

MIND

WORK

LEADING SCHOLARSHIP FROM SANTA CLARA UNIVERSITY SCHOOL OF BUSINESS

From the Dean

In this issue of *Mind|Work*, we focus on research conducted by members of our marketing faculty, from developing new models to measure consumer choice to analyzing emerging marketing management methods.

As befits scholarship from Silicon Valley's own business school, this research is global in its application and leverages technological advances by our industry partners. From using game theory to predict pharmaceutical firms' sales strategies to gauging the effectiveness of visuals in an age of electronic media, our faculty are creating launch points for the next wave of marketing innovation.

You can read more about our marketing faculty and their research at www.scu.edu/business/mindwork.

All the best,



Barry Z. Posner, Ph.D.

Dean and Professor of Leadership



WHAT THE CUSTOMER WANTS: Dale Achabal (right) and Shelby McIntyre used data from an interactive website to track consumer preference and how retailers should respond to them.

Offering the Best Selection

Consumer-Preference Data Can Help Retailers Decide

Every year in June, an established retailer holds a women's sweater promotion as a marketing test. The styles and colors under consideration for the fall line are laid out, and those that sell the best are featured in the store's assortment a few months later as cold weather draws near.

It's a classic example of the sort of hunch-and-observation technique that retailers have used over the years to try to determine what will sell the best. But it's far from perfect, and it illustrates a business issue that faculty in the Leavey School of Business are investigating.

"The basic problem is that retailers have always had a challenge figuring out what products to carry in their store assortments," says Dale Achabal, L.J. Skaggs Distinguished Professor in the department of marketing. "They know what sells, >

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the best selection

but they don't know what they could have sold if they'd offered consumers a better-chosen assortment of products."

Achabal, who is also executive director of SCU's Retail Management Institute, is co-author of a paper that has pioneered the use of information drawn from an interactive web site to analyze consumer preferences more scientifically. "Choosing Robust Retail Assortments for Infrequently Purchased Products," was co-authored by fellow marketing professor Shelby H. McIntyre, their Operations and MIS department colleague Professor Stephen A. Smith, and Christopher H. Miller, a former assistant professor of marketing at SCU, and now at Bond University, Queensland, Australia.

To narrow the focus of their research, they concentrated on DVD players, which represent a product for which consumers make a "considered" decision. Achabal and his co-authors worked with the principals of Active Decisions, developers of activebuyersguide.com, a consumer products search engine. In this instance, more than 2,000 visitors completed an interactive survey to get specific product choice recommendations from a choice of 117 DVD players.

Tracking the information in the surveys, they found that consumers fell into a variety of groups, depending on what they were looking for in the product. For example, some might want

a specific brand at a certain price; others might want the best quality regardless of cost; and others might be adamant about having certain key features in the product. Knowing this could enable retailers to determine which groups their customers were likely to fall into and help companies provide an assortment of goods that would satisfy the greatest possible number of customers in their target market.

"We're adding science to the art of retailing."

Dale Achabal
Distinguished Professor, Marketing

"When you get down to it, any product is a bundle of attributes," Achabal notes. "This sort of consumer preference data can give retailers an idea of what an alternative assortment of products could do for them."

Achabal suggests that based on this understanding of consumer preferences, one of the most common mistakes a retailer might make would be to replace the product that has the lowest volume of sales.

"The product with the fewest sales could still be satisfying a certain segment of consumers," he argues. "If you take that off the shelf and replace it with something that duplicates what you already have, you could just be cannibalizing the sales of your existing products."

In addition, as McIntyre points out, a reduced level of choice is a fundamental consumer issue. "If a store doesn't have what I want, they're not giving good customer service," he says.

The paper develops an analytical approach and decision support system for tracking consumer preferences. Achabal says he sees this work as "adding science to the art of retailing" in a way that could be quite positive. "If a retailer builds better assortments of products in the store, revenues should increase and the customers should be more loyal. It's a win-win situation." ▶

Money Well-Spent?

A New Model for Determining Marketing Effectiveness

There's an adage in marketing that says half the money you spend in marketing is wasted—but you never know which half. Ling-Jing Kao, assistant professor in the Leavey School of Business, is focusing her research to help marketing professionals out of their dilemma.

A key tool, she believes, is applying Bayesian statistics in marketing applications.

Named after the British mathematician and Presbyterian minister Thomas Bayes, this branch of statistics provides a formula for accounting for uncertainty, an apt descriptor of marketers assessing consumer behavior.

"The focus is on how consumers make purchase decisions among so many competing products in the marketplace," she says. "Modeling consumer behavior is challenging

because consumers are all different and do not always think in a linear fashion when they make purchase decisions."

That type of research is suited to the Bayesian approach, which lends itself to analyzing marketing data involving heterogeneous units, such as households, survey respondents or decision units within a business. In this instance, by studying consumer demand and



WHAT THE NUMBERS SHOW: Ling-Jing Kao has been using statistical models to address a number of marketing questions, including the effectiveness of regional corporate marketing strategy.

sensitivity to marketing stimuli, retailers can benefit by designing a more effective marketing campaign or targeting more profitable and responsive consumers.

In addition to consumer demand, her research looks at two other areas: Developing models to improve current market-research methods and evaluating the effectiveness of marketing decisions within a firm.

An example of the latter is her paper, "Evaluating the Effectiveness of Marketing Expenditures," co-authored with Thomas Otter, Chih-Chou Chiu, Timothy J. Gilbride and Greg M. Allenby. It is currently under review at *Quantitative Marketing and Economics*.

The paper had its genesis in 2004, when Kao was doing her doctoral work at the Ohio State University's Fisher School of Business and Chiu was a visiting scholar from the National Taipei University of Technology.

Kao and her colleagues found a rich vein of data in the form of information on

the marketing expenditure allocations of a financial services firm that maintains multiple branch offices in 21 regions and makes yearly promotional allocations that are spent over the course of the year.

Over the next three years, Kao and her colleagues used the Bayesian methodology to address the question of whether the firm's marketing expenditure allocation rule was optimal, given the performance of each geographic region. Also addressed was the question of how the firm could effectively allocate expenditures given managers' assumed knowledge of each branch's performance.

They found that large promotional expenditures have the same effect as small ones, within the expense range investigated. When promotional expenditures generated positive results, the effect depended on the number of branch outlets in the region. However, branch outlets themselves do not

generate new customers without promotional help. Therefore, the model showed that the firm could increase new customers twofold by running less expensive promotions more frequently so the promotions occurred in every measurable time period.

Part of the value of the model developed by Kao and her colleagues is that it relies on a direct estimation strategy that allows a calculation to be done without exact financial information, which is often confidential and unobtainable. The method used in the paper

"Consumers do not always think in linear fashion."

Ling-Jing Kao

Assistant Professor, Leavey School of Business

covered that challenge, as well as several others: the mingling of capital and regular expense items, the timing of expenses, and the short time frame (14 months) covered by the data. "It is doubtful that analysts in marketing ever have a complete set of variables for analysis," Kao writes in the paper, and this approach provides a more flexible basis for assessing marketing efficiencies.

"In the end, this is about how to make better decisions based on a marketing manager's knowledge," Kao observes. "Marketing decisions interact with each other, and studying the interaction among those decisions is how you improve the overall performance of the firm." ▶

An Economic ‘Detective Story’

The Hidden History of Marketing in the Soviet Union

For most of its existence the Soviet Union’s leaders viewed marketing as a capitalist tool to promote excessive consumption, with no place in a society based on Marxist-Leninist principles.

So when Karen F.A. Fox, professor of marketing at SCU’s Leavey School of Business, went to Russia in 1998 as a Fulbright lecturer in marketing, she was struck by how many Russians were teaching marketing classes just a few years after the Soviet Union’s collapse.

“I said to myself, ‘Who are all these people teaching marketing? What are their backgrounds?’ It was a mystery to me, since I knew there had been no graduate education in marketing during the Soviet era, so I started asking questions,” Fox says.

That was the beginning of a line of research that Fox says was “like a detective story.” It led to a collaboration with two Russian academics, Irina I. Skorobogatykh and Olga V. Saginova, and to the publication of a series of articles, first on the backgrounds of Russian marketing professors and ultimately an article in *Marketing Theory*, “The Soviet Evolution of Marketing Thought, 1961-1991: From Marx to Marketing.”

Fox met the two women when she went to a conference in St. Petersburg looking for academics from Moscow who could tell her about the preparation of new marketing professors. Before starting to teach marketing, Saginova had been an instructor in English and Skorobogatykh had been an applied economist doing consumer research for a government agency. From their first meeting, notes Fox, “we found a real connection and our work together has been a true collaboration.” Fox suggested lines of inquiry, and the other two were involved in shaping the historical work and locating valuable sources.

They discovered that there had always been people doing marketing work in the Soviet Union. Even though the word “marketing”



UNDER THE SURFACE: Karen Fox has been looking at how marketing, an officially forbidden subject, was practiced in the Soviet Union. The poster reflects a crude form of government marketing: propaganda promoting happier customers at state-owned stores.

was anathema, the Soviet Union still needed to produce goods, put prices on them, and make them available to consumers. The drive to earn foreign exchange also meant that the Soviet Union also needed to understand how to produce and sell attractive goods as well as raw materials to overseas buyers.

A turning point in attitudes came when the Soviet Union signed the 1975 Helsinki Accords, which covered mutual trade and marketing, as well as human rights. Encouraged by that document, some forward-looking Soviet economists formed the Marketing Section of the USSR Chamber of Commerce in Moscow in 1976.

Fox and her colleagues located written materials about the section and its work, but more important was talking with two of its founding board members, Professors Boris Soloviev and Igor Kretov.

“They were both well into their seventies and still professionally active, which is amazing when you consider that the life expectancy for a Russian male is 59,” Fox points out. “If we (or someone else) had decided to explore this five or ten years later, I don’t know if these important developments would ever have been documented. We feel very fortunate that we could tell this story.”

The interview with Kretov filled in a major gap in Soviet marketing history. He was one of the translators of Philip Kotler’s seminal textbook *Marketing Management*, which was the first Western marketing book to be translated and published in the Soviet Union, back in 1980. However, the Soviet version was 227 pages, less than half the length of the English-language version — the result of going through the KGB’s censorship bureau.

The paper produced by Fox and her colleagues provides an extensive list of Soviet marketing experts with biographical information and a list of publications that might have moldered for years in Russian archives had the team not discovered them.

“I feel this paper is the best thing I’ve ever done,” Fox says. “We felt we had unique access to people and documents that enabled us to tell an important story, and we have saved from obscurity a number of people who quietly made a difference.”

As for the answer to Fox’s initial question, many new marketing instructors in the 1990s had previously taught a quite different subject: the Soviet-era mandatory courses on Marxism-Leninism. ■

Changing the Model

Cisco Systems' Value-Based Approach to Selling

In the year 2000, with sales growing more than 50 percent annually, Cisco Systems, the leading manufacturer of networking products and solutions, decided to throw out its sales and distribution compensation system and build a new one from the ground up.

A critical part of the restructuring was the development of a new compensation system. Up to that point, Cisco, like most businesses, had been compensating its sales and distribution employees and partners according to the volume of their sales. The new system, now in place and widely emulated, rewards the ability to develop new business by helping customers find business solutions using Cisco's products.

"The fundamental issue that had to be addressed was the compensation system," says Kirthi Kalyanam, J.C. Penney Research Professor and Director of Internet Retailing at SCU's Leavey School of Business Retail Management Institute. "The simplicity of the volume model has made it so common, so prevalent, that developing and articulating an alternative was a challenge. If not volume, then what?"

Kalyanam and co-author Surinder Brar of Cisco's World Wide Channels division have just completed a paper on the transformation, titled "Value Based Channel Management: A Field Study of Cisco Systems, Inc." Building on the relationships between Santa Clara University and Cisco's leadership, Kalyanam was able to conduct numerous internal interviews to better understand what the company was doing.

The channels referred to in the paper's title are the various means of selling and distributing Cisco's products and services. These include the company's own sales staff, distributors, service providers, resellers, and system integrators. A critical part of Cisco's strategy was to rely more on the channels outside the company's own sales force, and the approach has paid dividends. Those channel partners now account for 91 percent of the company's sales.

"Prevailing wisdom has been that a company's captive sales force typically

outperforms the independent distributors," Kalyanam observes. "Cisco has shown otherwise — that it's possible to get a channel system that works really well."

A critical element in making that system work is Cisco's comprehensive training and information program to keep the channel partners aware of products and services and their possible applications. The company offers courses on its web site, certifies its channelers, and in many cases requires annual exams of sales people.

At a very simple level, Kalyanam suggests, Cisco is trying to do with its sales partners what McDonald's does with its customers: Ensure a consistent experience wherever you do business. The difference is that the key ingredient related to quality isn't the meat and bun; it's the knowledge the seller has of both Cisco's products and the customer's needs.

"Cisco is helping its partners provide a consistent level of knowledge-based quality," he says.

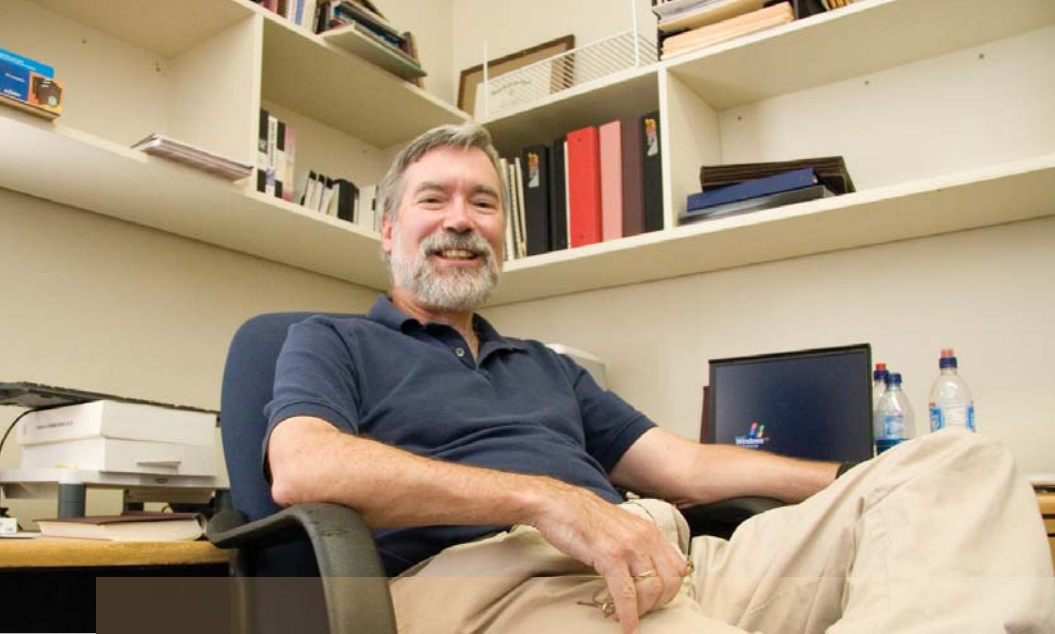
Tied to this approach is a system of specialization incentive payments that are also dependent on meeting customer satisfaction targets. Under this system, a smaller-volume reseller or distributor can still do well by providing significant added value to end customers, perhaps in a specialized area. And the smaller operator won't be disenfranchised by a volume system that rewards only total sales.

This sort of system, Kalyanam points out, is well suited to the high-tech industry, where products and services change rapidly and companies have to adapt quickly or die. Based on accounts in the media, other firms are following Cisco's lead.

"Rome wasn't built in a day, and Cisco didn't get there overnight," he says. "As the technology evolves, the model keeps changing, but the parameters have been put in place. It looks as if Cisco's approach is emerging as one of the industry standards." ■



SETTING THE STANDARD: Kirthi Kalyanam has just completed a paper on how Cisco Systems restructured its sales and distribution compensation in a way that is being widely emulated in the high-tech industry.



THE MEMORABLE IMAGE: Edward McQuarrie has been developing a classification system to help researchers look at the techniques and effectiveness of manipulated pictures in print advertising.

Getting the Picture

A New Vocabulary for Print Advertising Visuals

Would you want a team of French poodles pulling your dogsled across the Arctic wilderness? Of course not. That's why the Canadian magazine industry used that exact image in an ad: to make the point that for Canadian businesses, advertising in non-Canadian magazines would be just as silly.

The picture of the poodles with the dogsled is an example of visual rhetoric — playing with an image to make a point. In the past decade and a half use of this technique has grown rapidly, but research on its nature and effectiveness has lagged behind.

“For many years attempts to categorize advertising images were very primitive,” says Edward F. McQuarrie, professor of marketing in the Leavey School of Business. “Part of our argument is that pictures have been turned into visual figures of speech in an attempt to engage the reader’s eye in a cluttered, crowded, fast-paced media environment.”

McQuarrie and Barbara J. Phillips of the University of Saskatchewan have attempted to

categorize these new visual “figures of speech” so their use and effectiveness can better be studied in future research. Their paper, “Beyond Visual Metaphor: A New Typology of Visual Rhetoric in Advertising,” appeared in the journal *Marketing Theory*, in late 2004.

For most of its history, print advertising has been word-oriented, the idea being that a rational argument had to be made to influence a thoughtful consumer making a deliberate choice.

But in recent years, word counts in print advertising have plummeted and images have become more prominent and evocative. Advertisers in effect have been testing a new visual rhetoric without having much in the way of information about what worked and why.

“We’re drowning in ads and brands now,” McQuarrie notes. “A print ad needs salience, because the important thing is to catch the reader’s attention for that one extra second.”

McQuarrie and Phillips looked at hundreds of full-page magazine ads, and broke

their visual structure of the more rhetorical ads into three categories, each of which was in turn broken down into three sub-categories. The three categories are Juxtaposition (two side-by-side images); Fusion (two combined images); and Replacement (the image shown in the ad is intended to suggest a different, absent image to the viewer).

The French poodles pulling the dogsled were an example of a Replacement-Opposition ad, which is at the top of the scale in terms of richness and complexity. In order to make sense of it, the viewer must know what a dogsled is, that it usually is pulled by huskies, and that poodles are the exact opposite of the sort of working dog that would be good for that particular job.

By creating a vocabulary and structure to describe the kinds of visual rhetoric used in advertising, McQuarrie and Phillips hope to give other researchers a framework for determining which types of visual play work and why. Experiments along those lines might

“The picture has become the crucial element.”

Edward F. McQuarrie
Professor of Marketing,
Leavey School of Business

take the form of substituting other visual elements for the ones in the ads to see how consumers respond to ads with and without visual alteration.

“There’s been a sea change in the ecology linking advertisers to consumers,” McQuarrie said. “The picture has become the crucial element, making clever manipulations of it more important. We hope to have enabled researchers to determine what works in pictures and what can work better than what was done before.” ▶

A House Call for the Doctor

For Pharmaceutical Firms, Results Are Dramatic



THE PERSONAL TOUCH: Xioajing Dong's research has quantified that sales calls to individual physicians are more effective for pharmaceutical firms than mass-market approaches.

For some time now, pharmaceutical companies have made a considerable investment in face-to-face sales calls to physicians, reasoning that it's a good way to get their products better known and more widely prescribed.

Academic research so far has indicated that the technique is effective, but in a soon-to-be-published paper, Xioajing Dong, assistant professor of marketing in the business school, concludes that individual calls are far more effective than previously believed and has come up with a model to allow other businesses to calculate the impact of the practice in their field.

"The main point of the paper is that targeting at the individual level will bring more benefits, and that previous research has under-

estimated the benefits of this form of marketing," she says. "We believe it's a substantive contribution to the literature, and that it can be applied to other industries where the data exists to calculate the benefit."

Others in the field apparently agree. The paper, "Quantifying the Benefits of Individual Level Targeting in the Presence of Firm Strategic Behavior," has been accepted for publication in *Journal of Market Research*, and an earlier version (her doctoral dissertation) received the 2005 Alden G. Clayton Doctoral Dissertation Proposal Award, presented by the Marketing Science Institute.

Dong is lead author on the paper, along with two faculty advisors from the University of Chicago, Puneet Manchanda and Pradeep K. Chintaugunta. The advisors were in possession of

the data used in the paper, and she saw how it could be used to answer the questions she had about the effectiveness of marketing at the individual level.

The data consisted of detailed information regarding sales calls on physicians and prescriptions subsequently written for acid-reflux medications, such as Nexium, Prevacid, Aciphex and Protonix. It was compiled by a pharmaceutical market research firm, ImpactRx Inc., and consisted of a sample of 330 physicians, with 12 quarterly observations for each physician.

Beginning with that information, Dong set about to develop a model that would take into account the pharmaceutical firms' strategic behavior, specifically the targeting they were already doing and the actions and strategies of their competitors. The model factors in both physicians' response and pharmaceutical firms' decisions at the individual level, explicitly accounts for the actions of competitors, and documents the economic marginal cost of individual sales calls.

"It took about a year and a half to think about the model, play with it, and get it right," she notes. "We used game-theory concepts to simulate competitors trying to optimally maximize profits." It took another two years after that to update and fine-tune the dissertation paper for publication.

When the numbers were run through the model that was finally accepted, the results were striking. Previous studies had indicated that individual level targeting improved profitability by 5 percent over broader segment-level targeting (reaching physicians through groups and publications).

Dong's model showed that the average increase in profitability from individual targeting was 23 percent — nearly five times greater than previously believed. What's more, the marked profitability increase was consistent with all four brands surveyed.

"Our basic result — that ignoring firm strategic behavior underestimates the benefit of individual level targeting — is a leap forward in the understanding of this question," Dong observes. "We believe the findings are likely to generalize beyond the context of our application. ▶"

Remembering Tyzoon Tyebjee

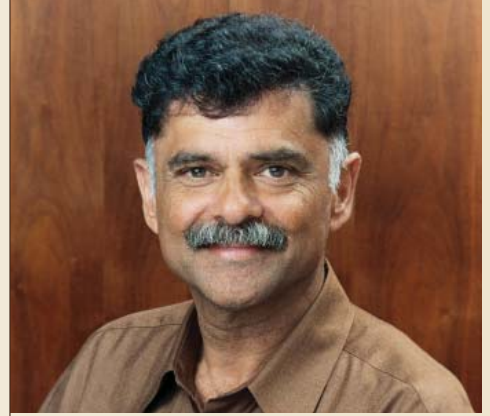
Santa Clara University Leavey School of Business lost a respected colleague, a trusted mentor, and a good friend when Professor Tyzoon Tyebjee, died of pulmonary fibrosis on April 9, 2008.

Tyzoon joined the SCU faculty in 1977 after having taught at The Wharton School and the University of California, Berkeley. His research interests were reflective of his natural curiosity, incorporating marketing strategy, public policy, cross-cultural marketing and entrepreneurship. He authored more than 50 articles many in top journals including *Harvard Business Review* and the *Journal of Marketing*, *Journal of Marketing Research*, and *Journal of Consumer Research*.

He was highly valued as a research partner, says Shelby McIntyre, co-chair of the Leavey School of Business marketing department. "Tyzoon always had an uncanny way of stating the problem in the most succinct way," McIntyre notes. "That statement typically became the kernel of the research and eventually the article that would come out of it."

Professor Tyebjee's teaching covered market strategies in technology and international markets, and he pioneered the Santa Clara course, "Bringing Technology to Market," using Silicon Valley organizations as his laboratory. He was a highly honored teacher and passionate about broadening the horizons of the typical business student. As founding faculty director of the International Business Program, he was a strong advocate of global study. He used his extensive connections throughout Silicon Valley to place students in internships between their junior and senior year as part of his service as faculty director of one of the school's honor programs.

Born in Bombay, India, Tyzoon received his undergraduate degree from the Indian Institute of Technology, Bombay in 1967. Tyzoon migrated to American for his master's degree in chemical engineering at the Illinois Institute of Technology.



From there he traveled to California, where he completed an MBA ('72) and a Ph.D. ('76) in marketing from UC. Berkeley. He had been at Santa Clara University for the past 30 years, serving as one of business school's best models of a teacher-scholar.

An avid traveler, river-rafter, bridge player, gourmand and raconteur, Tyzoon had friends around the world. A loving husband and devoted father, Tyzoon is survived by his wife Joyce, daughter Zia and son Saleh.

Notes of condolence and gifts to the Tyzoon Tyebjee Memorial Fund may be sent to the Leavey School of Business, c/o Dean's Office, Lucas Hall 124, Santa Clara University, 500 El Camino Real, Santa Clara, CA 95053. ▀

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