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the Future of Marketing

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Imagine that you have a high-tech tool that knows you well, your likes and dislikes and their relative importance for you. It is capable of acting as your agent and can search the whole world for the products and services that fit your needs and wants perfectly – without sharing your personal information with anyone else. Since our needs and wants change, this tool would also be able to adapt to those changes over time. Such a tool for consumers is part of the future envisioned by Ely Dahan, assistant professor of marketing at UCLA Anderson School of Management.

In perhaps another step toward this future, Dr. Dahan's current research features breakthrough techniques to help answer the most basic and most important of marketing questions: What do consumers want? Using new mathematical programming methods, Dr. Dahan and his colleagues, Olivier Toubia, Duncan Simester and John Hauser of MIT's Sloan School, developed Web-based analyses that provide accurate measures of consumer preferences with far fewer questions than are required using existing methods. This work brings together most of the major threads of Dr. Dahan's research interests, which include new product development, Internet-based market research, the economics of cost reduction and mass customization.

Recently, two of Dr. Dahan's studies with similar goals won recognition with two very different awards, one more theoretical and scholarly and the other more practical and applicable to the real world. First, Dr. Dahan received the John D.C. Little Award from the Institute for Operations Research and the Management Sciences (INFORMS) at its marketing science conference. Named for the first president of INFORMS, the award honors the best marketing paper published during the prior year in either of the academic journals Marketing Science or Management Science. The second honor given to him was the EXPLOR Award by the American Marketing Association (AMA) for the best practices in on-line market research at its annual marketing research conference. This award had finalists from Microsoft, AOL, Subway and Kraft, in addition to Dr. Dahan and his colleagues, John Hauser, James Orlin and Michael Yee at MIT.

To get the attention of these two very different groups, Dr. Dahan had focused his studies on one very simple idea: the attempt to quickly figure out what someone likes and even more importantly, why they like it. With this information, Dr. Dahan says that companies can create products exactly the way consumers want them and will know exactly how much to charge. However, it is not easy to find out what is in someone else's head.

"Unfortunately, most people hate completing the usual consumer surveys; it's a pain," explains Dr. Dahan. "So we combined computer capabilities with some very sophisticated math to create a way to get the same information in a few minutes that used to take 20 minutes and make people more willing to answer at the same time."

INFORMS Best Paper Award Research

At the heart of the work that won the INFORMS award, along with a new estimation procedure, is a new method of designing more clever questions for surveys. Using a process of elimination with high-speed computations, it is more efficient at getting the needed information by narrowing the appropriate choices for an individual as rapidly as possible. Called adaptive questioning or testing, the system decides what question to ask next or what option to show next, based on the previous answers or responses given by the individual taking the survey. Hundreds of thousands of options can be considered in under a second, but more importantly, people are only offered options that reveal the most additional insight about their preferences.

Though it had not been applied to marketing problems before, a somewhat similar process is already in use for standardized testing, such as with the computerized SAT or GMAT. In the computerized version, no two students take the identical SAT exam, because the computer "learns" each student's level of competence based on his or her answers and adjusts the questions accordingly. Dr. Dahan compares his adaptive method for market research to working with a really good sales person who gets to know you by listening very carefully to what you have to say. So, he or she doesn't waste your time with things you will hate and only offers you the two or three things that will make you the happiest.

"In standard market research, everyone is asked the same set of questions, which is why, whether you know it or not, you don't like taking the surveys. You are actually getting frustrated, angry, tired and bored. It's called respondent fatigue," says Dr. Dahan. "Our new method is not only fast, but gives you the satisfaction of feeling like it is making progress honing in on what you like."

While it would not be needed for ordinary decisions, Dr. Dahan says the technique would be useful for any difficult choice with many options that ultimately requires trade-offs to resolve. He has used the technique for some of his personal life choices and found it made the right decision clear to him and revealed what he needed to give up to achieve it. Some of the decisions he thinks it may be useful for include choosing a new job and finding a new home. He is also intrigued by its possibilities for dating and picking a spouse.

Obviously, there are many business decisions in this complex global marketplace that could benefit from its use. Dr. Dahan cites the example of a company choosing what to offer as a bonus to their employees: cash, stock or stock options. At first, it seems that should be an easy choice, because each is simply a different form of money, the value of which can be easily computed. However, every employee is different, and his or her personal circumstances and tolerance for risk dictate the value placed on each possibility. While some employees assess an option or share of stock at its full market value, others, taking into account the delays due to vesting or the riskiness of the investment, may discount its value greatly. As a result, some might consider $10 in stock options as worth only 10 cents to them. The company wants to know, because the point of giving the bonus is to reward employees and to provide incentives. Measuring employees' preferences for these forms of bonus helps achieve that goal and saves the company money.

American Marketing Association Award Research

For the AMA award, Dr. Dahan's research group looked at the way people chose between smart-phones from several manufacturers, which may include e-mail and Web capabilities, compatibility with various cellular networks, mini-keyboards, and multiple sizes and form factors. The survey respondents were divided into two groups, one half was asked to rank all 32 smart-phone possibilities, and the other half was asked to pick and rank only the few they liked. To illustrate how tough a task the first group had, Dr. Dahan explains that there are a billion, billion, billion, billion ways to rank 32 smart-phones. That is a one with 35 zeros behind it. Respondents can make mistakes due to fatigue when faced with such a daunting chore. Dr. Dahan offered bribes (actually a one in 10 chance of winning $100) to his MBA students to get them to complete the survey, but he believes many did it out of loyalty to him and their other professors.

A marketing survey should find out what makes people like one smart-phone option and not another. Dr. Dahan says that asking directly is not always effective, because people can bias their answers to please the questioner or for social reasons. It is important to know how much each item matters and how people trade off between them. With a new computer technique, Dr. Dahan can identify which of the enormous number of possible process of elimination individuals use to simplify their choices. By using adaptive ranking, with options that are not consistent with the respondent's preferences disappearing off the screen automatically, the system emphasizes their likes and guides them toward consistent answers, decreasing the number of fatigue-related mistakes with a 50 to 75 percent reduction of effort.

"From a marketing standpoint, it would be considered better to get a ranking of all 32 smart-phones to have the best possible information. However, our study showed that the responses of both groups actually gave about the same amount of information," says Dr. Dahan. "It was just a matter of how the data was looked at. If you understand someone's process of elimination, you can infer how he or she would have ranked all 32 smart-phones."

The information resulting from this study can tell a company how to position a product for success, but there are certainly important implications for market research in general. Since this approach has never been tried before, the proof of this new idea is a real breakthrough for all marketers. They can now learn what they need to know with just a few clicks of a mouse from each respondent, greatly improving their chances of getting people to take their surveys and giving them the information they need.

Game Playing for Market Research

Dr. Dahan has also successfully turned marketing surveys into games, based on stock market trading, to make the process more enjoyable for participants. People don't like taking surveys, but they do like playing games. Dr. Dahan has used this technique 20 to 30 times and especially likes it for getting consumer reactions to new product ideas, yielding low-cost insights about the traders' preferences. Players don't trade stocks; they buy and sell different product concepts and features. The games have focused on ski resorts, crossover vehicles, laptop bags, smart-phones and many other product categories, mirroring results found through much more labor-intensive standard market research.

In addition to the fun factor, the games also put some distance between the players and their answers. Many people are concerned about preserving their privacy and will reveal much more when they feel the answers are not about them personally. In Dr. Dahan's games, the buyers' and sellers' opinions contain the answers marketers are looking for. As an example, Dr. Dahan notes that if MBA students are asked how important salary is to their choice of a job, they usually rank it at about seventh or eighth on their list. However, when the information is part of a game and is perceived as not about them but about what they believe others think, it climbs up on the list.

Teaching, Experience and Going Forward

Much of Dr. Dahan's research supports and enriches his work in the classroom. He teaches market assessment and new product development to students in the MBA and fully employed MBA (FEMBA) programs at UCLA Anderson. In 2004, he was honored with the Dean George Robbins Best Assistant Professor Teaching Award.

Dr. Dahan's work experience prior to his academic career also broadens his perspective for teaching and research. He was national product manager for two corporations, doubling sales for his last firm. Then, he founded a computer networking company and, serving as chief executive officer, managed a decade of 16 percent annual growth until the company was acquired in 1993. He is currently a consultant on Web-based market research in the pharmaceutical and durable goods industries.

With a background that is a blend of rigorous academic and real world experience, Dr. Dahan is in a unique position to help move marketing practice forward. Until we have that high-tech tool to do it all for us, he will continue to pioneer faster, easier and better

ways to learn what we all want as consumers. With this understanding, business will be able to create the right products and services to satisfy the needs and wants of everyone.