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This Is Your Brain on Politics

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IN anticipation of the 2008 presidential election, we used functional magnetic resonance imaging to watch the brains of a group of swing voters as they responded to the leading presidential candidates. Our results reveal some voter impressions on which this election may well turn.

Our 20 subjects — registered voters who stated that they were open to choosing a candidate from either party next November — included 10 men and 10 women. In late summer, we asked them to answer a list of questions about their political preferences, then observed their brain activity for nearly an hour in the scanner at the Ahmanson Lovelace Brain Mapping Center at the University of California, Los Angeles. Afterward, each subject filled out a second questionnaire.

While in the scanner, the subjects viewed political pictures through a pair of special goggles; first a series of still photos of each candidate was presented in random order, then video excerpts from speeches. Then we showed them the set of still photos again. On the before and after questionnaires, subjects were asked to rate the candidates on the kind of 0-10 thermometer scale frequently used in polling, ranging from “very unfavorable” to “very favorable.”

We then compared the questionnaire responses with the brain data, and here's what we found:

1. Voters sense both peril and promise in party brands. When we showed subjects the words “Democrat,” “Republican” and “independent,” they exhibited high levels of activity in the part of the brain called the amygdala, indicating anxiety. The two areas in the brain associated with anxiety and disgust — the amygdala and the insula — were especially active when men viewed “Republican.” But all three labels also elicited some activity in the brain area associated with reward, the ventral striatum, as well as other regions related to desire and feeling connected. There was only one exception: men showed little response, positive or negative, when viewing “independent.”

2. Emotions about Hillary Clinton are mixed. Voters who rated Mrs. Clinton unfavorably on their questionnaire appeared not entirely comfortable with their assessment. When viewing images of her, these voters exhibited significant activity in the anterior cingulate cortex, an emotional center of the brain that is aroused when a person feels compelled to act in two different ways but must choose one. It looked as if they were battling unacknowledged impulses to like Mrs. Clinton.

Subjects who rated her more favorably, in contrast, showed very little activity in this brain area when they viewed pictures of her.

This phenomenon, not found for any other candidate, suggests that Mrs. Clinton may be able to gather support from some swing voters who oppose her if she manages to soften their negative responses to her. But she may be vulnerable to attacks that seek to reinforce those negative associations.

3. Hillary Clinton and Rudy Giuliani are on opposite sides of the gender divide. We found indications that Mrs. Clinton and Mr. Giuliani represent two

sides of the same coin: Men show little interest in Mrs. Clinton initially but after watching her video they react positively. Women respond to her strongly at first, but their interest wanes after they watch her video.

With Mr. Giuliani, the reactions are reversed. Men respond strongly to his initial still photos, but this fades after they see his video. Women grow more engaged after watching his video.

This is evidence that swing voters' responses change when they see these two candidates in action. For men, Mrs. Clinton is a pleasant surprise. For women, Mr. Giuliani has unexpected appeal.

4. The gender gap may be closing. In recent presidential elections, Democrats have done better with female voters, while Republicans have appealed more to men. So far this time, male swing voters seem to be looking more closely at the Democrats. After viewing all the candidate videos, our male subjects, when viewing still photos of the Democrats, showed significantly higher activity in the medial orbital prefrontal cortex, an area that is activated by rewarding stimuli, than they did while looking at pictures of the Republicans.

Women did not display such a one-party skew, but rather tended to react to individual candidates. So the traditional gender pattern of party preference may not be as prominent this year, particularly among men, and that may be good news for Democrats.

5. Mitt Romney shows potential. Of all the candidates' speech excerpts, Mr. Romney's sparked the greatest amount of brain activity, especially among the men we observed. His still photos prompted a significant amount of activity in the amygdala, indicating voter anxiety, but when the subjects saw him and heard his video, their anxiety died down. Perhaps voters will become more comfortable with Mr. Romney as they see more of him.

6. In Rudy Giuliani versus Fred Thompson, the latter evokes more empathy. There is much discussion this year about “authenticity,” as politicians strive to be credible and real. On this front, Mr. Thompson may have an advantage over Mr. Giuliani. When our subjects viewed photos of Mr. Thompson, we saw activity in the superior temporal sulcus and the inferior frontal cortex, both areas involved in empathy. When subjects viewed photos of Mr. Giuliani, these areas were relatively quiet.

Our subjects also exhibited a much stronger empathetic response to a minute-long excerpt from a stump speech by Mr. Thompson than they did to an excerpt of a Giuliani speech. This connectedness toward Mr. Thompson did not show up in the swing voters’ answers on the questionnaires, but it suggests that if swing voters see more of both candidates, Mr. Thompson may gain an advantage over Mr. Giuliani.

7. John Edwards has promise — and a problem. When looking at pictures of Mr. Edwards, subjects who had rated him low on the thermometer scale showed activity in the insula, an area associated with disgust and other negative feelings. This suggests that swing voters’ negative emotions toward Mr. Edwards can be quite powerful.

The good news for Mr. Edwards is that the swing voters who did not give him low ratings, when looking at still photos of him, showed significant activation in areas of the brain containing mirror neurons — cells that are activated when people feel empathy. And that suggests these voters feel some connection to him. So Mr. Edwards has a strong effect on swing voters — both those who like him and those who don’t.

8. Barack Obama and John McCain have work to do. The scans taken while subjects viewed the first set of photos and the videos of Mr. McCain and Mr. Obama indicated a notable lack of any powerful reactions, positive or

negative. The male subjects showed some interest in Mr. McCain while looking at still photos, but their engagement fell off after they watched him on videotape. Women remained unengaged throughout the session.

Mr. Obama was rated relatively high on the pre-scan questionnaire, yet both men and women exhibited less brain activity while viewing the pre-video set of still pictures of Mr. Obama than they did while looking at any of the other candidates. Among the male subjects, the video of Mr. Obama provoked increased activity in some regions of the brain associated with positive feeling, but in women it elicited little change.

Our findings suggest that Mr. Obama has yet to create an impression on some swing voters. While his speech resonated with the men in our study, it failed to engage the women. Since we did our scans, Mr. Obama has altered his tone somewhat, and it will be interesting to see if that makes a difference.

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