How Social Cues Influence Political Information Processing Strategies

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Worldwide, citizens are turning to the Internet to learn about politics in greater and greater numbers. Unlike those who get their political information from newspapers, magazines, and television shows, internet users frequently get more than just the news—they get information plus a variety of social cues and signals. The current Web 2.0 paradigm, in which user interaction with content is commonplace, gives Internet visitors the opportunity to instantly react to information they find online, whether by clicking buttons to indicate whether they “like” or “dislike” the piece, sharing it via social media sites such as Facebook and Twitter, or registering their feelings and comments directly on news sites. Many sites, including such popular destinations as Twitter, The New York Times website and Yahoo! News, track stories based on the number of times they are shared with others and prominently feature the most popular stories and topics. Political information available online is often inextricably colored by the reactions of its readers.

Internet users not only can provide their own feedback on the things they encounter, but they have the opportunity to be influenced by them as well. That is, in addition to noting that one “likes” a particular story, for example, the number of other people who liked the same story is often made available. Likewise, users can not only leave comments, but of course may read them as well, and respond. The process truly has the potential for influence to flow through the network of users as each encounters what the others have done and responds as well.

This interactive information environment raises a number of interesting questions at the intersection of the existing literatures on political knowledge, attitudes, and social influence. For example, in the pre-web 2.0 era, Mutz (1998) showed that impersonal influence—knowing how other people have evaluated a politician or policy—could affect political attitudes. But today,
extensive political information is often just a few mouse clicks away, making a person’s motivation to become informed a potentially key moderator of the effects of impersonal influence. The easy availability of online information, coupled with the rise of social cues that often accompany it, raises the question of what effect these now nearly ubiquitous social signals have on political information search strategies and learning.

To examine the impersonal influence of social cues, we conducted a series of election campaign experiments using Lau and Redlawsk’s (2006) dynamic process tracing, a methodology which allows the participants to choose the information they wish to access and permits researchers to observe the information processing strategies—such as depth of search and comparison of alternatives—that people use as they engage in their evaluations (Lau & Redlawsk 1997; 2001; 2006; Redlawsk 2001; 2002; 2004; Redlawsk et al. 2010; Civettini & Redlawsk 2009). We employ a variation of this methodology which allows us to subtly influence the information search strategies of participants by creating social cues such as “like”, “dislike”, and “share” and allowing comments that purported to communicate the reactions of other participants in our studies as they learn about and evaluate political candidates in an information-rich environment.

We find that information search strategies are significantly affected by the presence of such online social cues; subjects for whom these cues are available spend more time looking at items, seek out fewer pieces of information before making a voting decision, and focus their attention on different issues. But while social cues lead to significant changes in information search behaviors, we also find that the cues appear to have no discernible effect on subjects’ evaluations of the candidates when subjects are asked to make a vote choice, but in some cases...
do influence evaluations when subjects are told that their goal is to identify the candidate that is likely to win the election, regardless of their own preferences.

Our findings suggest that in an information rich environment, social cues may lead to the use of confirmatory search patterns, with subjects seeking out positive information and avoiding negative about candidates they like. The availability of social cues thus potentially limits the range of information to which voters might otherwise be exposed. But they can also send important signals about what others are thinking, which under some circumstances may lead voters to defect from their own candidate under the influence of what others have to say.

**Social Cues as Impersonal Influence**

In many respects, social cues may be seen as the embodiment of Diana Mutz’s (1998) *impersonal influence*. Mutz defines this as the “influence that derives from perceptions of other people’s attitudes, beliefs, or experiences,” with the important qualification that the “others” in question are not friends, acquaintances, or associates that the individual comes into contact with but rather “the anonymous ‘others’ outside…(the) realm of personal contact,” (Mutz 1998, p. 4). It is certainly the case that many social cues come directly from “friends”, at least of the Facebook kind, but many more are essentially anonymous. The kind of information people may be exposed to about political candidates and the cues attached to it when they read online stories about campaigns would seem to fit this context. News and blog stories, for example, are usually written by individuals unknown to the reader personally, and the comments and reactions recorded likewise generally come from strangers.

Mutz (1998) details a number of studies that show in a low information setting, knowledge of mass opinion can sway attitudes. However, political information is much easier to
acquire today than it was even twenty years ago. The emergence of 24-hour news networks, the ubiquity of cable and satellite television, and the development of the Internet have changed the calculus of information acquisition. Whereas in previous generations, one’s political knowledge was largely determined by the handful of news programs and one or two newspapers a person had access to, the sheer amount of information currently available suggests that an individual’s motivation to seek out political news has become a prime determinant of political engagement (Prior 2005). In such an environment will the cues that impersonal influence might provide be overwhelmed by the sheer volume of other information?

Impersonal Influence and Information Search

Our primary research question is this: given the relative ease of acquiring information online, do social cues affect the motivation to become informed or the search strategies employed by individuals, and do they ultimately influence voting decisions? Based on Mutz (1998) and others, we think it is likely that impersonal influence will impact information search behaviors in the following ways. First, social cues may decrease information costs. As Downs (1957) noted, voters can reduce information costs by seeking out well-informed colleagues with compatible political views. Huckfeldt (2001) found that citizens were more likely to discuss politics with those they perceive as experts and that this perception of expertise was grounded in actual characteristics of the expert (i.e., higher objective levels of political interest and knowledge). Although the phenomenon detailed by Downs and Huckfeldt properly represents a case of personal, rather than impersonal, influence, it is conceivable that valuable information shortcuts can still be had from impersonal mass opinion. Since people are ambivalent about a large number of political issues (Zaller & Feldman 1992), it may be sufficient for voters to investigate a politician’s positions on a few issues and then rely on a consensus heuristic to
ensure that her policies on other issues have mainstream acceptance rather than search out specific information on each of them. As a result of this process, voters would be expected to consider fewer pieces of unique information when evaluating candidates.

A second way social cues might influence information search is by agenda-setting (Barach & Baratz 1962; McCombs & Shaw 1972; Iyengar, Peters, & Kinder 1982). Although we often focus on the role of powerful media and political elites in focusing the citizenry’s attention on certain policies, mass behavior can also direct individuals’ concern to particular issues. For example, “information cascades” and herd behavior occur when a person disregards private information and bases his or her choices on the actions of others (Anderson & Holt 1997; Banarjee 1992). Actors with limited attention to political matters may ignore certain issues and attend to others simply because others have already done so, reasoning that if a number of other people think a topic is important than it must be.

If social cues change the amount and type of information a voter encounters, then they may indirectly affect candidate evaluations by altering the balance of considerations a person uses to form a judgment (Zaller 1992). However, social cues may also have a more direct effect on evaluation if they are able to influence a subject’s response to a given piece of information. Recent evidence of the potential power of these user-supplied social reactions to online information has been demonstrated by Muchnik, Aral, and Taylor (2013) who report evidence of herding effects in user reactions to articles posted to an unnamed website. Comments submitted to the site were randomly assigned to be either “up-voted” or “down-voted” (i.e., receive an apparent positive or negative user reaction). Over a five-month period, items that were randomly assigned a positive rating were 32% more likely to receive additional positive ratings than were control comments with no rating. A negative initial rating did result in a significantly higher
probability (compared to a control comment) that the comment would receive a subsequent negative reaction, but this finding was offset by a “correction” effect in which negative ratings were also found to generate a higher rate of positive ratings. These results indicate that cues may actually condition how subjects evaluate information. If so, then the opinions of others about a candidate or policy may directly affect attitudes.

**Hypotheses**

Using a dynamic process tracing election campaign experiment, we test four hypotheses derived from our preceding discussion of the possible effects of impersonal influence on political information search and evaluation:

**H1:** The presence of social cues engenders cognitive engagement, increasing the amount of time subjects process information tagged with cues compared to that with no cues.

**H2:** The presence of social cues provides additional information beyond that provided by the actual information and reduces the amount of information subjects require to render a political judgment compared to having no social cues available.

**H3:** The presence of social cues directs information search toward different pieces of information than would be the case absent such cues.

**H4:** Positive (negative) social cues attached to candidate information will cause subjects to judge the candidate more favorably (unfavorably) than do subjects with no cues.

**H5:** Social cues provide diagnostic information that voters can use to determine if their party’s candidate is a winner or loser, driving decisions to stay loyal or defect from the party.
We report two studies designed to test these hypotheses. In the first study, focused on H1 through H4, subjects recruited from Amazon’s Mechanical Turk service experienced mock election campaign infused with social cues, and made a standard voting decision. In Study 2, designed to further examine H4 and test H5 and carried out in our laboratory, subjects were randomly assigned to teams and provided with a payoff structure designed to incentivize them to stay loyal to their team’s (political party) candidate unless they could determine from the information available to them that their candidate would likely lose the election, in which case they would receive a better payoff if they defected (but only if they were correct in their assessment of their candidate’s fate.)

**Study 1 Data and Methods**

Study 1 data come from 137 subjects recruited through Amazon’s Mechanical Turk service (Berinsky, Huber, and Lenz 2012; Buhrmester, Kwang & Gosling 2011). During recruitment, subjects were told they would take part in a study on information and voting decisions and would be paid a nominal fee ($2.00) for their time (on average about 30 minutes). Our sample has an average age of 32.4 years and is 44% female. The modal respondent attended some college and reported a 2012 household income between $50,000 and $75,000. Almost three-quarters (74.5%) of the sample is white and 65% identify as a Democrat, though the sample is ideologically moderate (mean score of 3.12 on a 0 – 6 scale of conservatism). The subjects are fairly politically engaged—80% of the respondents say they voted in 2012 and the

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1 These 137 subjects are a random subset of participants from a larger 3 x 2 experiment (n = 302). The first manipulation determined whether subjects saw no cues, positive cues, or negative cues. The second manipulation involved the ability of subjects to leave comments on the items or not. We do not analyze the subjects in the “comments” group here for a number of reasons. First, subjects who are reading information and comments will necessarily spend more time on each item and thus access fewer pieces of information in a timed experiment than those who just read the item itself. Second, any changes in evaluation or search that result may be due to comments or the cues, introducing a confound in the analysis.
sample has mean score of 2.67 on a four-point scale of political interest and 2.98 on a five-point scale of frequency of political discussion (higher values indicate more interest and more discussion). Subjects correctly answered 4.2 political knowledge questions out of five (Delli Carpini & Keeter 1993), indicating that our sample was politically knowledgeable. However, since the study was delivered over the computer, we cannot rule out the possibility that subjects looked up the answers to the questions online or asked someone nearby for the correct response.

Subjects participated in a simulated three candidate primary election using dynamic process tracing (DPTE) software (Lau & Redlawsk 2006) which presents participants with an ever-changing array of information; subjects must actively scan the information and choose what they wish to learn about the candidates. After completing a number of demographic and political behavior questions and a short practice session, participants were asked to “register” for either the Republican or Democratic primary based on their political affiliation. Those who did not identify with either of the two major parties were asked to participate in the primary of the party to which they felt closest. After registration, subjects were randomly assigned to one of three treatment groups: a control group (n = 49), a positive social cues group (n = 51), and a negative social cues group (n = 37).

All subjects were instructed to learn as much or as little as they wished about three invented candidates designed to embody liberal, moderate, and conservative positions within their respective parties. There were 33 unique pieces of information (15 policy stands, 10 demographic items, and 8 human interest pieces) about each of the three candidates available during the study (for a total of 99 unique pieces of information during the experiment), but the

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2 The DPTE system can be accessed at http://www.processtracing.org.
primary election lasted only 12 minutes. Thus, subjects were not able nor expected to learn everything possible about each of the candidates. During the study, six text boxes appeared on the screen for 10 seconds, each with a headline indicating the type of information available (e.g., “Smith’s Position on Drone Strikes.” See Figure 1). Clicking on the text box with the mouse made the detailed information within the topic available to the viewer. Every 10 seconds, the text boxes on the screen were randomly refreshed, giving the subject an opportunity to learn new information or perhaps revisit previously accessed information. After the 12 minute primary was over, subjects were asked to evaluate the candidates along a number of dimensions and cast their final vote. Additionally, subjects were asked to list as much information as they could remember about the candidates, following which the study ended.

Subjects in the positive and negative social cues condition were given the additional instructions (not given to the control group) that the study was investigating how people respond to information online and were invited to react to the information they encountered by clicking on buttons indicating whether they “liked”, “disliked”, or would be likely to “share” the information they viewed (these buttons were not visible for control subjects). These options replicate the typical buttons that are often attached to online information in both news and social media environments. An ongoing tally of these reactions appeared below the item headlines, presented as a count of how many prior participants in the study “liked” the information and how many “disliked” it, as well as how many had “shared” it (Figure 2). The DPTE software kept track of how the participants reacted to news about each candidate and updated the responses in

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3 In the Republican primary, the liberal candidate took a number of positions more accurately identified with the current libertarian ethos.
real time (subjects in the treatment condition were instructed about this feature during the practice stage), but we also “seeded” the information environment with a set of cues before any subjects had participated in order to ensure that all subjects were exposed to cues. We selected one of the three candidates to be a “high activity” candidate; for this politician, 22 of the 33 available items were marked with a random count of between 10-30 likes and dislikes. For the other two politicians, just 11 of the 33 available pieces of information contained 1 – 9 likes and dislikes. Thus, at the beginning of the experiment, members of the social cues condition saw that at least 44% of the information available had some sort of social marker attached to it. In the positive cues condition, the average item had 5.2 likes and 2.5 dislikes; in the negative cues condition, the average item had 5.6 dislikes and 2.9 likes.

**Study 1 Results**

Our first hypothesis suggests that the presence of social cues increases cognitive engagement with the information compared to information with no such cues. While it would have been impractical to ask subjects what they were thinking after encountering each item, we do know how much time subjects spent examining each piece of information. Given that the only difference between the information available to the two groups of subjects with cues and the control group was the presence of social signals, there is no reason *a priori* to expect average reading time to be longer (or shorter) for items with social cues than for those without. The cue itself does not require reading time, since it is available on the scrolling “headline” screen *before* the item detail is ever opened to be read. Opening the item and reading it is evidence of engagement; we suggest that the longer the item is examined the more engaged the subject is.
In support of H1, we find significant differences in processing time by experimental manipulation, even when controlling for the reading speed of our participants ($F_{2, 133} = 4.201, p < .017$). Control subjects examined information items for 8.97 seconds on average, which is less than the average 10.60 seconds taken by subjects in the positive cues group (at $p < .031$) and the 11.19 seconds spent by members of the negative cues group (at $p < .008$). While we cannot know for certain what was going through subjects’ minds, it is clear that they spent longer on items when there were social cues available for those items than when there were not, clearly suggesting greater engagement with the cued items.

Our second hypothesis is that subjects exposed to cues require less information to reach their decisions than those without cues. To test this, we examined information acquisition at both the item and subject level. At the item level, we created a simple metric to gauge the frequency at which each piece of information was viewed. For each of the 99 unique pieces of information in our study, we divided the total number of times it was opened by the number of subjects who were exposed to it. For example, in the control group ($n = 49$), the liberal candidate’s position on climate change was accessed 49 times, or on average one time per subject. However, within the positive cues group ($n = 51$), that same item was opened 39 times, or .76 times per subject. Thus, higher values of this score mean an item was viewed more frequently and are indicative of greater levels of information search.

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4 Reading speed was calculated by examining how long it took subjects to read the study instructions. This approach was used by Lau and Redlawsk (2006) to control for the fact that different subjects read at different speeds. Since information text and also differs in length, this control is necessary.

5 Another possibility is that the observed time differences are the result of the extra few seconds it takes subjects in the social cues condition to locate and click on the “like”, “dislike” and “share” buttons. However, although subjects offered significantly more of these reactions for their preferred candidate than for the rejected candidates (14.2 compared to 9.0, $p < .000$), they spent no more time on items related to their favored choice (9.4 seconds compared to 9.6, $p < .348$). Additionally, subjects who were in the bottom quartile of total response rate spent the same amount of time on the items as subjects in the top quartile (10.7 seconds vs. 11.2, ns). These results suggest the differences in time spent are in fact indicative of greater cognitive elaboration rather than time spent selecting the response buttons.
Using the item’s “open frequency rate” as the dependent variable in an analysis of variance with treatment group as the independent variable shows a significant difference in the average number items viewed per subject by group ($F_{2,294} = 14.565, p < .000$). In the control group, the average item was viewed .72 times per subject, which is significantly more than the rate in the positive cues group ($M = .60$) and the negative cues group ($M = .54$). 6

Figure 3 shows the distribution of item views by subject for each of the three experimental groups. As this figure makes evident, the distribution of item views per subject is shifted towards the lower end in the cues conditions. 7 The substantive interpretation of this shift is that more of items in the cues conditions were viewed less frequently than they were in the control condition. In the control group, 43.4% of the items were viewed at least .75 times per subject and 16.2% were viewed at least 1 time per subject. Compare these rates with those in the cues conditions: in the positive cues condition, 26.3% of the items were accessed at least .75 times per subject and 5.1% reached the 1 view per subject mark; for the negative cues condition, these percentages were 23.2% and 2%, respectively. In short, the absence of social cues led to a much broader consideration of the available items, providing support for Hypothesis 2.

Looking at the data at the subject level, subjects who had social cues opened significantly fewer items than the control group ($F_{2,134} = 4.631, p < .011$). In the negative cues condition subjects opened an average of 43.78 pieces of information, not significantly different from those in the positive cues condition. However, the difference between the rates in the positive and negative cue groups is marginally significant, $p < .093$. The decrease in item views per subject holds even if we restrict our analysis to the policy items. The average policy item was viewed .95 times in the control group, .81 times in the positive cues group, and .73 times in the negative cues groups. All means differ at $p < .05$.

According to Mann-Whitney U tests, the distribution of item views per subject in the control condition is significantly different from the distributions in each of the cues conditions at $p < .000$. 7

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6 The difference between the rates in the positive and negative cue groups is marginally significant, $p < .093$. The decrease in item views per subject holds even if we restrict our analysis to the policy items. The average policy item was viewed .95 times in the control group, .81 times in the positive cues group, and .73 times in the negative cues groups. All means differ at $p < .05$.

7 According to Mann-Whitney U tests, the distribution of item views per subject in the control condition is significantly different from the distributions in each of the cues conditions at $p < .000$. 7
from the 48.11 items opened by subjects in the positive cues condition \((p < .138)\). However, subjects in the control condition opened an average of 52.65 items, significantly more than in the negative cues condition \((p < .003)\) and marginally more than in the positive cues condition \((p < .094)\). Whether we examine individual items or subject level averages, we see clear support for H2.

Our third hypothesis focuses on agenda setting, suggesting that social cues can direct attention to particular items. To test this, we examined at the twenty most popular items (by policy and candidate) in each group (Table 1). If the social cues had no power to influence information search strategies, we would expect to see similarities in item popularity across all three experimental groups. But this is not the case. The rank order of policy items in each group was independent of the rankings in the other groups. Using Spearman’s rho, the correlation between item ranks in the control group is unrelated to ranks in the positive cues condition \((\rho = .200, p < .385)\) and the ranks in the negative cues condition \((\rho = .216, p < .347)\). Furthermore, the ranks in the positive and negative cues conditions are unrelated as well \((\rho = .310, p < .171)\). The

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8 One difficulty in analyzing our results is that the counts of “likes” and “dislikes” changed as the experiment progressed, possibly violating the homogeneity of treatment assumption (Rubin 1980). However, if it were some combination of cues rather than the mere presence of cues themselves that drove the results, we would expect to see differences in behaviors among the subjects who took the experiment early (when there were fewer cues) and late (when there were more). An analysis of the information search behavior of subjects who took the study at three different points in time indicates no difference in behavior \((F_{2,85} = .948, p < .392)\).

9 Of course, given that subjects were more cognitively engaged in socially cued information compared to information without cues and since there was a fixed amount of time to examine items, there could be a confound where subjects more engaged in individual items would be necessity examine fewer of them. The DPTE software is allows subjects to click on as many or as few items as they desire, waiting as long as they wish between accessing items. Thus, if sufficiently motivated to become more informed, any time “lost” to greater engagement could be made up. To assure that our findings are not simply an artifact of our design, we examined the ratio of the time spent reading items to total time available during the primary. All three groups spent the same proportion of time (about 55%) actually examining items \((F_{2, 134} = .632, p < .533)\). Therefore, the results above are not merely a consequence of the lost opportunity to become informed, but an indicator that the subjects who spent more time on particular items did not feel the need to compensate by increasing their rate of information acquisition.

10 Obviously, the choice of twenty items, rather than ten or fifteen or twenty five, is arbitrary. However, twenty items represents roughly half of the total items viewed in the cues conditions and it seems not unreasonable to suggest that the top half of items viewed were the most instrumental ones to a decision.
presence of social cues appears to have led to rather large differences in the attention subjects paid to particular items. For example, the (tied for) third most popular items in the control group were the liberal candidate’s positions on gun control and campaign finance reform. But in the positive cues condition, these items were ranked 12th and 34th, respectively and among subjects in the negative cues condition, the gun control item was the 25th most viewed item while the campaign finance position was the 17th.

[Insert Table 1 about here]

It certainly appears that the social cues encountered by our subjects changed the attention paid to various political issues, but there is another possible interpretation of the data. If information search was more or less random, then the differences in item popularity we observed would not be attributable to the presence of social signals, but would simply be the results of a random process. However, this does not appear to be the case. First, the top twenty items in each group are all policy items. There were more non-policy items than policy items available in the information environment (54 non-policy compared to 45 policy), so the fact that no non-policy items appear among the most viewed items indicates that subjects were paying attention to the items they were selecting, choosing those that might be more diagnostic. Second, regression analyses (Table 2) indicate that our initial “seed” cues—the likes and dislikes we attached to the items before the subjects began the experiment—were significant predictors of the rate at which policy items were opened. In the positive cues condition, every ten initial “likes” increased the item views per subject by 7%, while in the negative cues condition every ten initial “dislikes” increased item views per subject by 8%. These results demonstrate that the changes in item popularity were likely due to the presence of social cues, providing support for H3.
Support for our first three hypotheses makes clear that social cues have a demonstrable effect on information search strategies. Not only did the subjects in both social cues conditions access fewer pieces of information than did subjects in the control group, they spent more time examining cued information and focused their attention on different issues as well. Since political attitudes are believed to be a function of the type and quantity of information a person encounters about a target (Lodge, McGraw, & Stroh 1989; Zaller 1992; Redlawsk 2002), these changes in search strategy should result in significant differences in candidate evaluation, as specified in Hypothesis 4.

After the primary was over, subjects voted for one of the candidates and evaluate all candidates along several dimensions. These measures included: a 101 point feeling thermometer rating of how warm the subject felt towards the candidate; seven-point scales of how competent the candidate appeared, how similar the subject perceived the candidate’s policy positions to be to his or her own, and how likely the subject thought the candidate would be to win a primary election given the policies he espoused (higher scores are indicative of more favorable evaluations). Lastly, subjects were asked to rate on a five point scale how extreme they thought each candidate’s policies were relative to the average Democrat or Republican (1 “Less Extreme” 3 “About the same” 5 “More Extreme”).

Among participants who registered for the Democratic version of the primary (n = 94), the liberal candidate was the clear favorite: subjects gave him an average feeling thermometer score of 79.17 (SD = 16.4) and a competence score of 5.9 (SD = .96). Subjects also believed that his policies were mostly similar to theirs (M = 5.75, SD = 1.48) and that his views were within
the mainstream of their party (M = 3.08, SD .850). Ultimately, the liberal candidate took 69% of the vote, with subjects indicating some degree of confidence that a politician with the features of the liberal candidate could win a primary election (M = 4.76, SD = 1.49).

Predictably, subjects in the Republican primary favored the conservative candidate. His feeling thermometer rating was a 61.20 (SD = 29.21) and his competency rating was 5.11 (SD = 1.57). Subjects felt the conservative candidate’s policies were similar to theirs (M = 4.72, SD = 2.01) and perceived his positions as mostly in line with those of the typical member of his party (M = 3.55, SD = 1.05). Participants also believed that a politician with the conservative candidate’s policy stances would have a decent chance to win a primary contest (M = 4.23, SD = 1.68). Although the conservative candidate was not as clear a favorite of the Republican subjects as the liberal candidate was for the Democratic participants, he still captured a plurality of vote at 46%.

But in opposition to H4 and the anticipated impersonal influence (Mutz 1998) effect, ratings did not differ significantly by treatment. We examined 36 total comparisons, finding only three statistically significant differences in candidate evaluations based on treatment.¹¹ We suspect that these few apparent changes in evaluations are likely no more than Type I errors and thus conclude there is no evidence of an indirect type of impersonal influence resulting from changes in information search patterns.

Perhaps the effects are more direct; that subjects in the positive (negative) cues condition were more likely to respond to information in a positive (negative) way than were the subjects in the negative (positive) cues condition. We examined the rate at which subjects in the positive and

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¹¹ We examined each of the three candidates on six measures for two separate primaries, resulting in 36 different analyses of variance. By chance alone, we would expect significant results in about 2 of these.
negative cues conditions liked and disliked the information they encountered about each candidate (Table 3). For Democratic participants, the negative cues actually netted the conservative candidate a slight boost in positive affect, with subjects “liking” about 17% of the items encountered, compared to a rate of 10% in the positive cues condition ($p < .064$). Conversely, the liberal candidate saw an uptick in negative affect among subjects in the negative cues condition, with subjects “disliking” 8% of the information they read compared to the 4% rate in the positive cues group ($p < .054$).

Among Republicans, we find two significant differences, even with our small sample size. Items about the libertarian candidate were “liked” at a 39% rate in the negative cues group compared to a 20% rate in the positive cues condition ($p < .028$), while information about the conservative candidate was “disliked” at a higher rate in the negative cues condition than the positive, 26% to 14% ($p < .061$). For both sets of partisans, then, we see a slight backlash against the favored candidate (the liberal candidate for the Democratic subjects and the conservative one for the Republican) and a small boost for one of the other candidates. However, we stress again that these changes had no noticeable effect on final candidate evaluations and vote choice, suggesting that the presence of social cues may affect a person’s willingness to express positive or negative affect without changing his or her fundamental preferences.

Further evidence on this point comes when we examine the total like and dislike rates for all subjects across all candidates (Table 4). In the negative cues conditions, subjects “liked” 43% of all the items they encountered, while subjects in the positive cues condition expressed positive affect for 35% of the information accessed ($p < .054$). “Dislikes” were higher in the negative group than in the positive group as well, although not significantly so (24% compared to 19%, $p < .141$). The increase in positive affect is largely due to participants “liking” more of the
information about their preferred candidates (i.e., the candidate the subject eventually voted for). In the negative cues condition, subjects liked almost 61% of the items they opened about the candidate they eventually voted for, compared to the 49% like rate in the positive cues condition ($p < .063$). Positive affect for the rejected candidates (because there are two rejected candidates, we used the average of the rates to simplify the analysis) was also higher among subjects in the negative cues condition than in the positive group, 31% to 24% ($p < .098$). The increased propensity of “likes” in the negative cues condition for the candidates may be evidence of a “correction effect” on par with that reported by Michnak et al. (2013)—observing a large amount of negativity surrounding a candidate, subjects may have felt compelled to offer their support, particularly for their favored candidate. In any case, we do not find support for H4.

[Insert Tables 3 and 4 about here]

Social Cues and Confirmatory Search

In an effort to explore the failure to support H4, even as social cues appear to influence information search, we consider whether rather than influence evaluations, the cues may have facilitated confirmatory information search by directing subjects’ attention away from negative items about their preferred candidate and towards positive items. If true, we would see a decrease in search related to the subject’s favored candidate in the social cues conditions as subjects avoid information with a large number of “dislikes” attached.

We examined how much information subjects accessed about their preferred candidates compared to the candidates for whom they did not vote, averaging the search totals of the two rejected candidates. The presence of social cues had no effect on the amount of information accessed about the rejected candidates ($F_{2, 134} = 1.975, p < .143$). Cues did, however, significantly
decrease information search about the favored candidate ($F_{2, 134} = 7.554, p < .001$). Subjects in the control condition looked at 21.16 items about their preferred candidate. But those in the positive cues condition examined 19.27 items ($p = .088$) and those in the negative cues condition, 16.51 ($p = .021$). Thus, we find that the reduction in information search reported earlier is driven by subjects’ decreased propensity to examine items about their favored choice.

This decrease could be explained by one of two processes: confirmation bias, but also by the use of a consensus heuristic. The latter would suggest that positive cues were taken as a sign that a candidate’s particular policy position was acceptable, leaving no need to actually examine it. To adjudicate between these two possibilities, we regressed the average number of item likes and dislikes on the rates at which items were opened for each of the candidates for the positive and negative cue groups (Table 5). If more positive cues attached to an item lead to a decrease in item opens, we would consider that evidence of consensus as subjects let the cues substitute for information acquisition. However, if confirmation bias is the culprit, more positive cues should increase item views while negative cues decrease (or have no effect on) views as subjects flock to good news about their candidate and avoid bad news.\textsuperscript{12}

The regression results are more consistent with confirmation bias. As Table 5 shows, for both liberal and moderate candidates, positive cues increased item opens. Negative cues decreased views for the liberal candidate in the negative condition, but otherwise had no effect on item views for these candidates. The pattern is reversed, however, for the conservative candidate; positive cues had no impact on item opens, but negative cues were associated with higher views. While at first these trends seem counter-intuitive, recall that we had more than

\textsuperscript{12} We use the average number of likes and dislikes during the duration of the experiment for this test. The general pattern of results holds when using the number of likes and dislikes that we had seeded the information with to begin the experiment.
twice as many Democratic subjects as Republican. Furthermore, the Democratic subjects had an exceedingly low opinion of the conservative candidate (mean feeling thermometer rating: 23.3). These results show that for the most part, our subjects sought out information with positive cues for the more liked candidates; however, negative cues led our subjects to examine more information about the least liked option. This is what we would expect to find if subjects were using cues to confirm their preferences—seeking out good information about a liked candidate and bad information about a disliked one.

[Insert Table 5 about here]

**Study 2 Data and Methods**

The unexpected finding that social cues, while directing information search, appeared to have little influence on candidate evaluation and the vote led us to design a second experiment, where subjects would come into our lab and become part of a team, attempting to identify whether or not their team’s candidate was going to win an election.

We recruited 85 subjects from the New Brunswick, NJ community, including students and non-students who participated in one of a series of experimental sessions in which they were divided into two teams, each of which had a preferred candidate. Ages of the subjects ranged from 18 to 77, with a mean of 31.4 (SD: 16.5). Participants were 51.8% female and 42.4% white. The modal subject was a college graduate and 23.5% of the sample had some post-graduate training. The income distribution of the sample was bimodal, with 24.7% reporting an income of less than $10,000 in 2013 and 20.8% indicating they earned between $75,000 and $100,000. Almost 93% (79/84) of the participants claim to have a social media account and 60.0% of them say that they engage in some sort of activity on social media “multiple times per day.” In terms
of political attitudes and behavior, 62.6% of the sample identifies with the Democratic Party and 38.1% say they are “liberal” or “extremely liberal.” On five-point scales of frequency of political discussion and interest in politics, the sample means are 2.98 (SD: 1.4) and 3.25 (SD: 1.17), respectively (higher values indicate more discussion and more interest). Just over half (53%) of the sample indicated that they voted in the 2012 Presidential election.

Subjects were instructed to evaluate the two candidates along 36 unique dimensions, using the same DPTE system employed in Study 1, but with a different set of candidates and campaign information. Their goal was to determine, based on their appraisals of the candidate’s policy stands, personality traits, and other characteristics, which of the two candidate would receive more votes from the both the study participants in their particular session as well as “past” participants. Upon arriving at the lab, subjects were randomly assigned to one of two teams (purple and green, representing political parties with a preferred candidate) and were informed that they had two possibly conflicting goals; first, to ensure that their team’s candidate won (by voting for him), and second, to vote for the winning candidate. Subjects were informed of the incentive structure, where in the absence of any clear signals as to which candidate would be victorious, the best strategy was to stay loyal to their team’s candidate. However, if the subjects believed their candidate was not a winner, they would be better off defecting to the other team. Thus, subjects were participating in a stylized election campaign using the DPTE system in which they had to choose whether to remain loyal to their team’s candidate or to defect to the other option.\(^\text{13}\)

\(^\text{13}\) Sessions had between 11 and 20 participants, divided as equally as possible between the two teams. The teams met in separate rooms to be briefed (using the minimal group paradigm) and were told that they should want the candidate for their team to win and that their payment at the end of the study would depend in part on two things: their own vote decision and the decision made by the rest of their teammates. The highest payoff came if the subject voted for their team’s candidate and the whole team voted for that candidate, and that candidate won.
Some of the information about the candidates available to all subjects included a set of social cues: likes, dislikes, shares, and comments. Subjects were randomly assigned to one of three conditions independent of their team assignment: a control condition, a winning condition, and a losing condition based on the social cues assigned to the candidate. The social activity was concentrated on eleven policy items for each candidate, on seven of which the positive cues (i.e., “likes” and positive comments) outnumbered the negative ones (“dislikes” and negative comments) in a roughly three to one ratio. On the remaining four items, the negative signals outweighed the positive ones by a similar ratio. The winning candidate was thus the politician who held the more favorable position on seven out of the eleven most popular items. In the neutral condition, the cues were balanced across all items and the winner was determined randomly.

Study 2 allows us to investigate whether the presence of social cues was sufficient to sway the decision-making strategies of the participants. In particular, we reconsider Hypothesis 4, which suggests that social cues should affect candidate evaluations, but which was not supported in Study 1, and Hypothesis 5, where we posited that social cues provide diagnostic information voters can use to determine if their party’s candidate is a winner or loser, driving decisions to stay loyal or defect from the party. If social cues worked as expected, the highest rate of defection should occur in the “losing” group; that is, when a subject’s candidate is

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14 Comment streams were possible in Study 2; Study 1 did not have comments. Subjects could read comments and leave their own. This paper does not analyze the results of those comment streams.
15 The eleven items were selected based on a pre-test in which a different set of subjects recruited through Mechanical Turk were asked to comment on and evaluate a wide range of items. We intended to pick the ten items that generated the most activity; two items tied for the tenth spot, so we used both. The comments we used for the items were drawn from ones the pre-test subjects wrote, so they had an air of realism.
associated with more negative cues, the subject should be more likely to defect than when the
candidate’s cues are positive or neutral. Alternatively, the highest rate of loyalty should occur in
the “winning” group; when a subject’s candidate is associated with more positive cues.

**Study 2 Results**

Before examining our hypotheses, we first determined whether subjects paid attention to
the 22 diagnostic items that were assigned cues (they had not been told about them in the initial
briefing). If they did not, then we would not expect cues to have any effect. These items, which
represent 30.5% of all the information in the study, comprised 42.4% (SD: 11.3) of the subjects’
total search. This proportion is significantly different from the rate we would expect if subjects
were opening items at random. However the proportion did not differ by winning or losing
treatment group (F2, 82 = .048, p < .953). It thus seems likely that the greater attention paid to
these items is more a function of their content—after all, the items were chosen because they
generated the most interest from the pre-test subjects—than to the attached cues.

On average, subjects examined about half of the diagnostic items associated with each
candidate, opening 6.1 (SD: 2.2) for the green team candidate and 5.6 (SD: 2.4) for the purple
team candidate. However, some significant differences do exist among the groups in terms of the
unique diagnostic item opens. Subjects in the control condition actively examined more of the
diagnostic items about each of the candidates than did subjects in the other groups, looking at 1.2
more items about the purple candidate (p < .024) and .88 more items about the green candidate
(p < .090). This result likely indicates that control group subjects were intent on finding some

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16 This calculation is based on unique item views; that is, multiple opens of the same item are not considered.
clue as to which candidate was more preferred given that the visible cues themselves were ambiguous.

Returning now to Hypothesis 4, that the presence of social cues should influence evaluations, unlike in Study 1, here we find some support for this hypothesis. Recall that subjects were told to identify the winning candidate and to determine if they should stay loyal or defect, not to necessarily vote for the candidate they liked best. Thus these evaluations, which came at the end of the study and included a feeling thermometer rating and an assessment of candidate competence, were incidental to the decision task at hand, and confirmatory search should not have been operating. From a normative perspective the cues should have had no influence on the subjects’ appraisals of the candidates. Even so, among the green team members (n = 39), the distribution of cues affected the final feeling thermometer ratings and evaluations of competence of their candidate. Specifically, when the green candidate was presented as the winner (i.e., provided with more positive cues), green team members gave him a feeling thermometer rating of 73.3 (SD: 19.9); however, when the same candidate with the exact same attributes was associated with negative cues, his thermometer rating decreased to 59.0 (SD: 20.7; p < .091).

Similarly, evaluations of the candidate’s competence were higher in the winning condition than they were in the losing condition (5.5 vs. 4.4, p < .030).

On the other hand, based on feeling thermometer ratings, purple team members liked the purple candidate equally, regardless of the positive or negative cues (68.5 in the negative group vs. 67.5 in the positive group, p < .895), showing no effects of social cues. But ratings of competence were affected by the social cues. When the purple candidate was in the winning condition, his team members gave him a 5.7 (SD: .46) score; in the losing condition, the competence rating dropped to 4.9 (SD: 1.0; p < .043). These results suggest that the level of
social support associated with a politician’s policies can influence voters’ evaluations of the candidate at least under some circumstances, particularly when motivated in a way that should minimized confirmatory search patterns.

Finally, we test Hypothesis 5, where we predicted that the presence of social cues would condition the likelihood that subjects would stay loyal or defect from their team. In other words, we are looking for a process where subjects firstly, recognized the message being given by the cues, and secondly, acted upon it assuming others were doing so as well. To examine this hypothesis, we created a dichotomous dependent variable coded 0 if the subject stayed loyal to his team’s candidate and 1 if she defected to the other politician. We ran a logistic regression (Table 6) with dummy variables for group (winning group and losing group) as well as for team (coded 0 if subject was on the green team and 1 if on the purple).

For ease of interpretation, the logistic coefficients were transformed into predicted probabilities and causal effects were estimated based on 1000 simulations from the regression model and are shown in Figure 4. First, we find that as expected, defections were highest among subjects in the losing condition. When we presented the subjects’ team a candidate with a majority of negative cues, the defection rate was 41.2% (SD: 8.7); this rate was significantly higher than the 15% (SD: 7.3) defection rate in the control group as well as the 14.6% (SD: 8.7) rate in the winning group. However, we presumed that the lowest defection rate (i.e., greatest loyalty) would be found in the winning group but the rate of loyalty in this group is no different from that in the control group. Although both the control and winning groups were overwhelmingly loyal to their team’s candidate, the positive cues did not improve loyalty over
the rate found in the control group, in which the cues were ambiguous. This may be a factor of
our instructions which suggested that the dominant strategy in the case of uncertainty was to stay
loyal. Those subjects who should have been uncertain – the control group – did stay loyal, but
given their low rate of defection, the winning condition’s likelihood of loyalty was probably
limited by a floor effect; they could not have been much more loyal than the control group in any
case. Ultimately we do find evidence for Hypothesis 5, but the evidence appears mixed,
suggesting that only the negative cues had the power to influence levels of team loyalty over
mixed cues, perhaps reinforcing the idea that negativity has more influence than positivity.

[Insert Figure 4 about Here]

We should note that the logistic regression results also revealed a significant effect of
team assignment on defection rates. As Figure 5 charts, green team members in all groups were
significantly more likely to defect than were purple team members. In the control and winning
groups (top and middle panel, Figure 5), 27% of green members defected compared to only 8.2%
of purple group members. Similarly, in the losing group (bottom panel), 60% of the green team
members defected while only 26% of the purple team did. The most likely explanation for this
pattern is that study participants overall simply liked the purple candidate more than they did the
green candidate. In fact, at the end of the studies, subjects gave the purple candidate a mean
feeling thermometer rating of 70.7 (SD: 18.0), significantly higher than the 57.4 (SD: 21.7)
rating given to the green candidate ($p < .000$). This finding suggests that interpretation of social
cues may be subject to motivated reasoning: despite the monetary incentive offered for correctly
interpreting the cues, the purple team was far less willing to defect from their favored candidate
than were the green team members.
Discussion

To summarize our key findings, we find that social cues have an effect on information processing strategies. Social signals increase the time spent examining items, reduce information costs, and focus attention on particular issues. However, these significant changes in information acquisition had little effect on evaluations of candidates in a simple election campaign environment where the (unstated) goal was to identify the preferred candidate. But as Study 2 showed, under certain circumstances people can correctly interpret social cues and factor these signals into their voting decisions. However, the extent to which participants took advantage of these cues appeared to be conditional on their general favorability towards the candidates. This finding in Study 2 is particularly interesting given that subjects had a monetary incentive to vote for the more popular candidate; however, this incentive was muted by the participants’ own evaluations of the politicians. Our data also show that the presence of social cues can influence how subjects view politicians, suggesting that people may evaluate politicians less favorably when there are a large degree of negative social signals associated with them. These results have a number of potentially important implications.

First and foremost, our results suggest that even as social cues appear to influence information search, the effect of impersonal influence on evaluations may be limited to the kinds of low information scenarios that were the focus of much of Mutz’s (1998) research. When voters are sufficiently motivated to seek out more information about their choices, and the information is available, the influence of the knowledge of others’ opinions may be mitigated. But if motivated to consider a candidate’s prospects, rather than their own preferences, and to
think about them in the context of winning or losing as a team, we see a particular effect for negative social cues, which seem to drive defection from the team’s candidate.

Second, our findings demonstrate the persistence of preferences and the ubiquity of confirmation bias (Nickerson 1998). While we find evidence that subjects were more engaged with cued information, that engagement did not alter subjects’ basic preferences in Study 1—instead, they simply shifted their focus to more positive information about the candidate they favored. Furthermore, when we insinuated that the policies of a candidate were disliked by a majority of people who viewed them, this knowledge did not cause our participants to sour on the politician; they simply dug in their heels and attempted to counteract these ratings by increasing the rate at which they liked items they encountered, which suggests not just a confirmation bias, but also some of the underpinnings of motivated reasoning (Redlawsk 2002; Redlawsk, Civettini and Emmerson 2010.) Yet, when the incentive structure was set up to focus on identifying whether one’s own candidate is a winner or loser in the battle for social cues, confirmation bias may have been overcome, as the existence of cues appeared to change the ultimate evaluations of the candidates in this situation, even when nothing else about the candidates changed. A motivation to accuracy may have overcome bias, as has been shown elsewhere (Redlawsk 2002).

Conclusion

When Diana Mutz was writing *Impersonal Influence*, one of her concerns was how the media could unduly influence perceptions and attitudes by such simple acts as reporting poll results or drawing attention to national trends in economics or crime. But the dynamic between the citizen and the media has changed markedly in the years since her book appeared. One of the
interesting side stories of the 2012 Presidential campaign was the debate that arose over the predictive validity of polls. When a number of prominent polling outlets suggested that Barack Obama would likely win the race, many supporters of his opponent devoted their energies to discrediting these polls or producing alternative polls more favorable to Mitt Romney. In the past, when a voter learned his favorite candidate was behind in the polls, he may have used that information to update his preferences. But now, an engaged voter can go online and likely find a poll that shows his candidate is ahead or gaining momentum. Or perhaps he can read an analysis of why polls are flawed. It could be the case that in the era of greater media choice, the choice many people make will be to confirm their beliefs rather than re-examine them, even as social cues provide them with the possibility of taking in more impersonal influence than ever before.
References


Figure 1: Information Board

- Wendell's Stand on Climate Change
- Wendell's Favorite Movie
- Martinez's Stand on the War on Terror
- Huskins' Stand on Teaching Evolution in Schools
- Ken Huskins' Position on Marriage Equality
- Gabe Martinez's Policy on Climate Change
Figure 2: Information Board with Social Cues

- **Wendell's Policy on Taxes**
  - Share: 23, Like: 29, Dislike: 27

- **Gabe Martinez's Picture**
  - Share: 0, Like: 0, Dislike: 1

- **Gabe Martinez's Position on Campaign Finance**
  - Share: 3, Like: 0, Dislike: 11

- **Ken Huskins' Religion**
  - Share: 6, Like: 7, Dislike: 5

- **Gabe Martinez's Scandal**
  - Share: 5, Like: 0, Dislike: 5

- **Gabe Martinez's Campaign Slogan**
  - Share: 3, Like: 7, Dislike: 5
Figure 3: Distribution of Item Views Per Subject by Group, Study 1
Figure 4: Defections by Experimental Group, Study 2
Figure 5: Defections by Team Membership, Study 2
Table 1: Item Popularity by Experimental Group, Study 1

<table>
<thead>
<tr>
<th>Control Group</th>
<th>Positive Cues</th>
<th>Negative Cues</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Issue/Candidate</td>
<td></td>
</tr>
<tr>
<td>1. Abortion/LC</td>
<td>1. Immigration/LC</td>
<td>1. Terrorism Policy/LC</td>
</tr>
</tbody>
</table>
Table 2: Effect of Seed Cues on Policy Item Opens, Study 1

<table>
<thead>
<tr>
<th>Condition</th>
<th>Negative Cues Condition</th>
<th>Positive Cues Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>.733 (.033)</td>
<td>.744 (.025)</td>
</tr>
<tr>
<td>Initial Likes</td>
<td>-.007 (.009)</td>
<td>.007* (.003)</td>
</tr>
<tr>
<td>Initial Dislikes</td>
<td>.008* (.004)</td>
<td>.004 (.008)</td>
</tr>
<tr>
<td>N (items)</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>Adj. $R^2$</td>
<td>.037</td>
<td>.131</td>
</tr>
</tbody>
</table>

DV: item views per subject
Cell entries are unstandardized OLS coefficients
*p < .05
<table>
<thead>
<tr>
<th></th>
<th>Democratic Primary (n = 62)</th>
<th>Republican Primary (n = 26)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Negative Cues Condition (n = 28)</td>
<td>Positive Cues Condition (n = 34)</td>
<td>P value of difference</td>
</tr>
<tr>
<td>Liberal Candidate Like Rate</td>
<td>.497 (.236)</td>
<td>.403 (.237)</td>
<td>.125</td>
</tr>
<tr>
<td>Liberal Candidate Dislike Rate</td>
<td>.085 (.102)</td>
<td>.042 (.071)</td>
<td>.054</td>
</tr>
<tr>
<td>Moderate Candidate Like Rate</td>
<td>.348 (.235)</td>
<td>.303 (.217)</td>
<td>.433</td>
</tr>
<tr>
<td>Moderate Candidate Dislike Rate</td>
<td>.132 (.145)</td>
<td>.100 (.093)</td>
<td>.292</td>
</tr>
<tr>
<td>Conservative Candidate Like Rate</td>
<td>.170 (.172)</td>
<td>.099 (.120)</td>
<td>.064</td>
</tr>
<tr>
<td>Conservative Candidate Dislike Rate</td>
<td>.389 (.243)</td>
<td>.395 (.272)</td>
<td>.961</td>
</tr>
</tbody>
</table>

Cell entries are total number of “likes” or “dislikes” divided by total information accessed
Standard deviations in parentheses
Table 4: Like and Dislikes for All Candidates, Study 1

<table>
<thead>
<tr>
<th></th>
<th>Negative Cues Condition (n = 37)</th>
<th>Positive Cues Condition (n = 51)</th>
<th>P value of difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Like Rate, All Candidates</td>
<td>.433 (.201)</td>
<td>.354 (.214)</td>
<td>.054</td>
</tr>
<tr>
<td>Dislike Rate, All Candidates</td>
<td>.236 (.168)</td>
<td>.187 (.144)</td>
<td>.141</td>
</tr>
<tr>
<td>Like Rate, Preferred Candidate</td>
<td>.607 (.287)</td>
<td>.489 (.294)</td>
<td>.063</td>
</tr>
<tr>
<td>Dislike Rate, Preferred Candidate</td>
<td>.117 (.137)</td>
<td>.085 (.135)</td>
<td>.275</td>
</tr>
<tr>
<td>Like Rate, Other Candidates</td>
<td>.313 (.196)</td>
<td>.238 (.212)</td>
<td>.098</td>
</tr>
<tr>
<td>Dislike Rate, Other Candidates</td>
<td>.314 (.200)</td>
<td>.268 (.209)</td>
<td>.301</td>
</tr>
</tbody>
</table>

Cell entries are total number of “likes” or “dislikes” divided by total information accessed
Standard deviations in parentheses
“Preferred Candidate” is the politician subject voted for at the end of the study
“Other Candidate” represents the average like and dislike rates for the remaining candidates
Table 5: Effect of Cues on Item Opens by Candidate, Study 1

<table>
<thead>
<tr>
<th>Candidate</th>
<th>Condition</th>
<th>Negative Cues</th>
<th></th>
<th>Positive Cues</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Coefficient</td>
<td></td>
<td>Coefficient</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(SE)</td>
<td></td>
<td>(SE)</td>
<td></td>
</tr>
<tr>
<td>Liberal Candidate</td>
<td>Constant</td>
<td>.364 (.043)</td>
<td></td>
<td>.417 (.062)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Item Likes</td>
<td>.037** (.005)</td>
<td></td>
<td>.017* (.006)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Item Dislikes</td>
<td>-.010* (.004)</td>
<td></td>
<td>.006 (.015)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N (items)</td>
<td>33</td>
<td></td>
<td>33</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adj. $R^2$</td>
<td>.650</td>
<td></td>
<td>.411</td>
<td></td>
</tr>
<tr>
<td>Moderate Candidate</td>
<td>Constant</td>
<td>.287 (.052)</td>
<td></td>
<td>.334 (.061)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Item Likes</td>
<td>.037** (.008)</td>
<td></td>
<td>.020** (.006)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Item Dislikes</td>
<td>.003 (.005)</td>
<td></td>
<td>.008 (.013)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N (items)</td>
<td>33</td>
<td></td>
<td>33</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adj. $R^2$</td>
<td>.532</td>
<td></td>
<td>.419</td>
<td></td>
</tr>
<tr>
<td>Conservative</td>
<td>Constant</td>
<td>.294 (.039)</td>
<td></td>
<td>.352 (.034)</td>
<td></td>
</tr>
<tr>
<td>Candidate</td>
<td>Item Likes</td>
<td>.014 (.009)</td>
<td></td>
<td>.015 (.008)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Item Dislikes</td>
<td>.027** (.007)</td>
<td></td>
<td>.021** (.006)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N (items)</td>
<td>33</td>
<td></td>
<td>33</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adj. $R^2$</td>
<td>.577</td>
<td></td>
<td>.612</td>
<td></td>
</tr>
</tbody>
</table>

DV: Item Opens per subject
Item likes and dislikes are the average of the number of initial cues and the number of cues at the end of the experiment
Cell entries are unstandardized OLS coefficients
* p < .05
** p < .01
Table 6: Logistic Regression Results, Likelihood of Defecting, Study 2

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>Std. Error</th>
<th>Z value</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-1.057</td>
<td>.603</td>
<td>-1.753</td>
<td>.079</td>
</tr>
<tr>
<td>Winning Group</td>
<td>-.042</td>
<td>.855</td>
<td>-.050</td>
<td>.960</td>
</tr>
<tr>
<td>Losing Group</td>
<td>1.498</td>
<td>.663</td>
<td>2.257</td>
<td>.023</td>
</tr>
<tr>
<td>Team</td>
<td>-1.513</td>
<td>.571</td>
<td>-2.647</td>
<td>.008</td>
</tr>
</tbody>
</table>

Null deviance: 99.25 on 84 degrees of freedom
Residual deviance: 81.08 on 81 degrees of freedom
AIC: 89.08