Using M.R.I.'s to See Politics on the Brain

By JOHN TIERNEY

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LOS ANGELES, April 16 — The political consultants discreetly observed from the next room as their subject watched the campaign commercials. But in this political experiment, unlike the usual ones, the subject did not respond by turning a dial or discussing his reactions with a focus group.

He lay inside an M.R.I. machine, watching commercials playing on the inside of his goggles as neuroscientists from the University of California, Los Angeles, measured the blood flow in his brain. Instead of asking the subject, John Graham, a Democratic voter, what he thought of the use of Sept. 11 images in a Bush campaign commercial, the researchers noted which parts of Mr. Graham's brain were active as he watched. The active parts, they also noted, were different from the parts that had lighted up in earlier tests with Republican brains.

The researchers do not claim to have figured out either party's brain yet, since they have not finished this experiment. But they have already noticed intriguing patterns in how Democrats and Republicans look at candidates.

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They have tested 11 subjects and say they need to test twice that many to confirm the trend.

"These new tools could help us someday be less reliant on clichés and unproven adages," said Tom Freedman, a strategist in the 1996 Clinton campaign, later a White House aide and now a sponsor of the research. "They'll help put a bit more science in political science."

In the experiment with Mr. Graham, researchers exposed him to photographs of the presidential candidates, commercials for President Bush and John Kerry, and other video images, including the "Daisy" commercial from 1964. In that advertisement, promoting Lyndon B. Johnson against Barry Goldwater, images of a girl picking petals from a daisy were replaced by images of a nuclear explosion.

When Mr. Graham emerged from his hourlong session in the magnetic resonance imaging machine, the researchers had no questions for him, but he did field an old-fashioned one from a reporter wondering what had most impressed him. He cited two images: the Sept. 11 segment of the Bush commercial and the nuclear explosion that the "Daisy" advertisement suggested would be a consequence of electing Mr. Goldwater.

"I was shocked at how much political capital Bush is trying to make out of 9/11," Mr. Graham said. "But I found it kind of interesting that Johnson was using the same kind of technique against a Republican."

The researchers had already zeroed in on those images and their effect among Democrats on the part of the brain that responds to threats and danger, the amygdala. Mr. Graham, like other Democrats tested so far, reacted to the Sept. 11 images with noticeably more activity in the amygdala than did the Republicans, said the lead researcher, Marco Iacoboni, an associate professor at the U.C.L.A. Neuropsychiatric Institute who directs a laboratory at the Ahmanson Lovelace Brain Mapping Center there.

"The first interpretation that occurred to me," Professor Iacoboni said, "is that the Democrats see the 9/11 issue as a good way for Bush to get re-elected, and they experience that as a threat."

But then the researchers noted that same spike in amygdala activity when the Democrats watched the nuclear explosion in the "Daisy" spot, which promoted a Democrat.

Mr. Freedman suggested another interpretation based on his political

experience: the theory that Democrats are generally more alarmed by any use of force than Republicans are. For now, Professor Iacoboni leans toward this second interpretation, though he is withholding judgment until the experiment is over.

Mr. Freedman and William Knapp, a strategist with both Clinton presidential campaigns and the Gore campaign in 2000, turned to this technology after consulting with Mr. Freedman's brother, Dr. Joshua Freedman, an assistant professor of psychiatry at U.C.L.A., who was less than impressed by the methodology of political consultants.

"It seemed so last century," Professor Freedman said. "Consultants were quoting Freud as if it was cutting edge. It was all about interpretation instead of using new technology to measure what's actually happening in the mind."

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Professor Freedman and the two political consultants formed a company, FKF Research, and provided a grant for an experiment led by Professor Iacoboni, a neuroscientist known for his work mapping parts of the brain activated when people empathize with others. He, Professor Freedman and a U.C.L.A. colleague, Jonas Kaplan, plan to publish the results in a scientific journal.

"In the past decade we've built up all this knowledge of how the brain works," Professor Iacoboni said, "and now it's exciting that we can finally start applying it to social issues."

One of the most striking results so far is the way subjects react to candidates after seeing a campaign commercial. At the start of the session, when they look at photographs of Mr. Bush, Mr. Kerry and Ralph Nader, subjects from both parties tend to show emotional reactions to all the candidates, indicated in the ventromedial prefrontal cortex, an area of the brain associated with reflexive reactions.

But then, after the Bush campaign commercial

Monica Almeida/The New York Times

Jonas Kaplan, a researcher, with a test subject, John Graham, before an M.R.I. The study is examining Democrats and Republicans to understand the brain's response to political images.

is shown, the subjects respond in a partisan fashion when the photographs are shown again. They still respond emotionally to the candidate of their party, but when they see the other party's candidate, there is more activity in the rational part of the brain, the dorsolateral prefrontal cortex. "It seems as if they're really identifying with their own candidate, whereas when they see the opponent, they're using their rational apparatus to argue against him," Professor Iacoboni said.

The neuroscientists warned against drawing conclusions until the experiment was over. They said the results would mainly point the way for future research, and other neuroscientists echoed their caution.

"Brain imaging offers a fantastic opportunity to study how people respond to political information," said Jonathan D. Cohen, director of the Center for the Study of Brain, Mind and Behavior at Princeton. "But the results of such studies are often complex, and it is important to resist the temptation to read into them what we may wish to believe, before our conclusions have been adequately tested."

Shanto Iyengar, director of the Political Communication Lab at Stanford, said there were so many kinds of images and other stimuli in a political commercial that it was notoriously difficult for any kind of research to pinpoint effects. But Professor Iyengar said the M.R.I. technology offered a promising tool.

"Academic research in political science into the effects of campaign advertising is 90 percent bogus, relying as it does on self-reported exposure to a multitude of disparate messages and images," he said. "Any efforts to isolate viewers' actual responses to ads — be they neurological, verbal or behavioral — is a step in the right direction."

Though new to political advertising, brain imaging has been used to analyze other kinds of reactions to commercials, both by "neuromarketers" selling services to corporations and by academic researchers like Read Montague, who has studied brain responses to soft-drink advertising. He said research like Professor Iacoboni's could help expose manipulative techniques during political campaigns.

"This research can show how a candidate is unfairly targeting the weaknesses and foibles of voters, and that can be empowering," said Professor Montague, director of the Human Neuroimaging Laboratory at the Baylor College of Medicine.

Of course, political consultants could also use this technology to create more manipulative commercials, though Mr. Freedman and Mr. Knapp say they do not hope for partisan advantage from their research.

"We just want to start exploring this new frontier," Mr. Knapp said. "We know we can't rely just on what people say in polls and focus groups. They tell us over and over that they hate negative advertising, but we know they respond to it. It would be nice to figure out what's actually going on inside their heads."

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