

## **RATS, We Should Have Used Clinton: Subliminal Priming in Political Campaigns**

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*Political strategists decide daily how to market their candidates. Growing recognition of the importance of implicit processes (processes occurring outside of awareness) suggests limitations to focus groups and polling, which rely on conscious self-report. Two experiments, inspired by national political campaigns, employed Internet-presented subliminal primes to study evaluations of politicians. In Experiment 1, the subliminal word "RATS" increased negative ratings of an unknown politician. In Experiment 2, conducted during former California Governor Gray Davis's recall referendum, a subliminal photo of Clinton affected ratings of Davis, primarily among Independents. Results showed that subliminal stimuli can affect ratings of well-known as well as unknown politicians. Further, subliminal studies can be conducted in a mass media outlet (the Internet) in real time and supplement voter self-report, supporting the potential utility of implicit measures for campaign decision making.*

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Political strategists must decide what ads to run, how negative they should be, whether to associate a candidate with a particular public figure, etc. (e.g., Lau & Pomper, 2002). These decisions are generally made through some combination of intuitive judgment, focus groups, and polling (see, e.g., Carville & Begala, 2006). However, the last 15 years of psychological research in neuroscience, social psychology, political psychology, and personality psychology have raised questions about what people can and cannot report in surveys or questionnaires, even when they think they are providing accurate responses. Research across a wide variety of domains suggests the importance of distin-

guishing between explicit and implicit psychological processes (see McClelland, Koestner, & Weinberger, 1989; Nisbett & Wilson, 1977; Westen, 1998). Explicit processes are consciously accessible and hence relatively amenable to self-reports. Implicit processes are expressed in behavior but are generally unavailable to consciousness, and so are not readily measured by surveys or questionnaires (Greenwald & Banaji, 1995).

Applying this distinction to political science, voters should theoretically be able to report accurately their explicit attitudes toward abortion or gun control. They should not, however, be able to report whether a pro-life advertisement showing a partial birth abortion or a pro-gun control advertisement showing the carnage at Columbine will affect their feelings toward these issues or the candidates who champion them. Much of the effect of these kinds of messages comes through their impact on the emotional associations people form to both the target of the message (e.g., abortion) and to the messenger (Westen, 2007; also see Brader, 2006).

Networks of associations of this sort are implicit. People may be unaware of which networks are active at any given time and of the way various persuasive appeals affect them. Recent neuroimaging data have related this issue directly to political judgments, indicating that emotion-processing circuits are active whereas "reasoning" circuits are relatively inactive when partisans are presented with politically threatening information. Thus, Westen, Kilts, Blagov, Harenski, and Hamann (2006) applied functional neuroimaging to a sample of committed Democrats and Republicans shortly before the 2004 USA Presidential election. They presented their participants with clearly contradictory statements purportedly made by President Bush, Senator Kerry (his opponent), or some neutral male (control condition). Participants were asked to rate the extent to which the statements were contradictory. They were then presented with an exculpatory statement that could explain the contradiction and again asked for their ratings. Results showed that partisans denied the contradictions of their candidate but easily reported those of the opponent. The neural correlates of these results showed that, while considering the contradictions of their own candidate, partisans showed activation throughout the orbital frontal cortex, indicating affective processing and affect-regulation strategies. They also showed lateral and insular cortex activations, which suggests negative affect. Finally, they showed activation of the anterior and posterior cingulate cortices, suggesting emotional processing, monitoring of conflict, and, possibly, favorable judgments and moral accountability. When presented with the exculpatory explanation, partisans demonstrated activation of the ventral striatum and nucleus accumbens, indicating reward processing. Westen et al. interpreted this to mean that the partisans' ability to reinterpret the data so as to be in line with preexisting attitudes and preferences resulted in positive affect and/or relief.

These psychological principles indicate that political strategists may be led astray by focus groups or public opinion surveys. The quiet revolution in

neuroscience and social and political psychology that led to the recognition of the importance of implicit processes also produced a number of technologies for assessing implicit attitudes or associations. Many of these will be incorporated for the first time in 2008 in the National Election Survey (American National Election Studies, 2006; <http://www.electionstudies.org>).

### *Subliminal Priming*

Historically, the best known and most controversial way to study implicit processes was through subliminal stimulation (presenting stimulation too quickly to be consciously registered). It rose to prominence in popular culture in the 1950s when Vicary claimed that he had subliminally influenced drive-in movie patrons to eat popcorn and drink Coke (subsequently discovered to be a hoax; Merikle, 2000). A best-selling popular book (Packard, 1957) alleged that advertisers routinely influence consumers subliminally.

Paralleling popular interest, many 1950s researchers used subliminal stimulation to study unconscious processes. This was called the “New Look” in perception and emphasized implicit cognitive, emotional, and motivational influences on conscious perception. It too was highly controversial (see Dixon, 1971, 1981; Erdelyi, 1974), and research on subliminal stimulation waned substantially between the early 1960s and the early 1990s, with one or two notable exceptions (e.g., Shevrin & Dickman, 1980; Silverman & Weinberger, 1985). Subliminal stimulation returned to the mainstream in the 1990s with the recognition of the ubiquity of implicit processes (Bornstein & Pittman, 1992; Greenwald, 1992; Westen, 1998) and with findings that showed conclusively that subliminal stimulation can influence subsequent responding (e.g., Greenwald, Draine, & Abrams, 1996). This has reopened the question of whether ads can influence people’s impressions subliminally or, less nefariously, whether campaign strategists can use subliminal priming and other implicit measures to assess voters’ feelings toward candidates, issues, advertisements, etc. (Dijksterhuis, Aarts, & Smith, 2005).

A great deal of data, going back decades, shows that subliminal stimulation can affect impressions of a target person (see Dijksterhuis et al., 2005), including the kinds of emotion-laden impressions that affect voting behavior (Brader, 2006; Marcus, 2002; Marcus, Newman, & MacKuen, 2000). Smith, Spence, and Klein (1959) subliminally presented the words “happy” and “angry” then had subjects rate a supraliminal, relatively expressionless, face. Ratings were more positive following “happy.” Eagle (1959) presented a picture of a young man either giving a birthday cake to or stabbing an older man. This was followed by a supraliminally presented, affectively neutral, picture of the same young man standing alone. The neutral picture was judged more negatively when preceded by the stabbing picture. Bargh and Pietromonaco (1982) subliminally presented synonyms of hostility to participants who then read a story that was ambiguous regarding the main char-

acter's hostility. The greater the frequency of hostility-related words, the more participants interpreted the character as hostile. Krosnick, Betz, Jussim, and Lynn (1992) had participants rate a neutral target person after exposure to either a positive or negative affect-arousing photo. Those exposed to the positive photo rated the target as more likeable and as having more complimentary personality traits. Niedenthal (1990) presented subliminal emotional facial expressions (joy, disgust, or neutral). Participants attributed more positive traits to a subsequent cartoon character after the joyous face and more negative traits following a subliminal face evincing disgust. Those who saw the disgusted face also rated the cartoon character as more similar to disliked social groups. Devine (1989) showed that subliminally presented stereotype words negatively affected the impression participants drew about a hypothetical other. Lepore and Brown (1997) obtained similar results. Chen and Bargh (1997) showed that subliminal presentation of a Black face led to greater hostility.

#### *From the Lab to the Mass Media*

Researchers typically conduct subliminal research in laboratory settings, one participant at a time, resulting in relatively small-N, tightly controlled studies. In the experiments reported here, we attempted to test whether subliminal priming is robust enough to survive the many distractions and uncontrolled variables inherent in a mass presentation by running our studies on the Internet. McGraw, Tew, and Williams (2000) have noted the potential utility of Web-based studies for time-sensitive results and concluded that even reaction-time studies requiring millisecond accuracy can be conducted effectively. Perhaps the best known example of such studies involves the Implicit Association Test (IAT), which asks participants to categorize contrasting target stimuli (e.g., male-female) as good or bad and then sees which pairing is reacted to more quickly. This test has been successfully presented on the Web and yielded a wealth of data (Nosek, Greenwald, & Banaji, 2005). To our knowledge, the studies reported here are the first to employ subliminal presentation on the Web and were aimed at determining whether such stimulation could yield results with practical implications for national politics.

Our first experiment revisited concerns about the use of subliminal messages to influence evaluative responding (in this case, towards a politician). Previous research, cited above, showed that ratings of various kinds of neutral targets could be influenced by subliminal stimulation. We wanted to see whether that would hold for a political target presented via the Web. Our second experiment tried to determine whether subliminal presentation of one known political figure (Clinton) could affect evaluations of another known political figure (former California Governor Gray Davis, during his recall election), and hence whether association with the first figure would be an asset or liability.

## Experiment 1

During the 2000 presidential election, the Bush campaign aired an advertisement containing what appeared to be the subliminal word RATS (Berke, 2000). Gore supporters cried foul play. Bush supporters insisted it was inadvertent. Advertising executives were generally skeptical, likening subliminal effects to belief in astrology and alien abduction (Egan, 2000) or alligators in the sewers of New York City (Shapiro, 2000).

We tried to replicate essential aspects of the ad on the Internet by testing the effect of the subliminal word RATS on appraisals of a hypothetical, unknown candidate. We used three control stimuli, each comprising four letters. To control for the physical structure of the stimulus, we used STAR, which is RATS spelled backwards but has a completely different meaning. A second control condition was ARAB. Although negative attitudes toward Arabs have increased since the World Trade Center bombing, Devine (1989) has argued that for prejudice to be unconscious and therefore susceptible to subliminal stimulation, it has to have been repeated over a long period of time. Locke, MacLeod, and Walker (1994) supported Devine's hypothesis by demonstrating that immigrants in Australia did not show the automatic prejudiced responses of native-born Australians to the indigenous Aborigines. We predicted that, at the time we ran this study (September to November, 2000), prejudice against Arabs had not developed negative unconscious connotations in our sample. Finally, we presented the letters XXXX as a control for meaningfulness of stimulation. We predicted that RATS would result in a more negative evaluation of the politician than would any of the control messages.

### Method

#### *Participants*

Ninety-one (91) individuals (27 males and 64 females) logged onto our Website and completed the experimental task (mean age 23.74, s.d. 4.21). We employed a social psychology site that hosts experiments to obtain our sample (Web Experiment List, Reips & Lengler, 2005).

#### *Procedure*

Participants (Ps) were asked to take part in a study aimed at determining how immediate impressions influenced reactions to political candidates. After completing a demographic page, Ps were asked to fix their gaze on an "X" in the middle of the screen, which would be replaced by a picture of a candidate. Ps were then presented with one of four subliminal stimuli (RATS, STAR, ARAB, or XXXX). The subliminal stimulus was presented for one frame at a brightness that piloting across computers and browsers indicated could not be seen masked but could

be detected unmasked. The subliminal stimulus was followed immediately by a photograph of a young man in a shirt and tie, presented for five seconds. This photograph functioned both as the object of evaluation (see below) and as a mask to degrade recognition of the subliminal stimulus. Following a subliminal stimulus with a supraliminal (consciously perceptible) stimulus that helps to prevent conscious recognition of the subliminal stimulus is called backwards masking. (See Breitmeyer, 1984, for a thorough discussion of masking.) We repeated the procedure three times in case a P blinked or was distracted during one of the presentations. We presented the subliminal and supraliminal (masking) stimuli in QuickTime.

Next, we asked Ps to evaluate the supraliminal (masking) stimulus. We presented 10 evaluative items on 7-point scales, ranging from completely agree to completely disagree: This candidate looks competent; This candidate strikes me as honest; There is something about this candidate that makes me feel positive; There is something about this candidate that makes me feel disgusted; There is something about this candidate that makes me feel angry; There is something fishy about this candidate; There is something about this candidate that makes me feel that I can trust him; I like this candidate; I dislike this candidate; I would vote for this candidate.

Next, as a validity check for subliminality, we asked Ps to describe what they had seen during the subliminal stimulation, using an open-ended response format. We then asked them to choose which of seven stimuli they had been exposed to, one of which was the correct stimulus. (We also gave them the option of indicating that they had seen nothing.) We included this second cued response assessment as a more stringent test of awareness. Recognition of previously seen stimuli is easier than is recall (Dixon, 1981). A debriefing page followed.

## Results

Two Ps wrote the correct word when asked what they saw (one saw STAR; one saw ARAB). One P wrote that she saw "text" but could not identify it. When Ps were asked to guess which of several stimuli had been presented, only five guessed any of the words actually shown and, of these, only three were correct. Most (52) chose the XXXX option; another 33 guessed that nothing was shown subliminally. Thus, there was no evidence for awareness of the subliminal stimulus. Because of the different computers, operating systems, and Internet platforms that these stimuli were sent to, we could not assess nor precisely control the exact timing of the subliminal stimulus. Thus, the speed at which the stimulus was presented was not uniform across all subjects. What we were able to do was to determine that Ps could not accurately identify the stimulus and that it was therefore subliminal.

The 10 evaluative item ratings were highly intercorrelated, so we conducted a Principal Components Analysis with Varimax rotation for data reduction purposes

**Table 1.** Eigenvalues, Cumulative Percentages, and Rotated Component Matrix for Principal Components Analysis of Negative Evaluative Ratings of Hypothetical Candidate

Component	Eigenvalue	% of Variance	Cumulative %
1	5.56	55.61	55.61
2	2.18	21.79	77.40

  

Varimax Rotated Component Matrix (2 Component Solution)		
	Component	
Evaluative Questions	1	2
Like	<b>.93</b>	.11
Honest	<b>.90</b>	.22
Positive	<b>.89</b>	.14
Trustworthy	<b>.89</b>	.17
Vote	<b>.89</b>	.07
Competent	<b>.82</b>	.30
Dislike	.05	<b>.88</b>
Disgusted	.13	<b>.86</b>
Angry	.15	<b>.80</b>
Fishy	.32	<b>.74</b>

(see Fabregar, Wegener, MacCallum, & Strahan, 1999). Consistent with a large body of research distinguishing positive and negative affect in ratings of emotion and personality (e.g., Watson & Clark, 1984) as well as candidates (Abelson, Kinder, Peters, & Fiske, 1982; Marcus et al., 2000), a two-component solution, one consisting of positive, the other of negative items, best accounted for the variance. Table 1 presents the Eigenvalues, percent of variance, and cumulative percentage accounted for by each component. It also shows the rotated component matrix.

We conducted a  $4 \times 2$  between-subjects ANOVA for each dependent variable (Positive Evaluation and Negative Evaluation). The factors of the ANOVA were subliminal stimulus (RATS, STAR, ARAB, XXXX) and gender (male, female).

The ANOVA yielded a main effect for subliminal stimulus on the Negative Evaluation Principal Component:  $F(3, 83) = 3.41, p = .02$ . The means were: STAR, 0.12; ARAB,  $-3.10$ ; RATS, 3.78; XXXX,  $-5.37$ . (Factor scores were multiplied by 10 for ease of interpretation, with higher numbers representing more negative evaluations.) No effect for gender was obtained. There was also no interaction ( $F_s < 1.0, p_s > .40$ ). No effects approached significance for Positive Evaluation ( $p_s > .14$ ).

Our prediction was that RATS would show effects whereas the other stimuli would not. We conducted a planned contrast to test this hypothesis assigning the following weights: 3,  $-1, -1, -1$  (Rosenthal, Rosnow, & Rubin, 2000). The contrast for Negative Evaluations was significant,  $F(1, 83) = 11.04, p < .005$ , showing that the RATS condition uniquely elicited negative ratings of the

hypothetical candidate. We also conducted an omnibus  $F$  test of the between group variation remaining after we removed the effect of the contrast (Rosenthal, personal communication, 8/26/07; Rosenthal, Rosnow, & Rubin, 2000). It was not significant ( $F(3, 83) = 1.20$ ;  $p > .20$ ), indicating that the contrast captured most of the variation in the data. Positive Evaluations showed no effect.

## Discussion

As predicted, subliminal presentation of RATS led to a more negative evaluation of the hypothetical candidate than did any of the other stimuli. Further, this accounted for a substantial portion of the variance. RATS did not lead to lower positive evaluations, however. Although this might simply reflect the nature of the stimulus (rats are typically viewed as dirty, frightening animals), it might also suggest, if replicated, that negative evaluations, at least of politicians, are more easily manipulated than are positive evaluations. This would imply that those trying to influence evaluations of others might have more success if they target negative, as opposed to positive, evaluations. Such data support the political adage that negative campaigns (attack ads) are effective, even though voters claim to deplore them (Carville & Begala, 2006; Lau & Pomper, 2002). Attack ads are, in fact, widely used in political campaigns (Ansolabehere & Iyengar, 1993, 1994; Jamieson, 1992) and data support their impact. The 1992 National Election Study Survey (Wattenberg & Brians, 1999) found that people who recalled negative campaign messages were more likely to vote in an upcoming election than those who did not. Other data indicate that humans and other animals are more attuned and responsive to negative information. Pratto and John (1991) reported that negative stimuli are more attended to than are positive stimuli. Cacioppo and Gardner (1999) showed that negative information has a greater influence on judgments than does positive information. Phelps (2005) provides neurophysiological data that shows that the brain operates in a way that favors the processing of negative information, and Ohman and Mineka (2001) provide an evolutionary argument for why this should be so.

The failure to obtain effects with STAR rules out the possibility that the physical characteristics of RATS carried the effects. Similarly, the meaningless stimulus XXXX had no effect. ARAB also did not affect responses, supporting Devine's (1989) hypothesis that only long-held attitudes affect unconsciously stimulated evaluations. (This experiment was conducted in 2000, before the events of September 11, 2001.)

The results show that subliminal stimulation presented via the Internet can affect subsequent evaluations of a neutral other. That subliminal stimulation affects evaluations of neutral target stimuli is not new (see e.g., Eagle, 1959; Krosnick et al., 1992), although this had not yet been shown for an identified political target. What is new is that Experiment 1 obtained its effects using the Web, despite all of its distractions and potentially differing speeds of presentation



of the subliminal stimulus. Experiment 1 also suggests that a TV ad could have yielded subliminal effects, a subject of much controversy.

Using the Web has a number of methodological and practical advantages for research generally. Methodologically, blindness of experimenters is assured. Practically, Web studies open up many possibilities for testing large and diverse samples and allow for a quick turnaround (cf. McGraw et al., 2000).

Several caveats are in order. First, participants knew that they were participating in a study. People watching TV do not. Generalization from the Internet to TV is therefore imperfect. Whether the two media would yield different or similar effects is an empirical question. However, presentation speed on a TV ad would be more uniform than that of an Internet study since there would not be the kinds of variations present in computer presentations. A TV-presented subliminal stimulus might therefore be even more effective than one presented via the Internet. Alternatively, the lesser degree of attention afforded TV ads might lessen the impact of subliminally presented messages. Such issues await further empirical research.

Second, our results do not indicate whether the Bush campaign purposely subliminally presented RATS in a campaign ad. Nor do they indicate that, purposeful or not, doing so could have increased negative reactions to Gore, given that the Ps in our study viewed an unknown politician and Gore was quite well known. In our second experiment, we addressed this latter issue by asking for evaluations of a well-known politician. However, the results do indicate that the media and consumers should be more on the lookout for such influence attempts as they could, in principle, affect attitudes, and their use should be discouraged or prohibited.

## Experiment 2

Experiment 1 employed an unknown politician as the target of evaluation. It then examined whether evaluations of him could be influenced by subliminal stimulation of known affective valence and found that they could. In the real world of national politics, targets are rarely if ever neutral and never unknown. Experiment 2 was designed to determine whether subliminal stimulation with a known politician could affect ratings of another well-known and affectively charged, even polarizing, politician, something that has not been examined before (cf. Dijksterhuis et al., 2005). Prior data clearly show that subliminally presented facial expression can influence subsequent responding (Dimberg, Thunberg, & Elmehed, 2000; Niedenthal, 1990). It also seems that priming important people can influence participants' self-evaluations and aspirations. Thus, Baldwin, Carrell, and Lopez (1990) showed that known authority figures could influence self-evaluations, and Fitzsimons and Bargh (2003) have reported that priming important relational figures resulted in differential goal setting in their participants. Finally, Stone and Valentine (2004) have presented data suggesting that the identity of a subliminally presented face can influence subsequent responding. No study, to our knowledge, has investigated whether subliminal presentation of a

known individual can affect evaluations of another (nonself) known individual. Our study addressed this issue. More importantly, we wished to determine what effect association of the first political figure would have on evaluations of the other, known politician. This would provide information about implicit attitudes towards the famous politician (the prime). As far as we know, no one has yet attempted to ascertain people's implicit attitudes towards a controversial political figure by presenting his or her image subliminally and then measuring the effects on a second political figure. This is different than determining whether a stimulus of known affective valence can affect evaluation of a second stimulus (as was demonstrated in Experiment 1). In this experiment, it is the valence of the subliminally presented stimulus that is at issue.

Of direct relevance to our hypotheses is the work of Lodge and Taber (2005) and Taber, Lodge, and Glathar (2001), who argue that all sociopolitical concepts and the politicians associated with them become affectively charged through repeated prior evaluations. Within milliseconds of encountering a politician or political concept, an associated affective charge is automatically activated. Lodge and Taber (2005) primed their participants with political leaders, issues, and groups and then determined how long it took them to respond to subsequently presented positive or negative target words. The primes were presented quickly (300 ms) but not subliminally. Target words affectively congruent with the political primes were responded to more quickly than were affectively incongruent words. This did not occur when the primes were presented for more lengthy periods of time. In terms of our study, this suggests that subliminal presentations of a political leader (the prime) should result in an affective response, given that an affective response occurs within milliseconds of exposure. These affective reactions should then affect reactions to subsequent, supraliminal stimulation (the target).

We again took our inspiration from the presidential campaign of 2000, this time from the other side of the aisle. The Democratic candidate, Al Gore, chose to distance himself from then-President Bill Clinton. Gore's campaign advisors feared association with Clinton because of the Monica Lewinsky affair (CNN Staff & Wire Reports, 2000; Henneberger & Van Natta, 2000). We believed the former Vice President had erred by discounting implicit positive feelings toward Clinton, even among many who explicitly expressed negative feelings towards him. Gore's campaign strategists had made a judgment based on polling and intuition; our intuition was that they were wrong (cf. Westen, 2007).

We had the opportunity to test the utility of a Democratic candidate's association with Bill Clinton during the California recall election of 2003, when the question arose of whether the former President could aid the efforts of embattled Governor Gray Davis to remain in office (Broder, 2003; Kiely, 2003). Our question was whether a subliminal Clinton would affect ratings of Davis and, if so, how. We presented a subliminal photo of Clinton before a supraliminal (masking) photo of our target. In this study, however, the target was (now former) Governor Davis. In the control condition, we presented a subliminal photo of Davis before his

(masking) supraliminal photo (attempting to control for the mere fact of subliminal presentation and for the possible effects of a subliminal smiling face).

We predicted a main effect for positive and negative evaluations such that Republicans would show the lowest positive and highest negative evaluations of Gray Davis, Democrats would show the opposite pattern, and Independents would fall in between, reflecting party affiliation. We had several predictions for the negative evaluations. First, we predicted a main effect paralleling that of the positive ratings. Republicans were predicted to have the highest negative ratings, Democrats the lowest, with Independents in-between.

Our primary prediction was an interaction between subliminal stimulation and party affiliation. We predicted, based on Experiment 1, that this effect would be manifested in negative but not positive evaluations. Because Republicans were expected to have very negative evaluations of Davis and very negative associations to Clinton, adding the disliked Clinton was expected to produce, if anything, a slight increase in their Negative Evaluation ratings of Davis (ceiling effect). Conversely, Democrats were expected to exhibit moderate to low Negative Evaluations of Davis and slightly lower Negative Evaluations when Davis was associated with subliminal (popular) Clinton (floor effect). Independents were expected to show the strongest effects of subliminal stimulation with Clinton. They were expected (on the basis of polling) to have negative evaluations of Davis but, we hypothesized, positive associations to Clinton. They were therefore expected to demonstrate negative evaluations in the Davis alone condition but far weaker negative attitudes in the condition preceded by the subliminal Clinton.

We tested these predictions in a focused contrast. Because of the effects of party affiliation, we did not predict any main effects for subliminal stimulation. We also examined ratings of Clinton to see if they would yield the same or even stronger effects than party affiliation. The pollsters with whom we disagree place great stock in self-report ratings of this sort. We predicted that they would not yield meaningful or easily interpretable effects and might even show effects at variance with those of party affiliation.

## Method

### *Participants*

One hundred and eighty one (181) Participants (Ps) logged onto the site from September 30 to October 4, 2003 (the week of the recall election); 149 (82%) completed the entire experiment (including rating Clinton and Davis and giving ratings of their confidence in guessing the subliminal stimulus). Of these, 112 (75%) were able to accurately identify Davis and were included in the data analyses. The remaining 37 participants (16 Democrats, 5 Republicans, 16 Independents) were discarded. The analyzed sample consisted of 78 females and 34 males of mean age 26.12 (SD 12.10). Thirty identified themselves as Republicans,

57 as Democrats, and 25 as Independents. We targeted Californians by calling on colleagues and acquaintances there to spread the word.

### *Procedure*

We obtained permission to have our study shown on web sites that guide consumers to web studies (e.g., Reips & Lengler, 2005). As in Experiment 1, Ps were told that we were interested in determining how quick and immediate impressions could influence evaluations of politicians. To increase response rate (roughly half of potential participants did not complete Experiment 1 because of problems downloading QuickTime), we created the stimuli using Flash.

Following the informed consent and demographics pages, participants were asked to fix their gaze on an X in the middle of the screen. They were then presented with one of two sets of stimuli: a subliminal photo of Bill Clinton followed by a (masking) supraliminal photo of Gray Davis or a subliminal photo of Gray Davis followed by a (masking) supraliminal photo of Gray Davis. As in Experiment 1, we presented the subliminal photo followed by the (masking) supraliminal picture three times.

Ps were then asked to evaluate Davis. We used the 10 evaluative items of Experiment 1, with minor wording changes. To assess for subliminality, we asked Ps what they saw after the X but before the photo (as in Experiment 1). Next, we asked participants to choose which of four photos (as opposed to the seven used in Experiment 1) was the subliminal stimulus. The choices were Bill Clinton, George W. Bush, Andy Rooney, and Jimmy Carter. This time the forced-choice format prevented Ps from indicating that they saw nothing, to measure the accuracy of guessing. We also asked them to state the certainty of their choice (on a 7-point scale). We thereby employed a more stringent test of subliminality than did Experiment 1.

### **Results**

None of the Ps correctly identified the subliminal stimulus when asked what they saw; two stated that they saw something (a picture, a shadow). When asked to choose from among four alternative photos, the breakdown was: Jimmy Carter 23 (20%); Andy Rooney 16 (14%); George W. Bush 27 (24%); Bill Clinton 47 (41%). Clinton was the correct answer 52 times; 22 (42.3%) guessed this correctly, and 25 of 60 (41.7%) guessed Clinton when he was not the subliminal stimulus. Ps averaged 1.53 (SD 1.16) on a 1–7 rating of confidence in their guesses, indicating little if any confidence; 85 (75%) rated themselves as completely uncertain. Only five (4.58%) rated themselves moderately to completely certain. Three of these individuals guessed Clinton correctly; two were completely certain that they had seen Bush and one was moderately sure that the subliminal photo was of Carter. Those who guessed Clinton correctly were no more certain than those who

guessed Clinton incorrectly (1.53 vs. 1.52). All rated their choice as essentially a guess. The data thus suggest that the stimulus was indeed subliminal. As in Experiment 1, the 10 evaluation items were highly intercorrelated and a Principal Components Analysis resulted in the same two components (Positive Evaluation and Negative Evaluation).

We conducted  $2 \times 3$  ANOVAs. The first factor was experimental condition (Gray Davis preceded by the subliminal Clinton vs. by a subliminal photo of himself); the second was political affiliation (Republican, Democrat, Independent). This was our main analysis. Another set of ANOVAs looked at ratings of Clinton and subliminal condition. These were  $2 \times 2$  with the first factor experimental condition and the second factor high vs. low ratings of Clinton. This was exploratory. For all of these analyses, we only used the 112 Ps who recognized Davis (52 of these were subliminally stimulated with Clinton). As in Experiment 1, we also examined gender alone and in interaction with the other variables and obtained no significant effects. The dependent measures in the ANOVAs were Positive Evaluation, Negative Evaluation (both as Principal Component scores), and intention to vote (on a 7-point scale). Factor scores (Principal Components) in all analyses reported below were multiplied by 10 for ease of interpretation.

As with Experiment 1, there was no effect of subliminal condition or of the interaction of subliminal condition and political affiliation on Positive Evaluations of Davis ( $p > .80$ ). As expected, however, there was a main effect of political affiliation ( $F(2, 106) = 11.23, p < .001$ ). A planned contrast ( $F(1, 106) = 26.38, p < .001$ ) revealed that Republicans had the least positive opinion of Davis (mean =  $-6.98$ ; SE =  $1.88$ ), Democrats the most positive (mean =  $3.89$ ; SE =  $1.36$ ), with Independents in the middle (mean =  $1.92$ ; SE =  $2.10$ ). The same pattern held for intention to vote. There was no effect for subliminal condition or for the interaction of subliminal condition and political affiliation ( $ps > .80$ ). There was a main effect for political affiliation ( $F(2,106) = 9.81, p < .001$ ). Again, a planned contrast ( $F(1,106) = 130.05; p < .001$ ) revealed that Republicans were least likely to say they would vote for Davis (mean =  $2.39$ ; SE =  $.33$ ), Democrats were most likely to say they would vote for Davis (mean =  $4.18$ ; SE =  $.24$ ), with Independents holding the middle (mean =  $3.60$ ; SE =  $.37$ ).

For Negative Evaluations, the results showed a marginal main effect for political affiliation ( $F(2, 106) = 2.59, p = .08$ ); planned comparisons testing the hypothesized ordering of means (Republicans ( $4.09, SE = 1.74$ ) > Independents ( $1.24, SE = 1.94$ ) > Democrats ( $-0.79, SE = 1.26$ ) revealed the expected effects ( $F(1, 106) = 4.65, p < .04$ ).

The key hypothesis in this study pertained to the interaction between subliminal stimulation and party affiliation. The ANOVA for this interaction was  $F(2, 106) = 2.72 (p = .071)$ . Planned comparisons testing our focal hypothesis revealed the expected effects ( $F(1,106) = 9.95, p < .005$ ). We also conducted an omnibus  $F$  test of the between group variation remaining after we removed the effect of the contrast (Rosenthal, personal communication, 8/26/07; Rosenthal, Rosnow, &

Rubin, 2000). It was not significant ( $F(4, 106) = 0.64; p > .20$ ), indicating that the contrast captured much of the variation in the data. As predicted, Democrats and Republicans were only somewhat moveable (in the expected directions) because their attitudes were relatively fixed, whereas Independents showed a substantial effect of the experimental manipulation. Contrast weights for Democrats (Davis alone and Clinton/Davis, respectively) were  $-1$  and  $-2$ ; weights for Republicans were  $+1$  and  $+2$ ; weights for Independents were  $+1$  and  $-1$ . (The contrast weights for this complex focused comparison sum to zero as they must for analyses of this sort—Rosenthal, Rosnow, & Rubin, 2000.)

Republicans were highly negative towards Davis (2.84;  $SE = 2.38$ ) and slightly more so when his photo was preceded by the subliminal Clinton (5.34;  $SE = 2.54$ ). Democrats were considerably less negative toward Davis than Republicans ( $-0.58$ ;  $SE = 1.77$ ) and became marginally less so when the subliminal photo of Bill Clinton preceded his photo ( $-0.99$ ). Independents had relatively strong negative feelings toward Davis when his photo was not associated subliminally with Clinton (5.83;  $SE = 2.46$ ), but their ratings shifted 180 degrees when a subliminal picture of Clinton preceded his photo ( $-3.36$ ;  $SE = 3.01$ ).

We also tested whether ratings of Clinton would predict to positive and negative ratings of Davis differentially in the two subliminal groups (Davis alone vs. Clinton/Davis). Our prediction was that it would not; predicting that it would was precisely the mistake we believe the pollsters for Gore and Davis made by assuming that people's self-reports accurately reflect their feelings about Clinton. Political party, on the other hand, is an objective fact that participants can report on accurately. They know how they registered. Results supported our hypothesis for the negative factor. Neither subliminal condition nor the interaction of subliminal condition with ratings of Clinton predicted negative factor ratings ( $ps < .25$ ). This was the case no matter how we sliced the ratings pie (ANOVAs with high vs. low ratings; ANOVA with low, medium, and high ratings; Regression analyses treating the ratings as continuous). The results for the positive factor showed some effects. First, not unexpectedly, those who reported high rating for Clinton rated Davis more positively than did those who reported relatively low ratings for Clinton ( $-5.3$ ,  $SE = 1.59$  vs.  $3.62$ ,  $SE = 1.22$ ;  $F = 19.73 (1,108)$ ,  $p < .001$ ). There was also an unexpected marginal interaction effect ( $F = 3.45$ ,  $p < .07$ ). When we examined the interaction by removing the main effects of the rows and columns of the  $2 \times 2$  table (Rosenthal & Rosnow, 1999), we discovered that those who rated Clinton relatively low showed higher positive ratings of Davis after being subliminally stimulated with Clinton; those who had relatively high ratings for Clinton showed higher positive ratings of Davis in the control, Davis alone, condition.

## Discussion

There were no effects of subliminal stimulation on positive ratings when political affiliation was employed as an independent variable. This supports the

tentative conclusion of Experiment 1 that negative evaluations of politicians are easier to influence subliminally than are positive evaluations.

There was an unpredicted marginal interaction between subliminal stimulation and ratings of Clinton. The subliminal Clinton yielded relatively higher ratings of Davis for those evincing relatively low evaluations of Clinton whereas the subliminal control resulted in relatively higher ratings of Davis for those relatively well disposed towards Clinton. This effect must be considered in the context of the main effect that showed that those who rated Clinton more highly also rated Davis more highly, regardless of subliminal stimulus. This effect dwarfed the interaction. This means that high ratings of Clinton led to high ratings of Davis and low ratings of Clinton led to low ratings of Davis no matter what. The interaction indicated that this is somewhat mitigated by subliminal stimulation. This could mean that the subliminal Clinton had a slight salutary effect on participants who reported thinking relatively little of Clinton whereas those who reported that they thought well of him were unaffected by the stimulation. Alternatively, ratings of Clinton are relatively unreliable, as we hypothesized, so that these results are not meaningful. Choosing between these interpretations awaits further investigation, using a focused contrast in the next study. (We did not use one here because we did not predict this effect.) We address the use of political affiliation versus ratings of Clinton in the General Discussion.

Negative evaluations of Gray Davis supported our predictions regarding the interaction of party affiliation and subliminal stimulus. When Davis was associated subliminally with Clinton, Republicans became slightly more negative toward him; Democrats became slightly less negative; Independents, who were strongly negatively disposed to Davis when the subliminal Clinton did not precede his photo, became substantially less so. To put it another way, uncommitted "swing voters" were strongly influenced by stimuli outside of awareness, in this case, subliminal priming with a photograph of Bill Clinton. Such priming had substantially less influence on people who were likely to have strongly held attitudes rooted in party and ideology. Further, this accounted for a substantial portion of the variance. Thus our main hypothesis was supported.

The results speak to the controversy concerning Clinton's status as a political asset or liability to Democratic candidates. The opinions of Republicans and Democrats appear to be somewhat hardened and not easily altered by a simple association with Clinton. The story is different for Independents, who often constitute the decisive vote in national (or in this case, nationally visible) elections. The association with Clinton moved Independents such that their generally negative opinions of Davis were significantly lowered. Whether this would translate into actual votes is an empirical question. In any case, the findings suggest that political consultants would do well to augment their exclusive reliance on public opinion polls and focus groups with measures of implicit emotional associations.

Finally, the results of Experiment 2 support the use of Flash technology to present stimuli subliminally on the Internet, as evidenced through tests of



spontaneous recall and forced choice recognition. Flash was also user-friendly: Eighty-five percent of the individuals who logged on completed the study, compared to the 47% completing Experiment 1, which used QuickTime.

### General Discussion

The studies reported here have several limitations. The relative restriction of subliminal priming effects to negative ratings is of unknown generalizability, particularly vis-à-vis other kinds of attitude objects (e.g., products). Perhaps this result is unique to politicians, given that people may tend to see them in a negative light and the data on the effectiveness of negative ads (Carville & Begala, 2006; Lau & Pomper, 2002; Wattenberg & Briens, 1999). As discussed earlier, however, there are data that indicate that negative information is more attended to and more effective generally (Cacioppo & Gardner, 1999; Pratto & John, 1991) and that this is hard wired into the brain (Ohman & Mineka, 2001; Phelps, 2005). Such findings suggest that our findings may generalize beyond politicians. We do not know to what extent influences such as those obtained here extend to other efforts to associate candidates with positive or negative features outside of people's central awareness but not technically subliminal (Petty & Cacioppo, 1986). For example, politicians have long spoken at podiums draped by symbols such as the American flag. To what degree these implicit, peripheral, but not strictly speaking subliminal influences might affect positive or negative "gut level" feelings is unknown and should be the subject of future research.

Our studies also do not speak to whether subliminal stimulation has long-term effects. Greenwald, Draine, and Abrams (1996) assert that subliminal effects are weak and evanescent. Sohlberg and Birgegard (2003), however, suggest that such effects may be long lasting. Clearly if we can obtain effects using mass media, it behooves us to find out how long they last so that we can better determine the extent to which they should be regulated.

Finally, the use of a sample of convenience limits the extent to which we can conclude that Al Gore was mistaken in not making use of an association with Bill Clinton. Our sample was not a stratified random sample of people likely to vote, nor did we assess degree of partisanship within political affiliation. The fact that the results were obtained despite lack of data on extent of partisanship may actually speak to the strength of the phenomenon we investigated, however. That is, one would expect strong and weak partisans in each political affiliation. This would increase error. Nonetheless, we obtained statistically significant effects. In any case, these data clearly suggest the potential for combining traditional polling methods with methods that assess unconscious attitudes that may predict incremental variance in voting or consumer behavior.

Within the context of these limitations, the two experiments have a number of implications. First, they suggest that subliminal stimulation can influence people's evaluations of political candidates (and presumably other "products" and attitude



objects). RATS led to more negative evaluations of a hypothetical candidate, and a photo of Clinton to less negative evaluations of a well-known political figure (the latter interacting with political affiliation). The results support the idea that the identity of subliminal primes can be recognized. They also speak to the robustness of subliminal priming effects. Subliminal effects can be obtained outside of the lab. These findings raise questions about whether such uses of subliminal priming should be regulated. At the very least, voters should be made aware of these possibilities so that they can be on guard against them.

Second, in a less Orwellian vein, the results of Experiment 2 suggest that it is possible to employ the Internet to assess people's attitudes toward political and other (e.g., marketing) targets. Greenwald et al. (1998), using a reaction time-based measure, have also shown that the Internet can be used to assess implicit attitudes. From the perspective of campaign strategy, such procedures could prove a useful adjunct to focus groups and surveys that assess only conscious emotional reactions.

Political scientists are increasingly recognizing the legitimate role of emotions in electoral politics (Marcus, 2002). It is not accidental that the word emotion was derived from the Latin *movere*, "to move," given that emotions move us toward and away from stimuli, including candidates (see Westen, 1985, 1994; Westen, Weinberger, & Bradley, 2007). People can be moved by emotional prejudices (e.g., against African Americans), but they can also be moved by moral emotions, such as judgments of unfairness (Haidt, 2004). Experimental research in political science is increasingly documenting the pervasive influence of peripheral factors such as the choice of music in campaign ads for creating emotional states that influence voting behavior (Brader, 2006), and it is becoming clear that the efficacy of campaign strategies depends in part on the extent to which candidates can activate particular emotions in the electorate (Westen, 2007).

Finally, the findings have technological implications for future work on unconscious processes. They demonstrate that subliminal experiments can be conducted over the Internet. This is, to our knowledge, the first study in over 70 years of subliminal research demonstrating that subliminal stimulation can be used for research purposes in the mass media, in this case, using Internet technology. Directing potential participants to Web sites can lead to much larger and more targeted samples that can be collected in much shorter periods of time than has heretofore been possible. Data collection for Experiment 2 was completed in five days and obtained a larger sample than in virtually any single previous study of subliminal priming. We also found that Flash was more user-friendly for this purpose than was QuickTime, although both yielded effects.

We end this paper by hazarding a prediction (loosely) based on our findings. As of the original submission of this manuscript, Senator Joseph Lieberman was involved in a hotly contested primary battle for his Senate seat. He made the political choice of having Bill Clinton campaign for him and of trying to associate himself with Clinton. Many Democrats were, according to polls, not very enamored of Lieberman because of his stance on Iraq. Additionally, his primary

opponent, Ned Lamont, attempted to associate him with the negatively valenced (to Democrats) Bush. Major newspapers (e.g., the *New York Times*) endorsed Lamont. Lieberman was therefore in the unusual position of a sitting senior Senator being seriously challenged within his own party (and, as of the original submission of this paper, was well behind in the polls).

We predicted that Clinton, who was poised to make more than one appearance near the end of the campaign, would make a substantial difference in the race. We predicted that late registering Democrats would support Lieberman because they would be energized by their positive associations to Clinton. Whether this was what tipped the balance to override the negative associations to Bush is, of course, unknown, but our prediction ran counter to many other predictions made about the race. In any case, our data suggest that political strategists take more seriously conflicting feelings toward figures such as Clinton and not to take at face value the conscious beliefs voters report.

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### REFERENCES

- Abelson, R. P., Kinder, D. R., Peters, M. D., & Fiske, S. T. (1982). Affective and semantic components in political person perception. *Journal of Personality and Social Psychology, 42*, 619–630.
- Alvarez, R. M., & Franklin, C. H. (1994). Uncertainty and political perceptions. *Journal of Politics, 56*, 671–688.
- Ansolabehere, S., & Iyengar, S. (1993). Information and electoral attitudes: A case of judgment under uncertainty. In S. Iyengar & W. J. McGuire (Eds.), *Explorations in political psychology* (pp. 321–337). Durham, NC: Duke University Press.
- Ansolabehere, S., & Iyengar, S. (1994). Riding the wave and claiming ownership over issues: The joint effects of advertising and news coverage in campaigns. *Public Opinion Quarterly, 58*, 335–357.
- Baldwin, M. W., Carrell, S. E., & Lopez, D. F. (1990). Priming relationship schemas: My advisor and the Pope are watching me from the back of my mind. *Journal of Experimental Social Psychology, 26*, 435–454.

- Bargh, J. A., & Pietromonaco, P. (1982). Automatic information processing and social perception: The influence of trait information presented outside of conscious awareness on impression formation. *Journal of Personality and Social Psychology*, *43*, 437–449.
- Berke, R. L. (2000, September 12). The 2000 campaign: The ad campaign: Democrats see, and smell, rats in G.O.P. ad. *The New York Times*, p. 1.
- Bornstein, R. F., & Pittman, T. S. (1992). *Perception without awareness: Cognitive, clinical, and social perspectives*. Vol. XII. New York: Guilford Press.
- Brader, T. (2006). *Campaigning for hearts and minds: How emotional appeals in political ads work*. Chicago: The University of Chicago Press.
- Breitmeyer, B. G. (1984). *Visual masking: An integrative approach*. New York: Oxford University Press.
- Broder, J. M. (2003, September 15). Clinton, a Davis ally, tries to provide boost. *New York Times*, p. 13.
- Cacioppo, J. T., & Gardner, W. L. (1999). Emotions. *Annual Review of Psychology*, *50*, 191–214.
- Carville, J., & Begala, P. (2006). *Take it back: Our party, our country, our future*. New York: Simon and Schuster.
- Chen, M., & Bargh, J. A. (1997). Nonconscious behavioral confirmation processes: The self-fulfilling consequences of automatic stereotype activation. *Journal of Experimental Social Psychology*, *33*, 541–560.
- CNN Staff & Wire Reports. (2000). Clinton campaign effort could hurt Gore more than help, poll suggests. *CNN.com*, accessed on Oct. 24.
- Devine, P. G. (1989). Stereotypes and prejudice: Their automatic and controlled components. *Journal of Personality and Social Psychology*, *56*, 5–18.
- Dijksterhuis, A., Aarts, H., & Smith, P. K. (2005). The power of the subliminal: On subliminal persuasion and other potential applications. In R. R. Hassin, J. S. Uleman, & J. A. Bargh (Eds.), *The new unconscious* (pp. 77–106). New York: Oxford University Press.
- Dimberg, U., Thunberg, M., & Elmehed, K. (2000). Unconscious facial reactions to emotional facial expressions. *Psychological Science*, *11*, 86–89.
- Dixon, N. F. (1971). *Subliminal perception: The nature of a controversy*. London: McGraw-Hill.
- Dixon, N. F. (1981). *Preconscious processing*. New York: Wiley.
- Eagle, M. (1959). The effects of subliminal stimuli of aggressive content upon conscious cognition. *Journal of Personality*, *27*, 578–600.
- Egan, J. (2000). Rats ad: Subliminal conspiracy? *news.bbc.co.uk*, accessed on Sept. 13.
- Erdelyi, M. (1974). A new look at the new look: Perceptual defense and vigilance. *Psychological Review*, *81*, 1–25.
- Fabregar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, *4*, 272–299.
- Fitzsimons, G. M., & Bargh, J. A. (2003). Thinking of you: Nonconscious pursuit of interpersonal goals associated with relationship partners. *Journal of Personality and Social Psychology*, *84*, 148–163.
- Greenwald, A. G. (1992). New look 3: Unconscious cognition reclaimed. *American Psychologist*, *47*, 766–779.
- Greenwald, A. G., & Banaji, M. (1995). Implicit social cognition: Attitudes, self-esteem, and stereotypes. *Psychological Review*, *102*, 4–27.
- Greenwald, A. G., Draine, S. C., & Abrams, R. L. (1996). Three cognitive markers of unconscious semantic activation. *Science*, *273*, 1699–1702.
- Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring individual differences in implicit cognition: The implicit association test. *Journal of Personality and Social Psychology*, *74*, 1464–1480.

- Haidt, J. (2004). The emotional dog gets mistaken for a possum. *Review of General Psychology*, 8, 283–290.
- Henneberger, M., & Van Natta, D. (2000, October 20). Once close to Clinton, Gore keeps a distance. *New York Times*, p. 1.
- Jamieson, J. (1992). The cognitive styles of reflection/impulsivity and field independence/dependence and ESL success. *Modern Language Journal*, 76, 491–501.
- Kiely, K. (2003). Campaigns still Clinton's strength. *USA.com*, accessed Sept. 11.
- Krosnick, J. A., Betz, A. L., Jussim, L. J., & Lynn, A. R. (1992). Subliminal conditioning of attitudes. *Personality & Social Psychology Bulletin*, 18, 152–162.
- Lau, R. R., & Pomper, G. M. (2002). Effectiveness of negative campaigning in U.S. Senate elections. *American Journal of Political Science*, 46, 47–66.
- Lepore, L., & Brown, R. (1997). Category and stereotype activation: Is prejudice inevitable? *Journal of Personality and Social Psychology*, 72, 275–287.
- Locke, V., MacLeod, C., & Walker, I. (1994). Automatic and controlled activation of stereotypes: Individual differences associated with prejudice. *British Journal of Social Psychology*, 33, 29–46.
- Lodge, M., & Taber, C. S. (2005). The automaticity of affect for political leaders, groups, and issues: An experimental test of the hot cognition hypothesis. *Political Psychology*, 26, 455–482.
- Marcus, G. E. (2002). *The sentimental citizen: Emotion in democratic politics*. University Park, PA: The Pennsylvania State University Press.
- Marcus, G. E., Newman, W. R., & MacKuen, M. (2000). *Affective intelligence and political judgment*. Chicago: University of Chicago Press.
- McClelland, D. C., Koestner, R., & Weinberger, J. (1989). How do self-attributed and implicit motives differ? *Psychological Review*, 96, 690–702.
- McGraw, K. O., Tew, M. D., & Williams, J. E. (2000). The integrity of web-delivered experiments: Can you trust the data? *Psychological Science*, 11, 502–506.
- Merikle, P. M. (2000). Subliminal perception. In A. E. Kazdin (Ed.), *Encyclopedia of psychology* (pp. 497–499). New York: Oxford University Press.
- Monahan, J. L., Murphy, S. T., & Zajonc, R. B. (2000). Subliminal mere exposure: Specific, general, and diffuse effects. *Psychological Science*, 11, 462–466.
- Niedenthal, P. M. (1990). Implicit perception of affective information. *Journal of Experimental Social Psychology*, 26, 505–527.
- Nisbett, R. E., & Wilson, T. D. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review*, 84, 231–259.
- Nosek, B. A., Greenwald, A. G., & Banaji, M. R. (2005). Understanding and using the implicit association test: II. Method variables and construct validity. *Personality and Social Psychology Bulletin*, 31, 166–180.
- Ohman, A., & Mineka, S. (2001). Fear, phobias, and preparedness: Toward an evolved module of fear and fear learning. *Psychological Review*, 108, 483–522.
- Packard, V. (1957). *The hidden persuaders*. New York: Random House.
- Petty, R., & Cacioppo, J. (1986). *Communication and persuasion: Central and peripheral routes to attitude change*. New York: Springer-Verlag.
- Phelps, E. A. (2005). The interaction of emotion and cognition: The relation between the human amygdala and cognitive awareness. In R. R. Hassin, J. S. Uleman, & J. A. Bargh (Eds.), *The new unconscious* (pp. 61–76). New York: Oxford Press.
- Pratto, F., & John, O. P. (1991). Automatic vigilance: The attention-grabbing power of negative social information. *Journal of Personality and Social Psychology*, 61, 380–391.
- Reips, U. D., & Lengler, R. (2005). The web experiment list (<http://genpsylab-bexlist.unizh.ch/>). *Behavioral Research Methods*, 37, 287–292.

- Rosenthal, R., & Rosnow, R. L. (1999). *Essentials of behavioral research* (3<sup>rd</sup> ed.). New York: McGraw-Hill.
- Rosenthal, R., Rosnow, R. L., & Rubin, D. B. (2000). *Contrast and effect sizes in behavioral research*. New York: Cambridge University Press.
- Shapiro, W. (2000). Fear of subliminal advertising is irrational. *USA.com*, accessed Sept. 12.
- Shevrin, H., & Dickman, S. (1980). The psychological unconscious: A necessary assumption for all psychological theory? *American Psychologist*, *35*, 421–434.
- Silverman, L. H., & Weinberger, J. (1985). Mommy and I are one: Implications for psychotherapy. *American Psychologist*, *40*, 1296–1308.
- Smith, G. J., Spence, D. P., & Klein, G. S. (1959). Subliminal effects of verbal stimuli. *Journal of Abnormal & Social Psychology*, *59*, 167–176.
- Sohlberg, S., & Birgegard, A. (2003). Persistent complex subliminal activation effects: First experimental observations. *Journal of Personality and Social Psychology*, *85*, 302–316.
- Stone, A., & Valentine, T. (2004). Better the devil you know? Nonconscious processing of identity and affect of famous faces. *Psychonomic Bulletin & Review*, *11*, 469–474.
- Taber, C. S., Lodge, M., & Glathar, J. (2001). The motivated construction of political judgments. In J. H. Kuklinski (Ed.), *Citizens and politics: Perspectives from political psychology* (pp. 198–226). New York: Cambridge University Press.
- Watson, D., & Clark, L. A. (1984). Negative affectivity: The disposition to experience aversive emotional states. *Psychological Bulletin*, *96*, 465–490.
- Wattenberg, M. P., & Briants, C. L. (1999). Negative campaign advertising: Demobilizer or mobilizer? *American Political Science Review*, *93*, 891–900.
- Westen, D. (1985). Emotion: A missing link between psychodynamic and cognitive-behavioral psychology? In *Self & society* (pp. 22–96). Cambridge, England: Cambridge University Press.
- Westen, D. (1994). Toward an integrative model of affect regulation: Applications to social-psychological research. *Journal of Personality*, *62*, 641–667.
- Westen, D. (1998). The scientific legacy of Sigmund Freud: Toward a psychodynamically informed psychological science. *Psychological Bulletin*, *124*, 333–371.
- Westen, D. (2006). Gut instincts. *American Prospect*, December, <http://www.prospect.org/web/page.wv?section=root&name=ViewPrint&articleId=12242>.
- Westen, D. (2007). *The political brain: The role of emotion in deciding the fate of the nation*. New York: Public Affairs Press.
- Westen, D., Kilts, C., Blagov, P., Harenski, K., & Hamann, S. (2006). The neural basis of motivated reasoning: An fMRI study of emotional constraints on political judgment during the U.S. Presidential election of 2004. *Journal of Cognitive Neuroscience*, *18*, 1947–1958.
- Westen, D., Weinberger, J., & Bradley, R. (2007). Motivation, decision making, and consciousness: From psychodynamics to subliminal priming and emotional constraint satisfaction. In M. Moscovitch & P. D. Zelazo (Eds.), *Cambridge handbook of consciousness* (pp. 671–700) Cambridge: Cambridge University Press.