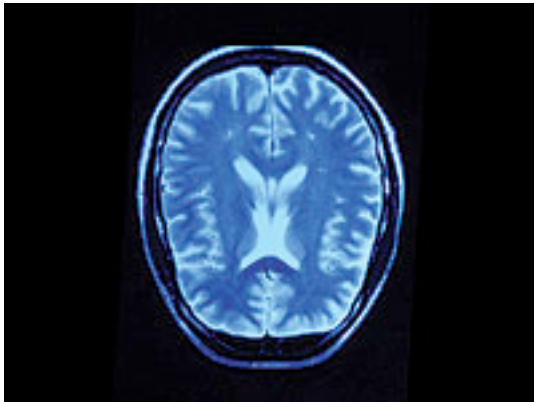


Going Mental

by Joe Mandese, April 2008 issue

Advances in neurological research can put advertisers right in consumers' heads

Mike Hess spends many of his waking hours poking around inside people's heads to find out what makes the average consumer tick. As director of global research at OMD, the biggest buyer of media in the U.S., Hess is responsible for understanding when, where and why hundreds of millions of American consumers use media, and perhaps even more important, when their minds are most receptive to the ad messages of his clients - giant marketers like Pepsi, GE and McDonald's - who spend billions each year in the hope that their messages are seen, remembered and acted upon.



Hess, in turn, spends millions of dollars each year on proprietary research to understand why one message is effective and another is not. It seems an endless quest. But science is bringing us closer than ever to the answers.

Recently, Hess had the research-lab tables turned on him, becoming the guinea pig whose brain was probed by researchers. The results of those probes were rendered in a series of squiggly lines, illustrating Hess' neurological responses to an experiment in which he, a high-level group of industry executives, and one reporter, participated in preparation for a meeting to show and discuss their results last October. The meeting, held in a lecture room of the Harvard Business School, was hosted by four leading research organizations that are trying to figure out how to apply the fledgling field of neuroscience to media and marketing research, and to find out whether biometric technologies that map the brain's responses to media stimuli can be used the way Madison Avenue has used conventional forms of audience research like Nielsen's TV ratings.

In fact, the field is so promising that Nielsen itself is jumping into it. The media research giant recently acquired NeuroFocus, a Berkeley, CA.-based firm that is beginning to apply neuroscience to advertising research. The concept is not new. Media researchers have sought to draw a connection between physiological responses and the way the human brain processes information since the earliest days of the business. In fact, they even had some fairly crude metrics: One of the earliest was called "flushometer," a phenomenon that occurred during the Golden Age of television,

when public utilities reported a pronounced drop in water pressure during commercial breaks of prime-time TV shows. The drop was attributed to bathroom breaks, marking the earliest known proof of commercial zapping. Over the years, TV researchers experimented with everything from "whoopie cushions" that could sense a viewer's presence on a couch in front of a television set to going so far as connecting people to electrodes to gauge their responses to programming.

What's changed is that the science has improved greatly in recent years - both the technology of measuring biometric responses and the industry's understanding of how to interpret neurological responses.

The Men in the White Coats

During an Advertising Research Foundation conference nearly 10 years ago, Starcom MediaVest Group research chief Kate Sirkin presented one of the earliest known applications of neuroscience technology to media research. Sirkin's experiment involved hooking up consumers to brainwave technology developed by NASA to see how they reacted to TV programming and advertising. Sirkin showed a viewer's brainwave pattern in response to an episode of NBC's Seinfeld, showing peaks and valleys in brain activity. The waves spiked when characters in the show mentioned "Hitler," but Sirkin said it was unclear how to read those responses other than to know that a viewer's brain activity had peaked or ebbed.

Science has come a long way since then: Researchers now know precisely how to read fluctuations in a person's brainwave activity, and how to apply those insights.

"Every time a person thinks, laughs or cries throughout the day, their brain is continuously producing electric signals. That's how the brain communicates," says **Dr. A.K. Pradeep, president and CEO of NeuroFocus**, the neuroscience research company recently acquired by Nielsen. Pradeep says each of those electric signals corresponds to a discrete brain function, and it's possible to map those frequencies to understand precisely how someone is thinking.

NeuroFocus' technology, for example, produces between 64 and 128 squiggly lines of brainwave activity that correlate to specific brain activities, which can be analyzed millisecond by millisecond to determine whether a person is paying attention, what they are paying attention to, the depth of their "emotional engagement," and whether the brain stores the information as long-term memory in a way that might provoke a response later.

Such capabilities, Pradeep says, actually came from research into a variety of mental disorders. Knowledge of the way the brain processes attention, for example, came from research into attention deficit disorder (ADD) and attention deficit hyperactivity disorder (ADHD). Knowledge about how the brain functions during emotional engagement comes from mania, phobia and epilepsy research. How the brain processes long-term memories comes from studying diseases such as Alzheimer's.

Armed with an understanding of these physiological measures of brain activity, Pradeep says, researchers can apply what he calls "derived measures," things that would enable media planners to understand how likely someone is to actually purchase

a product or brand whose ad message they are exposed to. By augmenting their brainwave research with eye-tracking technologies, they can pinpoint exactly what someone was looking at and when they were looking at it.

Bunch of Brainiacs

What social research was to advertising and media 50 years ago, neurological research promises to be for the next half century. If there was something that triggered that sort of brain activity on Madison Avenue, it came three years ago, when Harvard Business School professor Gerald Zaltman gave a keynote at an Advertising Research Foundation event. Zaltman, author of the book *How Customers Think*, was a business management professor who took a deep dive into the field of neuroscience and developed some interesting applications for the world of media and marketing. Some of his thinking has been used to inform Madison Avenue's so-called engagement initiative.

By mapping and understanding how the brain responds to advertising and media stimuli, he suggested, researchers would have empirical knowledge about what kinds of advertising and media content were most engaging to consumers. Because the brain - and how it remembers things - is malleable, Zaltman says, it's not possible to use a map of someone's thought processes to create rules of thumb. Rather, researchers must use the information to understand how people "coauthor" messages. In other words, people don't just passively absorb and process information, but react to it, append it and make the content their own. And depending on when and where they are exposed to it, the content could be processed very differently.

Zaltman has since sought to formalize the practice of using neuroscience in consumer research, and formed Cambridge, Mass.-based Olson Zaltman Associates, one of the research and consulting firms that hosted the ad industry executives at the summit last October. The other firms were Innerscope, which has developed biometric technologies for measuring brain activity, OTX and Sequent Partners.

As part of the project, researchers gave attendees a homework assignment that would be used later to gauge their brain activity: Select five images that evoked a sense of "engagement." Each was then asked to use those images to create a digital "collage" - a master image that comprised all five individual images - while being interviewed, and prompted to pick the images, by an Olson Zaltman analyst. During the process, each respondent was hooked up to Innerscope's scanner technology, which consisted of an array of electrodes connected to the fingertips and chest, while wearing a skintight black vest.

Weeks later, the respondents assembled in the Harvard Business School lecture room, where their collages were push-pinned side-by-side on a wall for the industry executives to inspect each other's handiwork and guess whose images were whose.

The central theme of OMD's Hess' collage was an illustration of a castle being defended from attacking soldiers. Asked why he selected the image, Hess explained. "I see that as the consumer consciously being defended."

Much of the rest of the discussion digressed into a circular debate about definitions of engagement, and the group actually spent little time analyzing the squiggly lines generated by the participants' brains during their homework assignments. Perhaps the industry executives simply felt too uncomfortable having their own brain activity on public display. Or maybe they didn't know how to interpret what it meant. But instead of analyzing the differences between them, they debated whether it was possible to develop a "magic matrix" that could be used to determine when a consumer's brain activity showed them to be engaged with and disposed toward a brand and its advertising message.

Alice Sylvester, a researcher at ad agency Draftfcb, suggested that the more simply such a matrix were constructed, the greater its utility would be in the real world of media planning and advertising decisions. Something as straightforward as three columns and four rows would be ideal, she said, emphasizing, "I need three answers in four buckets."

Unfortunately, when it comes to understanding how the brain works, such simplicity may never be feasible. Zaltman's research shows that memory is malleable and that someone may react differently to the same information at different times. That makes Madison Avenue's magic matrix, or a simple rule of thumb, highly unlikely.

A Sporting Chance

On the other hand, neuroscience does promise to augment the more nuanced areas of advertising research - softer, attitudinal studies like the agency world's famed focus groups - with much more efficient, scientific methods. And NeuroFocus' Pradeep thinks it ultimately can establish patterns that allow agencies and marketers to target their advertising and media buys more effectively, too.

"If you are doing typical survey research with 2,000 respondents, neuroscience will allow you to get it down to 200 people," he claims, adding that the "cycle time" - the time in which ad executives can apply the insights gleaned from such research - would also be greatly reduced. How? Pradeep says that while we are all individuals, there are patterns of brainwave activity are common among like groups of people, and that by identifying, understanding and cataloging those patterns, the industry can vastly improve the planning, production and execution of advertising, media buys, even television programming.

"Are we at the point where we can know that if an ad is presented to Joe in such a way, Joe's mind will look at it in that way? No. But Joe as a human being shares phenomenal amounts of characteristics about what he will pay attention to, what will engage him, and what he will remember and be persuaded by," Pradeep asserts.

The concept is not theoretical, he notes. Neuroscience researchers have already begun applying it with some startling results. NeuroFocus, for example, worked with sports network ESPN to analyze how sponsorships might most effectively be placed and scheduled within its pre-game baseball coverage. Typically, he says, networks will flash logos on the sports desks with a wide array of treatments that might appear cluttered to a viewer. But ESPN prides itself on having a cleaner, less cluttered approach, and the network's executives wanted to know how viewers perceived the difference between it and its competitors.

NeuroFocus tested different versions of sponsorships on the ESPN pre-game shows, some featuring eight sponsor references, and some featuring 10, to learn how they affected the brain activity of viewers, second by second. Based on the feedback, ESPN has changed the way it produces the shows and plans to relaunch and retest them.

Some of the fixes are simple, and might seem intuitive. For example, the research showed that when a sponsor's name is mentioned both visually and audibly, the two references should be synchronized at the same time to achieve a greater effect. Moving graphics, such as a sponsor's logo, should move at a speed - 2 to 4 megahertz - that is most optimum for the human brain to process.

"A lot of this is common sense," says Peter Leinbach, vice president of multimedia sales research at ESPN. "Now we have a tool to measure it." Most significantly, Leinbach says the research validates a long-held, but so far unproven aspect of the underlying model for TV sports sponsorships.

"It answers the age-old question that has plagued so many people for so long," Leinbach explains. "We always knew that viewers accepted that sponsors of sports programming would be integrated into the telecasts. Now we can gauge the effectiveness of that."