

BusinessWeek

MARKET RESEARCH October 8, 2007, 1:57PM EST

This Is Your Brain on Advertising

Neuromarketers use sophisticated brain-imaging technology to test consumer response and help clients fine-tune their strategies

by [Amber Haq](#)

Do you ever get the creepy feeling that advertisers know how to put a lump in your throat, inspire subconscious brand loyalty, or make your mouth water? Just wait: It could get worse. An emerging technique called neuromarketing that uses brain scans to measure human response to promotional messages is starting to catch on in Europe—and soon ads may become even more effective at prompting you to pull out your wallet.

Orwellian, perhaps. But for companies looking to fine-tune their promotions and boost sales, neuromarketing offers the enticing prospect of a quantitative way to test the subconscious effectiveness of ads, jingles, and logos before spending big bucks on media placements. That's a godsend for marketers wary of the sometimes unreliable results of focus groups and other field testing.

WHAT LIGHTS YOU UP?

Neuromarketing uses state-of-the-art technologies such as functional magnetic resonance imaging (fMRI), magnetoencephalography, and more conventional electroencephalograms (EEGs) to observe which areas of the brain "light up" when test subjects view, hear, or even smell products or promos. The activity of regions such as the nucleus accumbens, insula, and mesial prefrontal cortex give researchers insight into how consumers respond to specific stimuli.

"Emotions cannot necessarily be accurately described," says Gemma Calvert, head of the Multisensory Research Group at Britain's University of Bath and director of neuromarketing consultancy Neurosense in Oxford, England. Using brain scans, she says, "We can see the discrepancy between what you say and what your brain says, and reduce the margin of error."

That's what attracted Viacom Brand Solutions to experiment with neuromarketing. The London-based Viacom ([VIA](#)) subsidiary, which sells ads on the entertainment giant's channels including MTV, VH1, Nickelodeon, Paramount Comedy, and E! Channel in Great Britain and Ireland, engaged Neurosense to measure the response of 18- to 30-year-old viewers to ads interspersed into episodes of cartoon comedy *South Park*. The two dozen subjects each spent an hour inside an fMRI scanner watching four programs while their brain activity was measured.

THE IMPORTANCE OF PLACEMENT

The result? Advertisements for popular "alcopop" vodka beverage WKD from Torquay, England-based [Beverage Brands](#) elicited vigorous brain responses, while ads for the Red Cross and reliable old [Tetley](#) tea produced much less reaction. The takeaway, says Calvert, is that ads "congruent" with their environment outperform those that are "incongruent."

Viacom Brand Solutions is convinced. Agostino di Falco, the company's director of research and insight, says the

study fundamentally changes the way advertisers should be thinking. Marketers, he says, must consider more than ever the viewing context of each ad. He spent less than \$200,000 on a study that will yield long-term revenue opportunities—and he is now working with top clients, including Nike ([NKE](#)), Wrigley ([WWY](#)), and Colgate-Palmolive ([CL](#)), to incorporate the findings into their campaigns.

The opportunity to help companies scientifically improve their marketing programs has spurred neuromarketing consultancies to set up shop all over Europe. In addition to Neurosense, there's also Vienna-based Neuroconsult as well as Neuroco, located near London. Some firms, such as Belgium's Neuromarketing.be, Paris-based Impact Mémoires, and London-based [PhD Media](#), a division of Omnicom ([OMC](#)), don't use brain scanning but apply cognitive science techniques to study advertising effectiveness. Among them, they've managed to snare clients such as Unilever ([UL](#)), Nestlé ([NESN.DE](#)), Proctor & Gamble ([PG](#)), DaimlerChrysler ([DAI](#)), LVMH ([LVMH.PA](#)), L'Oréal ([OREP.PA](#)), and film studio 20th Century Fox ([NWS](#)), which are probing how consumers respond to everything from scents to movie trailers.

ICE CREAM WINS OVER CHOCOLATE

Unilever, for instance, teamed up with Neuroconsult to test how consumers felt about its top-selling Eskimo ice cream bars. Turns out—perhaps not surprisingly—that ice cream provokes even greater visceral pleasure than eating chocolate or yogurt. Perhaps more informative was a \$120,000 study conducted by Neuroco for 20th Century Fox that used EEGs and eye-movement tracking to test the response to ads inserted into a videogame. (In fact, brain scans are increasingly being used to [test the responses](#) (BusinessWeek.com, 10/3/07) of videogame players.)

Viewing a "walkabout" simulation of Paris, subjects were exposed to billboards for films including *Ice Age 2* and *In Her Shoes* during their virtual strolling. With a click of a mouse, Fox was able to switch from one campaign to another, testing how consumers reacted both to the content and placement of outdoor media—including whether ads arrested the eye and engaged attention better on billboards, the sides of buses, or on bus stop shelters. Fox even tested whether ads performed better when they were illuminated. One key finding: Saturation campaigns produce diminishing returns.

"There is no way we could have gotten this kind of actionable information from traditional research approaches," says Melissa Mullen, the director of research for Fox's international theatrical division, who aims to apply the results to Fox's multimillion-dollar ad campaigns. Fox also is using neuromarketing to test the effectiveness of movie trailers.

BIG BROTHER FEARS

No question, neuromarketing has its doubters. Graham Page, head of innovation at [Millward Brown](#), a branch of advertising giant WPP ([WPP.L](#)) specializing in brand management and research, questions how much value the technology adds to existing research methods. "There are clear implications for marketers," he says, "but the science is confirming what we know or can find out from standard customer and market research techniques."

Some marketers also worry about the Big Brother implications—and, indeed, many companies experimenting with neuromarketing prefer to stay below the radar. Martin Lindstrom, brand futurist and co-founder of BBDO Interactive Europe (a unit of Omnicom), concedes that some CEOs have been concerned about having their brands associated with brain manipulation. But in defense of the field he notes, "Observing brain activity and setting up models for behavior is not the same as forcing a brain into making a consumption decision." Lindstrom will publish a book next year, tentatively titled *BrandScan*, that charts the brain response of consumers in the U.S., Britain, Germany, Australia, China, and Japan to seven of the world's largest brands.

There's plenty of anecdotal evidence to support neuromarketing's potential. In one compelling study, Oxford's

Neurosense linked up with GMTV ([ITV.L](#)), Britain's largest breakfast-time TV station, to assess viewers' response to advertising at different times of the day. Neurosense scanned the brains of 200 TV viewers over six weeks, monitoring activity in neural networks associated with attention, concentration, short- and long-term memory, and positive emotional engagement. The finding was that morning advertising scored better on all counts compared to night viewing. Prime time, it appears, isn't so prime after all.

COGNITIVE RESEARCH

Even cognitive research that eschews brain scans is scoring intriguing results. For legal reasons, French marketers don't have ready access to fMRI and EEG devices, which are classified as medical equipment. But consultancy Impact Mémoires, founded in 2001 by advertising executive Bruno Poyet and neuroscientists Olivier Koenig and Bernard Croisile, has developed a diagnostic tool called the "IM Index" that uses 200 questions to assess perception, attention, unconscious impact, and emotion. The resulting score indicates the efficacy of a given advertising message.

Impact Mémoires has done work for Gaz de France ([GAZ.PA](#)), Renault ([RENA.PA](#)), Peugeot ([PEUP.PA](#)), and dozens of other French corporations. "We are able to predict what consumers will experience, and from there whether there are positive or negatives consequences," says Poyet. "Will the consumer want to buy this product; will she or he feel a greater loyalty to the brand?"

The techniques helped Christian Dior ([DIOR.PA](#)) test everything from music and colors to ad placement and context before launching a high-stakes campaign for perfume J'Adore featuring Charlize Theron. Although the company is mum on what it learned from Impact Mémoires—and whether it modified the ads as a result—J'Adore has been one of the most successful launches at Christian Dior in many years.

PREDICTING SUCCESS

Beyond testing consumer reaction to marketing, can brain scans actually predict what people will buy? That's the intriguing premise of a highly publicized study this year by Brian Knutson, an assistant professor in the psychology department at Stanford University, and four colleagues. Knutson and his team studied neural pathways in the brain related to reward and loss, and were able to demonstrate the sequence of brain activity that precedes a decision to buy (or not to buy) something. Having established the steps, the researchers could then forecast whether test subjects would buy other items by monitoring their brain patterns.

Some experts are impressed at the breakthrough. "The study was a paradigm shift, a move from observation into prediction," says neuroscientist Olivier Oullier at the University of Provence-CNRS and the Center for Complex Systems & Brain Sciences at Florida Atlantic University.

As more researchers and advertisers dip their toes into neuromarketing, there's no doubt the techniques will mature further and become more widely used. True, some consumers may resent feeling manipulated. But others won't notice or care—and may enjoy the sense that ads speak to them in a more profound and personal way. Welcome to the era in which the client's brain, not just heart, rules the roost.

Haq writes for BusinessWeek.com from Paris .

Xerox Color. It makes business sense.

The McGraw-Hill Companies