UC Irvine
UC Irvine Previously Published Works

Title
From Primary to Presidency: Fake News, False Memory, and Changing Attitudes in the 2016 Election

Permalink

Journal

ISSN

Authors
Grady, Rebecca Hofstein
Ditto, Peter H
Loftus, Elizabeth F
et al.

Publication Date

DOI

Peer reviewed

From Primary to Presidency: Fake News, False Memory, and Changing Attitudes in the 2016 Election

Rebeca Hofstein Grady*[1], Peter H. Ditto[1], Elizabeth F. Loftus[1], Linda J. Levine[1], Rachel Leigh Greenspan[2], Daniel P. Relihan[1]

[1]Department of Psychological Science, University of California Irvine, Irvine, USA

[2]Department of Criminal Justice and Legal Studies, University of Mississippi, University, USA

* Department of Psychological Science, University of California, Irvine, 4201 Social & Behavioral Sciences Gateway, Irvine, CA 92697-7085, USA. email: grady.becky@gmail.com

During a contentious primary campaign, people may argue passionately against a candidate they later support during the general election. How do people reconcile such potentially conflicting attitudes? This study followed 602 United States citizens, recruited from Amazon Mechanical Turk, at three points throughout the 2016 presidential election investigating how attitudes and preferences changed over time and how people remembered their past feelings. Across political parties, people's memory for their past attitudes was strongly influenced by their present attitudes; more specifically, those who had changed their opinion of a candidate remembered their past attitudes as being more like their current attitudes than they actually were. Participants were also susceptible to remembering false news events about both presidential candidates. However, they were largely unaware of their memory biases and rejected the possibility that they may have been susceptible to them. Not remembering their prior attitude may facilitate support of a previously disliked candidate and foster loyalty towards a party nominee during a time of disunity by forgetting they ever used to dislike the candidate.

In national presidential elections in the United States, voters must consider a wide range of factors when deciding for whom to vote. Information accumulated over many years may influence what voters remember, know, and feel about each candidate when they make their voting decision. While the final vote in the general election gets the most national attention, the process leading up to this outcome often includes contentious primary campaigns, where major political parties run within-party elections to determine their party's final nominee. During a contentious primary, many party members may passionately campaign *against* the person who will eventually be their party's nominee (Sides et al., 2020). However, even after divisive primaries, most party members end up voting for their party's nominee, and the level of primary divisiveness has a minimal effect on general election outcomes (Atkeson, 1998).

How do people reconcile their potentially conflicting attitudes, moving from arguing that a candidate is against their values to then supporting that same person only months later? The more heated a primary campaign becomes, the more difficult it may seem to rally a party's base towards supporting the eventual nominee, and the more conflicted people may be about their vote in the general election. It is easier cognitively to hold consistent views on people and issues (e.g., this person is good, they support my views, and it is right to vote for them) than inconsistent ones. When a person holds conflicting views (e.g., "I don't feel favorable towards this person," and "I am going to vote for this person,"), it may be easier for them to change their views than to confront the reality that they are voting for a person they do not particularly like (Festinger, 1962; Aronson, 1969). When a person holds mixed views towards a decision but is leaning in one direction, they may preferentially favor new information that

supports their desired conclusion – this helps ensure that by the end of the decision-making process, their preferred outcome ends up seeming more clearly the optimal choice (Read et al., 2003). In an election where the final nominee is especially disliked by many within their own party, this effect may be particularly strong to reduce voters' internal dissonance about their selected candidate.

In the present study, we examined voters' attitudes and memories during the heated 2016 U.S. presidential election. Specifically, we followed a group of U.S. citizens from the primary campaign through the presidential inauguration to investigate how people's opinions of candidates shift and how they deal with such attitude change. This election served as an ideal arena to investigate these issues, given the contentious primary campaigns of both major political parties. Democrats had a challenge between a disliked but well-established party insider in Hillary Clinton and a progressive party outsider in Bernie Sanders. Republicans had a choice between another party-outsider in Donald Trump and several long-time party members, with top contenders being Ted Cruz and John Kasich. Both parties had candidates with dedicated supporters who advocated strongly against other primary contenders, and two historically disliked eventual nominees (Saad, 2016). What happens to people's beliefs and memories about their preferred and non-preferred candidates over the course of the election process? Would those who had previously disliked the candidate who became the nominee remember the strength of their previous attitudes? Would people be susceptible to false information that supported their party's candidate? We explored these questions in the current study.

Research on Memory for Attitude Change

Human memory is frequently biased. As time passes, memories fade and are prone to inaccuracies and changes from outside influences (Loftus, 2005; Schacter et al., 2011). One type of memory bias is the tendency for people to remember their past attitudes and preferences as being more like their current attitudes than they actually were. For example, many people change their preferences over the years on how they would want to be treated in difficult health scenarios, but when asked, most believe they always held their current preference (Gready et al., 2000; Sharman et al., 2008). Experimentally manipulated changes in attitudes are also often undetected; findings from classic dissonance studies show that when people are forced to justify a counter-attitudinal position, their attitudes will change to be more in line with this position. Later, people then falsely recall that their prior beliefs were the same as their current, experimentally manipulated, beliefs (Bem & McConnell, 1970; Ross, 1991).

This effect is similar to hindsight bias – people's tendency to be unaware that their memory of a past event is affected by their knowledge of the eventual outcome (Fischhoff, 1975). In one study, researchers assessed people's beliefs before and after the 1984 general election and found people misremembered having believed that the eventual winner had a higher chance of winning than they had reported earlier (Powell, 1988).

Memory bias has also been observed for past emotions. People more easily recall emotional events that are consistent with their current mood (Forgas & Bower, 1987). People also tend to misremember their past emotions as being more like their current emotions than they actually were. Levine (1997) assessed the emotions and

appraisals of supporters of presidential candidate Ross Perot throughout the 1992 election as Perot dropped out of the race and then re-entered several months later. Participants who rejected Perot after he dropped out, but later ended up voting for him, remembered feeling less angry at the time of his withdrawal than they actually were. Those who remained consistently unsupportive of Perot accurately remembered their earlier anger.

How can people be so unaware of major changes in their own attitudes? One contributor to this type of bias is people's implicit theories about what kinds of attitudes and traits are stable over time (Powell, 1988). When people believe that something will be stable over time, like their personal attributes, they have a bias towards remembering greater consistency. Alternatively, if people expect a change (e.g., if they have just gone through a self-improvement program), they are more willing to remember their past as being different (McFarland & Ross, 1987). Individuals vary in how much they care about being and seeming internally consistent (Guadagno & Cialdini, 2010), which could also impact this bias. Similarly, those who have a tendency to self-enhance (Krueger, 1998) might be more susceptible to this congruency effect because of an unrealistically positive (and more inaccurate) view of themselves overall (John & Robins, 1994).

Motivated False Memory

Memory bias is not just shown in how people misremember what happened, but also in their propensity to falsely remember events that did not happen. People's pre-existing attitudes or stereotypes impact their likelihood of remembering false information that coheres with these beliefs (Lenton et al., 2001). For example, people were more

likely to remember false news events that showed a member of their non-preferred political party engaging in a negative action than false news events that showed a member of their preferred political party engaging in a negative action (Frenda et al., 2013). A similar study of false memory during Ireland's 2018 abortion referendum also found such congruency effects (Murphy et al., 2019). Some evidence suggests that people with more interest (O'Connell & Greene, 2017) and experience (Mehta et al., 2011) in a topic are more likely to develop false memories about it. Because of the high interest in politics that the 2016 election sparked in people, partisans (i.e., those affiliated with a particular party or candidate) may have been particularly susceptible to endorsing false memories that are consistent with their political attitudes.

People's susceptibility to forming false memories of fabricated news stories is especially important to understand given the increasing amount of "fake news" online (Rich & Kavanagh, 2018). Exposure to false news events can be particularly problematic as the impact of misinformation is difficult to correct, especially after the fact (Lewandowsky et al., 2012; Lewandowsky et al., 2020). Indeed, even after misinformation is retracted, its influence often remains, a finding known as the continued influence effect (Johnson & Seifert, 1994; Walter & Tukachinsky, 2019). This effect is particularly pronounced for real-world misinformation and misinformation in the political domain (Walter & Murphy, 2018). People are more likely to uncritically accept fake news that aligns with their ideological beliefs. They engage in more analytical reasoning to reject fake news when it challenges their beliefs, leading to the appearance of partisan bias in judgments of political fake news (Pennycook & Rand, 2019).

Current Study

In the current study, we followed a group of U.S. adults throughout the 2016 presidential election, asking about their attitudes, memories, and feelings at three time points: during the primary season, just before the general election, and two months after the general election. We assessed changes in attitudes towards the candidates over time, memory for past attitudes, perceptions of memory accuracy, memory for true and false news items, and awareness of the biasing influence of current attitudes on past recall.

Hypotheses

We had four specific hypotheses about how memories and attitudes would change over time. First (H1), we hypothesized that participants who came to feel more favorable about a candidate over time would remember having felt more favorable towards that candidate in the past than they actually did. We expected to find the reverse pattern for those whose beliefs became less favorable over time. Second (H2), we hypothesized that most participants would report being unaware of this change in their memories, even after being informed about the potential for memory change. Third (H3), we hypothesized partisans would be more likely to falsely remember supporting the winner of their party's primary than to falsely remember supporting the loser. Finally (H4), we hypothesized that negative false news items about a candidate would be more likely remembered by that candidate's opponents, while positive false news items would be remembered more by that candidate's supporters.

Method

Participants

Participants were U.S. adults recruited from Amazon Mechanical Turk[i]. They were told the study was a university study about political attitudes, not affiliated with any party or candidate. The overall study consisted of three surveys across a nine-month period. The first survey took place from May 9th through May 11th, 2016 and paid $0.70. This time period was chosen because it was two months before the parties' national conventions and thus in the heat of the primary campaigns. When the survey began, Donald Trump had recently been named the presumptive nominee of the Republican Party but had not yet been officially nominated, while Hillary Clinton was significantly ahead of Bernie Sanders but had not yet officially won the nomination for the Democratic Party.

A total of 602 participants completed the first survey (Time 1; M_{age} = 35.63, SD_{age} = 10.36; 59% male; 76% Non-Hispanic White; of whom 380 [63%] identified as Democrats, 164 [27%] identified as Republicans, and 58 [10%] identified as independent or neither). Detailed demographic information is available in Table S1 in the supplemental material. The goal for the sample size was to have at least 40 participants in each of the main groups (i.e., at least 40 Democrats and Republicans who supported the leading nominee and 40 of each party who supported someone else, accounting for an expected 50% attrition) to have 80% power at an α of .05 to detect a medium effect size of f = .25 for between-group comparisons at Time 2.

The second survey (Time 2) was completed during the last week of October and the first week of November 2016, just before the general election, and paid $0.75. This

time point was chosen to capture people's attitudes as close as possible to the general election when they might be most invested in their candidate's chances and before they would be affected by the election's outcome. Four hundred and fourteen participants completed the follow-up, a return rate of 69%. There were no differences in return rate by Time 1 political party, Pearson χ^2(2, N = 602) = 4.57, p = .102, Cramer's V = .07.

The third survey (Time 3) was completed during the middle two weeks of January 2017, just before the presidential inauguration, and paid $0.80. This allowed us to look at reactions to the election's outcome, investigate any changes in candidate perceptions since before the election, and include additional individual difference measures. Three hundred twenty-nine participants completed the Time 3 survey, a return rate of 79% from Time 2 and 55% from the full sample at Time 1. There were again no differences in return rate by political party since Time 1, Pearson χ^2(2, N = 602) = 3.06, p = .217, Cramer's V = .04, or since Time 2, Pearson χ^2(2, N = 414) = .11, p = .945, Cramer's V = .00.

Procedures

Time 1

The full questionnaires for all three time points are included in the online supplemental material. At the start of the survey, participants answered questions about their political ideology, party affiliation, and their interest and participation in the election. They then provided favorability judgments towards the most recent top two candidates from both major political parties: Donald Trump, Ted Cruz, Hillary Clinton, and Bernie Sanders. Based on political affiliation reported, participants answered follow-up

questions, such as favorability towards the candidates and views about the major political parties. At the end of the survey, participants answered demographic questions.

Time 2

Participants first answered questions about political ideology, political affiliation, and election activity (identical to Time 1). They also answered a new question about who they planned to vote for (or had already voted for) in the general election.

Next, we told participants we wanted to know their *current* attitudes towards the candidates, regardless of whether their answers had changed from the initial survey. Candidate attitudes were measured with the same questions as Time 1 (e.g., about favorability of the four candidates, perceptions of the major parties) to enable analyses investigating change in attitudes over time.

Participants were then told that the next set of questions focused on thoughts and feelings they had about the election when they completed the initial survey during May (Time 1), *not* on their current attitudes. They were asked to think back to how they felt in May and answer the questions the same way they had then. After completing this task, participants answered several questions about their experience with this task, such as how difficult it was to recall their past attitudes.

In the last section of this survey, participants read a brief summary of 18 news events, nine about Donald Trump and nine about Hillary Clinton, and were asked about their memory of each event. Most of the events were true, but there were three false items for each candidate. The order of the events was randomized for each participant. Directly after this section, participants were debriefed about the false items and were

required to remain on the page long enough to read the debrief and acknowledge they knew the items were false before finishing the study.

Time 3

As in the previous surveys, participants first reported their ideology and political affiliation, followed by who they voted for (if they voted). After this, the survey was similar to Time 2, with participants first reporting their current attitudes towards the candidates and political parties and then reporting on their memory of how they felt at Time 2. Participants next answered questions that assessed their preference for consistency, disposition towards conspiratorial thinking, tendency for self-enhancement, and views on traditional and online news sources. At the end of the survey, we measured participants' awareness of memory bias by asking them an open-ended question about whether they believed their memory of their past feelings was impacted by their current attitudes.

Measures

Outcome Variables

Memory of favorability (Time 2 & 3). The primary measure of how participants remembered feeling towards each candidate was assessed by responses to the question, "When you took the survey in [May/November], how favorably or unfavorably did you view each of the following current or former candidates?" For each of the four candidates, participants responded using a slider bar from 0 (*Completely unfavorable*) to 100 (*Completely favorable*). This response was compared with participants' actual reports of their attitudes from that time point.

False memory count (Time 2). Participants read a brief summary of 18 news events and were then asked about their memory of each event, with response options: "*I remember this happening*," "*I know this happened but I don't remember any other details about it*," or "*I do not remember this happening*." Twelve of the events were true, but there were three false items (one positive and two negative) for each candidate. For Clinton, the false events were that she broke from campaigning to raise money for Hurricane Matthew victims (positive), she swore at a Trump supporter after a rally (negative), and she embezzled general funds meant for other candidates (negative). For Trump, the false events were that he held a fundraiser for the Flint Water Crisis (positive), he used a racial slur against Hispanics while in Mexico (negative), and that a photo showed he shook hands with Putin in Russia (negative)[ii]. We defined false memory as those who reported a full memory of the event (i.e., those who selected "*I remember this happening*"), to more precisely capture false memory and not belief that a news item seemed familiar (Gardiner, 1988; Hassan & Barber, 2021; Polage, 2012). Participants scored from 0-6 for how many total false items they reported remembering.

Awareness of memory bias (Time 3). Participants read a brief summary explaining how memory for past attitudes can be biased by current attitudes and then answered a free response question about whether they believed that might have happened to them. Two trained coders evaluated each response. Responses coded as "yes" include those who said they thought their memory might have been affected by current attitudes (e.g., "*Yes, I feel more negatively towards Hillary Clinton now than I did before the election, and that may have colored my opinions about my opinions in he [sic] past*"), as well as those who indicated uncertainty ("*I have no idea if it happened or not*"). "No" responses

were coded as such if the participant denied any chance of memory bias ("*no. I feel more uncertain about Trump, but I don't think this affected my answers*") or if they did not mention memory at all ("*Trump as president wasnt my first choice but I'll have fewer regrets with him than with Hillary Clinton*"). The coders agreed 85% of the time, Cohen's κ= .63, 95% CI [.55, .72], and discrepancies were resolved by the first author.

Predictor Variables

Political party affiliation (Time 1). Political party affiliation was measured by asking participants to report which party they identify with. Participants who did not identify as Republican or Democratic answered a follow-up question asking whether they leaned more towards being a Democrat, Republican, or neither. Similar to political polls, leaners were grouped with party members, as independents who profess a leaning to one party generally vote and hold preferences similarly to party identifiers (Keith et al., 1986; Klar & Krupikov, 2018).

Candidate favorability (Time 1, 2, and 3). For each of the four candidates, participants were asked how favorable or unfavorable they felt about the candidate from 0 (*Completely unfavorable*) to 100 (*Completely favorable*).

Candidate support (Time 1 & 2). At time 1, Democrats were asked who they preferred to win the Democratic nomination – Hillary Clinton, Bernie Sanders, someone else (write-in), or unsure. Republicans were asked, before Trump was named the presumptive nominee, who they preferred to win the Republican nomination – Donald Trump, Ted Cruz, John Kasich, Marco Rubio, Jeb Bush, Ben Carson, someone else (write-in), or unsure. Independents were asked who they preferred to win the general election with an open text box.

At Time 2, all participants were asked who they would vote for if the presidential election were being held that day – Clinton, Trump, or other (write-in).

Moderators

A variety of moderators were included for exploratory analyses on the bounds of the effects studied here and factors that may be conceptually related to memory congruency, bias, or susceptibility to false information. Many were assessed using single items or shortened scales so that we could test a variety of exploratory variables without adding to participant fatigue.

Interest in the 2016 Presidential Election (Time 1). Participants were asked, "How interested have you been in following the 2016 presidential election?", with response options from 1 (*Not at all interested*) to 5 (*Extremely interested*).

Candidate congruence. A categorical variable was created where participants were labeled *congruent* (1) when evaluating the candidate they supported in the 2016 primary election, and *incongruent* (0) when evaluating a candidate other than whom they supported in the primary.

Confidence in memory accuracy (Time 2). After reporting on their memory for their Time 1 attitudes, participants were asked, "How accurate do you think you were in recalling your previous attitudes?" and responded from 1 (*Completely guessing*) to 7 (*Completely accurate*) to see if those more confident in their memory accuracy would be more or less accurate in recalling past attitudes.

Preference for consistency (Time 3). Preference for consistency was measured using three items from the Preference for Consistency Scale-Brief (e.g., "I want my close friends to be predictable"). The three chosen items highly correlated to the overall

score and "refer to general notions of consistency, predictability, and stability" (Cialdini et al., 1995, p. 325). Each item was rated from 1 (*Strongly disagree*) to 5 (*Strongly agree*). The three items were averaged to create a composite score (Cronbach α = .61).

Self-enhancement (Time 3). Self-enhancement was measured using the Balanced Inventory of Desirable Responding (Hart et al., 2015). Participants answered the items from 1 (*Not true*) to 7 (*Very true*), which were averaged together to create a self-enhancement composite score (Cronbach α = .87), to see if those who self-enhance may also report greater consistency in their views and memories than was actually present.

Conspiratorial thinking (Time 3). Tendency for conspiratorial thinking was measured with one item: "Big events like wars, recessions, and the outcomes of elections are controlled by small groups of people who are working in secret against the rest of us" (Uscinski et al., 2016). Participants rated their agreement with this statement from 1 (*Strongly disagree*) to 5 (*Strongly agree*). This item was included as conspiratorial thinking has been linked to fake news susceptibility in other studies (Halpern et al., 2019).

Perceptions of media credibility (Time 3). Participants were asked five items capturing perceived credibility of traditional and internet media. For each type of media, participants rated how often they thought that form of media was fair, accurate, unbiased, told the whole story, and trustworthy on a scale from 1 (*Never*) to 5 (*Always*). These five items were average across each media type to create a traditional (Cronbach α = .94) and internet (Cronbach α = .92) media skepticism composite, as

higher trust in online information can lead to greater fake news sharing (Talwar et al., 2019).

 General trust in people (Time 3). Trust in others was measured with a single-item: "I think that most people can be trusted" on a scale from 1 (*Strongly disagree*) to 5 (*Strongly agree*) to see if general trust affected susceptibility to the false news items presented (Halpern et al., 2019).

Open Practices Statement

 The data and code for this study are publicly accessible at https://osf.io/dmcbx/. All analyses were conducted using R version 4.0.3 (R Core Team, 2020). The materials for the study are available through the online supplemental materials. This study was not pre-registered.

Results

 The results are organized by each of the four main hypotheses. For each hypothesis, we begin by detailing the data analysis plan and then present the corresponding results.

Attitude and Memory Change

 We predicted that participants who came to feel more favorable about a candidate over time would remember feeling more favorable towards them in the past than they actually did, and the reverse for those who grew less favorable. To test this effect across candidates, a mixed effects model was constructed predicting memory of prior candidate favorability from current candidate favorability, controlling for prior

candidate favorability and Time 1 political party affiliation (Democrat, Independent / Neither, Republican) and with by-participant and by-candidate random intercepts. This model was constructed for both memory at Time 2 of Time 1 candidate favorability and for memory at Time 3 of Time 2 candidate favorability (for more details on model specification, see supplemental material).

A Wald χ^2 test was then conducted to test whether there was a significant difference in the size of standardized regression coefficients between current and past candidate favorability scores on memory of past candidate favorability. This would suggest that, compared to past candidate favorability judgment, current candidate favorability judgment is a stronger predictor of memory of past favorability judgment.

We then tested several moderators. To test for a potential anchoring effect in which answering current favorability attitude questions may have anchored participants' memory of past favorability attitude, the same mixed effects models were conducted with the inclusion of a prior x current candidate favorability interaction term. This examined whether the association between prior candidate favorability and memory of prior candidate favorability depended on current candidate favorability attitude. We also tested whether the association between current candidate favorability attitude and memory of past attitude, controlling for past attitude, depended on Time 1 political party affiliation, whether the candidate being evaluated is who a given participant supported in the primary election (i.e., congruency), preference for consistency, self-enhancement, or confidence in memory accuracy.

Table 1 presents the favorability ratings for Clinton and Trump reported at each time point by political party affiliation and Clinton and Trump support (see Table S2 and

Figure S2 in the Supplemental Material for Cruz and Sanders favorability ratings over

time). It also displays the main dependent variable of memory: what participants

remembered at Time 2 and Time 3 of having felt at Time 1 and Time 2, respectively.

Figure 1 depicts the group averages for favorability ratings over time, as well as

individual trajectories, for each of the four candidates. From group averages, we can

see that, at Time 2, participants' reports of their memory of Time 1 attitudes shifted

slightly in the direction of their current attitudes. For example, Democrats who did not

support Clinton at Time 1 on average increased their favorability towards her by eight

points at Time 2 and recalled feeling about five points more favorable than they actually

did at Time 1. Note that these are group means, not individual differences; a lack of

average difference does not necessarily mean no attitude or memory change, as

favorability ratings may have increased over time for some participants and decreased

for others. Statistical tests of these patterns are presented below collapsed across

candidates, while analyses within each candidate separately are in supplemental

materials.

Table 1

Favorability Towards Clinton and Trump and Memory of Past Candidate Favorability Based on 2016 Primary Election Support

	Clinton Democrats (*n* = 73)	Non-Clinton Democrats (*n* = 182)	Non-leaning Independents (*n* = 47)	Non-Trump Republicans (*n* = 65)	Trump Republicans (*n* = 47)
	M (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
Favorability towards Donald Trump					
Attitude at Time 1	11.84 (20.39)	12.20 (21.18)	26.53 (35.37)	38.31 (28.91)	83.94 (15.92)
Memory of Time 1	10.97 (17.31)	9.56 (17.60)	23.87 (31.11)	42.71 (27.16)	80.26 (17.27)
Attitude at Time 2	10.07 (19.09)	7.39 (17.23)	21.89 (32.69)	38.46 (31.66)	77.00 (24.96)
Memory of Time 2	10.55 (20.41)	8.32 (17.97)	25.97 (34.16)	45.75 (29.10)	81.08 (22.15)
Attitude at Time 3	10.63 (21.32)	9.02 (20.30)	24.74 (32.04)	47.94 (28.63)	79.95 (22.46)
Favorability towards Hillary Clinton					
Attitude at Time 1	78.99 (16.48)	42.05 (28.92)	17.21 (22.75)	17.78 (23.07)	12.64 (20.92)
Memory of Time 1	75.60 (17.96)	46.92 (27.43)	20.96 (23.57)	20.45 (20.94)	12.30 (16.83)
Attitude at Time 2	77.96 (18.83)	50.55 (28.29)	21.19 (26.21)	20.48 (25.43)	10.65 (17.32)
Memory of Time 2	78.14 (18.64)	51.23 (27.24)	23.11 (26.17)	14.90 (20.63)	9.43 (16.10)
Attitude at Time 3	75.09 (21.06)	50.01 (28.09)	22.00 (25.57)	13.92 (21.28)	9.73 (15.45)

Note. Favorability ratings were given on a 0-100 scale where higher numbers indicate more favorable ratings. Memory of Time 1 is what participants reported at Time 2 of their memory of their Time 1 attitudes, and memory of Time 2 is what participants reported at Time 3 of their memory of their Time 2 attitudes. Attitude at Time 1 and Time 2 and memory of Time 1 are of participants who returned at Time 2 (*N* = 414). Memory of Time 2 and attitude at Time 3 are of participants who returned at Time 3 (*N* = 329).

Figure 1

(a)

(b)
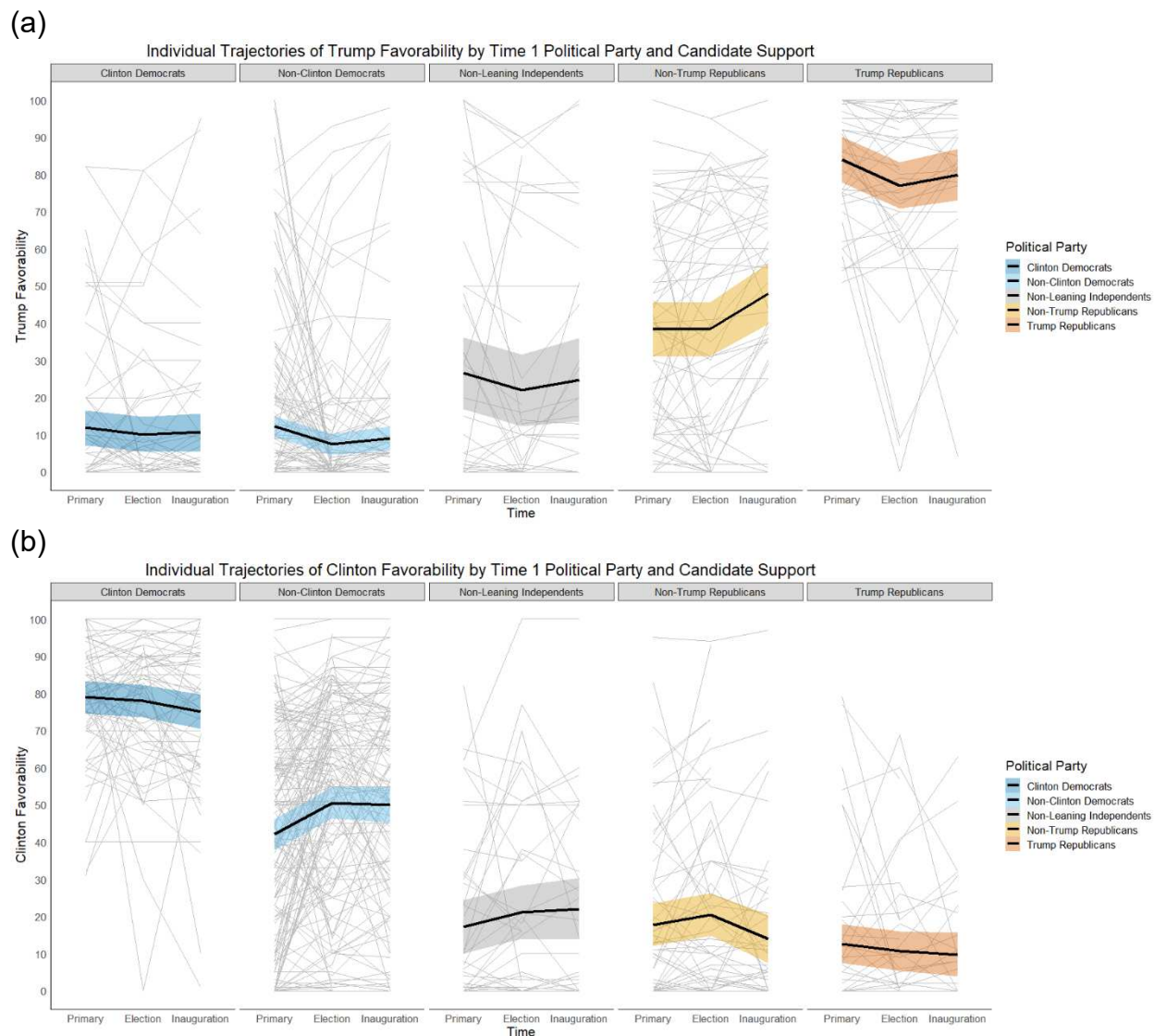
Note. Mean and individual trajectories of favorability toward (a) Trump and (b) Clinton over time by Time 1 political party affiliation and candidate support. Favorability ratings ranged from 0-100 where higher numbers indicate more favorable ratings. Only participants who returned at Time 2 were included in this figure. Gray lines indicate individual trajectories, black lines indicate mean trajectories, and colored areas indicate standard error bands.

Time 1 to Time 2. Results from the first analysis showed that, across the four candidates (and controlling for Time 1 self-reported political party affiliation), both Time 1 and Time 2 favorability significantly predicted memory of Time 1 candidate

favorability, $F_{Time1}(1, 1554) = 624.16$, $\beta_{Time1} = .37$, $SE = .01$, $p < .001$, $F_{Time2}(1, 1440) =$

1503.04, $\beta_{Time2} = .58$, $SE = .02$, $p < .001$, conditional $R^2 = .90$, marginal $R^2 = .89$,

adjusted ICC = .09, conditional ICC = .01. Moreover, the difference between these two

standardized regression coefficients was significant, $\chi^2(1, N = 413) = 57.90$, $p < .001$,

suggesting that Time 2 candidate attitude was a stronger predictor of memory of Time 1

candidate favorability than Time 1 candidate attitude. In other words, participants

remembered their past attitudes as more like their current attitudes than they actually

were, supporting hypothesis 1.

Testing for potential moderators, there was no significant Time 1 x Time 2

candidate favorability interaction on memory of Time 1 candidate favorability, $F(1, 1547)$

$= 1.32$, $\beta = .02$, $SE = .01$, $p = .251$, suggesting that the pattern of memory bias was

similar whether or not one's current attitude was positive or negative. There was also no

statistically significant interaction between Time 2 candidate favorability and Time 1

political party affiliation, $F(2, 252) = 2.47$, $p = .086$, candidate support congruency, $F(1,$

$1614) = 3.22$, $\beta = .04$, $SE = .02$, $p = .073$, preference for consistency, $F(1, 1173) = .29$,

$\beta = .004$, $SE = .01$, $p = .592$, nor self-enhancement, $F(1, 1089) = 3.79$, $\beta = .02$, $SE =$

$.01$, $p = .052$, on memory of Time 1 candidate favorability.

There was, however, a significant Time 2 favorability x confidence in memory

interaction on memory of Time 1 candidate favorability, $F(1, 1508) = 15.98$, $\beta = .03$, SE

$= .01$, $p < .001$, controlling for Time 1 favorability and political party affiliation. The more

confident a person was in their memory of their past attitudes, the stronger the relation

between their current Time 2 attitudes and their memory of Time 1 attitudes (Figure S1

in the supplemental material).

Time 2 to Time 3. Across the four candidates and controlling for Time 1 self-reported political party affiliation, both Time 2 and Time 3 favorability significantly predicted Time 3 memory of Time 2 candidate favorability, $F_{Time2}(1, 1262) = 377.74$, $\beta_{Time2} = .38$, $SE = .02$, $p < .001$, $F_{Time3}(1, 1282) = 917.40$, $\beta_{Time3} = .59$, $SE = .02$, $p < .001$, conditional $R^2 = .92$, marginal $R^2 = .92$, adjusted ICC = .02, conditional ICC = .001. Moreover, supporting the first hypothesis again, the difference between these two standardized regression coefficients was significant, $\chi^2(1, N = 325) = 32.80$, $p < .001$, suggesting that Time 3 candidate attitude was a stronger predictor of memory of Time 2 candidate attitude than Time 2 candidate attitude. We found no significant moderation due to candidate favorability, political party affiliation, preference for consistency, political congruency, self-enhancement (all $ps > .5$).

Both prior and current favorability scores were significant predictors of prior memory of favorability and explain most of the variance in memory for each candidate, standardized regression coefficients ranged from .28 to .66, all p-values $< .001$, R^2 ranged from .81 to .93 (Table 2). Specifically, the standardized regression coefficient for Time 2 favorability on Time 2 memory of Time 1 favorability was significantly stronger than the standardized regression coefficient for Time 1 favorability for each candidate, Fs ranged from 4.82 to 40.50, p-values $< .03$. Similarly, the standardized regression coefficients for Time 3 favorability on Time 3 memory of Time 2 favorability were significantly stronger than the standardized regression coefficients for Time 2 favorability score for Clinton, Cruz, and Sanders, Fs ranged from 6.48 to 11.10, p-values $< .015$. The difference in the strength of association between past versus current favorability at Time 3 and memory of Time 2 favorability was in the expected direction

for Trump but did not reach significance, $F(1, 320) = 3.33$, $p = .069$. Full zero-order

correlations are presented in Table S3 in supplemental materials. Taken together, these

results suggest that knowing someone's current attitude was more predictive of their

memory than knowing the original attitude they were trying to recall.

Table 2

Ordinary Least Squares Regressions Predicting Memory of Prior Candidate Favorability From Prior and Current Favorability

Candidate	Time 1 Favorability			Time 2 Favorability				$\beta_{T2} - \beta_{T1}$	
	β	b (SE)	p	B	b (SE)	p	Model R^2	F (1, 408)	p
Trump	0.37	0.35 (0.03)	< .001	0.51	0.49 (0.03)	< .001	.867	4.82	.029
Clinton	0.37	0.36 (0.03)	< .001	0.58	0.54 (0.03)	< .001	.851	12.80	<.001
Cruz	0.28	0.27 (0.03)	< .001	0.66	0.65 (0.03)	< .001	.812	40.50	< .001
Sanders	0.35	0.34 (0.03)	< .001	0.58	0.57 (0.03)	< .001	.905	18.80	< .001

Candidate	Time 2 Favorability			Time 3 Favorability				Std. b_{T3} – Std. b_{T2}	
	β	b (SE)	p	β	b (SE)	p	Model R^2	F (1, 320)	p
Trump	0.40	0.42 (0.04)	< .001	0.55	0.54 (0.04)	< .001	.933	3.33	.069
Clinton	0.37	0.37 (0.04)	< .001	0.56	0.56 (0.04)	< .001	.895	6.48	.011
Cruz	0.35	0.35 (0.04)	< .001	0.61	0.59 (0.04)	< .001	.838	10.40	.001
Sanders	0.33	0.33 (0.04)	< .001	0.57	0.57 (0.04)	< .001	.911	11.10	.001

Note. β = standardized; *b* = unstandardized coefficient; *SE* = standard error; $\beta_{Ti} - \beta_{Tj}$ = Wald *F* test of the difference in standardized regression coefficients between Time 1 and Time 2 favorability and between standardized coefficients for Time 2 and Time 3 favorability, respectively. Favorability ratings were given on a 0-100 scale where higher numbers indicate greater favorability. All models controlled for Time 1 political party affiliation. Standardized variables were standardized before analysis. Analyses for Time 1 and Time 2 were conducted for participants who completed all relevant Time 2 measures (*n* = 409), and analyses for Time 2 and Time 3 were conducted for participants who completed all relevant Time 3 measures (*n* = 329).

Awareness of Bias

Our second hypothesis was that most participants would be unaware of the change in their memory for their attitudes over time. Hypothesis 2 was examined by first estimating the percentage of participants who, in their free response, acknowledged any possibility that their memory may have been biased by a change in their attitudes. Pearson χ^2 tests were then conducted to test for differences in awareness of memory bias by party affiliation, candidate supported in the primary, vote choice in the general election, gender, or race (see supplemental material). We also tested this as a moderator of the effect found in *H1* (across candidates) to examine whether the association between current candidate favorability and memory of prior candidate favorability depended on awareness of memory bias. These models controlled for Time 1 political party affiliation and included by-participant random intercepts and by-candidate random intercepts.

The results showed that, out of the 326 open-ended responses, only 24% acknowledged any possibility that their memory may have been biased by a change in their attitudes. The remainder did not believe their attitudes had changed, thought their memory was accurate, or did not mention memory in their response. Thus, as hypothesized, most people did not believe it likely that they were susceptible to memory bias, even after receiving an explanation of how such memory bias happens. χ^2 analyses showed that there were no significant differences in the rate of acknowledging bias based on party affiliation $\chi^2(2, N = 324) = 1.02, p = .600,$ Cramer's V = .00, candidate supported in the primary $\chi^2(2, N = 324) = 1.35, p = .509,$ Cramer's V = .00, vote choice in the general election $\chi^2(2, N = 324) = 3.28, p = .194,$ Cramer's V = .06, gender $\chi^2(1, N = 324) = .20, p = .657, \Phi = .02,$ or race, Fisher's exact $p = .700,$ Cramer's V = .00.

Looking across the four primary candidates and controlling for Time 1 political party affiliation, there was a significant interaction between Time 2 candidate favorability and awareness of memory bias on memory of Time 1 candidate favorability. Those who reported an awareness of possible memory bias were less likely to demonstrate such a bias as shown by a weaker relationship between their memory of Time 1 attitudes and their current Time 2 attitudes, $F(1, 1140) = 4.72$, $\beta = -.05$, $SE = .02$, $p = .030$ (Figure S9). There was no Time 3 favorability x memory bias awareness on memory of Time 2 candidate favorability, $F(1, 1200) = .30$, $\beta = .01$, $SE = .02$, $p = .584$. In other words, most people were unwilling to accept even the possibility that they experience memory bias, and those that acknowledged the possibility were actually less likely to demonstrate it.

Memory for Primary Candidate Support

Our third hypothesis was that participants would be more likely to falsely remember supporting the eventual nominee than to falsely remember supporting a candidate who did not become the nominee. Candidate preference and memory of candidate preference were each collapsed into two categories for Democrats (Clinton vs. not Clinton) and for Republicans (Trump vs. not Trump). We investigated this hypothesis by estimating Pearson χ^2 to compare participants' retrospective reports at Time 2 of who they remember supporting in the primary with who they actually supported in the primary (as reported at Time 1). One-sided two-sample tests for equality of proportions were then conducted[iii] to test whether there was a significantly greater percentage of participants who misremembered supporting the eventual nominee than the percentage who misremembered supporting another candidate.

The results showed that, of the 29% of Democrats who initially supported Clinton at Time 1, 90% correctly recalled at Time 2 that they had always supported Clinton, while 10% falsely recalled that they had supported someone else. These

numbers were similar to those who had initially supported someone else; 91% correctly recalled they had not supported Clinton, while 9% falsely recalled having supported Clinton all along. Contrary to our hypothesis, then, Democratic participants were no more likely to falsely recall supporting the eventual nominee than they were to falsely remember supporting another candidate χ^2(1, N = 255) = .04, p = .580.

For Republicans, the pattern initially appeared more in line with our hypothesis. Namely, 13% of those who had supported Trump at Time 1 falsely recalled at Time 2 having previously supported someone else, while 25% of Republicans who had supported someone else falsely reported having preferred Trump at Time 1. However, the difference between these proportions was not statistically significant, χ^2(1, N = 111) = 2.27, p = .066

Memory for Fabricated News Events

Our final hypothesis was that fake news stories would be more likely to be remembered by those whose ideology the news supported. At the end of the Time 2 survey, participants reported whether they remembered several positive and negative news items concerning each candidate, some of which were true and others false. A one-sided two-sample test for equality of proportions was conducted on memory for each false event by political party, hypothesizing that, for each event, the group that the news favors would be more likely to falsely remember the item (e.g., a negative event about Trump would be more "remembered" by Democrats than Republicans).

Finally, we ran negative binomial regressions for the count of total false items remembered (ranging from 0 to 6), controlling for Time 1 political party affiliation, to assess predictors of generally increased false memory. This analysis was restricted to participants who completed all three surveys, as some of the predictors were measured in the Time 3 survey. Perception of traditional media credibility, perception of internet media credibility, trust in other people, self-enhancement,

acknowledgment of possible bias, and interest in the election were tested as predictors. Tukey-adjusted post-hoc pairwise comparisons were then conducted for significant effects of Time 1 political party affiliation and candidate support.

Our main hypothesis was that each false item would more likely to be remembered by the party whose ideology it supported than those it opposed, meaning, for example, we expected the negative Trump news items and positive Clinton item to be more remembered by Democrats than Republican, and vice versa for the other direction, with results shown in Table 3. For the Republican-congruent items, Republicans were significantly more likely to remember the fake news items than Democrats. For the Democrat-congruent items, we did not find this pattern, with the comparison on each item non-significant.

Table 3

Democrat and Republican rates of remembering partisan-congruent false news items.

	Rep %	Dem %	Congruent vs. Incongruent		
			χ^2 (1)	*P*	phi (ϕ)
Rep-Congruent Fake News (Expect Rep > Dem)					
Trump Charity	22	5	23.16	< .001	.25
Clinton Embezzles	27	11	15.00	< .001	.20
Clinton Swears	11	4	5.56	.009	.12
Dem-Congruent Fake News (Expect Dem > Rep)					
Clinton Charity	10	7	0.63	.213	-.04
Trump Putin	15	12	0.85	.822	.05
Trump Slur	15	16	0.17	.339	-.02

Note. Two-sample tests for equality of proportions were conducted one-sided to test the expectation that the items would be remembered more often by the congruent political group than the incongruet political group; *n* = 362 for Trump news items, *n* = 363 for Clinton news items.

Figure 2 divides Democrats and Republicans futher to shows the percentage of participants who misremembered each fake news story by which candidate the participants supported in the primary. Results by these 5 subgroups based on primary support are reported in the supplemental materials.

Figure 2

False Clinton & Trump News Memories
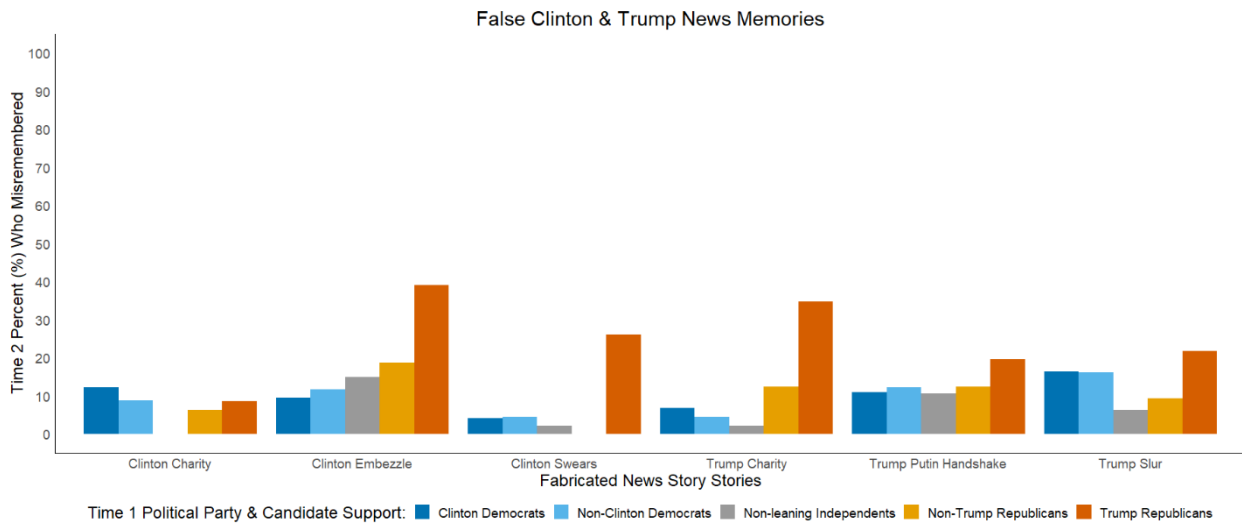
Note. Percentage of participants who reported a memory of each of the six false news items presented at Time 2 based on Time 1 political party affiliation and candidate preference. The "charity" events for both candidates were the positive false events, while the others were negative false events.

Finally, we looked at the overall count of how many false news items were remembered by each participant and looked for individual predictors of a higher count, as shown in Table 4. Controlling for Time 1 political party affiliation, perception of traditional media credibility, perception of internet media credibility, trust in other people, self-enhancement, acknowledgment of possible memory bias, and interest in the 2016 election did not have significant associations with the count of false items remembered (all ps > .05). Stronger conspiratorial belief, *IRR* = 1.30, 95% CI [1.11, 1.51], p < .001, and who the participant supported in the primary at Time 1 (Model χ^2 (4, *N* = 324) = 31.19, p < .001), were significant predictors of higher false memory. In particular, the latter was driven by Trump-supporting Republicans endorsing a significantly greater number of false items than other groups (Trump Republicans: vs. Clinton Democrats difference = .80, *SE* = .22, p = .003; vs. non-Clinton Democrats difference = .90, *SE* = .20, p = .001; vs. non-leaning Independents difference = 1.20, *SE* = .25, p < .001; vs. non-Trump Republicans difference = .88, *SE* = .23, p = .001).

As shown in Table 4, those who supported Trump in the primary on average remembered 1.5 of the false items, with 65% remembering at least one false news item. Other groups reported remembering 0.4 to 0.6 false items on average, with 23%-39% falsely remembering at least one event. Non-leaning independents had the lowest rates of false memory among the subgroups.

Table 4

False Memory Rates Based on Time 1 Primary Candidate Support and Political Party Affiliation

	Clinton Democrats	Non-Clinton Democrats	Non-Leaning Independents	Non-Trump Republicans	Trump Republicans
Percent remembering at least one false event	32%	33%	23%	39%	65%
M (*SD*) of false events remembered	0.60 (1.15)	0.58 (0.99)	0.36 (0.74)	0.59 (0.92)	1.50 (1.80)

Note: These numbers show the rate of reporting a specific memory of the event, not just a belief that it occurred. Primary support group is based on reported preference at Time 1.

Similarly, when looking at the rates of remembering at least one false event, there was a significant difference by political party and Time 1 candidate support, χ^2 (4, N = 409) = 21.84, p < .001, Cramer's V = .21. Compared to everyone else, there wer a significantly greater number of Trump Republicans who falsely remembered at least one news item, χ^2 (1, N = 409) = 17.53, p < .001, Φ = .22.

Discussion

We investigated attitude change and memory bias during a significant real-world event, the 2016 U.S. presidential election process. In the domain of memory for attitudes, results showed that people's memories of their past attitudes were highly

influenced by their current attitudes. This is consistent with past research demonstrating that people remember their past emotions as more like their current attitudes than they actually were (Levine, 1997; Ross, 1991). People's memories were highly influenced by their current attitudes, to the point where their memories were more strongly related to current attitudes than even their actual past attitudes.

Lack of Awareness of Bias

Moreover, participants were largely unaware of this bias. When asked whether their attitudes or memory had changed significantly over time, the vast majority of participants did not acknowledge any possibility that they may not accurately recall their past attitudes. For example, "*I don't think I feel more positively or negatively with any candidate*," and "*No, I think that my memory of my attitudes are correct, and that I feel the same way now as then*," were both responses from people who changed their favorability towards either Trump or Clinton by over 30 points between Time 1 and Time 2. There was no association between acknowledging bias and any tested demographic characteristics including age, race, gender, party affiliation, or candidate preference. People across all groups were unable to recognize their own change in attitudes over this time.

Importantly, participants not only changed their attitudes and recalled they had always felt similarly, but denied the possibility that change had happened. The time points in this study were a few months apart, and much changed in the political landscape over that time. What we found was not just partisans openly coalescing around a candidate (e.g., indicating that they grew to support this person over time), but also that their memories and attitudes, without their awareness, changed as the general election drew near.

The biases seen in this study may be strong and prevalent because it makes it easier for participants to feel good about difficult choices. Most Democrats and

Republicans voted in the general election for their party's nominee, even if they preferred someone else during the primary (Pew Research Center, 2016). In this particular election, both main candidates had historic levels of unfavourability (Saad, 2016), which may have made partisans uncomfortable that they were voting for these candidates and led to dissonance-producing memory change to alleviate that conflict.

Interestingly, reported preference for consistency was not significantly associated with this bias. However, we measured this preference using a short self-report measure which may not have been sensitive enough to assess such internal conflict, especially if people are not aware of it happening. Given that a stronger congruency bias was found among those who did not believe in the possibility that their responses were biased, it follows that people may not have accurate introspection into their own preference for consistency.

False Memory for Political Events

Turning to the false memory items tested at Time 2, results showed that a sizable minority of participants endorsed at least one of the false news items. This is notable given the way memory was tested. Participants simply read a list of one-sentence news items and indicated whether they remembered that event happening. This test of false memory endorsement was deliberately less suggestive than what has been used in past studies (e.g., Strange et al., 2011). Thus, the results shown here are likely a lower-bound estimate of how often participants will endorse false news items. As "fake news" becomes more realistic, with manipulated photographs and videos supporting false claims, the impact of these false events on beliefs will likely increase.

One notable finding was the high rate of endorsement of false news items by Republicans who supported Trump during the primary. Trump-supporting Republicans were twice as likely to remember at least one false event as other

groups. This was particularly true for the negative Clinton events and the positive Trump event, driving the finding that Republicans overall were more likely to remember the Republican-congruent fake news items, while Democrats were not more likely to recall the Democrat-congruent fake news items. Trump-supporting Republicans were also higher in false memory endorsement for the negative false events about Trump, which, while not statistically significant, was still surprising. One possibility is that the negativity of events about Clinton and Trump were not seen the same way by members of different parties. Perhaps the Clinton events were seen as universally negative whereas the Trump events were not. The false event about Trump shaking hands with Putin was meant to be negative given that Trump had recently stated that he had never met him before. Without that context, it might not be considered inherently negative to shake hands with a foreign leader, even one with a strained relationship with the U.S. The other negative event about Trump using a racial slur against Mexicans may not have been considered a negative by supporters who like how he speaks his mind and does not cater to political correctness.

These findings may have been enhanced by the particulars of the 2016 election as, for example, the Republican party was seen by all groups as much more divided than the Democratic party. In the Time 2 survey, 66% of participants thought the Democratic party was somewhat or very united while only 9% of participants said the same about the Republican party, with no significant differences in either question by respondent political party. Republicans generally place greater moral value on in-group loyalty than Democrats (Graham et al., 2009), and may have been feeling more pressure from this perceived party disunity to be supportive of their party's candidate. This could have been a factor that led to their higher rate of false memories of negative Clinton events and the higher rate of falsely remembering that they had supported Trump in the primary, but no higher bias in the more

individualized measure of attitude-memory congruency. The 2016 election also produced higher levels of motivation, interest, and engagement than other past elections (Pew Research Center, 2016), which, perhaps counter-intuitively, can lead to especially high rates of false memory.

Limitations

This study extended several findings about memory bias. As with any study conducted in a real-world context, there are several limitations to consider. The sample was gathered on MTurk and these participants tend to be more Democratic and liberal than the general population (Levay, Freese, & Druckman, 2016), and we found that even within the Democratic sample, there was a strong skew toward supporting the more liberal candidate, Bernie Sanders. However, rates of voter registration and intention to vote are similar on MTurk and national samples, particularly for younger adults (Huff & Tingley, 2015). Importantly, the goal of the present study was not to generalize the exact values to a broad population, unlike a public opinion poll that tries to determine the exact favorability levels of the country. Rather, we focused on investigating differences within individuals and between groups. The Sanders supporters may have been more likely to show an attitude change over time, since their party's general election candidate was different from their preferred primary candidate, but we do not expect that to change the processes at play.

One possible view of the main findings is that the memory reports are similar to the current attitudes due to an anchoring effect and not a "true" change in memory for the past. This possibility is difficult to avoid in a study of this nature, as assessing attitudes and memories at a similar time point and in a similar structure may inherently lead to some anchoring. It is important to note that this anchoring may indeed be at least partially the *same* as a "true" memory for the past. For example,

imagine a person reported a 70/100 favorability at Time 2 and then, anchored to that attitude (consciously or unconsciously) and reported they felt 70/100 favorability at Time 1. Such a report demonstrates that a person does not believe their attitudes have changed over time. This pattern of results is supported by hypothesis 2 which demonstrated, through open-ending responding, that most people did not believe their attitudes changed over time. Future studies should vary the order of questions and consider alternate methods to limit anchoring effects, though we expect that results would be similar.

Conclusion

The present study demonstrates the persuasive effect of attitudes on memory during a contentious, real-world event – the 2016 national presidential election. Not only did our results show that present attitudes affected memory of past attitudes, but also that political affiliation and candidate preference affected the likelihood of endorsement of false political news items. Importantly, participants were largely unaware of these biases. Less than a quarter of participants acknowledged any possibility that their memory may have been biased by a change in their attitudes. People generally believe that biases do not apply to them (Pronin et al., 2002) and are unaware that their own memories of their past attitudes may not be accurate. Given that those who were aware of the possibility of their own bias were less affected by it, one important avenue for future research is the investigation of how such self-awareness may be cultivated in people to limit the effects of bias on judgment and memory.

The strength of these memory biases may help explain how a divisive primary can still lead to a unified base in the general election – voters may have forgotten or misremembered how much they disliked the nominee in the past, making supporting that candidate easier. In U.S. political campaigns, it is common to "pivot towards the

center" after being more extreme during the primary (Dorf, 2016), and pundits, strategists, and candidates may worry about how this shift will affect the candidates' core supporters if the candidate moves away from their initial stances. Whether the candidate changes in this way, or voters are asked to rally around a candidate they were against earlier altogether, most partisan voters still end up supporting their party's candidate in the general election. When such a shift happens, the memory effects shown here suggest the possibility that not only will voters tolerate such a change – they may not even realize they ever disagreed.

Funding

Competing Interests

Acknowledgements

Aronson, E. (1969). The theory of cognitive dissonance: A current perspective. In L.

Berkowitz (Ed.), *Advances in Experimental Social Psychology* (pp. 1-34). Academic

Press. https://doi.org/10.1016/S0065-2601(08)60075-1

Atkeson, L. R. (1998). Divisive primaries and general election outcomes: Another

look at presidential campaigns. *American Journal of Political Science*, *42*(1), 256-

271. https://doi.org/10.2307/2991755

Bem, D. J., & McConnell, H. K. (1970). Testing the self-perception explanation of

dissonance phenomena: On the salience of premanipulation attitudes. *Journal of*

Personality and Social Psychology, *14*(1), 23–31. https://doi.org/10.1037/h0020916

Cialdini, R. B., Trost, M. R., & Newsom, J. T. (1995). Preference for consistency: The

development of a valid measure and the discovery of surprising behavioral

implications. *Journal of Personality and Social Psychology*, *69*(2), 318–328.

https://doi.org/10.1037/0022-3514.69.2.318

Dorf, M. C. (2016, September 7). *Pivots and other pathologies of American*

democracy. Verdict. https://verdict.justia.com/2016/09/07/pivots-pathologies-

american-democracy.

Festinger, L. (1962). *A theory of cognitive dissonance*. Stanford University Press.

Fischhoff, B. (1975). Hindsight is not equal to foresight: The effect of outcome

knowledge on judgment under uncertainty. *Journal of Experimental Psychology:*

Human Perception and Performance, 1(3), 288–299. https://doi.org/10.1037/0096-

1523.1.3.288

Forgas, J. P., & Bower, G. H. (1987). Mood effects on person-perception judgments.

Journal of Personality and Social Psychology, 53(1), 53-

60. https://doi.org/10.1037/0022-3514.53.1.53

Frenda, S. J., Knowles, E. D., Saletan, W., & Loftus, E. F. (2013). False memories of fabricated political events. *Journal of Experimental Social Psychology*, *49*(2), 280–286. https://doi.org/10.1016/j.jesp.2012.10.013

Graham, J., Haidt, J., & Nosek, B. A. (2009). Liberals and conservatives rely on different sets of moral foundations. *Journal of Personality and Social Psychology*, *96*(5), 1029-1046. https://doi.org/10.1037/a0015141

Gready, R. M., Ditto, P. H., Danks, J. H., Coppola, K. M., Lockbart, L. K., & Smucker, W. D. (2000). Actual and perceived stability of preferences for life-sustaining treatment. *Journal of Clinical Ethics*, *11*(4), 334–346.

Gardiner, J. M. (1988). Functional aspects of recollective experience. *Memory & Cognition, 16*(4), 309-313. https://doi.org/10.3758/bf03197041

Guadagno, R. E., & Cialdini, R. B. (2010). Preference for consistency and social influence: A review of current research findings. *Social Influence*, *5*(3), 152–163. https://doi.org/10.1080/15534510903332378

Halpern, D., Valenzuela, S., Katz, J., & Miranda, J. P. (2019, July). From belief in conspiracy theories to trust in others: Which factors influence exposure, believing and sharing fake news. In *International conference on human-computer interaction* (pp. 217-232). Springer, Cham. https://doi.org/10.1007/978-3-030-21902-4_16

Hart, C. M., Ritchie, T. D., Hepper, E. G., & Gebauer, J. E. (2015). The balanced inventory of desirable responding short form (BIDR-16). *SAGE Open*, *5*(4). https://doi.org/10.1177/2158244015621113

Hassan, A., & Barber, S. J. (2021). The effects of repetition frequency on the illusory truth effect. *Cognitive Research: Principles and Implications*, *6*:38. https://doi.org/10.1186/s41235-021-00301-5

Huff, C., & Tingley, D. (2015). "Who are these people?" Evaluating the demographic characteristics and political preferences of MTurk survey respondents. *Research & Politics*, *2*(3). https://doi.org/10.1177/2053168015604648

John, O. P., & Robins, R. W. (1994). Accuracy and bias in self-perception: Individual differences in self-enhancement and the role of narcissism. *Journal of Personality and Social Psychology*, *66*(1), 206–219. https://doi.org/10.1037/0022-3514.66.1.206

Johnson, H. M., & Seifert, C. M. (1994). Sources of the continued influence effect: When misinformation in memory affects later inferences. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 20*(6), 1420-1436. https://doi.org/10.1037/0278-7393.20.6.1420

Keith, B. E., Magleby, D. B., Nelson, C. J., Orr, E., Westlye, M. C., & Wolfinger, R. E. (1986). The partisan affinities of independent 'leaners'. *British Journal of Political Science, 16*(2), 155-185. https://doi.org/10.1017/S0007123400003872

Klar, S. & Krupnikov, Y. (2018, October 17). *How to win wing voters (and how to lose them).* New York Times. https://www.nytimes.com/2018/10/17/opinion/midterms-independents-swing-voters-.html

Krueger, J. (1998). Enhancement bias in descriptions of self and others. *Personality and Social Psychology Bulletin*, *24*(5), 505–516. https://doi.org/10.1177/0146167298245006

Lenton, A. P., Blair, I. V., & Hastie, R. (2001). Illusions of gender: Stereotypes evoke false memories. *Journal of Experimental Social Psychology*, *37*(1), 3–14. https://doi.org/10.1006/jesp.2000.1426

Levay, K. E., Freese, J., & Druckman, J. N. (2016). The demographic and political composition of Mechanical Turk samples. *SAGE Open*, *6*(1).

https://doi.org/10.1177/2158244016636433

Levine, L. J. (1997). Reconstructing memory for emotions. *Journal of Experimental Psychology: General*, *126*(2), 165–177. https://doi.org/10.1037/0096-3445.126.2.165

Lewandowsky, S., Ecker, U. K., Seifert, C. M., Schwarz, N., & Cook, J. (2012). Misinformation and its correction: Continued influence and successful debiasing. *Psychological science in the public interest*, *13*(3), 106-131. https://doi.org/10.1177/1529100612451018

Lewandowsky, S., Cook, J., Ecker, U. K. H., Albarracín, D., Amazeen, M. A., Kendeou, P., Lombardi, D., Newman, E. J., Pennycook, G., Porter, E. Rand, D. G., Rapp, D. N., Reifler, J., Roozenbeek, J., Schmid, P., Seifert, C. M., Sinatra, G. M., Swire-Thompson, B., van der Linden, S., Vraga, E. K., Wood, T. J., Zaragoza, M. S. (2020). The Debunking Handbook 2020. Databrary. https://doi.org/10.17910/b7.1182Loftus, E. F. (2005). Planting misinformation in the human mind: A 30-year investigation of the malleability of memory. *Learning & Memory, 12*(4), 361-366. https://doi.org/10.1101/lm.94705

McFarland, C., & Ross, M. (1987). The relation between current impressions and memories of self and dating partners. *Personality and Social Psychology Bulletin*, *13*(2), 228–238. https://doi.org/10.1177/014616728713200

Mehta, R., Hoegg, J., & Chakravarti, A. (2011). Knowing too much: Expertise-induced false recall effects in product comparison. *Journal of Consumer Research*, *38*(3), 535–554. https://doi.org/10.1086/659380

Murphy, G., Loftus, E. F., Grady, R. H., Levine, L. J., & Greene, C. M. (2019). False memories for fake news during Ireland's abortion referendum. *Psychological Science, 30*(10), 1449-1459. https://doi.org/10.1177/0956797619864887

O'Connell, A., & Greene, C. M. (2017). Not strange but not true: self-reported interest in a topic increases false memory. *Memory*, *25*(8), 969–977. https://doi.org/10.1080/09658211.2016.1237655

Pennycook, G., & Rand, D. G. (2019). Lazy, not biased: Susceptibility to partisan fake news is better explained by lack of reasoning than by motivated reasoning. *Cognition, 188*, 39-50. https://doi.org/10.1016/j.cognition.2018.06.011

Pew Research Center. (2016, July 7). *2016 Campaign: Strong Interest, Widespread Dissatisfaction*. https://www.pewresearch.org/politics/2016/07/07/2016-campaign-strong-interest-widespread-dissatisfaction/

Polage, D. C. (2012). Making up history: False memories of fake news stories. *Europe's Journal of Psychology*, *8*(2), 245–250. https://doi.org/10.5964/ejop.v8i2.456

Powell, J. L. (1988). A test of the Knew-It-All-Along Effect in the 1984 presidential and statewide elections. *Journal of Applied Social Psychology*, *18*(9), 760–773. https://doi.org/10.1111/j.1559-1816.1988.tb02353.x

Pronin, E., Lin, D. Y., & Ross, L. (2002). The bias blind spot: Perceptions of bias in self versus others. *Personality and Social Psychology Bulletin, 28*(3), 369–381. https://doi.org/10.1177/0146167202286008

R Core Team (2020). R: A language and environment for statistical computing. R Foundation for statistical computing. Vienna, Austria. URL: https//www.R-project.org/.

Read, S. J., Snow, C. J., & Simon, D. (2003). Constraint satisfaction processes in social reasoning. In *Proceedings of the Annual Meeting of the Cognitive Science Society, 25*, 964-969. https://escholarship.org/uc/item/78j7z3jp

Rich, M. D. & Kavanagh, J. (2018, January 16). *"Fake news" and "Truth Decay"*

threaten America. How can we revive respect for facts? USA Today.

https://www.usatoday.com/story/opinion/2018/01/16/fake-news-and-truth-decay-

threaten-america-how-revive-respect-facts-rich-kavanagh-column/1033920001/

Ross, B. M. (1991). *Remembering the personal past: Descriptions of*

autobiographical memory. Oxford University Press.

Saad, L. (2016, November 8). *Trump and Clinton finish with historically low images*.

Gallup. https://news.gallup.com/poll/197231/trump-clinton-finish-historically-poor-

images.aspx

Schacter, D. L., Guerin, S. A., & Jacques, P. L. S. (2011). Memory distortion: An

adaptive perspective. *Trends in Cognitive Sciences, 15*(10), 467-474.

https://doi.org/10.1016/j.tics.2011.08.004

Sharman, S. J., Garry, M., Jacobson, J. A., Loftus, E. F., & Ditto, P. H. (2008). False

memories of end-of-life decisions. *Health Psychology, 27*(2), 291-296.

https://doi.org/10.1037/0278-6133.27.2.291

Sides, J., Tausanovitch, C., Vavreck, L., & Warshaw, C. (2020). On the

representativeness of primary electorates. *British Journal of Political Science*, *50*(2),

677-685. https://doi.org/10.1017/S000712341700062X

Strange, D., Garry, M., Bernstein, D. M., & Lindsay, D. S. (2011). Photographs cause

false memories for the news. *Acta Psychologica*, *136*(1), 90–94.

https://doi.org/10.1016/j.actpsy.2010.10.006

Talwar, S., Dhir, A., Kaur, P., Zafar, N., & Alrasheedy, M. (2019). Why do people

share fake news? Associations between the dark side of social media use and fake

news sharing behavior. *Journal of Retailing and Consumer Services*, *51*, 72-82.

https://doi.org/10.1016/j.jretconser.2019.05.026

 Uscinski, J. E., Klofstad, C., & Atkinson, M. D. (2016). What drives conspiratorial

beliefs? The role of informational cues and predispositions. *Political Research*

Quarterly, *69*(1), 57–71. https://doi.org/10.1177/1065912915621621

Walter, N., & Murphy, S. T. (2018). How to unring the bell: A meta-analytic approach

to correction of misinformation. *Communication Monographs*, *85*(3), 423-441.

https://doi.org/10.1080/03637751.2018.1467564

Walter, N., & Tukachinsky, R. (2020). A meta-analytic examination of the continued

influence of misinformation in the face of correction: How powerful is it, why does it

happen, and how to stop it? *Communication research*, *47*(2), 155-177.

https://doi.org/10.1177/0093650219854600

---

[i] Only users with an IP address in the U.S. were allowed to complete the survey. Users were asked to confirm they were eligible to vote in the U.S. and committed to completing a follow-up survey several months later.
[ii] All false items were created by the first author with the aim of balancing the valence of the content across the two candidates. Each candidate had a charitable fundraising action as the positive item, a negative comment against a group of people for the first negative item, and an action that may prove critics correct as the second negative item. Nonetheless, items likely differed in their believability, valence, or arousal. For instance, the second negative Trump item was created to resemble one of the items used in Frenda, et al. (2013) in which a politician was shown in a positive relationship with a negatively viewed figure. At the time of the study, Trump claimed he had not met Putin in the past, and his connection to Russia was a top campaign issue, so this was seen as something that would be considered negative, though it is possible, especially given his evolving stance on Putin, that his supporters would not consider this a negative event.
[iii] For all two-sample equality of proportions tests, Yates' continuity correction was applied if any expected values were less than five.