, journalists, and laypeople as efficiently as possible. In many cases, business schools are promoting their missions by expanding the reach of their research.

Business schools have long staked their reputations on their educational offerings. But for those schools with an active research faculty, intellectual capital has become another area where they can differentiate their brands in a competitive market. In a world where business needs information at lightning speed, business schools that can prove themselves as "thought leaders" can establish reputations as intellectual powerhouses.

"Our goal is to narrow the gap between supply and demand for research," says Ale Smidts, professor of marketing research and director of Erasmus Research Institute of Management (ERIM) at Erasmus University's Rotterdam School of Management in The Netherlands. "At the end of last year, we assessed that we still have 'more to show the world.' We decided to make this objective a priority in 2007."

Smidts and other business educators are recognizing that, if research is knowledge, then knowledge is power. Many schools already have boosted funding for research, launched new research centers, and made research a central driver in their mission statements. Now they are devising new strategies to advance their missions in the public eye—and "show the world" just how powerful their research can be.

New Perceptions of Research

While research has been predominantly considered an academic enterprise, the ways faculty view their research, and its connection to real-world issues, has changed, says Kathleen Sutcliffe, associate dean of research at the University of Michigan's Ross School of Business in Ann Arbor. Purely theoretical research is still alive and well, she says, but she has seen an intellectual shift among many of her colleagues, from theory to practice.

"In organizational research in the 1970s and '80s, for example, researchers were much more focused on elaborating on abstract paradigms and understanding basic theories and phenomena," says Sutcliffe. "But in the 1990s, research became much more problem-driven and increasingly connected to management challenges. Rather than paradigms, studies focused on problems such as why and how socially responsible practices influence



"We're encouraging faculty to really look at **the big organizational problems**, the daily management and public policy challenges that organizations face."

-Kathleen Sutcliffe, Ross School of Business, University of Michigan

corporate finance. There has been a transformation in what is being studied and how it's being studied."

Journal publication and the peer review process remains of utmost important to faculty, Sutcliffe notes. But as more business schools base their missions on helping business solve its immediate challenges, business faculty are viewing their research in a larger context.

"Research has changed over time, and business faculty have to think about the impact their research will have," says Sutcliffe. "We're encouraging faculty to really look at the big organizational problems, the daily management and public policy challenges that organizations face."

Strategies for Research Outreach

Many schools are building concerted marketing strategies to disseminate their research. Whether in print or online, they're reaching larger numbers of people and speaking the language of the media. The following examples are just a few of the ways business schools are getting the word out about their faculty's best work:

■ The Perfect Postcard. Journalists are often inundated by information, so it may take more than a press release to get their attention. To make sure its research makes an impact with reporters, the University of Notre Dame's Mendoza College of Business in Indiana publishes six postcards a year and sends them to approximately 1,500 news reporters, editors, deans, and others in the academic community. Each postcard highlights a faculty member's research that has a topical connection to current events. The front displays art and a teaser about the research; the back offers an explanation of the study and the contact information of the author.

Mendoza College's research-oriented postcards aim to package research in a way that captures attention. "The postcards make highly relevant faculty research on vital business topics available to those who write about or study real-world implications every day," says Carol Elliott, director of newswriting at the University of Notre Dame's Mendoza College of Business in Indiana. "They educate and stimulate ideas and discussion, which is a large part of the Mendoza mission."

■ Link Leverage. Many business schools now include a "Faculty & Research" link on their home pages. But some, like the University of Michigan's Ross School, go one step further. Ross includes links to its "Faculty Research" and "Research Institutes and Centers" at the top of its Web menu,

Acts of Translation

Perhaps the biggest shift in how business schools view—and use—their research is in how they communicate it. Statistical studies and technical jargon are well-suited to academic journals, but less so for public consumption. The challenge for business schools is to translate those studies into a language that is immediately accessible to a large, diverse audience.

Making an effort to translate the technical aspects of research into an accessible form is crucial to "establishing the critical link between real-life issues and research-based management insights," says Peter Lorange, president of IMD in Lausanne, Switzerland. "Too often, even those schools with

before links to admissions, academic departments, or degree programs. "It was a deliberate choice," says Sutcliffe. "Our faculty are the major technological resource through which we do our work."

■ Site Seeing. Some b-school Web sites are being redesigned with faculty research in mind. In March, the University of Chicago's Graduate School of Business in Illinois will go live with a redesigned and expanded faculty research Web site, created in partnership with the Social Science Research Network (SSRN.com). "The changes enable visitors to download working papers written by our faculty. Other changes include updated faculty bios, but the research component is likely to be of most interest to site visitors," says Allen Friedman, the school's executive director of communications. "This is an effort to make research more easily accessible to the general public."

■ Engaging Design. Business schools are also paying closer attention to online design, so that site visitors spend more time with their research—and make return visits. With that in mind, IMD recently launched an area of its Web site called "Tomorrow's Challenges." The page displays different-sized colored boxes, each containing a research topic. Users click on a specific box to read a summary of that study. "The boxes change size depending on the number of clicks they get," explains Els van Weering, research associate and project manager at IMD. "They indicate readers' interest in the topics as well as show off our latest research."

Electronic Outreach. Schools with well-established electronic research newsletters have seen incredible growth in the number of their subscribers. Since The Wharton School at the University of Pennsylvania in Philadelphia launched its research e-newsletter, Knowledge@Wharton, its subscriber base has grown to 800,000 subscribers worldwide. Stan-

If a corporation contributes \$7 million to philanthropy. supports the local ballet and pitches in to clean up neighborhood parks, is it socially responsible?

NOT NECESSARILY

TOMORROW'S CHALLENGES

AT THE

TABLE

HOSTAGE MOBILIZING YOUR

ford Knowledgebase, which includes information about research, speakers, events, and links to full research text and video, is sent to nearly 20,000 subscribers worldwide. Schools such as Harvard and IESE in Barcelona, Spain, also reach thousands with their e-newsletters.

Notre Dame • Mendoza College of Business

Podcast Power. Perhaps no new technology has been more pervasively influential in the way business schools

reach the public than podcasts. Business schools are packaging faculty interviews in the form of podcasts that are offered for free download to internal and external audiences.

The Smith School of Business at the University of Maryland in College Park recently launched its initiative to offer video and audio podcasts on management issues, as a way "to promote the school's thought leadership." In 2006, the Wharton School introduced audio podcasts on business topics. Harvard

Business School Publishing produces weekly podcasts featuring commentary from business leaders. The University of Western Ontario's Ivey School of Business is now experimenting with its own research-oriented audio and video podcasts.

Business schools already reach academic audiences via academic journals. By working with the media and using the Web effectively, business schools can reach their equally important external audiences of managers and policy makers, says Tima Bansal, associate professor at Ivey. "These audiences are often looking for applied research that is issue-focused," Bansal says. "We translate our research to make it more accessible to nonacademics."

ABOVE: Six times a year, the University of Notre Dame's Mendoza College of Business sends out postcards to 1,500 reporters and academics. The colorful graphics and targeted message of the cards are designed to make an instant connection between the school's research and a current business topic.

DESIGNED

Notre Dame • Mendoza College of Busi

LEFT: IMD recently launched a new page on its Web site titled "Tomorrow's Challenges." Featuring a colorful grid of boxes linked to different research topics, the page is designed to pique user interest in research and track the topics of most interest—each boxed topic grows larger or smaller depending on the number of times users click it.

The average child sees more

ommercials ear, most of

Vhat if a commercial ould last ten minutes?

Or an hour?

hich are 30 seconds

the best intentions have failed to translate their ambitions into action," he says. "They have not grasped how to deliver their research findings in more meaningful and interesting ways so that practicing managers can internalize them and apply them to their real-world situations."

Business schools are placing new emphasis on "translating" research into more accessible forms. In a literal sense, many business schools are translating their studies into a variety of languages-especially Chinese. The School of Business and Management at Hong Kong University of Science and Technology (HKUST), for instance, simplifies the technical language of published faculty research and

"We also need to unlock the mindset of our researchers, so they acknowledge the importance of reputation-building by making their research **more accessible**."

-Ale Smidts, Rotterdam School of Management, Erasmus University

republishes it in both English and mainland Chinese languages. The Wharton School at the University of Pennsylvania in Philadelphia now has three region-based editions of its Knowledge@Wharton research e-newsletter which target China, India, and Portugal/Spain and are published in four different languages.

Translating research into other languages and for other cultures is becoming easier as business schools hire more international faculty, says Deborah Spar, associate dean of research at Harvard Business School (HBS) in Cambridge, Massachusetts. "A few years ago, we didn't have faculty who grew up knowing China was going to be important and had the foresight to study Chinese instead of French," says Spar. "But there has been a natural evolution. We have several Chinese faculty members now, and more of our faculty come from different parts of the world. It's happening slowly, but it's happening."

In a figurative sense, the act of translating the complexities of business research into simpler forms for a broad audience can be an even bigger challenge, says Smidts of ERIM. "When needed, we will use professional writers to 'translate,' unlock, research and make it more understandable for the general public," says Smidts. "We also need to unlock the mindset of our researchers, so they acknowledge the importance of reputation-building by making their research more accessible."

For Sutcliffe of the Ross School, making research accessible is less an act of direct translation than of interpretation. "A translator conveys meanings directly from one language to another, but an interpreter explains what's

Where Does Your Research Rank?

Business schools were first faced with rankings of MBA programs in the 1980s. Next came the rankings of EMBA and undergraduate programs. It was only a matter of time before ranking mechanisms entered the market to measure the productivity of, and interest in, the research of business faculty. For research institutions, these mechanisms have brought new opportunities—and new challenges.

In 1994, two business educators established the Social Science Research Network (SSRN), an open-use database that allows business and legal faculty to upload their research for distribution among their peers. In February 2005, the School of Management at the University of Texas in Dallas (UTD) established its "Top 100 Business School Research Rankings" and online database. Both resources were designed to provide academia and the public more information about, and access to, faculty research.

UTD's ranking was the first to measure a business school's research productivity. "At the time the national rankings were based primarily on individual programs," says Hasan Pirkul, dean of UTD's business school. "We felt that research was being delegated to a secondary position. Research was a 'black box'—no one really knew how much work was being done."

UTD ranks business schools based on how often their faculty's work appears in 24 top business journals. In addition, it maintains a Web site where users can conduct specific searches for how many articles and in what journals a particular professor or business school has published.

The SSRN was established with a different purpose. Launched in 1994 by Michael Jensen of Harvard Business School and Wayne Marr, now of the University of Alaska at Fairbanks, the SSRN is an online database of working papers. It was designed to allow faculty to disseminate their early work for quick feedback from other scholars around the world. Today, the SSRN includes more than 110,000 working papers by more than 70,000 authors, as well as another 140,500 abstracts, in 11 business and legal disciplines. To date, users have downloaded research from the site more than 13,280,000 times. "The site is considered *the* source for academics looking to share research information," says Cathy Castillo, director, publications and Web content, at Stanford Graduate School of Business in California.

In addition, the SSRN tracks how many times a particular paper has been downloaded. It also provides its own lists of "Top Papers," "Top Authors," and "Top Institutions," based on the number of user downloads. The SSRN even allows users to register to receive updates when new research from a participating school is available. As with any ranking, the SSRN offers business schools the chance to claim bragging rights regarding how many times users choose to access their faculty's work.

Both UTD's research ranking and the SSRN aim to provide a more comprehensive understanding of academic research. However, neither operates without some controversy. The methodology of UTD's ranking, for instance, has been the subject for criticism because it does not scale its rankings by school size. Because it ranks schools by total research publi-



cation and output, smaller schools

may not fare as well as larger institutions.

"Smaller schools have complained that our ranking favors larger schools with more research faculty," says Pirkul. "But when we tried to scale the ranking to take into account school size, we were not able to get accurate data from all schools." For the most accurate results, Pirkul notes, those who want to take into account school size can visit the ranking's Web site to conduct searches to compare schools of similar size.

Pirkul adds that newer business schools may actually receive fairer treatment in UTD's "Top 100" than in other rankings of business school programs. "If you are a new business school, it's almost impossible to be recognized in program rankings, no matter how good your program is," Pirkul says. "That's not true for research. If your faculty is publishing in the very best journals, it's immediately reflected in our findings."

The SSRN has also been the target of criticism. The network is designed to provide faculty a forum to post works in progress and receive feedback from other faculty. However, some academics have argued that too many schools use the network to vet faculty work for hiring decisions. Such practices can compel some faculty to upload only finished research to the database. As a result, SSRN's tagline, "tomorrow's research today," has come under fire.

In a January 19, 2006, blog on Prawfsblawg.com, Florida State University law professor Dan Markel sparked debate about whether SSRN was truly being used for its founding purpose: to provide faculty with a sounding board of likeminded scholars. Faculty may benefit from SSRN, Markel argues, but few are receiving as much feedback on early work as they had hoped. "I've heard people lament that they might get more citations, more conference invitations, and potentially more nibbles from schools interested in hiring—but almost no feedback from far-flung scholars (or even ones just sitting down the hall) on 'real' works in progress," Markel writes.

Jensen, one of SSRN's founders, responded to Markel's post by noting that the network is still a work in progress. Jensen writes, "We at SSRN are open to all suggestions for how we might create environments to open rather than close or inhibit scholarly discourse."

In a June 15, 2006, interview with PrawfsBlog.com, SSRN's CEO Gregg Gordon asserted that while some may use SSRN for evaluative purposes, the network really belongs to faculty. "Some authors put up early work and ask for comments, while others wait until a paper is close to being ready for submission to a journal," Gordon said. "We want to serve the researcher at all points along the process and are working hard to build technology to be able to do it."

Even with the criticism, both UTD's "Top 100" research rankings and the SSRN aim to elevate the importance of research, says Pirkul. "So many business schools have made research a central part of their mission statements," he says. With these tools, says Pirkul, schools have two advantages. First, they have the means to measure their progress against other research institutions. Second, and perhaps more important, they can showcase and disseminate their faculty's work in a central, accessible, and increasingly visible public forum.

"The world of business is becoming increasingly complex, and **knowledge** will increasingly be the key to business success."

-Robert Hansen, The Tuck School of Business, Dartmouth College

conveyed. An interpreter tells the story in a way that helps an audience make sense of the information," says Sutcliffe. "If our research is to make an impact, it's incumbent on us to make its message more accessible and meaningful to a broader audience."

From Translation to Conversation

In fact, when it comes to business research, the ideas of "impact" and "access" are quickly becoming mutually inclusive terms. After all, say administrators, even the most groundbreaking research can't effect change if business managers don't hear about it and understand its relevance to the problems they face.

To that end, business schools have made it a priority to better target and sustain their research efforts. To hone its own research objectives, for example, the Darden Graduate School of Business Administration of the University of Virginia in Charlottesville has recently created the position of "associate dean of intellectual capital" in its dean's office, explains Jim Freeland, associate dean for faculty. "The associate dean will serve as an advocate for the development and advancement of intellectual capital," says Freeland. He adds that the new dean also "will help identify areas of overlapping and synergistic research interests among the faculty and facilitate discussion among interested groups."

Darden isn't the only school seeking to stimulate more discussion about business research. More business schools are creating new opportunities to put their faculty faceto-face with external audiences. They're tapping faculty to speak about their research not only in the classroom, but also at school-sponsored seminars, conferences, lunches, and other public forums. The goal, say educators, is for faculty to act as veritable "research emissaries" to start conversations about the issues at the forefront of business.

The Tuck School of Business at Dartmouth College in Hanover, New Hampshire, holds regular "research lunches," where faculty speak to students about their latest work. It also recently launched its Tuck Alumni Lifelong Learning series that sends faculty on the road to give presentations on their current research.

The University of Western Ontario's Ivey School of Business in Canada, for instance, hosts regular seminars in Toronto and London, Ontario, to share its latest research with its students and alumni. The Stanford Graduate School of Business in California works with its departments of alumni relations and executive education to sponsor events where faculty discuss their research with alumni and business leaders in Asia, Europe, Australia, and New Zealand, as well as in the U.S.

Other schools are using seminar formats to launch their research into public forums. HKUST sponsors research seminars throughout Asia, as well as joint seminars with a major national newspaper in China on topical issues. Each seminar showcases a particular faculty member; afterward, the newspaper publishes the seminar's content as a feature article, explains K.C. Chan, the school's dean.

The Ross School of Business at the University of Michigan also is becoming more active in funding informal seminars where faculty meet regularly with external audiences, says Sutcliffe. The goal is to make research "part of an ongoing conversation" among not only faculty, but also alumni, business leaders, and other educators. "By sparking these conversations, research becomes a part of people's language," Sutcliffe says. "They start thinking in different ways, which affects the way they see the world."

'Mission Critical'

Business research has become an essential topic of conversation, on the agendas of administrators and faculty at research-oriented institutions everywhere. AACSB International, based in Tampa, Florida, also is engaged in this dialogue, currently conducting a major study on the impact of business research. There is a marked push among business schools to ensure that their research makes a difference.

For institutions like the Rotterdam School of Management, outreach is an essential part of this objective. "Eventually, our quality and relevance will be determined not only by our academic peers, but certainly also by the business community at large," says Smidts.

To solidify their missions as educators and thought leaders, "research is absolutely mission critical," agrees Robert Hansen, senior associate dean at the Tuck School. "The world of business is becoming increasingly complex, and knowledge will increasingly be the key to business success."

As Hansen suggests, increasingly complex business environments have given rise to a whirlwind of business research activity. For schools that place research at the forefront of their missions, harnessing that whirlwind—and transforming it into actionable knowledge—has become more important than ever. To fulfill their missions to become thought leaders, business schools must do more than generate groundbreaking research, say educators. They must also set up strategies to disseminate that research effectively, making it visible, accessible, and applicable to the real-world managers who need it the most.

Course, Interrupted

Parallel courses on opposite sides of the ocean teach students vivid lessons about **disruptive events**, change management, globalization, and teamwork.

by Sharon Shinn

Undergraduates at Indiana University's Kelley School of Business in Bloomington were in the middle of a fairly straightforward course on business management software and enterprise resource planning when the bottom fell out of their world. For the first half of the semester, they happily undertook the task of mapping workflow processes for the auto supply parts companies that each team of students had created. As they reached the midpoint of the class, they were shocked to learn that their companies had been purchased by German automakers—that is, mock auto manufacturers created by teams of students in a parallel class at the Fachhochschule Brandenburg.

At the same time, to their equal surprise, the German students learned they had acquired the American companies. Students from both sides of the Atlantic were told they had to work together for the rest of the semester to prepare a joint video presentation they would give to a panel of experts on change management and process integration. Not only would they have to figure out how to merge their companies and make their processes compatible, they would have to overcome language barriers and time zone differences to craft the presentations under a very tight time frame.

A class on enterprise resources? Outsourcing? Technology? Globalization? Yes, says Dan Conway, clinical associate professor of operations and decision technologies at the Kelley School. While the umbrella category for both the U.S. and German class is business process management, the course more truly introduces students to the chaos that can be real-world business.

"In general, I think universities try very hard *not* to throw curves at students," Conway says. "Students are allowed to schedule classes so they don't have to handle too many things at once. So we are trying explicitly to disrupt them."

He doesn't disguise it. "On my syllabus, a day in November says, 'Disruption,'" says Conway cheerfully. "After that, it says, 'Change management.""

Cross-Cultural Collaboration

Conway hatched the plan with Brandenburg's Robert Franz, a colleague with whom he was working on another project. They were speculating about ways to make a traditional business processes class more interesting than, say, a series of computer programming exercises. An international merger not only would force students to struggle with change management, it would require them to master the challenges inherent in globalization and working in virtual teams with people they'd never met.

Helping to brainstorm ideas was Amelia Maurizio of SAP's University Alliance Program, which promotes collaboration among its 700 or so member schools worldwide. Her input was key, as students would need to learn and use enterprise resource planning software as they attempted to work together longdistance. Together, they came up with Cross-Cultural Collaborative Learning or 3C Learning—as the name of the new project.



"Dan and I didn't give the students any direction about how they should work within their groups. Sometimes students have to experience the wrong way on their own. Humans learn best from their failures."

-Robert Franz, Fachhochschule Brandenburg, Germany

The first 3C project was unrolled in the fall of 2005. The opening weeks of class were devoted to learning about enterprise software, business processes, workflows, and collaboration. Students worked in three- and four-person teams to found their companies, map their processes, and make those processes more efficient.

"We wanted them to map out processes in a way so that disruption meant some things would have to change," says Conway. "Students would have to evaluate, first, if the processes needed to be changed and, second, if the processes could be modified or if they had to be thrown out so students could come up with new processes entirely."

About eight weeks into the semester, Franz and Conway mocked up an online *Financial Times* page that announced a merger between the U.S. and German companies. On a Saturday, students in both classes were e-mailed the link to the "leaked" newspaper article. Then both professors refused to answer e-mail over the weekend.

When nervous students arrived in class on Monday, they learned the details of their merger. Not only did they have to deal with language and time zone barriers to work with their new teams, they also had to find their own Web-based collaborative software solutions for sharing files and building PowerPoint slides over the Internet. While SAP software was available, students were allowed to choose whatever tools they thought might work best for them. But technology was only one challenge students met as they raced through the rest of the semester.

Lessons Learned

Some of the greatest obstacles students faced in the 3C class revolved around very human issues. For instance, cultural differences were strikingly illustrated as students discovered that not every nation shares the same holiday schedule.

"Most American students just left school over Thanksgiving, not realizing that their German counterparts didn't know about this special holiday and were waiting for ongoing communication," says Franz. Some of the German students believed the Americans had simply quit. When the Americans eventually returned from the break, not much time was left before they had to make their joint video presentations.

Students also had to bounce back from a certain resentment at having the rug pulled out from under them. "They had worked very hard on their presentations, then all of a sudden everything changed, and they were really put off by that," says Conway. "But that's the context of global business. Things happen beyond your control, and then you've got to change." Several groups struggled more than others with language and time zone differences, and none of the students tapped into lessons they'd recently learned in project management courses. "Dan and I didn't give the students any direction about how they should work within their groups, but we were quite shocked that not a single team made a project plan or used a project management tool," says Franz. "Sometimes students have to experience the wrong way on their own. Humans learn best from their failures."

In the end, all the teams succeeded magnificently. At the close of the semester, Conway convened a panel in Indiana to judge the students' PowerPoint presentations. Present were executives from SAP, John Deere, BP Products North America, and General Mills—all of whom are constantly

A for Effort

How does a professor grade the work of student teams when half the members are across the ocean—in a classroom at another university? "The evaluation process has to be nontraditional," admits Dan Conway of Indiana University's Kelley School.

For his students, the grade is composed of a number of elements, including fairly standard tests and essays administered during the first half of the course. Before the merger, the teams keep close track of their mapping and procurement processes, creating a document of their efforts that Conway also considers when determining a grade. This document later is swapped with teams at Fachhochschule Brandenburg for informational purposes.

During the second half of the program, students are graded partially on how well they collaborate. Students keep a diary to track how often their teams meet, what technology they use, and how much each student contributes, and this diary is also used during the evaluation process. For the 2006 class, students in Germany and the U.S. all used SAP's NetWeaver integration and application platform, which made it easier for the teachers to monitor the efforts of individuals and also created more uniformity among the teams.

The final grading component falls into place during the students' video presentation, given before a panel of integration experts. "The panel rates the teams on content and presentation quality, and I take my lead from them," Conway says.



American students and a panel of executives use video conferencing to listen to German students make their presentations.

dealing with globalization and integration headaches. Using big-screen video conferencing, the German students fully participated. Students on the same team from different countries took turns making their presentations while their PowerPoint slides played on another screen.

"The final presentations would have astounded anybody," says Maurizio. She was impressed not only with the way students mastered the software, but with the skills they acquired in the process. "They learned communication skills, how to work in virtual teams, and how to collaborate. And they also learned that business and the world change every day. You're never going to be aware of every single change that might come down and hit you in the face."

Ethics at the Core

Franz and Conway almost immediately planned a second collaboration for the fall of 2006, and this time they added an ethics component to the disruptive events. Early in the semester, students in both the U.S. and Germany were given the mandate to build a \$100 million dam project in Africa, and their key challenges involved sorting through suppliers and deciding on procurement processes.

The professors gave students a long list of potential suppliers, all imperfect—some known for poor environmental processes, some implicated in child labor scandals, some operating under a cloud of rumors, and some with convictions to their names. Transparency International and SAP provided information about suppliers and mock documents that looked official.

Students chose their vendors and developed a strategy for data privacy. But just as they learned that the German and American companies were being merged, they also received the bad news that the chief procurement officer had spent \$1 million of the available funds to pay a bribe. To compensate for the missing money, students had to face unpleasant choices: lay off part of the workforce or deal with cheaper suppliers they had already ruled out on business or moral grounds.

"They had to come up with three plans for how to make up for the shortfall," Conway said. "We were curious to see how the cultural differences would play out—if German students would think child labor practices weren't as important as environmental violations, or vice versa. We were interested to see how the students would trade off what they considered the more important characteristics of doing business with another country."

Other problems were interwoven into this second exercise. Students had to revamp their procurement processes so a single officer couldn't

make unauthorized payments. They also had to find common ground on data privacy and integrate their purchasing processes. "We set it up ahead of time so students were using different processes. That way, integration would have a lot of challenges," says Conway.

While the first year had the element of total surprise, the professors knew that the student grapevine might help students in the 2006 class—and successive classes—prepare themselves a little for what might come. But Franz and Conway aren't too worried. Even if students know a disruption will come, they won't know what it will be, and the professors have plenty of ideas about what curves to throw at their students next.

Grander Plans

In fact, Conway and Franz already are mulling over new ways to rock their students' lives. For future projects, each professor wants to conduct the class in concert with faculty at a different school. "There's no reason any two schools in the world couldn't do this for free," Conway says. He would love to partner with a school in Asia, South Africa, Russia, or a traditional Muslim country, where the cultural differences could seem even more profound to students from the American heartland.

Conway and Franz particularly like the idea of adding ethical dilemmas to upcoming courses. "We have to teach students that doing business is not only about making money," says Franz. "Where is the borderline between tough competition and illegal or immoral activities? Students gain some experience in what is fair. They learn that everyone is responsible for how livable, human, and sustainable our world is."

They also believe that embedding the ethics lesson in a core course gives it more impact than if it's taught in a specialized ethics class. "If you're taking an ethics class, you read assignments within that framework and you know what the questions are going to be," Conway says. When the ethical dilemma is a key—and unexpected—part of the course, it forces students to think it through in relation to their ongoing business practices.

An upcoming disruption may revolve around an "oil for food" dilemma provided by the U.N. Students will be informed that they're supplying \$100 million in grain or

"The companies that recruit from us want students to learn to work with people they've never met, who have a different set of beliefs, work habits, schedules, and languages."

-Dan Conway, Indiana University, Kelley School of Business

medical support to a country such as Afghanistan. When they learn that 10 percent of that money is going to support the opium trade, they must choose what to do. "The question there is, Do I enrich a dictator and feed people at the same time, or do I not do business in that country?" says Conway.

The "oil for food" problem is the kind of ethically gray area that the professors like. Says Conway, "We don't want students to be going through accounting records to find illegal actions. We want to present



Students sitting in a classroom in Germany use video conferencing to join American students in a joint presentation held at the Indiana campus.

them with situations in which none of the choices are good." That takes planning, he says, as he and Franz work backward from the ethical dilemma they want students to confront. "That's the question on the top layer," says Conway. "The next layer down is, How would different cultures respond to this dilemma? The next layer down is, How do you create a context where this will play out? The next layer down asks, How do you get processes in place so that the ethical dilemma presents itself when the teams are merged?"

Conway continues, "When the collaboration occurs, cultural differences surface. That's something students have to live through and struggle with in order to have a meaningful learning experience. That's something that just doesn't make sense in a book."

Expanding the Program

While the change management dimensions of this course work particularly well in a process management class, the collaborators believe a disruptive learning exercise could be adapted for almost any discipline. Since the first half of the class is devoted to teaching the basic material, students get an excellent grounding in a particular topic. The next stages of the class allow students to build their cases—and then figure out how to modify their cases to handle the disruption. "You could follow that structure with accounting, business law, or marketing as well," Conway says.

Maurizio agrees. Once any kinks are smoothed out in the 3C Learning course, SAP's University Alliance wants to introduce the class as a pilot project and make the materials available to all other member universities. "If we could encourage networking and collaboration in different countries and different schools, the synergy could be unbelievable," Maurizio says.

If that's not convincing enough, Conway and Franz offer five more reasons business schools should adopt similar classes. First, there's no additional cost. Students can use free, widely available, Web-based software for their collaborations, and the big-screen video presentations also can be handled for free over the Internet. Since most students are fairly tech-savvy already, it is not particularly difficult for them to learn these collaborative tools, Conway says.

Second, while students might

find the course stressful, other stakeholders love it, particularly parents, alumni, and recruiters. "The companies that recruit from us want students to learn to work with people they've never met, who have a different set of beliefs, work habits, schedules, and languages," says Conway. "John Deere has increased its hiring from us as a result of this class."

Third, the course encourages collaboration among faculty. "The academic rewards system is not structured for crossdiscipline work," Conway points out. "I'm a traditional operations, MIS, and quant person. I'm not an expert in ethics. If I weren't doing this, I wouldn't have had a reason to go talk to the ethics person in the business law department. So a course like this is helpful for the business faculty as well."

Fourth, students get just a taste of the uncertainties of working in the real world. "So many students come into class thinking, 'This is what I have to do to get an A,'" says Conway. "They're very good at grade management. When they're in a situation where they have no idea what they're supposed to do, that's a very valuable experience."

Finally, the class not only gives students a grounding in the realities of globalization, it has the potential for creating a true international network. Franz hopes the students of Bloomington and Brandenburg consider swapping visits between cities—but he also wonders if some of them might meet up again at a later date. "Maybe the students will see each other after graduation at a real merger, and then they'll know better how to deal with each other," he says.

As more business schools look for ways to break down the silos of discipline, a course like the 3C Learning project offers a blueprint for integrated learning. Hot-button topics like globalization, ethics, and multicultural teamwork are folded into an experiential learning course so memorable that students are likely to retain its lessons forever.

Thinkers Leaders

When business schools introduce MBAs to the competency-based assessment programs used in the corporate world, students quickly develop their leadership skills.

by Julie L. Scott

ottoes for MBA programs frequently imply that schools are focused on creating leaders. My alma mater uses the tag line "Where thinkers become leaders"—which is wonderful and punchy, especially if it is true.

But since graduating from b-school and entering the working world, I have discovered that MBA programs face an inherent limitation in their goal to develop leaders. Most MBA programs are founded on quantitative rational analysis; they assume that their graduates will be able to motivate people by providing data to support logical arguments. Rarely do MBA students learn about their own strengths and weaknesses, let alone the strengths and weaknesses of other people. Even more rarely do they learn how to develop the skills they actually need to lead people.

As a consultant in organization and leadership development, I've learned that the first goal in leadership development is to *learn about people*—first oneself, then others. As a group, MBA students tend to be high-achieving go-getters. They also tend to be among the types of people least aware of how others perceive them. But these individuals can be turned into better leaders through self-assessments, 360-degree feedback systems, and individual development plans.

Assessment and competency-based development tools are used by corporations around the world to turn their employees into leaders. Because all of these tools help participants think about themselves and others in new and different ways, the earlier people encounter them, the better. I believe it would be relatively easy for any school to incorporate similar tools and assessment methods into its two-year MBA program, thus developing students who have the potential to really know how to lead.

Learning About Oneself

Any leadership development program has three parts: self-assessment, external assessment, and competency development. A program like the one I envision would begin as MBA students start their first year. They would begin their self-assessment stage by going through a development-focused Myers-Briggs Type Indicator analysis.

I recommend MBTI because it has the advantage of being built on decades of data collection, which offers interesting analyses and comparisons. MBTI poses the same set of questions to each person. When the results are analyzed, each learner is typed into one of 16 categories, each with distinct characteristics represented by a four-letter code. Typing is based on participants' responses to four polar choices—extroversion or introversion (E or I), sensing or intuiting (S or N), thinking or feeling (T or F), judging or perceiving (J or P). The new Step II test provides more detail about each of the four choices, while offering less labeling and better insights into what individuals do well and not so well.



Among MBAs, the preference for "**thinking/judging**" is double what is expected in the general population, and the "**thinking/intuiting**" combination is three times more frequent.

What makes a very strong case for using MBTI in an MBA program is evidence that people who pursue MBAs tend to have very different personality profiles from the general population. Data from 1,925 MBA students in one study have been cross-tabulated with a large national sample, taken in 1997, of general MBTI type distribution. The frequency of MBAs who are categorized as "thinking" instead of "feeling" is almost twice the national average.

The emphasis on "thinking" continues to show up in MBAs as the categories are combined. Among MBAs, the preference for "thinking/judging" is double what is expected in the general population, and the "thinking/intuiting" combination is three times more frequent. Finally, the "intuiting/thinking/judging" combination makes up

14 percent of the MBA population, but only 3.9 percent of the general population.

Here is why this is important: MBAs who use the MBTI tool learn that they operate in a rational way, and they simultaneously learn that there are others who operate in a more emotional way. If they want to be leaders, they will need to understand and work with all of the people in the organization, no matter what preferences they bring to the table.

In addition, business leaders must recognize that while their logical, solution-oriented approaches may be helpful in some situations, at other times, different skill sets will be more valuable. They must capitalize on their employees' unique skills

and know when to compensate or add another perspective. They need to know when to go with their natural impulses, when to hold back, and when to let someone else step in. To do this well requires understanding individual preferences, and a tool like MBTI helps them develop that framework of understanding.

But it's not enough for MBA students to understand the strengths and weaknesses of various personality types—they need to work toward their own self-improvement. Roger Pearman, a longtime MBTI guru, has collaborated with co-authors to produce a recent book called *You: Being More Effective In Your Type*, which has the sanction of Isabel Briggs

Myers herself. Not only does the book describe the different strengths of the 16 MBTI types, it stresses the areas where each type needs to improve and offers simple suggestions on how to do it.

For example, my preferences come up as ENTJ—which stands for extroverted, intuiting, thinking, and judging—a relatively common typing among MBAs. Most ENTJs need to be more conscious about expressing appreciation and caring to those around them. They especially need to show, in ways that are meaningful to others, that they are listening to what other people say. This skill set comes much more naturally for other types.

Students should start learning about development-focused MBTI at orientation, at the very beginning of their MBA



program. Then, students should be coached to continue developing their skills while working in diverse study group sessions and during other school experiences. The study group system has long been an intrinsic and valuable part of the full-time MBA curriculum, but a deeper understanding of human differences and intentional steps to improve interaction within groups would provide an even better training ground for the real world of work.

Learning from Others

External assessment is the second key part of leadership development. At the end of year one, students should be assessed by other people through a modified 360-degree feedback process. In

a corporate setting, 360-degree feedback refers to aroundthe-compass assessment from bosses, peers, and direct reports. For comparison, it also includes a self-assessment. Feedback like this is critical because research results repeatedly demonstrate that most people are accurate about how others perceive them only 50 percent of the time.

Because the school setting includes no bosses or direct reports, the 360-degree assessment needs to be modified for MBAs. It should still include confidential feedback from at least eight people who know the student from different situations. These might include fellow students, professors, friends, former co-workers, or former bosses, all of whom have known

Students who know their **strengths** and **weaknesses** can also benefit by comparing them to corporate position profiles.

the student for between one and five years. For the 360degree results to be credible, students must choose raters who are familiar with how they respond and function in life.

A key decision in the 360 process is choosing which competencies will be assessed. Competencies aren't about specific business skills like financial analysis or market research, which MBA schools already effectively cover. Instead, 360degree assessments focus on measuring other characteristics that are related to success, such as behavioral skills, attributes, and attitudes.

These are critical. The authors of a September 2006 *Wall Street Journal* article asked 4,125 corporate recruiters about the top five attributes they look for when hiring MBAs. In order, the answers are communication and interpersonal skills; the ability to work well within a team; personal ethics and integrity; analytical and problem-solving skills; and a strong work ethic. All good research-based competency systems will assess abilities in these areas. And while life experiences help most people improve in these areas, b-schools can give students a head start—especially if a modified 360-degree assessment has helped identify skills that need work.

To integrate a 360 process into the two-year MBA program, schools might ask raters to complete their confidential and anonymous online assessments over the summer between years one and two. Such a task would involve some administrative support, but it could be accomplished fairly easily via e-mail. At the beginning of year two, students would receive their feedback reports, typically more than 100 pages of analysis with development recommendations and steps.

Ideally, the 360 reports are presented one-on-one in a facilitated session, but it's also possible to give feedback to groups of 15 to 20, which would be more realistic for an MBA setting. It's essential that feedback facilitation be handled by someone who will command the respect of graduate students and assist them in understanding their reports. Strong-willed MBA types may have more to learn about themselves than they realize. If presented incorrectly, the results of a 360-degree evaluation can be potentially devastating, rather than developmental.

The goal of the process is to motivate students to improve the skills that they need as they enter the messy world of work, where IQ is not a strong predictor of success. Many corporate managers experiencing 360 for the first time have said with feeling: "If I had gone through this sooner, I wouldn't have made so many mistakes."

Some MBA programs already offer 360-degree assessments, but schools need to be very deliberate about the instrument construction and content they choose. I recommend one of the many research-based systems available instead of homegrown systems. Not only are researchbased systems accurate and reliable, they provide quality content and offer comparative data. In addition, students are likely to encounter such systems on the job, and it's helpful if they become acquainted with these tools while they're still in school.

Developing Leadership Skills

After students learn about their highest—and lowest—scoring competencies, they can create a development plan. Development of any competency is possible if learners are motivated and very specific how-to steps are provided.

For example, students who are interested in improving their listening skills might want to focus on how to avoid giving chilling nonverbal cues and to refrain from interrupting others. Those wanting to make decisions more quickly might want to determine what reasons lie behind their tardiness—perfectionism, procrastination, disorganization, and so on—and take concrete steps to change.

Students who know their strengths and weaknesses can also benefit by comparing them to corporate position profiles. Corporations and competency experts have created lists of the abilities essential for success in hundreds of different corporate positions. For example, the top competencies needed for a vice president of sales or finance are already well-known. Students interested in such positions could use their final year in school to develop the skills for that job as well as the right language to use in resumes and cover letters. Students who have developed those skills and who understand the language of competency-based assessment are also likely to do well in interviews with recruiters, who tend to use the same language and look for the same competencies.

Creating Leaders

If business schools truly want to develop leaders, they may want to implement some of the assessment and development techniques already widely used among corporations. They could implement these systems in three or four specific sessions during the two years of the typical program with some outside assistance and administrative support.

Thinkers indeed can become leaders. But to do so, they must learn more than the language and analytical tools of business. They must also learn about themselves, others, and the competencies needed to lead effectively.

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Covering the **Spread**

A standalone course on **spreadsheet** modeling teaches students skills they can use throughout the business curriculum and on the job.

> by Stephen Powell and Robert Shumsky

critical part of an MBA's education is learning how to build business models that are adaptable to real-life situations. It's particularly useful for students to learn spreadsheet modeling techniques, which allow them to make mathematical models of relatively unstructured business problems and organize them via a spreadsheet. Such models help them think through a problem and even determine what data will be most useful to solve it.

Unfortunately, many business schools do not offer in-depth instruction on the art of spreadsheet modeling. Spreadsheets are generally covered in basic accounting or finance courses, but rarely do schools devote a separate class to teaching how spreadsheet modeling can solve a wide array of business problems. Some administrators dislike modeling, remembering it as a cumbersome and difficult part of their old management sciences course; but today spreadsheet modeling can be a dynamic and vital part of any business curriculum.

At the Tuck School of Business at Dartmouth in Hanover, New Hampshire, we believe spreadsheet modeling should be a central component of MBA education. Our standalone course provides students with skills they later will use in a variety of classes—and, ultimately, in the working world.

Spreadsheets in the Curriculum

For schools that recognize spreadsheet modeling as an essential skill for their graduates, the challenge is to design a compelling, comprehensive course offering lessons that can be used throughout the curriculum. At the Tuck School, spread-sheet modeling skills are covered in our required decision science course, which is followed by a separate statistics class.

We tackle several fundamental questions: What is a mathematical model? What should and should not be included in a model? What is the difference between a parameter, which is something outside the manager's control, and a decision variable, which is within the manager's control?

The spreadsheet course is divided into three roughly equal parts. In turn, we focus on spreadsheet engineering, optimization, and simulation.

Spreadsheet engineering: In this module, we emphasize the careful implementation of mathematical models in spreadsheets. We want students to learn to develop spreadsheets that are not only correct and useful, but also produced efficiently. Many of the course's spreadsheet engineering ideas are intuitive



and well-established in software engineering. For example, students learn they should start with a simple spreadsheet; test that component, and then expand; isolate input parameters in one section of the model; and then modularize the calculations.

We also teach methods that are less intuitive. For instance, we have students sketch the spreadsheet with a pencil and paper *before* opening Excel. Because many students have already worked with spreadsheets, the challenge is to teach them something they think they already know. However, even students who consider themselves spreadsheet experts, such as former consultants, see the benefits of acquiring a structured process for designing, building, and testing a spreadsheet.

Real-World Challenges

While stylized business scenarios learned in the classroom can help students understand problems they will encounter on the job, there often is a gap between the model and the actual situation. That's where spreadsheet modeling comes into play, as students from the Tuck School have discovered.

One of our MBA graduates recently was able to draw on her spreadsheet skills to solve a thorny problem on the job. She works for a service firm with 50 offices, each staffed by five to 200 service technicians. Local managers always have been responsible for staffing decisions—which can be very tricky. Demand for technicians in each office is unpredictable, technicians must be paid even when they are not working for clients, and there are significant penalties when capacity falls short of demand.

Corporate headquarters asked the MBA to help local managers determine the number of technicians needed for each office, balancing the costs of having too few or too many technicians. She recognized that the problem was similar to one she encountered in her first-year operations course, in which a newsvendor selling newspapers faced unpredictable demand and had to balance the costs of purchasing too few and too many papers.

Using the mathematical formula from the newsvendor model as a template, the MBA constructed a spreadsheet to determine the optimal staffing for each office. Of course, she faced more complications than the newsvendor did, so she had to build a customized spreadsheet



that took other factors into account. For example, technicians typically are hired for long periods of time, while newspapers are purchased daily. Similarly, technicians sometimes are shared between offices, while newsvendors operate independently. The costs associated with insufficient goods are different as well. In the classroom model, the "cost of underage" is simply the profit the vendor loses by having to turn a customer away. In an actual office, it's much more difficult to determine what a business loses if it is understaffed during a busy period.

Keeping those differences in mind, the MBA created a spreadsheet that allowed her to take into account the specific details of her situation. The spreadsheet also enabled her to test how changes in the cost of underage—the most uncertain parameter—affected the solution. While the newsvendor model provided a useful starting point, the MBA needed the skills to adapt it to her situation. When she successfully completed the spreadsheet, it was used throughout the firm to reduce costs and improve productivity.

Another true story demonstrates how spreadsheet modeling can help students think through a basic problem. As an intern at a major media and publishing company, one of our marketing MBAs was asked to forecast sales for a new consumer product. The new offering would be sold in book and music stores, card and gift stores, and mass merchandise outlets. The product had been marketed before but would be substantially redesigned for this sales effort. It

Spreadsheet models become **useful tools** in the functional areas of marketing, finance, and service operations.

Our course also stresses the use of spreadsheet models for interpretation and experimentation. By exploring how the model responds to changes in parameters, the students can develop intuitions about the real world. For example, a model might show that a project has a negative net present value at a discount rate of 10 percent, but breaks even at a discount rate of 8.2 percent.

In addition, we encourage students to document effectively. We believe models should be designed with usage and communication in mind. In industry, many spreadsheets outlive their creators, and managers who inherit spreadsheets from their predecessors on the job are often confronted with arcane notation and spaghetti logic. Our students practice building self-explanatory spreadsheet

would be expected to sell particularly well during certain holiday seasons.

Compared to the challenge faced by our first student, this problem was relatively unstructured. The intern could have approached the problem using the forecasting models he learned in his statistics class, but it didn't fit into any of the standard categories like regression or time series analysis. Before he collected data—a process that can be costly in terms of both time and effort—he wanted to know which data would be most useful. So he first created a spreadsheet model that linked inputs, such as product availability and advertising, with outputs, such as sales.

Simply creating a structured model helped him gain insights into the problem, and building the model helped him to recognize and refine his own assumptions. Sensitivity analysis allowed him to determine which data would be useful to collect and analyze. In particular, experiments with the model helped specify which parameters could be assigned rough estimates and which parameters should be given precise values based on data analysis. After creating a structured, logical model, he was able to communicate his findings to his supervisors in a clear fashion.

Classroom exercises introduce students to the types of situations they're likely to encounter on the job. Spreadsheet modeling skills help them turn theoretical knowledge into practical solutions, allowing them to solve real-world problems. models that have a clear structure, complete documentation, and output that is easily interpreted.

Optimization: In the second major module, students learn about making the best decisions, such as maximizing profits or minimizing costs. This is actually quite a sophisticated mathematical subject, but spreadsheet modeling brings it within the capabilities of a motivated MBA student. In the classroom, students use optimization tools to analyze problems such as how to allocate a sales force for a pharmaceutical manufacturer across seven product lines and five geographical areas.

Simulation: The final module covers Monte Carlo simulation, in which the spreadsheet model forecasts the probabilities of certain outcomes, such as the chance that a business will be profitable. Constructing spreadsheet models for simulations teaches students to recognize the uncertainty in their assumptions and, therefore, the uncertainty in their forecasts. Using this tool, students analyze a problem involving an insurance decision for an oil refinery. They also apply it to the problem a toy company faces as it decides how many units to produce for the holiday season.

Curriculum Integration

Information learned in the decision science course is widely integrated into other courses in the MBA program. For instance, the same tools students have learned in the optimization module will help them in their capital markets course as they solve problems such as portfolio optimization choosing how much to invest in a set of assets to maximize the mean return with acceptable risk.

An understanding of this problem is at the very core of the capital markets course, and spreadsheet modeling makes it possible for students both to understand the theory better and to solve real instances of the problem. In fact, in our course, the famous "efficient frontier" is nothing but a routine sensitivity analysis.

Similarly, an understanding of Monte Carlo simulation is essential in corporate valuation and option pricing. It's also employed in operations electives to analyze inventory problems, in marketing electives to study survey responses, and in economics courses to study how the uncertainty of the exchange rate affects the decisions of international firms. While studying spreadsheets, students learn to build a price segregation model, an option pricing model, and an airline yield management model—all of which become useful tools in the functional areas of marketing, finance, and service operations, respectively.

Members of the decision science department act as
Students have gone so far as to attribute their permanent job offers to their **spreadsheet** and **analytic skills**.

ambassadors to our fellow faculty, helping them develop content to utilize the tools we introduce. The managerial accounting course at Tuck uses the optimization tool to teach students about the impact of alternative overhead allocation schemes. The corporate valuation course uses simulation to estimate the risks of an IPO.

This high degree of integration provides many advantages. Because our course includes applications from a variety of fields, all students are likely to find examples that fit their backgrounds and goals. Students are also likely to see the immediate value of the material and apply it right away in their jobs.

Selling the Course

At most schools, the MBA curriculum is already crowded with required courses and electives, and not everyone will immediately see the value of adding a standalone spreadsheet modeling course. Three constituencies must be persuaded: students, faculty, and administrators.

Students might be the easiest to convince. Most of them realize that Excel is important on the job, and they'll work hard at any course that enhances their Excel skills. They'll work even harder if they learn how graduates of the program have drawn on these skills to be successful. It's important to realize that some students will resist because they're phobic about math. In those cases, it's necessary to downplay the mathematical aspects of the course, concentrating instead on the Excel equivalents. But gradually even those students will come to believe they can master spreadsheet modeling.

Some faculty, on the other hand, object to adding a spreadsheet modeling course because they're worried that it will displace something else in the curriculum. The best answer is that this course can benefit so many other courses that its impact will be multiplied many times over. For instance, if optimization is used in the cost accounting and operations courses, and simulation is used in the marketing and finance courses, it makes sense to teach both of those techniques in one class. Usually it becomes clear that the spreadsheet modeling course almost pays for itself.

Many administrators, especially those who received their MBAs 20 or 30 years ago, oppose the addition of a spreadsheet modeling course. They remember the old management science or quantitative methods course as highly theoretical, unpopular with students, and useless in the real world. While the spreadsheet modeling course can be viewed as a new version of the old management science course, it's been completely revitalized. This time, it's built on a practical computing platform that makes the methods understandable to motivated students—and eminently applicable on the job. That's a winning combination that should appeal to administrators.

Measuring Success

To judge the success of our spreadsheet modeling course, we've considered three measures: how similar courses have been used at other schools, how our course has affected our curriculum, and how our course has improved on-the-job performance of our graduates.

We know of several other schools that have redesigned a moribund management science course as a practical, dynamic spreadsheet modeling course. These schools have all adapted a basic spreadsheet modeling course to the specific demands of their programs. Not only does their success strengthen our belief in the value of such a course, but it also provides a vital community of like-minded teachers.

Within the Tuck MBA program, we can see that spreadsheets have become an accepted and widely used tool across the curriculum, at least in part because of our course. Because students have developed strong spreadsheet skills, more faculty are willing to use spreadsheets in their courses. Faculty use spreadsheets to present their own ideas, and they expect students to use them to solve problems.

Of course, the ultimate test is how well our students perform at work. Every year we poll returning second-year students to find out how they used the tools of the course on their summer jobs. In their responses, students have gone so far as to attribute their permanent job offers to their spreadsheet and analytic skills. This feedback convinces us we are having a positive impact.

Like most faculties, we hear regularly from recent alumni, who often ask job-related questions—many of them focused on spreadsheet modeling. Some want recommendations on purchasing spreadsheet software. Some request assistance in formulating a particularly challenging model. Others simply want to check in and let us know they are using the tools we taught them.

Such feedback reinforces our belief that spreadsheet modeling is an essential tool for any business student to learn. While it is rooted in traditional quantitative coursework, spreadsheet modeling can be viewed as an innovation in the MBA curriculum, one that touches a host of functional areas and helps prepare students for a wide range of business challenges.

Stephen Powell is professor of business administration and Robert Shumsky is associate professor of business administration at the Tuck School of Business at Dartmouth in Hanover, New Hampshire.

Rescarch

More Emphasis on Ethics

Anecdotal evidence may suggest that business schools are placing a greater emphasis on ethics in their curricula, but a new study seems to confirm it. Researchers surveyed the deans and directors at 50 prominent business schools around the world about how their institutions taught business ethics, corporate social responsibility (CSR), and sustainability. They found that attention on ethics has increased substantially at many of today's business schools.

The study was conducted by Laura Hartman, a management professor and business ethics expert at DePaul University's Kellstadt



Graduate School of Business in Chicago; Lisa Jones Christensen, assistant professor of entrepreneurship at the University of North Carolina's Kenan-Flagler Business School in Raleigh; Ellen Peirce, professor of legal studies and ethics at UNC; W. Michael Hoffman, director of the Center for Business Ethics at Bentley College in Waltham, Massachusetts; and Jamie Carrier, research assistant at Bentley College.

According to the study, business schools report a 500 percent increase in the number of standalone ethics courses in the past eight years. Twenty-five percent of these business schools now require that students take a separate course on ethics.

In addition, 84 percent of business schools require that ethics, CSR, and/or sustainability be covered in their MBA curricula. A third of these schools require coverage of all three topics. Sixty-five percent have academic centers related to these topics.

The study spotlights some particularly experiential and immersive approaches some schools are taking to teaching ethics. At Cornell University in New York, for example, business student teams travel to Senegal and Costa Rica to assist the ecotourism business there. Students at IMD in Switzerland spend a week in Argentina meeting with business, civic, and government leaders to learn how business can help the country improve its economy and life for its citizens. And at the University of Maryland, business students are required to visit white collar criminals serving time at minimum security prisons to discuss the consequences of business ethics violations.

"The growing emphasis on ethics at leading business schools mirrors an extraordinary increase in the prominence of ethical challenges in the business environment," Hartman says. "You simply cannot run a global business, or a leading business school, today unless you pay attention to these issues."



The Leadership-Laughter Connection

Educators take note: Soft skills such as communication, courage, ethics, and innovation may not be the only hallmarks of leadership to instill in business students. A good sense of humor also may be an essential part of what it takes to be a great leader.

Humor has long been believed to have a positive effect on workplace environments, but few studies have measured the impact of humor empirically, says Robert Vecchio, a professor at the Mendoza College of Business at the University of Notre Dame in Indiana. A recent study. "The Influence of Leader Humor on Relationships Between Leader Behavior and Follower Outcomes," aims to quantify just how humor impacted employees' perceptions of their leaders. The study was conducted by Vecchio; Craig Pearce, a professor at Claremont Graduate University's Drucker School in California; and Joseph Justin, a graduate student at the Drucker School.

Vecchio, Pearce, and Justin sampled 179 teacher-principal relationships in public high schools in California. The researchers conduct-

"WE FOUND THAT WHEN TEACHERS EVALUATED LEADERS AS BEING MORE HUMOROUS, THEY ALSO EVALUATED THOSE LEADERS AS HAVING GREATER INTEGRITY."

-Craig Pearce, Claremont Graduate University

ed confidential surveys of teachers about their principals' use of humor; use of rewards, such as positive feedback, for good performance; and sense of integrity. Teachers also were asked about their own level of job satisfaction, measured by statements such as "In general, I like working here" and "I will probably look for a new job in the next year." The researchers then surveyed each teacher's principal about his or her satisfaction with that teacher's performance.

Pearce notes a surprising correlation between humor and the perception of integrity. "We found that when teachers evaluated leaders as being more humorous, they also evaluated those leaders as having greater integrity," he notes. The researchers found several other correlations between humor and leadership:

Teachers who reported an



Robert Vecchio

Craig Pearce

interest in leaving their jobs most often also noted a lack of humor *and* a lack of integrity on the part of their principals. One factor alone did not fully account for their planned defection.

■ Teachers who reported that their principals had good senses of humor were less likely to want to leave their positions, even if they also reported low levels of leader integrity or use of reward.

Principals rated teacher performance lower when those teachers reported that their principals had a lack of humor and used few rewards or a lack of humor and little integrity.

The study suggests that when it comes to keeping employee turnover low, humor may have a positive effect, says Vecchio. "There's reason to believe that people are less likely to leave if their leader exhibits humor, even if other negative factors are present," he says. "Using humor to improve a workplace's social dynamic can be a plus."

The researchers admit that their study did not take into account the *type* of humor principal-leaders used. After all, some of a leader's attempts at humor will be welcomed by followers, while others may cause tension or offense. Vecchio would like to do future studies of the "dark side" of humor, when a leader uses humor at the expense of others to reinforce his or her superiority. He also would like to study how gender

the center will include a doctoral residency program, aiming to train researchers to study and improve India's burgeoning IT sector.

STUDY OF MINORITY WOMEN

Babson College in Wellesley, Massachusetts, will partner with the Center for Women's Business Research in Washington, D.C., to conduct a multiyear study to identify the challenges that women of color face when starting their own businesses. The study, which is sponsored by Sam's Club/Wal-Mart Stores Inc., is recruiting women of color who own businesses that are at least 50 percent women-owned and generate revenues between \$250,000 and \$5 million.

UPCOMING & ONGOING

MICROFINANCING STUDY

The IRIS Center, a nonprofit policy and research advisory center at the University of Maryland, has been awarded a five-year, \$6 million grant by the Bill & Melinda Gates Foundation to assess the impact of six grants the foundation made in the area of microfinancing. Working in conjunction with Microfinance Opportunities, based in Washington, D.C., IRIS will assess the impact of microfinancing on poverty, sustainability, and scalability.

NEW CENTER AT AUDENCIA

Audencia Nantes in France recently opened a new center that will focus

on research, pedagogy, and consulting in the field of competency development. In addition to advising alumni, training managers, and assisting students, the Centre for the Development of Competencies will examine the role of competencies within organizations.

IT IN INDIA

The Indian School of Business and consulting firm QAI India have launched the Centre for IT and Networked Economy (CITNE) in Bangalore. The center will conduct research in the information technology industry in India and will also provide consulting, training, and assessment services. In addition,

Res_carch

"FLEXIBLE WORK ARRANGEMENTS MAY BE THE MAIN STRATEGIC ADVANCE IN COMING DECADES IN ATTRACTING AND RETAINING MALE AND FEMALE ESSENTIAL TALENT."

-Mary Shapiro of The Simmons School of Management

differences affect the use of humor in the workplace.

Vecchio notes that business schools might improve their students' leadership skills by improving their senses of humor—he knows of at least one leadership program that hired a humorist to teach students how to tell a joke well. "It would be great if we could teach students how to be funny," he says. "Humor requires timing, social sensitivity, and the ability to phrase things well. It's a social skill."

Leaders can use that skill to open the lines of communication between themselves and their followers, Vecchio adds, thereby enhancing their organization's overall performance.

Women Want Flexibility In the Workplace

Although some believe that women are

"opting out" of the workforce to concentrate on other obligations, a

study from researchers at the Simmons School of Management suggests otherwise. Instead, researchers found that a majority of women are negotiating more flexible work arrangements as a way to stay in the workforce and maintain their income growth.

Mary Shapiro, lead researcher, and co-

authors Cynthia Ingols and Stacy Blake-Beard surveyed more than 400 middle- and senior-level professional women in the U.S. with an average of 20 years' work experience. The women were attendees of the 2006 Simmons School of Management Leadership Conference. The survey was conducted in collaboration with HP.

The study found that more than 90 percent of the women surveyed have used some kind of flexible work arrangements—such as flex time, telecommuting, and limits on travel-throughout their car eers. Eighty-eight percent did so at some point in their careers so that they could maintain full-time jobs while juggling other responsibilities. In addition, the women who used flexible work arrangements reported no loss of income as a result—their incomes were no different from those of women who maintained traditional work arrangements.

Previous studies have indicated that 37 percent of U.S. women have voluntarily stopped working. In the Simmons/HP study, only 18 percent reported doing so.

The belief that more women are opting out of the work force is "a myth based on a handful

> of anecdotes in the popular press," says Shapiro. By creating more flexible working arrangements, she adds, "women are at the leading edge of shifting the career paradigm for everyone. They're no longer acting as agents of



Cynthia Ingols

their employers, but as career 'self agents.'"

The study's strongest message for employers was the fact that 60 percent of respondents noted that they would be more loyal to organizations that offered flexible work arrangements. Says Shapiro, "Flexible work arrangements may be the main strategic advance in coming decades in attracting and retaining male and female essential talent."

Virtual Marketing Makes a False Impression

A researcher at the University of Washington Business School has a warning for companies inclined to offer consumers "virtual experiences" of their products. Web sites that use interactive images to sell products, rather than text and static pictures, may be more likely to create false memories in the minds of consumers—or, as psychologists call them, "false positives."

As part of her study of interactive marketing techniques, Ann Schlosser, an associate professor of marketing, had 173 undergraduate students visit a Web site to learn how to use a digital camera. Some learned to use the camera on a site that offered a virtual, object-interactive site, where they could interact with the camera by rolling their cursors over it to change settings or make additional information appear. Others learned on a site that featured simple text and static graphics. The students then completed a survey that asked whether certain features were present or absent on the camera.

Schlosser found that more students in the interactive group made "false positives" than did students



Mary Shapiro

BizEd MARCH/APRIL 2007

Stacy Blake-Beard

Rescarch

in the non-interactive group. That is, they believed the camera had features that did not exist or that it could perform functions it could not actually do.

"False positives seem to occur because people determine whether



a feature is present by retrieving and searching a mental image for it," says Schlosser. "Because the retrieved image is more vivid for those who visited the object-interactive site, they experienced greater confusion regard-

Ann Schlosser

ing which elements of this image were real or imagined."

Companies that offer these kinds of interactive experiences to consumers could be inadvertently increasing their customers' dissatisfaction with their products. When consumers discover that a product does not have the attributes generated through false memories, they may feel misled by the company and less inclined to buy or keep the product, Schlosser says.

New Tool for Sustainability

Many corporate leaders are considering the

adoption of "sustainable business practices" that encompass everything from business ethics and corporate social responsibility to greenhouse gas reduction and corporate greening. Nonetheless, many may still be uncertain about just how embracing sustainability will affect—and even improve—their operations.

To respond to this uncertainty about sustainability, the University of Western Ontario's Richard Ivey School of Business has created a new tool for managers and researchers. Its Research Network for Business Sustainability aims to connect researchers, practitioners, government policy makers, and educators to produce cross-disciplinary solutions to some of the world's most intractable problems.

Tima Bansal, director of the network, has been conducting research in the area of corporate sustainability for nearly two decades. Several years ago, Bansal realized there was a need for a specialized collection of sustainability research to spark more

STUDY BRIEFS

STUMP THE TRUMP

According to researchers at the Asper School of Business at the University of Manitoba, an acerbic leadership style, like Donald Trump often displays in his television show "The Apprentice," does not necessarily increase productiv-

ity. Their study, "Predicting Workplace Aggression: A Meta-Analysis," was published in the January 2007 issue of the *Journal of Applied*

Psychology. Through an examination of 57 empirical studies concerning workplace aggression, eight professors found that abusive or caustic bosses can foster a toxic workplace that leads employees to rebel against the bad treatment. This conclusion may seem obvious to most, but perhaps not to the bad bosses themselves. As lead researcher Sandy Hershcovis noted to *The Canadian Press*, organizational change in this area. Through the network, researchers will work with practitioners to make sure their research tackles the right questions and finds solutions, while practitioners will have direct access to current research on setting sustainable policies.

"Many academics work in isolation from industry, even though their work ultimately targets managers," says Bansal. The Research Network for Business Sustainability, he adds, is designed to "bridge these communities and create evidencebased best practices."

"If managers do communicate better and treat their employees better, aggression is far less likely to occur."

OLDER WORKERS OVERLOOKED

A recent study by faculty at Auckland University's Business School in New Zealand indicates that young workers have an advantage when it comes to landing a job. In the study, which the school conducted for the Auckland-based Human Rights Commission, 75 applications were sent to employers who had advertised job openings. Applicants shared similar qualifications and backgrounds, but were different ages, explains researcher Marie Wilson. The study found that those under 55 years old were up to ten times more likely to be finalists for job openings than applicants over 55 with similar qualifications. Employers perceived young workers as more flexible and open to training than their older counterparts, says Wilson. Ironically, these employers also believed that younger hires were more likely to change jobs after short periods of time.

Technology



B-Schools Use Tech To Target 'Millennials'

With each passing year, the incoming business students possess even more technological savvy than the class just a year before. With that in mind, some business schools are devising new marketing approaches designed to attract the "millennial" generation—those twentysomethings who don't remember a time before the Internet.

For example, to attract the upcoming tech-minded generation of business students, Butler University's College of Business Administration (CBA) in Indianapolis, Indiana, has added "vodcasts"—video podcasts—to its more traditional marketing vehicles, such as brochures and campus visits. The vodcasts follow the daily lives of two freshmen, Jana Fuelberth and Rob Redden, to give prospective students "an authentic, firsthand account of life at Butler," says Stephanie Judge, the CBA's director of marketing. The vodcasts, created for Butler by the Indianapolis-based marketing communications firm Mediasauce, allow visitors to follow the two freshmen through their first-semester experiences. Individual vodcasts focus on events such as move-in day, welcome week, the first day of classes, a tour of a local business, and a day shadowing student interns. Links to the latest vodcasts are sent weekly to prospective students via e-mail. They also are available for viewing on YouTube and iTunes.

"Millennial students go to YouTube and read blogs to find out what students are doing," says Judge. "Vodcasts allow us to meet and engage with millennials where they are—the Internet." To view the weekly vodcasts, visit www. butler.edu/vodcast.

The Kelley School of Business at Indiana University in Bloomington is also experimenting with a new technology. Hewlett-Packard Philanthropy recently awarded the school a \$125,000 grant to use to integrate Tablet PCs into the business classroom. The grant includes 45 HP TC4400 tablet PCs and \$15,000 to purchase DyKnow classroom interaction software.

Over the course of the spring semester, nearly every junior in the Kelley School's integrated core program will be given the opportunity to use the tablets. Business faculty at Kelley have already been using tablet PCs for instruction, but this is the first time that the devices will be provided to their students. Faculty will be experimenting with the real-time interactive features of the new tablets and software, says Rex Cutshall, senior lecturer of operations and decision technologies and coordinator for the integrated core curriculum.

"I can present students with a case and ask them to etch out a solution," says Cutshall. "Then, as an instructor, I can see everyone's tablets and selectively toss them up on the big screen." The use of the tablets in the classroom will be part of an empirical case study developed by Cutshall

O BUTLER UNIVERSITY College of Business Administration



Butler University's College of Business Administration offers vodcasts that chronicle the experiences of two freshmen for prospective students. The college hopes the technology will resonate with the "millennial" generation.

"I CAN PRESENT STUDENTS WITH A CASE AND ASK THEM TO ETCH OUT A SOLUTION.

THEN, AS AN INSTRUCTOR, I CAN SEE EVERYONE'S TABLETS AND SELECTIVELY TOSS THEM UP ON THE BIG SCREEN."

-Rex Cutshall, The Kelley School of Business, Indiana University, Bloomington

and Dan Greiner, clinical professor of finance, to evaluate and report on the impact that this deployment has on the learning process.

"We know from the literature that the millennial generation requires individualized attention, interactive technology, and equal opportunity for participation," says Cutshall. Technologies like Tablet PCs and interactive features, he adds, may be what it takes to reach these students effectively.

Kelley isn't the only school experimenting with Tablet PCs. David Kopcso and William Rybolt, professors at Babson College in Wellesley, Massachusetts, were also recently awarded a Hewlett Packard Technology for Teaching Grant for their project, "Transforming Teaching and Learning with Tablet PCs." The project will evaluate the educational effectiveness of Tablet PCs, which allow users to convert their handwriting, written directly onscreen, into digital form. The professors will compare a course using Tablets with a course where only laptops are used.

For business schools, experiments like those at Butler, Kelley, and Babson promise to provide more information about the effectiveness of the latest technologies—and how the millennial generation chooses and uses these technologies to learn.

NEWSBYTES

SMITH TRANSLATES TO CHINESE

The University of Maryland's Smith School of Business recently launched its online resource of business information, Smith Business Intelligence, in English, Mandarin, and simplified Chinese. Chinese-speaking executives can access video and audio clips via iPods and MP3 players, as well as access downloads from Smith partner sites such as Yahoo!China and Chinalecture.com.

ATTENDING ITUNES U

Several California State University campuses—including Fresno State, Cal State East Bay, San Jose State, Cal State Dominguez Hills, and Sacramento State—have adopted iTunes U, a software program that makes it easier for students to download podcasts of lectures, campus news, class notes, and other content into their portable digital audio players. Students may also upload content to share with professors or the class. All content is stored in Apple's hosted repository, which can be browsed, searched, and configured to provide open or secure access.

.EU DOMAINS SUSPENDED

The European Registry of Internet Domain Names (EURID) has suspended more than 74,000 .eu Web addresses and is suing 400 registrars for breach of contract. The IDG News Service reports that EURID took these actions after it found that a number of registrars had acquired domain names with the intent of selling them. The process, known as "warehousing," is not permitted under the EURID's regulations. All 74,000 domains are actually registered to individuals related to three companies based in the United Kingdom.

More Students Choosing Online Ed

A recent study has found that the popular-

ity of online education is definitely on the rise. The Sloan Survey of Online Learning, "Making the Grade: Online Education in the United States, 2006" shows tremendous growth in online learning in America. The annual study, now in its fourth year, is a collaboration between the College Board, a nonprofit that connects students to college opportunities, and the Sloan Consortium, an association committed to online education.

The study, which was based on responses from 2,200 U.S. colleges and universities, suggests that "online learning is growing without any sign of a plateau," says Jeff Seaman, chief information officer and survey director of the Sloan Consortium. "There were nearly 3.2 million students taking at least one course online this past fall, up from 2.3 million just last year," he says.

The survey also finds that 62 percent of chief academic officers agree the learning outcomes in online education are now often as good as or superior to face-to-face instruction. Fifty-seven percent say it is critical to their institution's long-term strategy.

In addition, 73 percent agree online education reaches students not served by face-to-face programs. "Offering courses online increases enrollment particularly among populations like working adults and others who traditionally have not been able to access higher education," says Frank Mayadas, program director, Alfred P. Sloan Foundation.

The complete survey is available at www.sloan-c.org/publications/ survey/index.asp.

Technology

Getting the Best Tech On a B-School's Budget

Most business schools want to offer their students state-of-the-art classrooms, computers, trading rooms, and wireless access. But the latest and greatest technologies come with equally great price tags. Without large private donations, state funding, or university support, many school administrators come to the conclusion that they simply can't have it all.

Or can they?

IESE in Barcelona, Spain, has developed a strategy that keeps new technology coming to its campus for its students and faculty-without the often prohibitive costs. In 1999, IESE asked Technotrends, a Spainbased videoconferencing company, to loan the school two state-of-theart video conferencing units. The company not only agreed, but also included special discounts on the purchase of new equipment as well as free maintenance service and upgrades. In 2000, the school made a similar agreement with UUNET (now Verizon Business) to increase its Internet capacity.

That agreement marked a "turning point" in the school's IT strategy that inspired its "Technology Partner" program, explains Jordi Vallet, director of IT projects. The school provides its Technology Partners increased visibility through ads and articles in its alumni magazine, coverage in press releases, and inclusion of company logos on its Web page. Partners also have the



One of seven new classrooms at IESE made possible, in part, through its Technology Partner Program.

opportunity to test new products on campus and receive advice from IESE faculty. In return, the companies agree to provide their products to the school for low or no cost.

Since the agreements with Technotrends and UUNET, IESE

DATABIT

More than 40 percent of firms intend to increase the amount they spend on commercial recruitment Web sites, according to the Recruitment Confidence Index (RCI) from Cranfield School of Management in the United Kingdom. The survey of 1,078 organizations also found that 32 percent reported that they spent less money on other recruitment methods last year because they relied more heavily on the Internet. has received laptops and PDAs from Toshiba, anti-virus and spam software from TrendMicro, and lecture theaters with advanced audio and video technology from Sony. IESE most recently partnered with MICRO-BLANC, a systems integrator for IBM in Spain. The company installed an integration and consolidation solution for the school's more than 90 servers. The school

is currently in negotiations with 12 more technology providers.

"IESE, like many academic institutions and companies, does not have a sufficient IT budget to keep it at the forefront of technological development at all times," says Vallet. "With this in mind, it was necessary to come up with some creative solutions beyond traditional sponsoring, to meet and surpass the expectations of our clients, be they professors and staff or students and client companies."

The level at which companies can contribute can vary. Full Technology Partners provide the school with services and equipment equivalent to more than €1,000,000. Technology Affiliates contribute the equivalent of more than €500,000. Sponsoring companies contribute technological goods and services in amounts less than €500,000. Depending on the agreement, IESE may receive the

"AS THE WEB CONTINUES TO EVOLVE, IT IS BECOMING INCREASINGLY CLEAR THAT A NEW TYPE OF GRADUATE

WILL BE REQUIRED TO MEET THE NEEDS OF SCIENCE AND INDUSTRY."

-Professor Wendy Hall, Southampton University, founding director of WSRI

product at no cost, may pay a discounted price, or may offer services in return, such as training programs. These three levels correspond to different levels of recognition by the school, says Vallet.

But no matter what, the school works to ensure that these agreements "are always win-win situations sustainable over time," he adds. For business schools whose IT budgets are smaller than their aspirations, mutually beneficial partnerships with companies can make it possible still to build a campus at the forefront of technology.

The Evolution of the Web

The Massachusetts Institute of Technology in the United States and the University of Southampton in the United Kingdom recently launched a long-term research collaboration that aims to guide future development of the World Wide Web. The Web Science Research Initiative (WSRI) will generate a research agenda that will focus on understanding the Web's scientific, technical, and social challenges.

Tim Berners-Lee, inventor of the World Wide Web and founding director of WSRI, notes that there is much to be learned about the Web's continuing evolution. "As the Web celebrates its first decade of widespread use, we still know surprisingly little about how it evolved, and we have only scratched the surface of what could be realized with deeper scientific investigation into its design, operation, and impact on society," says Berners-Lee. "The Web Science Research Initia-

TOOLS OF THE TRADE

ProfCast Turns Lectures into Instant Podcasts

ProfCast 2.0, a \$30 software program for Macintosh computers, contends that it offers an easy-to-use platform to help professors turn their live lectures into enhanced podcasts. The software allows professors to create a podcast simply by



clicking on a "Start Recording" button on their computer to begin and hitting "Stop Recording" to end. To turn the recording into a true podcast, professors

To turn the recording into a true podcast, protessors click on the "Publish" button. The software then walks them through a short series of instructions to publish their podcasts online.

"There is a certain excitement that comes from presenting in front of a live audience," says David Chmura, president and co-founder of the company. "ProfCast captures your voice while you give your presentation, so your recording has a higher level of engagement."

ProfCast is currently available to Macintosh users only. A Windows version is planned for next year. For more information, visit www.profcast.com.

tive will allow researchers to take the Web seriously as an object of scientific inquiry, with the goal of helping to foster the Web's growth and fulfill its great potential as a powerful tool for humanity."

Professor Wendy Hall is the head of school and a professor of computer science at Southampton University School of Electronics and Computer Science, as well as a founding director of WSRI. "As the Web continues to evolve, it is becoming increasingly clear that a new type of graduate will be required to meet the needs of science and industry," says Hall. "Already we are seeing evidence of this, with major Internet companies and research institutions lamenting the fact that there are simply not enough people with the right mix of skills to meet current and future employment demands. In launching WSRI, one of our ultimate aims is to address this issue."

WSRI will be headquartered at the Computer Science

and Artificial Intelligence Laboratory (CSAIL) at MIT and at the School of Electronics and Computer Science (ECS) at the University of Southampton. Initial plans call for joint research projects, workshops, and student-faculty exchanges between the two institutions.

by Richard B. McKenzie

Your Turn

I Faculty: Embrace the Tech-Supported Classroom

I've become a passionate evangelist for technology in the MBA classroom. I am so convinced that video and audio technology offer a win/win situation for business schools that I don't believe there really is a question about whether schools should exploit such technologies for class use. The real question now is who's going to lead and who's going to play catch-up.

Too many business professors have distanced themselves from new classroom tools, either because they're intimidated by the technology or they're unwilling to take the time to revise their course materials. Faculty aren't simply missing incredible opportunities to enhance their in-class sessions—they're also putting their schools at a disadvantage. In today's competitive market, the school that deploys the best technology may be the school that attracts the best students.

I know that technology can radically transform an MBA classroom because I've seen how it enabled me to revise both the content and delivery of my microeconomics course. Not only did technology provide a supplemental learning tool for students, it made their study time more efficient and classroom time more valuable for both my students and me.

The course revision started about a decade ago as I strove to make the class more relevant, particularly to older and fully employed executivelevel students. I found that many of these students remembered their undergraduate economics courses as having little connection to management issues, and they were not interested in spending much time on microeconomics as grad students. Another difficulty I encountered was finding a microeconomics textbook designed exclusively for MBAs.

I developed my own textbook, which included a heavy dose of conventional microeconomic theory, and an equally heavy dose of the growing subdiscipline of organizational economics. Together they illustrated how a relatively few economic principles and lines of argument could be used in understanding management problems and solutions. In effect, I integrated what used to be a second-year course on "managing through incentives" into my core course on microeconomics—but I wasn't able to do so fully or with great success until I began to take advantage of rapidly advancing classroom technologies.

A half dozen years ago, the Merage School of Business at the University of California in Irvine began streaming and capturing for downloads the review sessions we organized for our fully employed and executive MBA students. At about the same time, I began holding my "office hours" early in the morning at a Starbucks near campus, where I went every morning to get my caffeine fix. It was convenient for my students to see me at this Starbucks in the morning, as opposed to getting off from work during the day and finding on-campus parking to see me in my office at school.

One morning early in the course, three students had set up appoint-



ments a half hour apart to talk over a line of argument they did not understand. Each student asked the same question, virtually word for word. After spending an hour and a half talking to the students individually, I realized there was a better way of dealing with such

repetitive questions. All I had to do was record a video module on the topic and post it on the Web for streaming and downloading. Indeed, I found that, when not interrupted by students, I could record this particular explanation in less than ten minutes, and then I never had to repeat it!

That year, I developed 18 video modules to deal with other repetitive questions from students. The next year, I increased the video modules to 20. Last year, when my textbook was being prepared for publication, I ran the count of video modules to more than 60. Most are 12 minutes or less, although they total more than ten hours. Together these modules cover core topics that all MBA students should have a nodding acquaintance with and more complicated issues that students rarely understand when they encounter them for the first time. Frankly, most of the video modules cover topics from my lectures that I consider tedious and boring, even though they are essential to a student's understanding of microeconomic theory.

The video modules now have been made downloadable to both laptops and video iPods, in versions both with and without the video. I consider these modules a win for the students for two reasons:

TECHNOLOGY CAN DO SO MUCH TO ENHANCE OUR PEDAGOGY THAT IT **must** be considered as we put together our course plans.

■ The students *love* them. So far, when I ask the classes to rate the modules' educational value, students have given them ratings of anywhere from 9.1 to 9.7 on a ten-point scale.

■ The students use them. Students report spending an average of four hours a week with the modules, with only a slight reduction in the time spent reading the textbook. Many watch or listen to the modules on their laptops and iPods while commuting to work, traveling on business trips, and exercising.

The video modules also are a win for me:

■ They save time. I created the first modules two years ago. I figure that, for every hour I spent producing the modules, I saved two hours dealing with student issues outside of class—and that's for last year alone. I expect to save at least the same amount of time for every year remaining in my career. In the end, I estimate I could save at least 20 hours for every hour that I have spent producing the modules.

As suggestive proof of the time benefits to me, the count of e-mails I have received from students this year is down by a third from last year. The number of students who have shown up for my early morning office hours with repetitive questions is probably down 90 percent. When students do show up, the discussion is often about the application of class principles to their work situations. So not only have I improved the quality of interaction I have with students, but I have freed up more of my own time that I can devote to research.

Class time is more efficient. Because the modules have allowed me to offload from my lectures the basic but important concepts that I prefer

not to deal with in class, I've been able to move through material at a faster pace and expand my course content at the same time. This year, I completed in eight lectures the same material that took ten lectures last year. I've also felt that I had more time for class discussion of topics of interest to me—and, I surmise, to my students. Over the past five years I may have doubled the array of economic and management topics I've been able to consider in my ten-week course.

Class attendance remains high. Students have more reason to come to class, since discussions are now reserved for dealing with issues that can't be dealt with effectively through video technology.

These same video modules have been used to support the publication of the textbook I co-wrote with Dwight Lee, *Microeconomics for MBAs*, released in January 2006 by Cambridge University Press. This quarter, we also made the textbook an audio book, with all relevant tables, figures, and equations designed to pop up on the screens of laptops and iPods when they are covered in the readings.

Lee and I are not alone in offering podcast technology to complement a textbook—there's been a tidal wave of other publishers moving in that direction. For proof, go to iTunes and look up the available video/audio content under education. It has exploded. Our own modules can be accessed at www. gsm.uci.edu/~mckenzie/. Modules don't have to be highly polished to be effective, though leads, endings, and music can be added easily.

My co-author and I have concluded that downloads of the modules can only increase interest in our textbook, and so we have no concerns about protecting our intellectual property. In fact, we are pleased that professors and students from around the world report downloading the modules. The download potential expands my classroom at zero added cost to me.

But technology such as this has even more far-reaching implications-for business schools, not just textbook authors. Technology can become a factor in helping students decide which program to attend, particularly fully employed and executive MBAs. The biggest problem these students face is too little time, given the demands of work, family, and studies. More and more of these students will be looking to relieve their serious time constraints by covering some of their class assignments while doing other things, such as commuting, traveling, and exercising. Audio and visual technologies permit busy students to multitask.

Therefore, to both faculty and administrators I would say: It's time to embrace the tech-supported classroom. Technology can do so much to enhance our pedagogy that it *must* be considered as we put together our course plans. Imagine how technology can allow business schools to recruit and retain more and better students. Imagine, too, that these students will be willing to pay a premium price to attend a program that caters so well to their needs. The use of technology in the b-school then becomes not just a good idea, but an essential component of the school's strategy for survival.

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Bookshelf

While the Internet has already had a profound influence on education, entertainment, communication, and commerce, authors Don Tapscott and Anthony D. Williams predict even more massive changes ahead. In Wikinomics, they describe a Webbased community where mass collaboration is possible between farflung individuals who create, edit, and influence everything from the human genome project to the international media. Some of the names associated with these collaborative endeavors are familiar, such as eBay, Google, and Wikipedia. But the authors also investigate how traditional hierarchical firms-drug manufacturers and gold mining companies among them-are sharing intellectual property as a way harness the knowledge of consumers and interested experts who just don't happen to be on the payroll. "To

ensure they remain at the forefront of their industries. companies must increasingly open their doors to the global talent pool that thrives outside their walls," they write. Like any eco-



nomic revolution, they warn, the changeover could cause some companies and some industries real pain; but they don't think anything can stop it. (Portfolio, \$25.95)

"One of the dumbest things companies do is try to make their 'human resources' more productive while fighting what makes them human," say Rodd Wagner and James K. Harter in 12: The Elements of Great Managing. Drawing on millions of employee interviews conducted by the Gallup

Organization, and comparing them to hard research data, they show that engaged, satisfied employees have a measurable impact on company profitability. But that makes the book sound lifeless and dry; in fact, it is full of lively anecdotes about inspired managers, committed teams of workers, and the amazing feats they were able to pull off in the workplace. Wagner and Harter use those stories to illustrate the 12 elements of managing-such as letting employees understand what's expected of them, providing them with the proper tools, and playing to their strengths-identified by Gallup a decade or so ago in First, Break All the Rules. This new book focuses tightly on the manager's role in coaxing the best effort from employees, which leads to the best results for businesses. (Gallup Press, \$25.95)



Although it's impossible to predict the future, Eric Garland provides a pretty good system for helping business owners figure out what might come next. In Future Inc., he explains how futurists deconstruct trends and economic variables to isolate factors that could have a profound impact on business. Specifically, he looks at the STEEP factors, or trends in society, technology, economics, ecology, and politics. Garland briefly applies the STEEP analysis to such seemingly mundane

products as chocolate bars and goes into much more depth as he picks apart the beer industry. While at times it's a little overwhelming to consider the sheer scope of the possibilities of change, Gardner helps readers narrow their focus-and accept the necessity for thinking broadly. "To practice thinking like a futurist, first get rid of the notion that some things don't change," he advises bluntly. "If change can happen to chocolate, it can happen to you." (AMACOM, \$24.95)

Many new Ph.D.s take jobs as professors

without ever getting any real training in what it means to be a teacher. Their first few years in front of the classroom can be uncomfortable for them and frustrating for students. James G.S. Clawson and Mark E. Haskins aim to rectify both situations with their massive, in-depth



volume on Teaching Management. The authors, both professors at the University of Virginia's Darden School, painstakingly walk the reader through the intricacies of running a class. It's hard to imagine that they've

overlooked a single detail, from the various types of adult learning to the environmental impact of a room that's too cold. They offer sample syllabi, explain how to break down modules within a course, and debate the advantages and drawbacks of teaching via lecture, case study, and action learning. It's a rich and helpful guide for the new teacher looking for guidance or the veteran professor looking for new ideas. (Cambridge University Press, \$90 hardback, \$39.99 paperback)

"IMPORTANT LESSONS HAVE BEEN LEARNED, NEW PRACTICES ADOPTED, AND A BALANCE HAS BEEN STRUCK (AT LEAST FOR A WHILE) BETWEEN THE COMPETING FORCES OF REGULATION, ORDER, AND CREATIVE CHAOS."

-Separating Fools From Their Money



It's easy for companies to get caught up in the "corporate cycle," first focusing on the "brave new world" of growth, long-term results, and specific units of the business. Then, after hitting a period of stagnation, they refocus on the "back to basics" areas of profitability, short-term results, and the company as a whole. When that strategy begins to sour, it's back to the "brave new world." This continuous cycle is caused by what Dominic Dodd and Ken Favaro call The Three Tensions: profitability versus growth, short-term versus long-term thinking, and an emphasis on the whole versus parts of the company. Business leaders who can find their way out of the either/or trap fare significantly better at providing total shareholder return, the authors say. While they admit it's not easy, they do offer solutions. For instance, executives can achieve profitability and growth simultaneously if they focus on customer benefit—and Dodd and Favaro closely dissect how those customer benefits can be uncovered and nurtured. Highlights of the book are



case studies of businesses that have been famously successful or unsuccessful in their attempts to integrate their companies' "tensions." (Jossey-Bass, \$27.95)

It might not be surprising to learn that the vast percentage of American leaders in the 20th century have been white males, but some of the other traits they have in common *are* a little unexpected. In *Paths to Power*, authors Anthony J. Mayo, Nitin Nohria, and Laura G. Singleton consider factors such as birthplace, religious affiliation, education, socioeconomic class, race, and sex. A disproportionate number of leaders have come from New York; many others have hailed from the Midwest. For most of the cen-

tury, a foreign-born immigrant who wanted to make his mark would do well to head West, where an entrepreneurial spirit

was rewarded. During that same time period, businessmen who were Presbyterian or Episcopalian had a better chance at being successful than members of other religionsuntil education, particularly an MBA degree, began to eclipse religious affiliation as the background of choice. The authors illustrate their hard data with dozens of colorful sketches of business leaders, from American Airlines president Cyrus Smith to newspaper publisher Dorothy Schiff. They never forget why these tales of leadership are important. Because businesses "have had such an impact on the literal and figurative landscape of America," they write, "it is critically important to understand how this power was attained and who was able to grasp it." (Harvard Business School Press, \$35) 💋

Spotlight



Bringing Art to Business

Donors add a new perspective at Goizueta with a gift of original 20th-century works of art.

Students at Emory University's Goizueta

Business School in Atlanta, Georgia, aren't just getting an education in business—they're also getting an education in original art. After donors made a gift to the school of 180 original works of art by artists ranging from Picasso and Dali to Miró and Hockney, Goizueta has turned its common rooms, offices, and hallways into havens for 20th-century art.

Ron and Barbara Balser donated the diverse collection for the new Goizueta Foundation Center for Research and Doctoral Education, a \$33.4 million, 90,000-squarefoot building that houses the Ph.D. program, executive education offerings, and administrative offices. Other artists whose work is in the collection include Braque, Chagall, Lichtenstein, Oldenburg, Picasso, Rauschenberg, Tamayo, Lipchitz, Murakami, and Warhol.

The art collection has given the Goizueta Business School new visibility in the community. The school held no grand opening or reception, but word soon spread about the presence of such a significant collection of artwork at such an unexpected location. High school teachers have started to bring their students to the school for art field trips, and

"AN AWARENESS AND APPRECIATION FOR ART AND EMBRACING DIVERSITY ARE ALL PART OF ONE'S EDUCATION."

-Barbara Balser, Donor

undergraduate art history majors come to the school to view the collection. Administrators, faculty, and students have been delighted with the impact the art collection has made on both the school and community.

Already there has been one controversial moment: After much discussion, a nude was moved from the admissions office to a less trafficked area, to avoid providing an undue shock to first-time visitors. But that kind of debate is just what the Balsers had in mind when they donated the artwork to the school. The couple shares a firm belief that it takes more than business knowhow for students to become true business leaders.

"An awareness and appreciation for art and embracing diversity are all part of one's education," says Barbara Balser. "It's more than just a degree—it's a lifestyle."