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Examining, Correcting, and Failing to Correct Politically Biased Judgments and Memories in Real-World Contexts

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Examining, Correcting, and Failing to Correct Politically Biased Judgments nd Memories in
Real-World Contexts

DISSERTATION

Submitted in partial satisfaction of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

in Psychological Science

by

Rebecca Hofstein Grady

Dissertation Committee:
Professor Peter Ditto, Chair
Distinguished Professor Elizabeth Loftus
Professor Emeritus William Thompson

2019

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Acknowledgements

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Curriculum Vitae

Rebecca Hofstein Grady
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EDUCATION

University of California, Irvine, 09/2013–09/2019, Ph.D. in Psychological Science
- Advisors: Dr. Peter Ditto and Dr. Elizabeth Loftus
- Major: Social Psychology; Minor: Applied Research
- M.A. in Social Ecology received in 2015
    - Thesis: *Racist or not racist? Political differences in the perception and definition of racism*
- Service: Faculty search committee, Associated Graduate Students of UCI, PAPOR executive council, Esports Program Board of Advisors, Intramural softball

Rice University, 08/2007–05/2011, B.A. in Psychology (Honors), Magna Cum Laude
- Extracurriculars: Psi Chi chapter president, Theater technological assistant, Improv troupe, Tour guide

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RESEARCH AND WORK EXPERIENCE

User Experience Research Intern, Google   6/2019–9/2019
- Conducted mixed-methods research to guide product development of the Google Play Games app
- Worked with stakeholders to identify areas and need for foundational research
- Carried out an end-to-end survey user research project for critical area of future product features
- Identified multiple critical discoverability concerns during a usability test of new feature designs

Games User Experience Research Intern, Sony PlayStation   6/2018–9/2018
- Assisted on 5 rounds of user testing, including survey generation, moderation, player observation, data analysis, and report writing, for *Marvel's Spider-Man*, *Days Gone*, and *Ghost of Tsushima*
- Identified issues that negatively impacted experience to support developers in making improvements
- Completed an independent report regarding how to encourage cooperative play in online games based on psychological theory, game design background, and competitive title review

President, UC Graduate and Professional Council   7/2017–6/2018
- Helped formed new 501 c(4) non-profit advocacy organization
- Represented over 54,000 graduate and professional students from the 10 University of California campuses at meetings with the state legislature, UC administrators, and media
- Synthesized feedback from student body and student leaders to make policy recommendations
- Planned a state-wide Campus Climate Conference and multiple student lobbying trips

Survey Research Intern, SurveyMonkey   6/2016–11/2016
- Designed and analyzed studies on the effects of layout and word choice on survey results to find ways to improve the user experience of taking online surveys
- Suggested changes to product that improved survey retention rate by up to 6 percentage points
- Assisted in designing and reporting (internally and externally) on large-scale public opinion polls

Graduate Researcher, UCI Forensic Science Center of Excellence   9/2015–6/2019
- Designed and conducted experiments on how jurors understand and use forensic science information
- Analyzed study data and created presentations for government agencies and national conferences
- Developed and tested potential trial procedures to increase understanding of technical information that increased correct interpretation of statistical information by up to 14%

Vice President of Internal Affairs, UCI Associated Graduate Students   6/2015–8/2016
- Led Internal Committee, focused on data-driven advocacy for graduate students on campus
- Worked with administrators to improve graduate student satisfaction and retention
- Sat on campus-wide committees to represent graduate students in campus decision-making
- Wrote, administered, and reported on a longitudinal survey of all graduate students

Research Coordinator, Michael E. DeBakey VA Medical Center   6/2011–6/2013
- Increased intent to enroll in high quality treatment options from 0% to 67% in pilot studies by designing patient decision aids that compared treatment options in simple language and functional layout, and conducted surveys and focus groups to evaluate and improve these materials
- Initiated and developed new user-friendly patient data entry forms and trained providers in their use
- Participated in Center Staff Council, which involved conducting annual employee surveys, highlighting areas for improvement, and making recommendations to leadership that led to workplace changes

GRANTS, FELLOWSHIPS, AND AWARDS

- UCI Associated Graduate Students Symposium First Place Research Presentation, 2019
- PAPOR Student Paper Competition Winner, 2017 and 2018
- UCI PSB Top Student Advocate award winner, 2018
- UCI AGS Debbie Davis Graduate Student Service Award, 2018
- AAPOR Travel Award, 2017
- UCI Social Ecology Best Poster Award, 2017
- SPSP Graduate Student Travel Award, 2016
- UCI Associated Graduate Students Symposium Judge's Choice Award, 2016
- Graduate Student Mentor Award, 2015
- UCI Center for Psychology and Law Distinguished Fellows Program, 2014 and 2015
- National Science Foundation GRFP Honorable Mention, 2014
- APAGS/Psi Chi Junior Scientist Fellowship, 2013
- UCI Graduate Dean's Fellowship, 2013
- UCI Recruitment Fellowship, 2013
- William C. Howell Award for Excellence in Undergraduate Research & Scholarship, 2011
- Phi Beta Kappa Honor Society, 2011
- Rice Joy Browne Scholarship Award, 2010 and 2011
- Rice Social Sciences Undergraduate Research Enterprise, 2010
- Rice President's Honor Roll, 2007–2011

PUBLICATIONS IN PEER-REVIEWED JOURNALS

Murphy, G., Loftus, E., **Grady, R. H.**, Levine, L. J., & Greene, C. M. (2019). False memories for fabricated political scandals during Ireland's abortion referendum. *Psychological Science*. Online first publication. doi:10.1177/0956797619864887

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Ditto, P. H., Wojcik, S. P., Chen, E. E., **Grady, R. H**., & Ringel, M. (2015). Political bias is tenacious. Commentary on target article, Political diversity will improve social psychological science (J. Duarte, J. Crawford, C. Stern, J. Haidt, L. Jussim, & P. E. Tetlock). *Behavioral and Brain Sciences, 38,* e140. doi:10.1017/S0140525X14001186

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PUBLICATIONS IN NON-PEER-REVIEWED OUTLETS

Interview of me by Brenda Straka of the Society for Personality and Social Psychology regarding non-academic internships (2018): http://spsp.org/news-center/student-newsletters/spspotlight-september-2018/internships-outside-of-academia

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MANUSCRIPTS IN PREPARATION OR UNDER REVIEW

Garrett, B., **Grady, R. H**., & Crozier, W. *Error rates, likelihood ratios, and jury evaluation of forensic testimony*. Manuscript submitted for publication.

Thompson, W. C., & **Grady, R. H.** *Avoiding contextual bias: An assessment of human capabilities*. Manuscript in preparation.

Grady, R. H., Thompson, W. C., & Newman, E. J. *Lay understanding of likelihood ratios in forensic evidence: Effects of expert testimony format and graphical explanations*. Manuscript in preparation.

Grady, R. H., Thomas, A. J., & Ditto, P. H. *When only the other side is to blame: Order effects and motivated reasoning in judgments of free speech and inciting violence*. Manuscript in preparation.

Grady, R. H., Ditto, P. H., & Loftus, E. L. *Even strong warnings before fake news is not effective in reducing belief over time*. Manuscript in preparation.

Grady, R. H., Ditto, P. H., Loftus, E. L., Levine, L., & Greenspan, R. L. *From primary to presidency: Attitude change, fake news, and memory bias in the 2016 election*. Manuscript in preparation.

FIRST-AUTHOR CONFERENCE PRESENTATIONS

Grady, R. H. & Thompson, W. C. (2019, May). *Error rate data increase the impact of fingerprint and shoeprint evidence in a mock jury trial*. Poster presented at the 2019 Center for Statistical Applications in Forensic Evidence All-Hands Meeting, Ames, IA.

Grady, R.H., Ditto, P.H., & Loftus, E. L. (2019, April). *What works (and what doesn't) in encouraging rejection of fake news online*. Paper presented at the 4th annual AGS Symposium, Irvine, CA.

Grady, R. H., Thomas, A. J., & Ditto, P. H. (2018, December). *When only the other side is to blame: Order effects and motivated reasoning in judgments of free speech, inciting violence, and sexual assault allegations*. Paper presented at the 2018 Pacific Chapter of American Association for Public Opinion Research Annual Conference, San Francisco, CA. Also to be presented as a poster at the 20th Annual Meeting for Society for Personality and Social Psychology (2019, February), Portland, OR.

Grady, R. H., Ditto, P. H., Loftus, E. L., & Levine, L. J. (2018, March) *From primary to presidency: Attitude change, fake news, and memory bias in the 2016 election.* Paper presented at the 19th Annual Meeting for Society for Personality and Social Psychology, Atlanta, GA.

Grady, R. H., & Liu, M. (2017, May). *What's the best size for matrix-style questions in online surveys?* Paper presented at the 72nd Annual Conference for the American Association for Public Opinion Research, New Orleans, LA. Also presented at the 2017 Pacific Chapter of American Association for Public Opinion Research Annual Conference, (2017, December) in San Francisco, CA.

Grady, R. H., Chen, E. E., & Ditto, P. H. (2017, January). *The politics of "reverse racism:" Liberal and conservative disagreements derive from different definitions of racism.* Poster presented at the 18th Annual Meeting for the Society for Personality and Social Psychology, San Antonio, TX.

Grady, R. H., Chen, E. E., & Ditto, P. H. (2016, January). *"Is it racist?" Political differences in implicit and explicit definitions of racism.* Poster presented at the 17th Annual Meeting for the Society for Personality and Social Psychology, San Diego, CA.

Grady, R. H., Ditto, P. H., & Loftus, E. (2015, October). *Investigating memory coherence and bias in mock jurors exposed to inadmissible evidence*. Poster presented at the 1st annual UC Conference on Social Science and Law, Irvine, CA.

Grady, R. H., Chen, E. E., and Ditto, P. H. (2015, February). *Racist or not racist? Examining political and racial disagreements about the definition of racism*. Poster presented at the 16th Annual Meeting for the Society for Personality and Social Psychology, Long Beach, CA.

Hofstein, R. F., Mott, J. M., Mondragon, S., Hundt, N. E., Beason-Smith, M., & Teng, E. J. (2012, December). *The relationship between war era and mental health treatment utilization at a VA PTSD Clinic*. Poster presented at the 13th Annual Kelsey Research Foundation Health Services and Outcomes Research Conference, Houston, TX.

Hofstein, R. F., Kell, H., Ghandour, L., Bachman, K., & Hebl, M. (2011, May). *Exploring stereotypes of mental disorder behaviors in the workplace*. Poster presented at the 23rd Annual Convention of the Association of Psychological Sciences, Washington, DC.

Abstract of the Dissertation

Examining, Correcting, and Failing to Correct Politically Biased Judgments

and Memories in Real-World Contexts

By

Rebecca Hofstein Grady

University of California, Irvine, 2019

Professor Peter H. Ditto, Chair

This dissertation brings together three projects at the intersection of politics, bias, memory, and decision making. The five studies in total explore how people come to political judgments, when they might be biased in those judgments, how their memory might be affected, and what real-world consequences this can have.

The first chapter describes a longitudinal study conducted over the course of the 2016 presidential election. The study collected data from 602 U.S. citizens on Amazon Mechanical Turk during the presidential primaries in May 2016, with questions focused on voters' feelings towards, and preferences for, the candidates seeking each major party's nomination. A follow-up survey was sent to participants again in October 2016 just before the general election to see how their attitudes changed and what they remembered about their past preferences. Participants were re-surveyed once more in January 2017 just before the inauguration to look at their reactions to the election, feelings towards the former candidates, and memory of past attitudes. Across a variety of questions, 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 attitude as being more in line with their current feeling than it actually was. This was especially strong among people who were more confident in their memory and

their own rationality. I also investigated the presence of false memory, and found high rates of participants remembering news events that didn't happen and misremembering what candidate they had supported.

In the second chapter, three studies are presented in the domain of political polling, looking at how the placement and order of questions can create contexts that appear to increase or decrease political polarization. In all three studies, each with over 800 people, participants had to make judgments about similar accusations against two politicians, one Democrat and one Republican, with each rating on a separate page. On the first judgment, partisans provided strongly disparate ratings, with both Democrats and Republicans giving low credibility to the accusations against their in-group politicians and high credibility to the accusations against the out-group. On participants' second ratings, however, the groups were much closer together. This is because, after making their first rating, participants' second rating was more in line with their judgment of the first, similar accusation. In one study (but not others), this consistency was increased by first having participants commit to relevant, general principles about whether people should believe this type of accusation in general.

Finally, Chapter 3 takes a look at the growing problem of politically-oriented "fake news," or completely false stories or headlines. In the real world, such fake news stories are designed to appeal to specific groups of people and be shared widely within these groups. Previous studies found that adding a warning tag to false headlines has minimal effect in reducing belief in these falsehoods. The chapter starts with a secondary analysis of prior data showing a partisan congruency effect, where warnings may help reduce belief in news that goes against a person's political orientation, but shows less effect when the news supports a person's political orientation. Following up on that, I conducted a study with over 400 online participants,

testing a modified warning that comes before people read false headlines and comparing it to warnings presented at the same time as or after the headline. Participants were shown a series of news items, with the false ones labeled as such with one of the three warning types, and then asked two weeks later how true they thought each headline was. While the before-headline warning was initially very effective, and showed some stronger effects than the other warnings, the follow-up survey two weeks later showed both high levels of belief in the articles and a partisan congruency effect where people were more likely to believe the news that fit with their political orientation, even when they had known just two weeks ago it was false.

Across these three chapters, I look at the effects of politics, bias, and motivation on our memory and judgment in real-world political contexts. The effects of political allegiance are apparent not only on our opinions of politicians, but also on our memories of ourselves and the world around us. These effects are incredibly strong, and far too often we are unaware of them. Some manipulations were effective at reducing differences between ingroup and outgroup judgments, while others were not. These studies add to our understanding of the role of political allegiances on our judgments and memories by identifying some sources of these effects, showing how they play out in real-world contexts, and testing solutions that are more and less likely to show long-term impact in these divisive contexts.

Introduction

Are you biased? Most people, especially psychologists studying human biases, would agree that yes, they are at least occasionally biased. In a general sense, people know that their judgments and decisions can be swayed by information or contexts outside of perfectly rational, objective evaluative criteria. In specific cases, however, people are generally resistant to the idea that their decision may have been driven by some undesirable factor. Though people are able to spot bias in others, they are much less likely to notice it in themselves (Pronin, Gilovich, & Ross, 2004).

Bias can come in many forms, varying both in how big an impact it may have upon a given judgment and in how negative or positive an impact it can have in a given situation. In many cases, people may even disagree about what even "counts" as a bias. Definitions of bias range from as broad as "a general tendency to think a certain way" to as specific as "a mistake in reasoning as a result of holding on to one's preference regardless of contrary information." In the psychology literature on heuristics and biases, it is often defined as "systematic discrepancy between a person's judgment and a norm" (Gigerenzer, 1991), with the main source of controversy regarding what the "norm" is to evaluate whether a judgment is discrepant from it. The key concept is that some outside factor that "should not" matter is influencing a judgment away from the norm; i.e., what the judgment would be without that factor.

Introduction to Bias Research

One of the seminal papers in social psychology demonstrating a variety of cognitive biases was Tversky and Kahneman's 1974 paper, which showed that people consistently make judgment errors in a variety of situations by relying on heuristics instead of the "correct" probabilistic reasoning. For example, they showed that when given a description of a woman

named Linda who is politically active and cares about civil rights, people report it is more likely that she is a "bank teller who is active in the feminist movement" than that she is a "bank teller," even though the latter group contains all members of the former group and can therefore only be less likely (Tversky & Kahneman, 1974). The effect is lessened, though persists, when the instructions are clarified that the latter group means a bank teller – whether or not active in the feminist movement – as opposed to thinking it is just bank tellers not active in the feminist movement. While these were deemed "irrational" and form a representation of the types of clear mistakes cognitive biases can lead to, critics pointed out that some, if not all, of these example problems had rational explanations (e.g., Hilton, 1995; Hertwig, Benz, & Krauss, 2008).

One concern stems from the fact that the purportedly "irrational" biases shown in these studies often represent generally helpful or adaptive mental processes that are deliberately twisted in a given study to produce the incorrect answer. Many heuristics become ingrained precisely because they are generally good enough to reach the correct answer, and it takes specific types of convoluted scenarios to demonstrate the bias. In particular, these supposedly "flawed" mental biases often lead to more accurate decisions in the more complex real-world that is noisier and less simple than in laboratory experiments (Gigerenzer & Brighton, 2009). For example, humans have a strong ability to detect patterns and generalizations from a small amount of information. While this can be exploited to find instances where people find patterns in meaningless data, this is an adaptive process, and those better at it may do better in future situations where this skill in seeing difficult patterns can be helpful. There are some tasks that are particularly suited to intuitive judgments – even when participants are unable to clearly describe what led to their judgment – and applying a more analytical, seemingly less biased approach, can create more extreme errors (Hammond, Hamm, Grassia, & Pearson, 1987). The

problem arises when people *believe* they are making more accurate, holistic judgments by taking into account the context of a situation, but are actually being swayed by irrelevant or unhelpful contextual information that reduces their accuracy (Thompson, 2011).

A second concern comes from the between-subjects nature of the designs. Biases are often demonstrated between-subjects, because when considered within-subjects, a particularly biasing factor may be too easy to spot and thus ignored. However, this leads to the possibility that the differences in the between-subject conditions are due not just to the different stimuli between groups, but between a different context or scale given to the subjective ratings they are asked to make. As a demonstration of this, Birnbaum (1999) showed that when some people were asked to rate how "big" of a number nine is on a scale of 1 to 5, and another group of people rated the number 221 on the same scale, the number nine had a higher rating on average. This is likely because it implied a different context in terms of the numbers it was being compared against than 221, even though if they had asked the same group of people to rate both numbers within-subjects, all participants recognized that 221 is the larger number.

A final concern regards the expectations of the subjects and conversational norms that participants bring to self-report studies that researchers do not always account for. According the "maxim of relation" in cooperative communication, speakers are expected to provide only information that is relevant to a given conversation or task (Schwarz, 1994). Although researchers violate this expectation when they give people irrelevant or biasing information that they expect participants to ignore, the research participants would not be aware of this. Bringing in the conversational norms and expectations about relevance, they might assume that any information provided to them is supposed to be helpful to their judgment.

To consider these concerns through an example, we can look at the framing effect (Levin & Gaeth, 1988), such as the fact that people will judge a meat (before eating it) that is "75% lean" more positively than a meat that "25% fat." Since these are, at a basic level, the same thing (a meat that is 25% fat and 75% not fat), any difference in judgment between them is using an irrelevant piece of information – the wording of the description – to bias the judgment. However, there are other interpretations based on the previously outlined concerns. From the first criticism, we have the fact that it might be useful to attend to the information that is displayed most prominently (in this case, the information that is explicitly stated and doesn't need to be inferred); perhaps in the real world it is more adaptive to be swayed more by whether positive or negative information is being given more directly. From the second criticism, we have concern about the subjective outcome measured between-subjects; it's possible that the question implied a different context to participants, such as thinking that the latter meat should be evaluated as an unhealthy food and the other as a healthy food. Finally, there are linguistic concerns about what information participants are reading between the lines of the survey they were given; perhaps people in the 25% condition believed that the researcher wanted them to focus on the fat level, while people in the 75% condition believed they were supposed to focus on the leanness, since that was the information the researcher chose to provide to them. Given that this effect was significantly reduced if participants were allowed to try the meat (and thus had more diagnostic information to use in their judgments), it's not unreasonable to use information being given to you when the judgment is ambiguous.

These concerns about prior bias research do not discount the phenomenon or dispute the concept of bias, but offer important cautions about research in the area and the potentially adaptive or rational nature of certain types of biases. They are presented not to diminish the

importance of bias research, but to demonstrate that a) bias is not inherently good or bad, and that b) the methods of research on bias can have an important impact on the interpretation of the results, which is one reason all studies presented in this dissertation have within-subjects designs to rule out alternative contextual explanations.

Definitions and Examples of Bias

Though there are many definitions of bias, the one that will be used in this paper is a "systematic deviation in judgment based on non-normative information," which is similar to what was presented earlier. The critical part of that definition, of course, is deciding what counts as information that *should not* be part of that norm. Sometimes it is relatively clear: most people would agree that a man's height should not affect how competent he is rated to be, yet tall men are rated as significantly more competent in subjective ratings, above and beyond differences in actual objective performance (Judge & Cable, 2004). Other times there is an objectively correct answer; through appropriately designed memory studies which have ground truth for past behavior or responses being recalled. For example, Croyle et al. (2006) gave people a cardiovascular test at the beginning of a longitudinal study and then asked them to recall it months later, finding a systematic bias in that people with worse results (meaning more unhealthy) were most likely to remember the results as more positive. In certain cases it might be legally defined, such as when jurors are given instructions or admonitions as to what evidence or information they are and are not legally allowed to consider in reaching their verdict (which are notoriously ineffective; Simon, 2012).

In some cases there might be disagreements about whether the information influencing the judgment is relevant (and therefore normative to use) or not. For example, imagine a company is deciding who to hire. They end up with two applicants with similar backgrounds

and the same score on a test designed to evaluate competence for the job. One is a white man and the other is a black woman, and the company is made up of mostly white men. On the one hand, the applicant's skin color and gender are not directly related to their potential job competence; thus, it may be considered biased to consider their skin color and gender if the only assessment that matters to the hiring committee is whether they will do their job well, as the background and test scores are the relevant criteria. However, perhaps the company values diversity and believes that bringing in more racial and gender diversity will improve the company and team composition in more long-term ways. Perhaps then the applicants' demographic backgrounds *are* relevant to that determination, as one will bring a more varied qualification that's lacking, while the other will not, and so using race in that determination may not be a bias.

It's clear that the above situation would be ambiguous, and there would likely be disagreements among people about what counts as a qualification for the role. People of different political groups have strong disagreements about what counts as racial discrimination (Grady, Chen, & Ditto, 2016) and may disagree about whether skin color is ever a relevant factor to consider. Whether diversity is lacking is also quite subjective; people of different racial groups can also perceive diversity in different ways, in that they evaluate groups with varying distributions of racial group membership on factors such as whether the group includes an in-group member (Bauman, Trawalter, & Unzueta, 2014). Given the subjective nature of this perception, people will have varying ideas about whether a company needs additional racial diversity and whether a given candidate would add to a company's diversity in a way that would be considered relevant, affecting whether using race information is considered a bias or a normative factor by different individuals.

In political psychology research, bias is often examined in terms of partisan party allegiance, in that people are biased by labels and party affiliation more than actual content. For example, one series of studies (Cohen, 2003) found a "party over policy" effect whereby participants who were judging the merits of a particular welfare policy were more affected by the political party that was proposing it than the particulars of the policy. In a 2x2 design, liberal and conservative participants were given a policy that was either very generous or very stringent in the available benefits, and was either sponsored by a Democrat or a Republican. Policy-wise, the generous option is more consistent with liberal goals and the stringent policy is more geared towards conservative goals. However, this distinction had a much smaller effect on policy support than party affiliation: conservatives were far more likely to support the generous policy supported by a Republican than a stringent policy supported by a Democrat, and the reverse was true for liberal participants.

While this type of partisan bias is well documented, reliable, and consistent on both sides of the aisle (Ditto et al., 2018), there are rational explanations for findings like the one above. In particular, when people do not have enough information to form a complete picture of what they are evaluating, it makes sense to rely on cues that usually lead to the correct answer. If a participant knows that the Democrats generally support policies they agree with, then the fact that it came from the Democrats might be a diagnostic piece of information that should affect their judgment, especially if they do not have a great deal of experience or knowledge about the specifics of what level of welfare spending they support (besides general ideas about "more" or "less"). Similarly, it is reasonable for participants to use prior information about Republican policies towards welfare to decide whether or not a policy supported by a Republican is likely to be something they would support. While this demonstrates the difficult nature of determining

when a bias counts as a bias to an individual, this is lessened by the amount of detail that was given about the policies, and the fact that the policies were either extremely generous or extremely stringent (meaning participants had more relevant diagnostic information than party cues to rely on).

Theoretical Background in Correcting Biases

Though social psychology researchers have long been concerned with documenting, describing, and avoiding the possibility of bias, less research has focused on how individuals react to their own potential biases and attempt to correct them (Chien, Wegener, Petty, & Hsiao, 2014).

The social cognition literature posits a variety of theories on how this correction can occur. One early theory is Schwarz and Bless's "inclusion-exclusion" model (1992). This model describes how people make a judgment about some object or person, such as determining the competence of a person applying for a promotion. What gets "included" is anything initially available to affect the judgment: features of the person, the context, the perceiver's attitudes, etc. By default, information is included if available; the perceiver might notice the person's race, for example, and automatically have that fact influence their judgment. After this initial, automatic judgment, features can be "excluded," meaning the perceiver attempts to remove that particular feature from their judgment and re-evaluate. A perceiver might decide that the feature is irrelevant to the judgment, not representative of the person as a whole, or only provides redundant information. Critically, it takes cognitive effort to exclude features, which is why people under cognitive load are less able to control or correct for known biases (Gilbert, Pelham, & Krull, 1988).

Another related concept is Wilson and Brekke's theories of "mental contamination" (1994). This refers to judgments that become "contaminated" by information that the person is unaware of or cannot control (e.g., the worker's race in the previous scenario, if it unintentionally affects the competence judgment). One important addition to the previous model is about how people correct for these unwanted inferences. Lay people often have theories about what is affecting their judgment, but often have inaccurate or incomplete knowledge about what truly is affecting them. When people are wrong about what's contaminating their judgment they might pick strategies to reduce a bias that don't actually help the situation. To summarize this model: in order to arrive at an uncontaminated judgment, people need to be aware of the unwanted process, be motivated to correct it, have an accurate view of the magnitude and direction of the bias, and have the mental control to be able to adjust their response.

A broader, related theory is Wegener and Petty's "flexible correction model" (1997), which focused more on – and expanded the specific correction process that goes on – when people are made aware of a bias in their judgment. This model examined factors such as whether the perceiver thinks the bias would affect them, by how much, and in what direction. A "successful" correction would require that the perceiver is both motivated and able to overcome the initial judgment by properly identifying the above features of their own bias.

For example, Sczesny and Kühnen (2004) showed that people generally are aware that gender has an effect on judgments of leadership competence (where men are judged as more competent), and correct for that bias when not under cognitive load. However, they are unaware of bias relating to physically masculine appearance (unrelated to gender), and thus do not correct for that even when not under cognitive load. While this model and related studies cited posit a

relationship between an individual's perception of their own bias and the correction they make for it, more direct evidence has been called for to support this (Chien et al., 2014).

Obstacles to Self-Correction of Biases

These models and the related literature suggest three key issues that arise when people try to correct for their own biases. The most basic is that <u>people often lack awareness of what influences their judgments and decisions</u>. In their seminal paper, Nisbett and Wilson (1977) describe, over a wide variety of contexts, how unaware people are about how they came to certain decisions or judgments. When choosing what product to buy, or deciding how much they like a movie, or voting for a particular candidate, people can be influenced by seemingly irrelevant factors such as the order of options, how hungry they are, and the facial features of the politician. Most importantly, people are completely unaware of this, even when they introspect and offer a reason for their evaluation. In one study, the researchers asked consumers in a shopping mall to select the best quality stocking from an array of four stockings (which were actually identical). There was a dramatic effect of consumers preferring the final stocking over the others (especially compared to the first), but when asked for their reasons for selection, nearly all participants gave reasons other than order. When asked about order directly, they denied that it had an effect on their decision and seemed confused by the question, as the order of presentation is not something they had considered would even be a factor in their or anyone's judgment. Clearly, participants here would not be able to self-correct an order bias in the real world if they had no awareness of what was influencing them.

The second issue that arises in self-correction is that <u>people generally have a strong belief in their own objectivity</u>. Though this is also an individual difference, people perceive themselves as rational, unbiased, and objective. In one study, researchers used a paradigm of gender bias,

whereby participants who were asked to choose between a male and female applicant for a police chief (or other gender-stereotyped position) rated the unique qualifications that the man held as more important for the job than those of the female applicant, even when the actual qualifications were switched (Uhlmann & Cohen, 2005). A follow-up study primed some people with reminders of their own objectivity, and found that those who were reminded about their own high beliefs in their own objectivity consistently showed greater gender bias and discrimination, possibly because any automatic judgments or stereotyped attitudes were treated as more rational when they came to mind (Uhlmann & Cohen, 2007). Importantly, this study merely *primed* belief in objectivity by asking questions about it to make it accessible. It did not *manipulate* people's beliefs in their own objectivity because it was already so consistently high: 88% of participants believed themselves to be more objective than the average person.

This high belief in personal objectivity, given that more than 50% of people cannot be above average, is a form of the self-enhancement effect, where people think themselves high on personal traits seen as particularly desirable (Krueger, 1998), including objectivity (Armor, 1999). Though people can often point out when others are being biased, or even recognize that a given piece of information might be biasing to other people, they often maintain that they would not be affected by it. This is known as the "bias blind spot" (Pronin et al., 2004), which includes aspects of self-enhancement of one's own objectivity, naïve realism about one's perception of the state of the world (Ross & Ward, 1995), and the introspective illusion leading people to be unaware of the factors that affected their judgment (Nisbett & Wilson, 1977). This bias blind spot can have important applied consequences, such as in the current debate in the field of forensic science whether analysts should be shielded from other case facts and evidence so it does not bias their specific comparative judgment. One common argument against introducing

blinding procedures from the forensic community is that their expertise, professionalism, and

objectivity make them able to compensate for any bias they might be exposed to (e.g., see

Thornton, 2010), despite a wealth of research from social psychology demonstrating that

expertise does not grant such immunity (Thompson & Grady, 2019). This belief is dangerous,

both because experts often have more heuristics to draw on that can render them more

susceptible to bias, and because the designation of forensic analysis as purely scientific and

objective can remove awareness of the subjective nature of human judgment that comes into play

(Dror, 2013).

The final core issue in this process is that <u>people often lack the knowledge or ability to</u>

<u>make an accurate self-correction</u>. For example, even if a person is aware of an outside factor

potentially influencing them, and is attempting to overcome this bias, they might not know

exactly how much to change their evaluation. This can be demonstrated in the legal context with

the extensive literature on the effects of attempting to disregard inadmissible evidence. In the

basic paradigm of these studies, jurors are given a case with some equivocal evidence and are

eventually asked to come to a decision about the case and the defendant. Some participants get

just the basic equivocal case, some get a piece of additional probative evidence (e.g., a recording

of a wiretapped conversation that implies the defendant's guilt), and some get the additional

evidence but are then instructed to ignore it because it violated a required procedure. In a perfect

world where all jurors accurately follow the judge's instruction to disregard the evidence, the

conviction rates (or other outcome like damages awarded or perception of the defendant) would

be the same in the inadmissible condition as the control because the admissible evidence is the

same. However, what actually occurs, according to a meta-analysis of the topic, is that the

conviction rates in the inadmissible condition, on average, are significantly higher than in the

control condition, but less high than those in the admissible condition (Steblay, Hosch, Culhane, & McWethy, 2006). This implies that the instructions do have some impact – otherwise the inadmissible and admissible evidence conditions would be the same – but that they are not fully effective. Given that the jurors in these studies, when asked, often report that they *did* ignore the inadmissible evidence (Kassin & Sukel, 1997; Thompson, Fong, & Rosenhan, 1981), this could be a failure in assessing the magnitude of the impact that evidence had. Perhaps the jurors believed that the inadmissible evidence had increased their judgment of the defendant's guilt by 20%, so they subtracted that when asked to ignore the information, but in actuality it had increased their judgment by 40%. In a world where we could have provided them with an exact, quantified amount about how much they personally were affected by the inadmissible evidence, their subtraction may have been successful, thereby reducing their judgment to the same outcome as the control group, unless they were motivated by concerns other than reaching the legally correct solution (e.g., see Fleming, Wegener, & Petty, 1999).

In other situations, people might overcorrect for a bias they become aware of, or make the wrong type of correction. For example, consider a company that suddenly realized it had been discriminating against applicants based on gender: men were getting higher subjective ratings than women with comparable qualifications and backgrounds. They tell the male hiring manager to stop treating men more favorably and instead treat everyone equally. Assume the hiring manager agrees that he has done this and decides to correct it. When the next woman comes in for an interview, the manager's immediate judgment of her qualifications is that they are only middling. However, from his new knowledge of his own past bias, he decides that his judgment might have been biased, so he bumps her up to a high score. While this could potentially fix the bias, it is quite conceivable that the manager, unsure of how much to correct

and under a lot of pressure to overcome his issue, would overcorrect and start giving women higher ratings than similarly qualified men. Instead of truly removing the bias, he has just reversed it through overcorrection, likely unintentionally. This is a criticism of many seemingly successful racial or gender debiasing interventions: if the perceiver merely applies a correction factor (e.g., the automatic judgment giving women a negative evaluation and then consciously adding a positive evaluation bump to account for this), they are not necessarily getting better at the task at hand (which is ignoring gender and only making judgments based on qualifications), they are just changing the type or threshold of bias. The company may not care as long as the outcome is that there is greater gender parity in hiring, but psychologists care about what types of corrections are being made and what that says about the ways to overcome other, more pernicious biases.

Because of the way these biases come from natural, and often adaptive, cognitive processes, there is no way to fully get rid of all (or even any) cognitive biases in some situations. Humans often believe we are acting consciously and deliberately, but in actuality are "cognitive misers" that try to make judgments as efficiently as possible (Taylor, 1981) and relegate a great deal of everyday behavior and thought to automatic processes (Bargh & Chartrand, 1999), meaning we often rely on stereotypes, cues, and contexts to make a complex judgment more simple. In some cases, the opportunity for bias can be removed entirely through blinding procedures, making sure that people have no access to the irrelevant information so it cannot affect their judgment (e.g., as has been suggested for forensic science; Risinger, 2009). However, there are many instances where this is not a possible solution, such as when the biasing factor is entwined with the information in a way that it cannot be extracted and hid.

This is particularly true when it comes to the political realm, which activates people's identities, motivations, and biases around political ideology and cannot be "blinded" in the news media. For example, it would not be practical to require that news events about a candidate not include the candidate's name, which would (for informed viewers) also inherently bring up their political party. Biases based on political orientation are very hard to correct, not only because of the lack of blinding as an option, but because people often do not have the self-awareness or motivation to correct for it. Political identification involves behaviors and ideologies that are openly seen as informative for judging a person, unlike physical attributes such as skin color. It is not inherently wrong to support people from one's own party and advocate against someone from another; the bias comes in to play when people violate their own norms. People generally believe they are acting on consistent and rational moral principles when they make a particular judgment about a situation, when in actuality, they make an automatic judgment and then recruit the necessary principle to justify it (Haidt, 2001). These difficulties make political bias an especially relevant and important area to explore and find novel ways to both investigate the source of bias and find when awareness is and is not enough to help people overcome it.

Overview of This Proposal

The first chapter is about longer-term memory bias, investigating people's congruence between their current attitudes and memory for past attitudes, as well as susceptibility to false memories. It is a longitudinal study that followed people over the course of the 2016 presidential election to look at how partisans' memory, both for their past attitudes and for entirely made up events, is influenced by political identity and other possible moderating factors. It also examines whether, after being specifically told about the bias they may have shown, they admit that they

may have succumbed to it and how that awareness relates to what level of bias they demonstrated.

The second chapter, also addressing people's attitudes about the candidates in the 2016 presidential election, involves a more subtle manipulation to make people aware of their bias and then determines if this reduces the level of polarization in political judgments between Democrats and Republicans. This chapter discusses a series of three experimental studies on partisan political bias, where Democrats and Republicans evaluate situations differently depending on whether it involves accusations against someone from their own or the opposing party. These studies find two similar, controversial situations, one involving a Democratic politician and one involving a Republican, and look at the deeply polarized perceptions of the situations. The design has people evaluate one situation first and then the other, in ways that highlight the similarity between them in order to confront them with their potential bias without stating it directly. It shows that even without directly pointing out biases people may hold, people may be sensitive to judgments that may make them appear hypocritical, and this can have modest but noticeable effects on moderating political differences in such judgments.

The third chapter takes a more applied approach to people's responses to false news stories (or so-called "fake news") on social media that both supports and goes against their political views. It tests different types of warnings to help people become aware of news that is false, and investigates whether this can be effective over time at helping people avoid partisan disparities in how they judge fake news. This study finds that even the strongest warnings are not able to overcome partisan motivations, and finds other predictors of susceptibility to fake news. It also questions people about their own possible biases to investigate how that affects

responses, and finds that attempting to make people introspect on their biases does not reduce their susceptibility to them.

Thus, in three different political contexts, these studies will investigate the issues involved with the presence and awareness of partisan biases around the real-world situation of judging political news. They offer novel insight and important suggestions for future work in correcting for political biases, especially in regards to how and when self-awareness can be an important factor in reducing such biases.

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Chapter 1: Attitude-Memory Congruency

In national presidential elections in the United States, when voters are ready to fill out their ballot they must think about all they know about each candidate (which may include years of information), consider how they feel about each candidate, and, finally, make a decision about who to cast their vote for. While it is this final vote in the general presidential election that gets the most national attention, the process leading up to this is an often contentious primary campaign, where major political parties run within-party elections to determine their party's nominee on the final ballot. Since fewer voters participate in primary elections, those who do vote tend to be the more politically interested and engaged members of each party (Sides, Tausanovitch, Vavreck, & Warshaw, 2018). During a contentious primary, many party members may passionately campaign *against* a person who will eventually be their party's nominee. This may involve party members highlighting the negative characteristics about a candidate of their own party and advocating against that person's qualification for office in order to drive support for their preferred candidate. However, even in particularly divisive primaries, most party members end up voting for whoever their party's nominee. This may explain why, against conventional wisdom, the level of primary divisiveness has only a minimal effect on general election outcomes (Atkeson, 1998).

How do people reconcile these potentially conflicting attitudes? What happens when they move from arguing that a person went against their values to then supporting and advocating for that same person only months later? The more heated a primary campaign becomes, the more difficult it may seem to be to rally the party base towards supporting the nominee, and the more conflicted people may be about their vote in the general election. It is easier, mentally, to hold consistent views on people and issues (e.g., this person is good, and they

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support my views, and it is right to vote for them). When people hold conflicting views, such as "I don't feel favorable towards this person," and "I am going to vote for this person," it may be psychologically easier to change one's views than to confront the reality that they are voting for a person they do not like (Festinger, 1962; Aronson, 1969). During the process of weighting relevant factors in order to make a decision between two options easier, people with a motivation to reach one conclusion start to weight the factors that lead to that outcome more strongly, which makes the preferred option in the end seem much more desirable (Read, Snow, & Simon, 2003). In an election with candidates who are not universally popular within their own party, this effect may be especially strong in order to reduce internal dissonance about a person's selected candidate.

This leads to the present study which aimed to examine attitude change and memory bias during the heated 2016 presidential primaries and general election. In particular, it followed a group of U.S. citizens from the primary campaign through the general election and then to the inauguration in order to look at how people's opinions of candidates shift and how they may resolve such opinion change. This election served as an ideal time to investigate these issues, given the heated primary campaign 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 more populist, non-politician candidate in Donald Trump as well as a long list of long-time party members, with top contenders being Ted Cruz and John Kasich. Both parties had candidates that had particularly dedicated supporters who advocated strongly against other primary contenders. What happens to those supporters' beliefs and memories throughout the election process? More specifically, would those who had previously disliked whoever ended up becoming the general nominee remember the strength of

their previous negative attitudes? Literature on the biases at play in memory suggests they may not.

Research on Memory Bias

Human memory can be a frequent source of bias, both in how memories themselves can be prone to inaccuracies and changes from outside influences (Loftus, 2005) and in how selective searches of memory can be used to support a motivated goal (Kunda, 1990). Like many cognitive processes, people do not have direct access to these changes in their memories. When asked *how* people remember something, the answer is just that they try to remember it, and then it either does or does not come to mind.

One form of bias arising with regard to memory is the tendency for people to remember their past attitudes and preferences as being more in line with their current attitudes than they actually were. In Gready et al. (2000), older adults made decisions about what type of treatment they would want in a variety of health scenarios, and then were asked again about the same scenarios two years later. While treatment preferences for some of the "easier" choices were stable, such as wanting antibiotics in the case of a minor illness, some of the more difficult items, such as whether one would want to be resuscitated from a heart attack if they had a debilitating illness like Alzheimer's showed greater changes in treatment preferences over time, with many changing their mind about whether they would want to be treated at all in that scenario. Importantly, people were unaware of this change, with 71% of people who changed their preferences over time saying they remembered their preferences as being the same at both timepoints. This was not just due to the age of the sample: a follow-up conducted with both older and younger adults found a similar pattern, where 75% of older adults and 69% of younger adults who changed their treatment preferences falsely remembering that their preferences had

been stable over time (Sharman, Garry, Jacobson, Loftus, & Ditto, 2008). A much smaller number of participants falsely remembered that their attitudes had changed when in fact they had been stable (11% of older adults and 37% of younger adults), showing that this finding is not just due to poor memory overall, but rather specifically biased in the direction of remembering greater preference stability.

Experimentally manipulated changes in attitudes are also often undetected. In a classic dissonance paradigm, where participants are asked to write a counter-attitudinal essay with insufficient justification and end up adjusting their attitude to become more in line with what they just argued, Bem and McConnell (1970) found that participants were not able to remember their previous attitudes. When asked to recall what they felt before writing the essays (which participants knew the researchers had access to from pre-test measures), nearly all participants reported that their prior beliefs were consistent with their current beliefs (product-moment correlation of $r = .96$ between current attitude and recall of initial attitude). Participants demonstrated little awareness of the change in attitude that had just occurred. A similar pattern, where participants recalled their previous attitudes as in line with their current attitudes, as opposed to recognizing a change, occurred in a study where a persuasive confederate was able to change high school students' attitudes towards school busing (Goethals & Reckman, 1973).

This effect is similar, though not exactly the same, as the hindsight bias, where people's memory about an event is affected by knowledge of the eventual outcome, even though people report that the outcome does not affect their recall (Fischhoff, 2003). For example, a study that followed people before and after the 1984 election found that after the election people reported having previously thought the eventual winner had a higher chance of winning and were more

confident in the accuracy of those predictions than they actually were before the election (Powell, 1988).

This type of biased recall has been observed with memory for emotions as well. This happens both in how people more easily recall attributes (e.g., positive or negative) consistent with their current mood (Forgas & Bower, 1987) and in remembering their past emotions based on current appraisals (Levine, 1997). The latter study looked at presidential candidate Ross Perot's supporters over the 1992 election, and found that those who changed their appraisals of Perot's initial withdrawal remembered their past emotions in light of this. For example, those who were initially unsupportive but later decided to vote for him remembered not being as angry at his withdrawal than they actually were, while those who remained unsupportive of him after the withdrawal accurately remembered their earlier anger.

One reason for this type of bias has to do with people's implicit theories about what kinds of attitudes and traits are stable over time and the consistency of their self-concept (Powell, 1988). More specifically, when people have a sense that something will be stable over time, like their personal attributes, they have a bias towards remembering greater consistency than there actually was. Alternatively, if people expect a change (e.g., if they have just gone through a self-improvement program), they would be more willing to remember their past being different (McFarland & Ross, 1987). Although people generally prefer consistency, this is an individual difference that has important moderating effects on social influence outcomes that draw on this preference (Guadagno & Cialdini, 2010). Additionally, those who have a tendency to self-enhance (Krueger, 1998) might show this effect even more so because of an unrealistically positive (and more inaccurate) view of themselves (John & Robins, 1994). Those who do show consistency-biased incorrect memory may end up even more confident in the accuracy of such

memory, as in studies of misinformation where inaccurately recalled items from memory are reported more confidently if they were misled to that answer than not (Loftus, Donders, Hoffman, & Schooler, 1989).

These studies demonstrate the complex relationship between attitudes and memories. People's memories about their attitudes are not always accurate and, specifically, their memories for their past attitudes are influenced by their present attitudes. Moreover, people are largely unaware of this bias, frequently underreporting the extent to which their present attitudes impact their recall of the past. Memory is not just affected by one's current attitude state but also by general, pre-existing attitudes, beliefs, stereotypes, and expectations, which can impact the kind of information we both correctly and falsely remember.

One main way extant research has investigated the question of whether pre-existing attitudes impact memory is by investigating whether participants preferentially recall, when thinking of the past, information that is attitudinally congruent. In other words, investigating whether people demonstrate better recall for information that is consistent with their current attitudes than information that is inconsistent with their attitudes. Meta-analyses have demonstrated some support, although weak in effect size, for this hypothesis (Eagly, Kulsea, Chen, & Chaiken, 2001). Attitude strength moderates this effect, with larger effect sizes when the attitude is already established, rather than experimentally manipulated (McMillan & Stangor, 1992).

One reason that the memory congruency effect is small may be that people do not categorically find attitude-consistent information more memorable. Under some circumstances, when people are exposed to attitude-inconsistent information, they may be particularly likely to attend to it so they can critically analyze it and then later show why they are not convinced by it

(Ditto & Lopez, 1992; Eagly, et al., 2001). When asked to explain their thoughts about a message, people exposed to attitude-inconsistent messages tend to give more detailed explanations about their thoughts, for instance by describing how they scrutinized the strength of the arguments. On the other hand, thoughts about attitude-consistent messaging tend to be more vague statements of agreement or support.

Motivated False Memory

The effect of pre-existing attitudes and stereotypes on memories includes not only one's propensity to correctly remember information but also the propensity to remember false information. For example, pre-existing attitudes or stereotypes can increase the likelihood that a person remembers false information that is stereotypically or attitudinally congruent (Lenton, Blair, & Hastie, 2001). Individual differences and group memberships can also elicit this effect. In one study of this phenomenon, Frenda, Knowles, Saletan, and Loftus (2013) investigated whether political affiliation affected participants' ability to distinguish between true and false news events. Participants in this study were shown a series of photographs, some true and some fabricated, and asked whether they remembered each event occurring. Some of the fabricated events implicated a Republican politician engaging in a negative action, while others showed a Democratic politician engaging in a negative action. On average about half of participants endorsed one of the false events. Notably, for two of these events, memory endorsement differed by political party. The negative false event about President Obama – him shaking hands with the Iranian president – was remembered more frequently by Republicans than Democrats, while the negative false event about President Bush – vacationing in Texas in the aftermath of hurricane Katrina – was remembered more frequently by Democrats than Republicans. A recent study of false memory during Ireland's 2018 abortion referendum found similar results, where fabricated

news events that suggested bad actions on the part of either side of the debate were more likely to be falsely remembered by those on the opposite side than those on the same side (Murphy, Loftus, Grady, Levine, & Green, 2019).

In addition to attitudes and group membership, personal interest and experience affect memory errors. Experts in a topic are sometimes more likely to develop false memories about that topic. For instance, people with more experience with video games are more likely to falsely recall features of a fictional game console than those with less experience (Mehta, Hoegg, & Chakravarti, 2011). Counterintuitively, participants with greater expertise also have more accurate recall for their area of expertise. One reason for this may be that experts, due to their increased knowledge in an area, have a more extensive associative mental network for that area (Baird, 2001). Thus, when they encode one concept in that network, related concepts are activated. This also helps explain why experts are not only more likely to falsely remember information in their area of expertise, but are also more likely to correctly remember information (e.g., Mehta, et al., 2011).

Preferences act in a similar manner as expertise. Participants who report liking a topic more are both more likely to accurately remember news about that topic and more likely to falsely remember fabricated news stories about that topic. In one study, high interest in a topic led to about twice the probability of endorsing a fabricated news item compared to a low interest topic (O'Connell & Greene, 2017). In a contentious political election, this may be especially relevant, as many people, especially those identified with one of the major political parties, become highly invested and interested in following events. This may increase the amount of false memory and memory bias present, especially around particular high-profile candidates that people follow closely.

The Current Study

The literature reviewed here converges on several key points. Memory accuracy, both in terms of endorsement of correct items and rejections of false items, is affected by a variety of altitudinal and individual difference variables. People are often unable to accurately recall their past attitudes. Rather, their current attitudes bias their memory of how they felt in the past. Moreover, factors beyond attitudes such as demographic characteristics like political affiliation can influence the extent to which people endorse true and false news items. People are more likely to endorse both true and false items when they have a high level of expertise in a topic, when they like a topic, and when the topic is congruent with their attitudes. The goal of the present study was to investigate these kinds of topics in a consequential, real-world environment. In particular, by following voters between the primary campaign and the general presidential election, I can investigate these types of biases particularly in those who supported a candidate other than the eventual nominee during the primary and see what memory biases they might show in order to justify their eventual support in the general election.

This study followed a group of U.S adults over the course of the 2016 presidential election, asking for their attitudes, memories, and feelings at three timepoints: during the primary season, just before the election, and two months after the election. I looked at changes in attitudes towards the candidates over time, memory of their 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. In particular, I aimed to demonstrate the memory bias effect during a real-world, highly motivating situation to test for potential moderators of the effect, and to investigate the role of awareness and accurate perception of memory change.

Methods

Participants were recruited from Amazon Mechanical Turk. They were told the study was a university study about political attitudes, not affiliated with any party or candidate, which would pay $0.70 for 3-8 minute survey. Only users with an IP address in the U.S. were shown the survey. Additionally, users had to affirm that they were eligible to vote in the U.S. and that they were willing to take follow-up surveys on Mechanical Turk in a few months' time.

The first survey took place from May 9 through May 11, 2016. This time period was chosen because it was two months before the parties' national conventions and thus in the heat of primary campaign when people would likely know who they preferred to win at the convention. 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), of whom 380 (63%) identified as Democrats, 164 (27%) identified as Republicans, and 58 (10%) identified as independent or neither. This affiliation was determined by asking them to report which party they belonged to out of a list of multiple major political parties in the U.S., with a follow-up question asking anyone in a third party or no party whether they leaned more towards being a Democrat or a Republican and grouping the leaners in with that party. This is commonly done in political polls because independents who profess a leaning to one party generally vote and behave similar to party identifiers (Keith et al., 1986). The goal of the sample size was to have at least 40 participants in each of the main groups (Democrats and Republicans who supported the leading nominee or someone else) in order to have 80% power to detect a medium effect size of f

= 0.25 for between group comparisons at Time 2. I first collected 100 participant responses to determine the distribution of political party affiliations in the population, and then calculated and collected to the final sample size of 602 (assuming at least a 50% return rate) to achieve at least 40 Trump-supporting Republicans, the smallest of the groups.

The first follow-up survey (hereafter referred to as Time 2) was collected during the last week of October and first week of November 2016, just before the general election. This timepoint was chosen in order to capture people's attitudes as close as possible to the general election where they might be most invested in their candidate's chances and before they would be affected by the election's outcome. Participants were sent an email notifying them of the follow-up survey, with a reminder that they had previously agreed to complete the survey and notice that it would take 4-8 minutes and pay $0.75. Two additional reminder emails were sent over the next 10 days to all participants who had not yet completed it. Four hundred fifteen participants completed the follow-up, a return rate of 69%. There were no differences in return rate by political party.

The second follow-up survey (Time 3) was sent during the middle two weeks of January 2017, just before the new president's inauguration. This allowed me to look at reactions to the election's outcome, investigate any changes in candidate perceptions since before the election, and include various individual difference measures. The reminder proceudres used was the same as in the first follow-up. Three hundred twenty-nine participants completed the second follow-up, a return rate of 79% from the second survey and 55% from the full sample in the initial survey. There were again no differences in response rate by political party.

Time 1 Procedures

After giving their ideology, party affiliation, and answers to some questions about their interest and participation in the election, participants were asked to judge how favorable they felt (from 0, *completely unfavorable*, to 100, *completely favorable*) towards the most recent top two candidates from both major political parties: Donald Trump, Ted Cruz, Hillary Clinton, and Bernie Sanders. This was the first non-affiliation or eligibility question and is the primary variable used for perceptions of each candidate.

After answering a few other questions about the candidates and the major political parties, such as how similar they felt those four candidates' views were to their own and how moral or immoral they thought each candidate was, they then saw either a block of Democrat questions, a block of Republican questions, or a block of non-partisan questions (if they did not lean towards either party) based on their previously reported affiliation or leaning. Within each party they were asked a series of questions about the primary campaign and how they felt about various primary contenders for their party's nomination, including who they wanted to win the nomination[1], how united they thought the party was, how positive or negative the primary tone has been, how they would feel if their preferred candidate was not selected, how important they thought it was that their party win the presidency, and how fair they thought their party had been in the process. Independents were asked, in an open-ended question, who they planned to vote for in the general election if they had decided. The full questionnaire is included in Appendix 1, Time 1.

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[1] Since Donald Trump had been declared the presumptive nominee, though not yet officially confirmed, I wanted to avoid Republicans reporting that they wanted him to win because they thought it was right that he be nominated at this point, rather than Republican electors choosing to vote for a candidate other than who they were pledged to support by state results. Therefore, Democrats were asked "Who do you prefer to win the Democratic nomination for president in 2016?", while Republicans were asked "Before Trump was named the presumptive nominee, who did you prefer to win the Republican nomination for President in 2016?" Given that that this was still during the primary season and he had only recently been declared the nominee, they likely still had access in their memory to who they had supported.

Finally, all participants gave their age, gender, race, and how many years they lived in the U.S.

Time 2 Procedures

Participants answered the same initial questions as Time 1 about ideology, political affiliation, and election activity, as well as new questions asking who they planned to vote for in the presidential election, and their estimated percent chance of Clinton, Trump or "someone else" winning.

Next, they were told we wanted to know their current attitudes towards the candidates, whether or not their answers had changed from the initial survey. They received the same questions as Time 1 about favorability of the four candidates, perceptions of the major parties, and questions about perception of their party's candidates and feelings about the primary campaign (for Democrats and Republicans, based on their Time 1 affiliation). Though a small number of people may have changed their affiliation since Time 1, it was important to use the Time 1 affiliation to assign question blocks so that the memory questions would be matched with what they answered during the first survey.

After this, everyone was told that they would now be asked to remember their past attitudes from Time 1. They had to remain on the page with the following paragraph for at least 5 seconds:

In May, you completed a survey that asked questions similar to the ones you just answered.

In the next questions, please do your best to remember your feelings and attitudes at the time you completed this survey in May. Based on your memory of how you felt, answer these questions in the same way you answered them then.

Take a minute now to think back to how you were feeling when you took this survey in

May so you can answer your questions as you answered them then at that time. If you

don't remember exactly how you responded to a question, just give your best guess based

on your memory of that time.

Participants were then shown the same candidate questions but framed as memory

questions, such as "When you took the survey in May, how favorably or unfavorably did you

view each of the following current or former candidates?" Questions were in the same order as

the current attitude questions, asking first about the general election and then the party-specific

questions (for Democrats and Republicans).

After this section, participants answered four questions about their experience answering

these memory questions on 7-point scales: how difficult it was to recall their past attitudes, how

accurate they thought their memory was, how intensely they experienced emotion when

remembering past feelings, and how much they thought their attitudes had changed.

In the last section of this survey participants also saw a series of statements about news

events and reported which they remembered happening. They could respond either "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." There were 18 statements in total, nine about Donald Trump and

nine about Hillary Clinton. Most 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 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). The order of the statements was randomized for each participant. Directly after this section participants were told about the false items and had to stay on the page for long enough to read the debrief and click to acknowledge they knew the items were false before continuing. A full list of items can be found in Appendix 1.

Time 3 Procedures

As in the previous surveys, participants first gave their ideology and political affiliation, followed by who they voted for (if they voted), the level of surprise they felt at Trump's election, and their emotions about his presidency. After this the format was similar to Time 2, with them first giving their current attitudes towards the candidates and political parties, and then giving their memory for how they felt during the Time 2 survey just before the election.

Once the attitude and memory questions were completed, they were asked to rate the credibility of both traditional media and online news sites. They were asked to rate how often those media outlets were fair, were accurate, were unbiased, told the whole story, and could be trusted. Next they got a selection of questions from the Preference for Consistency scale (Cialdini, Trost, & Newsom, 1995), specifically one question from each subscale that corresponded to their desire to appear consistent to others, have their friends be predictable, and have consistency in their own actions. There was also one item about their general disposition towards conspiratorial thinking (Uscinski, Klofstad, & Atkinson, 2016), indicating their belief that major world events are secretly controlled by a small group of people working against the rest of us. Finally, there was the 16-item Balanced Inventory of Desirable Responding short form scale (Hart, Ritchie, Hepper, & Gebauer, 2015), which asked questions such as, "I never cover up my mistakes," and "I always know why I like things," to assess self-enhancement.

At the end of the survey they were given the following open-ended question to respond to in a paragraph-sized text box:

In this survey and the previous one, you were asked to remember your previous feelings and attitudes towards various candidates and political parties, as well as give your current attitudes. What our research has shown is that some people remember their feelings as more in line with their current attitudes than they actually were. For example, if a person begins to feel more positively about a candidate over time, they may remember feeling more positive about them in the past than they actually felt.

Do you think this may have happened to you for any of the questions? Do you have any comments on whether your attitudes or memory have changed a lot over the time between these surveys?

Though participants were not forced to respond to these questions, 312 participants gave at least some response. The open-ended responses were given to two undergraduate research assistants to code independently after a training session. Responses were coded as either a "Yes" or a "No" for whether they indicated *any* chance that they may have been susceptible to memory bias. "Yes" responses 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 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")[2]. The two research assistants agreed 84.7% of the time; while there are no established guidelines for acceptable levels of agreement, this is above the minimums of 70-80% often used by other researchers to indicate good inter-coder reliability (Campbell, Quincy, Osserman & Pederson, 2013). I resolved all discrepancies between the two coders. Most of the non-matching codings were for responses that acknowledged attitude change without mentioning specifically memory change (e.g., "*I'm sure my attitudes have changed a little bit*" or "*I think I am now a wee bit more negative about Donald Trump*"), which one coder consistently rated as a "No" and the other consistently as a "Yes". I decided to code these types of statements as a "No" when resolving the discrepancies since they were only talking about how their attitudes may have changed and not that they thought their memory was biased.

Hypotheses:

H1: Participants will demonstrate a memory bias, indicated by a direct relationship between their attitude change and their memory change.

H2: Those high in self-enhancement, those more confident in the accuracy of their memory, and those with a stronger preference for consistency will show a stronger memory bias.

H3: Partisan participants will be more likely to falsely remember supporting the winner of their party's primary than they actually did.

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[2] At the start of coding I asked the research assistants to code as "Yes," "Uncertain," "No," and "Didn't mention." I decided to collapse the "uncertain" and "yes" responses and the "didn't mention" and "no" responses based on an initial pass through the raw responses (before seeing the coded values) because there was enough overlap it was hard to make a distinction. For example, deciding whether a response that just says the word "no", which was over 10% of the responses, is saying they don't want to answer the question, or didn't have any attitude change, or doesn't think they were biased. Similarly, since "yes" was meant to be for anyone that acknowledged even the possibility of bias (since very few people would claim that they surely *were* biased), it made sense conceptually to combine those with the uncertain people, as their uncertainty conveys a similar openness to the possibility (unlike the No responses that don't allow any possibility). Responses were still first coded into those four categories for possible later disambiguation if they turned out reliable, but since the level of agreement was significantly worse as expected (75%), I kept to the collapsed dichotomous codings for these analyses.

H4: The majority of respondents will say that they did not show any memory bias after being told about it.

H5: False negative events about political candidates will be more often falsely remembered by those who are against the candidate than those who support them (and vice versa for false positive events).

Results

One of the main items of interest was people's perceptions of the candidates at each timepoint, measured on a 100-point feeling thermometer. In Table 1.1 below, I present the favorability ratings for Clinton and Trump, since they were the ones who ended up being the nominees, divided by who participants supported in the primary as reported at Time 1: either the party nominee or someone else (which for Democrats was almost entirely Bernie Sanders, and for Republicans was divided across multiple candidates), or those who did not express a party preference at all. This shows what people reported for their attitudes at Time 1 (during the primary), what they reported as their attitude at Time 2 (just before the election), and what they recall at Time 2 of how they felt at Time 1. The general pattern is that the memory of Time 1 attitudes was shifted slightly in the direction of however the average attitudes shifted. For example, Democrats who did not support Clinton in the primary increased their favorability towards her by 8 points on average, and recalled feeling about 5 points more favorable than they actually did. Note that these are group means, not individual differences as used in later analyses; a lack of average difference does not necessarily mean no attitude or memory change, as some participants within a group could have increased their opinion while others decreased.

Table 1.1

Favorability towards nominees and memory of past attitudes based on who participants supported in the primary

	Clinton Democrats (*n* = 71)	Non-Clinton Democrats (*n* = 179)	Trump Republicans (*n* = 45)	Non-Trump Republicans (*n* = 63)	Non-leaning Independents (*n* = 46)
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Favorability towards Donald Trump					
Attitude at Time 1	11.84 (20.39)	12.27 (21.33)	83.59 (15.91)	37.73 (28.76)	26.53 (35.37)
Attitude at Time 2	10.07 (19.09)	7.46 (17.36)	77.00 (24.96)	37.97 (31.65)	21.89 (32.69)
Memory of Time 1	10.97 (17.31)	9.64 (17.72)	80.26 (17.27)	42.28 (27.15)	23.87 (31.11)
Favorability towards Hillary Clinton					
Attitude at Time 1	78.99 (16.48)	42.20 (28.94)	12.91 (21.07)	18.06 (23.14)	17.21 (22.75)
Attitude at Time 2	77.96 (18.83)	50.61 (28.21)	10.65 (17.32)	20.80 (25.50)	21.19 (26.21)
Memory of Time 1	75.60 (17.96)	46.87 (27.52)	12.30 (16.83)	20.77 (20.94)	20.96 (23.57)

Note: These data are for those who completed both Time 1 and Time 2 surveys.

Attitude Congruency

To statistically test the hypothesized memory bias (H1) and investigate how strongly memory was influenced by current attitudes, I decided to use the favorability ratings towards Trump, as it was the first attitude question in all surveys and thus the most pristine. First, a memory difference score was computed for each participant by subtracting the original Time 1 attitude judgment from the Time 2 memory judgment. Thus, positive scores indicate that a person remembered feeling more positively about the candidate than they actually did, while negative values indicate they remembered feeling more negative about the candidate than they actually did. The attitude change score was computed by subtracting the Time 1 attitude

judgment from the Time 2 attitude judgment, with positive and negative scores indicating an increase or decrease in their judgment of the candidate's favorability over time. Memory difference was the dependent variable, while attitude change was the main predictor.

Regressing memory difference on attitude change indicated a high degree of linear relationship ($b = 0.58$, $p < .001$); attitude change alone predicted 47.2% of the variance in memory difference ($F(407) = 363.1$, $p < .001$), with results virtually unchanged when adding in initial Trump favorability as a control. This association between memory and current attitude was strong and significant (all bs $> .350$, all ps $< .01$) across all five primary groups and for perceptions of both Clinton and Trump.

Another way to test the relationship is to regress the memory judgment (not difference score) onto Time 1 and Time 2 attitude scores. Doing this shows that both attitude judgments are significant predictors and explain most of the variance in memory ($F(2, 410) = 1225$, $p < .001$, $R^2 = 85.7\%$), but that Time 2 attitude is an even stronger predictor of memory ($b = 0.55$, $p < .001$) than Time 1 attitude ($b = 0.39$, $p < .001$). This means that knowing someone's current attitude is more predictive of their memory than the attitude people were trying to recall.

Moderators were tested by including them as interaction terms with the main predictors (in separate models for each moderator). A statistically significant, positive interaction would indicate that the memory bias (meaning the relationship between memory difference and attitude difference) was stronger as the moderator increased, while a negative significant interaction would mean it was weaker.

Two of the three hypothesized moderators showed a significant effect on memory bias (H2). Those who were more confident in the accuracy of their memory ($b = 0.12$, $p < .001$) and those who showed higher self-enhancement (as measured by the total scale average; $b = 0.14$, p

< .001) had a stronger relationship between their memory and their attitude change, although neither had a significant relationship with actual accuracy of memory recall (both $ps > .05$). Preference for acting consistently was not a statistically significant moderator of memory ($b = 0.03$, $p = .405$) against my prediction.

Figure 1.1 below visualizes this relationship for the first moderator of belief in memory accuracy. If there was no biasing effect of current attitudes on memory, the graph would show a completely flat, horizontal line, meaning that their change in attitude towards Trump has no effect on the direction or size of their memory errors. A 1:1, or y=x relationship would indicate that what they remember as their past attitude is exactly what they think they always thought, indicating a complete bias. The steeper the line is (i.e., the closer the line is to y=x), the more attitude congruency bias was shown. This chart shows that the more people believe in the accuracy of their own memory, the more bias they showed in their memory. Those who were lower than average on believing in the accuracy of their own memory still showed some bias, but much less.
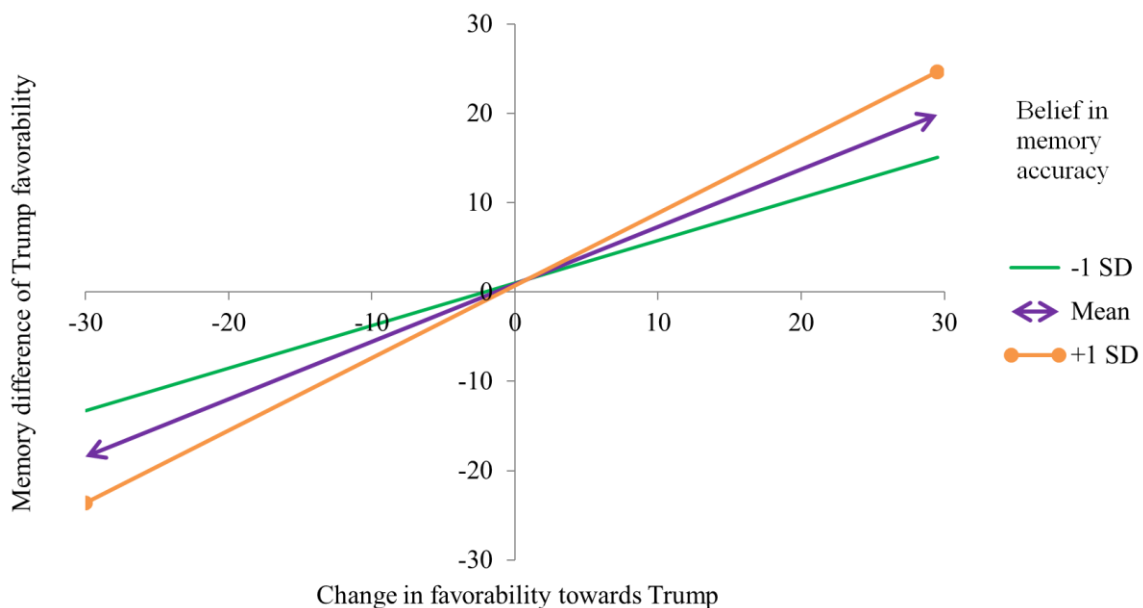

Figure 1.1. Memory bias is stronger in those more confident in their memory accuracy.

Shift Towards Nominee

H3 predicted that partisans of each major political group would remember supporting their party's nominee more than they actually did. I looked at this by comparing their reports at Time 2 (just before the general election) of who they remember supporting in the primary with who they actually stated as their preference at Time 1 (during the primary season).

For the 252 Democrats at Time 1 who returned at Time 2, only 29.0% of them had initially reported wanting Clinton as the nominee, while 71.0% supported someone else (mostly Bernie Sanders). Of those who initially supported Clinton, 90.9% correctly recalled that they had always supported Clinton, while 9.1% falsely recalled that they had supported someone else. These numbers were the very similar for those who had supported someone else; 90.4% correctly recalled they had not supported Clinton, while 9.6% falsely recalled having supporting Clinton all along. This did not support H3 as they were no more likely to falsely recall supporting the eventual nominee than they were to falsely remember in the other direction (Fisher's exact = 1.000, $p = .525$).

For the 110 returning Republicans, the pattern did provide somewhat more support for H3: 11.1% of those who had supported Trump all along falsely recalled having previously supported someone else, while 25.4% of Republicans who had supported someone else falsely reported having preferred Trump as the nominee all along. This difference, while large in magnitude, only approached statistical significance (Fisher's exact = 0.085, $p = .052$).

Awareness of Bias

Out of the 326 open-ended responses that were coded, only 23.6% (77 participants) acknowledged any possibility that their memory may have been biased by a change in their attitudes. The other 76.4% did not believe their attitudes had changed, thought their memory

was accurate, or did not mention memory bias in their response at all. This supports H4 in that the majority of people did not believe it likely they were susceptible to memory bias, even after an explanation of how it happens. Chi-square analyses showed that there were no significant differences in the rate of acknowledging bias based on party affiliation ($p = .649$), candidate supported in the primary ($p = .796$), vote choice in the general election ($p = .268$), gender ($p = .657$), or race ($p = .617$).

Awareness of bias did moderate the relationship between attitude change and memory change: those who acknowledged the possibility of bias showed less of a congruency bias than those who did not (as shown by an interaction between bias awareness and the relationship between attitude and memory change; $b = -0.261$, SE $= 0.085$, $p = .002$).

False Memory

For the test at the end of the Time 2 survey where participants could report if they remembered or believed news items (six of which were false), I looked at those who claimed a true memory of the event, not just a belief that it was true. I conducted a chi-square test on each false event by political party. Three of the items were statistically significant, partially supporting H5. Republicans were more likely than Democrats and Independents to falsely remember the positive event about Trump hosting a charity fundraiser (Republicans: 21.8%, Democrats, 5.2%, Independents: 2.1%, $p < .001$), Clinton swearing at a Trump supporter (Republicans: 10.9%, Democrats, 4.3%, Independents: 2.1%, $p = .026$), and Clinton embezzling campaign funds (Republicans: 27.3%, Democrats, 11.1%, Independents: 14.9%, $p = .001$). There were no significant differences in the other three Pro-Democrat items, where I predicted that Democrats would falsely recall the items more than Republicans.

I also ran the same analyses but with the primary support groups instead of just political party. The results showed the same three items as statistically significant, but looking at the individual items showed that most of the effect was driven specifically by the Trump Republicans, as the non-Trump Republicans showed a more similar pattern overall to the Democrats, without the increase in belief of the negative Clinton items and the positive Trump item. Table 1.2 shows the rate of false memory for each item by group as well as the rate of believing at least one false item and the average number of false items believed. Figure 1.2 shows the rates of both remembering the event specifically ("Remember") and for indicating they don't remember it but believe it happened ("Know") for each group. For all but the positive event about Clinton, Trump Republicans were the highest in the rate of false memory. This was the case even for the two negative events about Trump, though the differences for those items were not statistically significant.
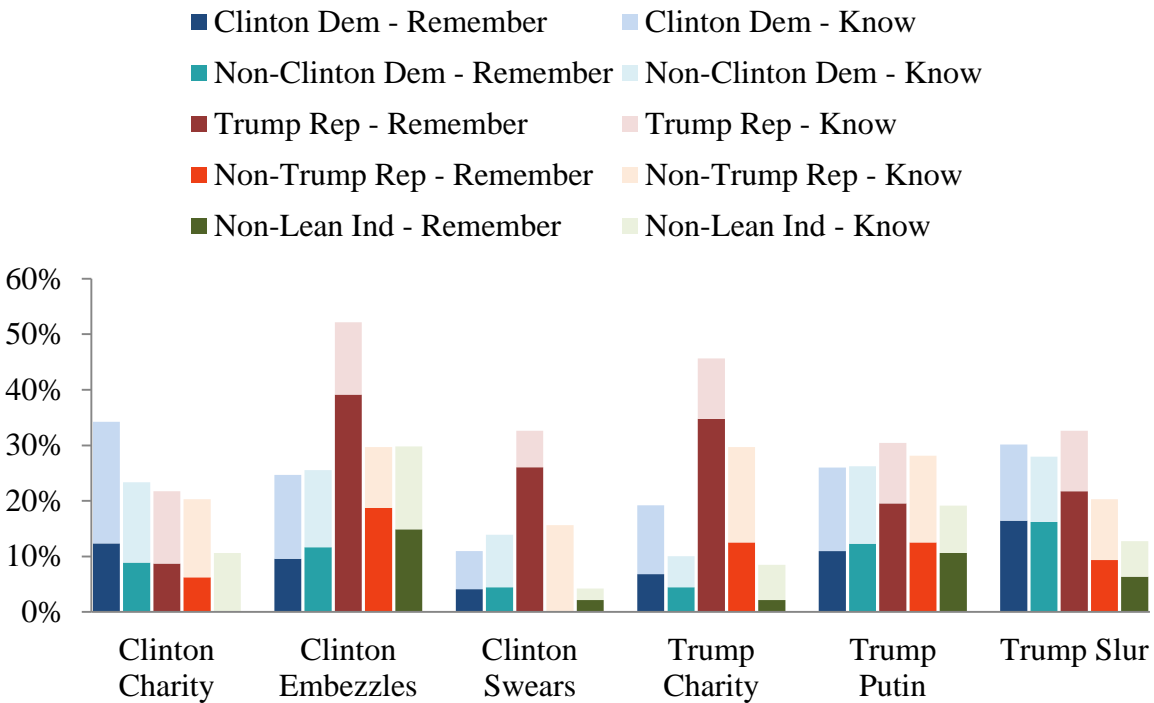
Figure 1.2. Rates of false memory and belief for each of the 6 false news items presented at Time 2 based on presidential preference at Time 1.

Table 1.2

False memory rates based on primary support group

	Clinton Democrats	Non-Clinton Democrats	Trump Republicans	Non-Trump Republicans	Non-Leaning Independents
Remember Clinton Charity (Positive Dem)	12.3%	8.9%	8.7%	6.3%	0.0%
Remember Clinton Embezzles (Negative Dem)***	9.6%	11.7%	39.1%	18.8%	14.9%
Remember Clinton Swears (Negative Dem)***	4.1%	4.4%	26.1%	0.0%	2.1%
Remember Trump Charity (Positive Rep)***	6.8%	4.5%	34.8%	12.5%	2.1%
Remember Trump Putin (Negative Rep)	11.0%	12.3%	19.6%	12.5%	10.6%
Remember Trump Slur (Negative Rep)	16.4%	16.2%	21.7%	9.4%	6.4%
Percent remembering at least one false event***	31.5%	33.0%	65.2%	39.1%	23.4%
Mean (SD) of false events remembered***	0.60 (1.15)	0.58 (0.99)	1.50 (1.80)	0.59 (0.92)	0.36 (0.74)

Note: These numbers are showing 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.
*** indicates there was a significant group difference at $p < .001$; other variables were not significant at $p < .05$

Finally, I ran a Poisson regression for the count of false items remembered (ranging from 0 to 6) to assess the predictors of increased false memory. 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 did not have a significant effect on amount of false memory beliefs (all ps>.05). The two predictors of higher false memory rate that were significant were higher belief in the general conspiracy item (Wald χ^2 (1) = 16.676, $p <$ .001) and who they supported in the primary at Time 1 (Wald χ^2 (4) = 34.34, $p < .001$). In particular, the latter was driven solely by the Trump Republicans showing higher average number of false items believed than other groups, $b = 1.804$, SE = 0.416, $p < .001$. As shown in Table 1.2 above, those who had supported Trump in the primary on average falsely remember 1.5 of the items, with 65% remembering at least one, while other groups reported a memory in 0.4 to 0.6 items on average.

Discussion

Overview of Results

The purpose of the present study was to investigate the role of attitude change and memory bias during a significant real-world event, the 2016 U.S. presidential election process. Most of the main hypotheses of the present study were supported. In the domain of memory for attitudes, results showed that people's memories for their past attitudes were highly influenced by their current attitudes. For instance, Democratic participants who supported someone other than Clinton in the primary increased their favorability towards Clinton by 8 points on average between the primary and the general election. When asked at Time 2 to recall their earlier ratings, they, on average, remembered feeling 5 points more favorable in the past than they actually did. This pattern was similar for both supporters and non-supporters of both candidates.

This replicates past research demonstrating that people will remember their past attitudes as more in line with their current attitudes than they actually were (Levine, 1997). People's memories were highly influenced by their current attitudes, even more so than by their actual past attitudes.

Moreover, participants were largely unaware of this bias. When asked whether their attitudes or memory had changed significantly over the time between surveys, the vast majority of participants did not acknowledge any possibility that their memory may have been biased by their attitudes. For example, there were responses like "*I don't think I feel more positively or negatively with any candidate*," "*I do not think my ideas have changed all that much*," and "*No, I think that my memory of my attitudes are correct, and that I feel the same way now as then*," all of which came from participants who changed their attitudes 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 characteristic including age, race, gender, party affiliation, or candidate preference.

Context of the Study

The current sample represents a unique and compelling timepoint in which to investigate questions about attitude change and memory bias. The 2016 election produced higher levels of motivation, interest, and engagement than other recent elections (Pew Research Center, 2016). Given this, it might be expected that participants would be more likely to accurately remember their previous attitudes as emotions and attitudes around the election were salient and likely frequently accessed. However, these results demonstrate that even in a scenario with particularly high levels of interest and attention, people's current attitudes still affect their memory for their past attitudes and people are still unaware of this bias.

This particular form of bias likely occurs so strongly because it makes it easier for participants to feel good about their choices. Most Democrats and Republicans vote 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 unfavorability (Saad, 2016), which may have made partisans uncomfortable with the fact that they were voting for these candidates and leading to dissonance-producing memory change to alleviate that conflict. Interestingly, reported preference for consistency was not significantly associated with this bias; however, this single item self-report measure may not have been sensitive enough to get at this internal conflict, especially if people are not aware of it happening. Given that a stronger congruency bias was found among those higher in self-enhancement, and in 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 significant minority of participants endorsed at least one of the false news items. This is notable given the way memory for news items was tested in the present study. 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. Past research investigating the relationship between pre-existing attitudes and endorsement of false news items has used doctored photographs paired with a brief description of the event depicted (Frenda, et al., 2013; O'Connell & Greene, 2017). Photographic imagery can help facilitate the development of false memories (Strange, Garry, Bernstein, & Lindsay,

2011). Thus, the results shown here are likely a lower bound estimate of how often participants will endorse false news items and was meant to investigate the rate of false memory reports, not just belief, even with the absence of additional suggestion.

One notable finding was the high rate of endorsement of false items by Republicans who supported Trump during the primary, in that Trump Republicans were twice as likely to falsely remember at least one event as other groups. This was particularly true for the negative Clinton events and the positive Trump event. They were even higher in memory for the negative 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, in that perhaps the Clinton behaviors were seen as universally negative whereas the Trump behaviors were not. The event about Trump shaking hands with Putin was meant to be a 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. A follow-up study by other researchers did find that Republicans, on average, would consider those events to be negative if true (Lindsay, Rode, & Ditto, 2019). But since that study did not have data about whether those participants supported Trump or not, there could still be a difference specifically regarding how his long-time supporters viewed these kinds of events.

Although not all events were statistically significant, the pattern for those that were provides support for the notion that people preferentially remember information that is attitudinally consistent. It is important to note, however, that this result did not replicate for all

groups and all events. One reason for this may be the matching theory proposed by Frenda and colleagues (2013). That is, partisan differences in the endorsement of false news items are most likely when there is incongruence between attitudes toward the actor and his or her behavior. For instance, there were no partisan or candidate affiliation differences in endorsement of the false item that Clinton threw a fundraiser for Hurricane Matthew. One interpretation of this item is that, for Democrats, both the actor and the action are positive. Democrats are more likely to think favorably of Clinton and also view her charitable actions favorably. On the other hand, Republicans are more likely to think unfavorably of Clinton. Additionally, given the lack of context surrounding the item, it is possible a fundraiser thrown by Clinton, even for a charitable cause, is viewed as a negative behavior and not something they would want to believe. While this is a possible explanation that merits further study, it does not explain why the charitable fundraiser thrown by Trump showed differences between partisan groups that Clinton's did not.

The differential effects between Democrats and Republicans may have to do with the particular context of this election and the two political parties. During this election the Republican party was seen by all groups as much more divided than the Democratic party. In the Time 2 survey, when asked if each party was more united or more divided, 66.1% of participants thought the Democratic party was somewhat or very united while only 9.3% of participants said the same about the Republican party (with no significant differences in either question by respondent political party). Especially given that Democrats are generally lower than Republicans in how much they morally value in-group loyalty (Graham, Haidt, & Nosek, 2009), this may explain why they showed such lower biases than we would expect from a motivational standpoint. Republicans may have been feeling more pressure from this disunity to be supportive of their party's candidate, as shown by their higher rate of false memories that go

against Clinton 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.

Limitations

There are several limitations to consider when interpreting the results presented here. The sample used in the current study was gathered on MTurk. Participants on MTurk tend to be more Democratic and liberal than the general population (Levay, Freese, & Druckman, 2016). 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, the focus of my study was to investigate differences within individuals and between groups, and I specifically sampled in order to obtain a large enough sample size in each group of interest to test for these differences and then followed them over time for within-person assessments.

The selection of the false news items also has some limitations. False news items were chosen so that there was one positive and two negative items for each main candidate. The items were chosen as to be realistic but also distinct from events current at the time. However, variability remains in the extent to which this goal was met item by item. Some false items likely were more closely related to true events that had occurred than others, and this could help explain the variance in overall endorsement of the items. Another limitation exists as to the perception of the false items by candidate. A negative Trump item may have been viewed as more negative by a Clinton-leaning Democrat than the same item viewed by a Trump-leaning Republican. If Trump-leaning Republicans viewed the negative Clinton item as being

particularly egregious and the positive Trump item as being particularly favorable, this may explain the high rate of endorsement of these items.

Conclusion

The present study demonstrates the persuasive effect of attitudes on memory during a contentious, real-world event – the national election. Not only did present attitudes affect memory for past attitudes, but political affiliation and candidate preference affected the likelihood of endorsement of false political news items. It is important to note that 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 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 and desire to appear consistent may be used in other ways to limit the effects of bias on judgment and memory.

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Chapter 2: Order Effects and Consistency

Arguments about free speech, violence, and political appropriateness abound in today's heated political discussions. Both Democrats and Republicans are quick to call the other side's views, speeches, or actions dangerous while defending against similar accusations towards their own side. Often, a person's political views can predict how they will evaluate both objective and subjective judgments. For example, when Supreme Court Justice Brett Kavanaugh was accused of sexual assault by Dr. Christine Ford and denied the account, 85% of Democrats believed Dr. Ford while 84% of Republicans believed Justice Kavanaugh (Quinnipiac, 2018). This stark partisan divide, which appears repeatedly in political conflicts like this and is growing over the years (Pew Research Center, 2014), shows how deeply partisan biases can influence judgments about truth and facts. Understanding when these effects are likely to occur, what may drive them, and how they can be mitigated is a critical area for social science research.

Partisan Bias

There are many examples of partisan cues biasing how people evaluate information. For example, people judge the same scandal more harshly if they believe it was done by someone in a different political party compared to their own (Bhatti, Hansen, and Leth Olsen 2013). People even judge the same policy differently depending on whether they think their party or an opposing party proposed it (Cohen, 2003), placing more weight on the party label than whether the policy actually aligns with their views. In one study, liberal and conservative participants were given a welfare policy that was either very generous or very stringent and was either sponsored by a Democrat or Republican. If the participants were judging the policies based on views associated with their political views, Democrats should have generally supported the generous option while Republicans should have favored the stringent one. However, this

distinction had a relatively small effect on policy support compared to party affiliation. Conservatives were far more likely to support the generous policy supported by a Republican than a stringent policy supported by a Democrat, and the reverse was true for liberal participants.

In this form of bias, people are affected by the partisan cues (Goren, Federico, & Kittilson, 2009) attached to a piece of information they are asked to evaluate. The information the perceiver is judging (the competence of a politician, the effectiveness of a policy, etc.) is affected by whether it is or is not consistent with the person's political ideology or affiliation. This partisan bias can also affect more objective information. In one study, participants watched a video of a rally and were told it was either a protest against abortion (conservative-friendly) or a protest against "Don't Ask Don't Tell" policies prohibiting openly gay individuals from serving in the military (liberal-friendly; Kahan, Hoffman, Braman, Evans, & Rachlinski, 2002). Even though all participants saw the same video, both conservative and liberal participants were more likely to judge the protest as violent and disruptive when they thought it depicted people they disagreed with than when they thought the video depicted people they agreed with.

These biases play a strong and clear role in people's judgments across a variety of scenarios and occur at similar levels in liberals and conservatives (Ditto et al., 2018). But what if the two scenarios participants judged had been presented within-subjects instead of between? For example, in the above study, what if participants had been asked to judge both protests, one supposedly depicting liberals and one supposedly depicting conservatives, but clearly showing the same activity? Perhaps people would not judge the two protests so differently because they would want to appear as objective and rational and not give one side a very different rating for what is clearly the same behavior when presented side-by-side. This type of manipulation has been shown to reduce other types of biases (Birnbaum, 1999) because participants are now

judging two scenarios within the same context and on the same scale, as opposed to when they are making judgments in different times and contexts that can allow bias to come into play. Within-subjects, people can make a comparison and see all the similarities and differences next to each other to come to appropriate relative judgments. Between-subjects, people are making absolute judgment on one situation without the knowledge of the other situation to which it is being compared.

In politics, it is unlikely people would admit that the party of the politician would affect how important a scandal was to their trustworthiness because people see themselves as objective, rational observers. People generally would not want to see themselves or be seen by others as a hypocrite, and often are not aware of, nor willing to admit to, changing their factual beliefs to support a desired conclusion (as opposed to deriving their conclusions based on objective factual beliefs). For example, if one party calls on the other to remove a politician over a scandal, they would insist it's about the scandal itself and that they would remove their own party's member if they did the same (though they may be quick to downplay or ignore bad behavior if it did happen). A bias would become clear if people claimed they would treat two situations the same (within-subjects), regardless of party, and then in actuality showed differences (between-subjects) in how they judged the scenarios depending on the party, as now they are violating their own self-defined principle or norm.

One classic study found that people judge the methodology of a scientific study to be better when the result supports their own beliefs (e.g., that the death penalty is a successful deterrent) than when the same methodology produces results that go against those beliefs (Lord, Ross, & Lepper, 1979). This was found in a within-subjects design where people were given two studies that provided opposite conclusions on support for the deterrent effect of the death

penalty, and when asked which study had the stronger methods, people picked the one that supported their belief. However, when participants are first given an instruction to consider the opposite – asking themselves at each step whether they would have made the same judgment if opposite results had been found – the effect goes away, meaning people judged the study the same no matter the results (Lord, Lepper, & Preston, 1984). Thus, forcing people to consider an opposing view or compare similar content next to each other has been used as a political debiasing strategy in the past. Similarly, people likely want to appear objective and unaffected by their political affiliations, and thus might be less biased when they are asked to answer questions about both parties.

In particular, I posit that within-subjects designs force people to think more about what they believe *should* be affecting their judgment. Given that they know they are making a comparison, and that their responses will be evaluated by others, they are more likely to only use information they consider to be relevant and justified. In the example with the two competing studies on the death penalty, each study had different methods. So if asked to justify why they believed the results of only one study, participants could easily point to flaws in the other study as an explanation. Thus, even though we know from controlled testing it is a bias, it still presents itself within-subjects since there is seemingly relevant information to draw on to justify a difference. In a between-subjects design there is none of that contrasting or need to worry about justifying a difference to others. While there would be nothing inherently irrational or hypocritical in liking one candidate over another (and thus I would not expect a change based on asking for this between- or within-subjects), it would likely be seen as wrong to say the same exact *behavior* is morally acceptable for one politician and not another, and thus I would expect a difference between whether those two judgments were made within- or between-subjects.

This leads to the importance of the order of the questions asked in such a survey, as whichever situation or judgment is presented first is likely to set the context of future judgments and will make subsequent judgments rely on comparing and contrasting with the first.

Order Effects

Survey scientists have long known that the order of survey questions can affect responses. Even surveys about substantial issues such as attitudes about elective abortion (Schuman, Presser, & Ludwig 1981), people's life satisfaction (Gebhardt & Kuriakose 2016), and who people plan to vote for (Crespi & Morris 1984) can change drastically just by varying the questions that precede the critical response. There is no one single method by which people change their responses. Whether the later question is contrasted to a previous response, assimilated with earlier answers, or given new meaning to a question based on what came before depends on a variety of survey contexts and the conversational logic that the two questions present (Schwarz, Strack, & Mai, 1991).

As one example, Schuman, Presser, and Ludwig (1981) found large order effects (~13 percentage points) in responses to a question about whether married mothers should be allowed to get an abortion. When the question was asked first, 61% thought it should be allowed, but when it came after a question about whether abortion should be allowed in the case of a birth defect, only 48% thought it should be allowed. One reason for this shift may have been that people who answered the married mothers question second may have been thinking about the possibility of birth defects when they received the more general question, and thus when they answered the target question afterwards, they assumed the question meant all cases *except* for birth defects. Understanding these differences can help researchers figure out motivations behind responses and the true support for various policies.

To counter these order effects, researchers often "counterbalance" the order of questions: half the people see the questions in one order, while the other half see the opposite order. The responses to the critical question are then averaged between the order conditions so that the average is not driven by one particular order. While this helps correct for effects due to order, it hides potentially important information about what the responses were in each condition and why responses vary depending on the order.

Motivated Reasoning

When considering why we would find strong order effects in areas that people tend to think of as unchanging attitudes, like support for abortion, it is important to consider not just partisan bias but other forms of motivated reasoning (Kunda, 1990).

One form of motivated reasoning occurs when people make moral and political judgments based on their preferences but present them as firm, general principles (Knowles & Ditto, 2012). For example, in one study participants read one of two scenarios where a person refuses to comply with a mandate because of their moral beliefs: half of the participants read about a pharmacist who refuses to prescribe a "morning after" pill, and half the participants read about a physician who refuses to participate in a death penalty execution. Participants were then asked, "*In general, is it morally acceptable to break a law one believes is unjust?*" Liberals agreed with the statement more after reading about the physician than after the pharmacist, while conservatives responded in the opposite pattern.

Studies like this show how people's opinions about *specific* situations bias their opinions about *general* principles (i.e., that it is morally acceptable to break a law one believes is unjust). But how do people's opinions about specific situations affect opinions about other specific situations? For example, what if in the above study liberals first answered the question about the

physician and then answered the question about the pharmacist? Would they then think it was

morally okay for the pharmacist to disobey the law since they had just decided it was okay for

the physicist to? In other words, once they have responded to a specific situation in a way that

demonstrates agreement with a general principle, will they stick with it in follow-up situations

they might not have otherwise supported?

One study explored how racial attitudes might affect general principles (Uhlmann et al.,

2009). Participants were given a standard moral dilemma: a train is going to kill a group of

people unless you flip a switch which redirects the train onto another track where it will kill one

person, and they need to decide if they would flip the switch. In this study's version, people

were given two scenarios: in one scenario, the first group of people was black and the single

person was white. In the other scenario, the first group of people was white and the single

person was black. On their first trial, liberals were affected by the race of the people on the train

tracks: when the situation had a single white person on the alternate track, they said to flip the

switch which would result in killing one person and saving the group of black people. But

liberals that got the opposite version, where flipping the switch would kill a single black person

and save a group of white people, said the right thing to do was leave the train going.

Interestingly, on the liberals' second choice they tended to stick with whatever principle (killing

the individual or taking no action) they had done previously. For example, those who had said to

flip the switch to kill the single white person, tended in their second scenario to say you should

flip the switch to kill the single black person, even though they would have said the opposite if

that scenario had come first. Similarly, Schuman and Presser (1981) found that Americans

during the cold war did not think the U.S. should allow Russian reporters into the U.S. unless

they had first answered a question about whether Russia should allow U.S. reporters into Russia (which they thought they should).

This fits with a long history of psychological work on consistency and commitment, which shows that people have a strong motivation to act and appear consistent and may even change their attitudes to avoid holding conflicting opinions (Festinger, 1962). This is true especially in individualistic cultures, such as the U.S., and when commitments are public (Cialdini & Goldstein, 2004). It seems that even on a simple survey, once people have responded one way without the option to go back and change their answers (which is an important consideration in a web survey; Gebhardt & Kuriakose, 2016), they seem to be motivated to be consistent.

When it comes to political judgments there are often plenty of available, rational reasons to justify judging an ingroup politician positively and an outgroup politician negatively. For example, if a candidate from an opposing party takes money from an organization a person doesn't like, that can be seen as a negative since the politician may be likely to support that disliked cause. While if an ingroup politician takes money from a liked organization, that might be seen as a positive. There's nothing inherently contradictory there because the two situations are different. However, if someone said it was morally wrong for a candidate to take *any* organizational money and used that to justify dislike for an opposing politician, ignoring that same exact behavior in the ingroup politician, that may be seen as hypocritical and a person would be motivated not to express such a negative quality. Given that this form of bias frequently happens, and on both sides of the aisle (Ditto et al., 2018), and it is easier to spot bias in others than in ourselves (Pronin, Lin, & Ross, 2002), it is common for one party to call out such hypocrisy in the other side while defending against such accusations against their own. The

more similar any two situations are the harder it is to find a non-hypocritical reason to treat them differently. Thus, if confronted with two highly similar situations, one involving an ingroup politician and one involving an outgroup politician, people will likely be motivated to be at least somewhat consistent in how they judge them, with stronger effects when the situations are most similar and involve concrete general principles. In real-world contexts there are often enough differences to find a rational justification to present, even if that is not the true cause of a person's judgment, as motivated cognition is often accomplished though self-deception (Balcetis, 2008)

Present Study

In the current studies I use order effects to explore and exploit such preferences to appear consistent and unhypocritical to reduce political polarization – used here to mean the average difference in response to the same scenario between Democrats and Republicans – in people's responses to questions about controversial current issues and politicians. These studies use real-world scenarios that involved similar accusations against politicians from both major political parties. Political polarization is increasing in the U.S., which leads to more biased perceptions of – and negative affect towards – political outgroups (Iyengar 2016). I am interested in whether small context changes might decrease the degree of polarization between the parties. Thus, I used survey order effects as a mechanism to both explore and affect partisan bias and polarization.

In particular I wanted to look at whether answering a question about a politician would affect answers to a similar question about a politician from the opposing party that came after. In other words, will people's motivation to appear consistent and objective reduce polarization? I also wanted to see if people's biases would be affected by people answering general questions

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before or in-between questions about the politicians to see how committing to relevant principles about the situations would affect responses. This work would extend and apply existing knowledge regarding order effects and motivated reasoning to a topical exploration of current debates around free speech, violence, and claims of sexual assault.

In the first study, I tested whether people will judge outgroup politicians to be more responsible for violence than ingroup politicians and whether this polarization is reduced if people answer questions about the other politician first. In the second study, I repeated the manipulation in the first experiment and also investigated whether first affirming general principles about the topic before answering specific questions would reduce polarization. In the third study, I extended the findings to a new context about judgments of sexual assault allegations and investigated whether prior ratings of specific accusations against an ingroup or outgroup politician would affect how people answer general questions about sexual assault allegations.

Cross-Study Hypotheses:

H1: When making judgments about two opposing politicians who have been accused of similar behavior, Democrats and Republicans will rate their ingroup politician as less responsible than the outgroup politician.

H2: When making judgments about two opposing politicians who have been accused of similar behavior, people will be more polarized from each other on the first rating than on the second rating.

H3: Democrats and Republicans will rate their ingroup politician higher in responsibility for violent or negative behavior when rated after an outgroup politician, while they will rate the outgroup politician lower when they are rated second.

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H4: (Studies 2 and 3 only) People will be more consistent in their ratings of the two politicians when they first respond to general principle questions relevant to the accused behavior.

Study 2.1

Method

Participants for the study were recruited from SurveyMonkey's Contribute platform during the summer of 2016. This is a large online panel of people who take occasional surveys on their phone, tablet, or computer in exchange for a $0.10 donation to the charity of their choice and a drawing in a monthly raffle. Participants needed to be U.S. citizens over the age of 18 in order to be included in the study. A total of 873 people saw the survey, of whom 747 completed it and are included in the final sample (response rate: 85.6%). A total 68.9% of participants were female. The sample was 70.8% White, 7.9% Black/African-American, 7.3% Hispanic/Latinx, 4.3% Asian or Pacific Islander, 1.9% American Indian, and 7.9% other or multi-racial. The age range of participants (given as a category) was diverse with 21.3% ages 18-29, 30.9% ages 30-44, 29.7% age 45-59, and 18.2% ages 60 and over.

Participants first answered a few questions about their political affiliation and voting preference in the 2016 presidential election. For those who did not choose Democrat or Republican as their party (39.5% of the sample), I followed up with a question asking which of those two parties they leaned more towards or if they leaned toward neither party. As is often done in political polls, leaners were grouped with the party they leaned to since they usually vote and behave similar to party identifiers (Keith et al., 1986). This left three groups: Democrats (49.5%), Republicans (33.5%), and Others (17.0%).

Participants then read a short paragraph about either Obama or Trump being accused of inciting violence in their speeches against police officers or Muslims:

In his [official/campaign] speeches, [Barack Obama/Donald Trump] often paints [police officers/Muslims] in a negative light: questioning their [judgment/patriotism], implying dangerousness in their [culture/religion], and emphasizing the role they play in violent [attacks on African-Americans/terrorist attacks]. Some people believe that this kind of speech is dangerous because it has the potential to incite [anti-police/anti-Muslim] violence.

Participants were then asked to rate how much they thought the politician's speeches had the potential to incite violence (from 1 = "Not at all likely" to 5 = "Extremely likely") and whether they thought the politician would be responsible if someone committed violence against a member of the group after listening to their speech (from 1 = "Not at all responsible" to 5 = "Extremely responsible"; full materials are available in Appendix 2).

At the time of the surveys, there were frequent examples in the news of Republicans accusing Obama of inciting violence against police officers (e.g., Lott Jr., 2016) and Democrats accusing Trump of inciting violence against Muslim-Americans (e.g., Hussain, 2016). Both sides had a prominent politician who had made speeches that some said promoted violence against specific groups. I am not endorsing (or denying) the veracity of these claims, nor do I claim that the two politician's speeches are exactly the same in levels of violent rhetoric or other content. However, there was enough media coverage and debate to believe that many people would endorse the idea that Obama's speeches incited violence against police officers, while others would believe that Trump's speeches incited violence against Muslim-Americans. While this is not as well matched as a controlled experiment using exactly the same words and asking

for judgments of the same speech against different targets, I believe there is added value of using actual topical allegations as it matches how such judgments of similar scenarios on opposing sides would happen in the real world (i.e., with many similarities but not a perfect match on every point). The similarity in wording of the questions confronts people with the similarities to help make it seem like differences in judgments may not be 100% reasonable. While there are just enough differences in the scenarios to make it still likely that people will rate them differently (e.g., by deciding that Trump's specific words are different enough than Obama's to make different judgments acceptable), people may be more cognizant of similarities and therefore less extreme in their differences in judgments.

After three filler questions on a new page about TV habits they then saw another page with the scenario and questions about the other politician. This was designed so that the questions would come soon enough that participants would remember their previous judgments without being so close as to seem like the survey intended a deliberate contrast (Ottati, Riggle, Wyer, Schwarz, & Kuklinsk, 1989).

Hypotheses.

H1: Democrats and Republicans will view their own party's politician as less dangerous or responsible for violence than the opposing politician for similar accusations.

H2: The polarization between parties, meaning the between-group differences in how Democrats and Republicans rate each politician, will be significantly reduced in participants' second ratings than in their first ratings.

Results

Participants' answers to the two questions about the likelihood of inciting violence and being responsible for violence were highly correlated (Cronbach's α = .83[3]). Thus, I combined the two items into a composite score hereafter referred to as their "Culpability" rating.

I began with looking just at the first judgment people made, conducting a between-subjects two-way ANOVA looking at the effect of party affiliation and politician on the Culpability ratings. Figure 2.1 below (and Table A2.1 of the appendix) shows the results, with large differences between Democrats and Republicans on their ratings, though smaller differences on the second than the first.
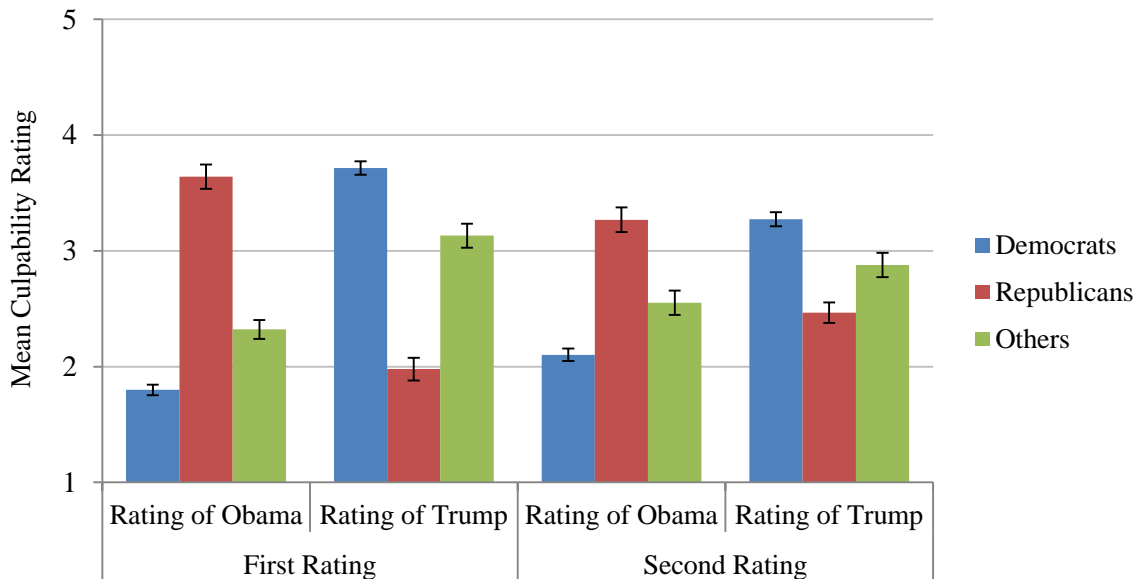
Figure 2.1. Partisan polarization decrease on second rating of politicians in Study 2.1. The main finding is that the blue and red bars are significantly closer to each other and to the middle on the right clusters than the left clusters, as partisans were more moderate in their second ratings than first ratings.

Supporting H1, I found a significant two-way interaction[4] between party affiliation and politician ($F(2, 702) = 213.21$, $p < .001$). Democrats rated Trump 1.95 points (on a scale from 1

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[3] Cronbach's α is used instead of correlation because it will later be used to test the reliability of question sets with more than two items, and I want to be consistent in my test across studies.

to 5) more culpable for inciting violence than Obama ($p < .001$ based on Tukey pairwise comparisons). In a near-mirror image of this, Republicans rated Obama 1.71 points (on a scale from 1 to 5) more culpable for inciting violence than Trump was ($p < .001$). Others – those who did not identify nor lean to either party – did not show as high a difference as Democrats but did also rate Trump as somewhat (0.85 points) more culpable for violence ($p < .001$).

As hypothesized in H2, this polarization was lower in the second ratings, as tested by a significant three-way interaction in a mixed ANOVA ($F(2, 741) = 280.01, p<.001$). Specifically, the amount of difference in ratings between Democrats and Republicans was smaller on the second rating for culpability of both Obama and Trump (see Figure 2.1). Democrats gave Trump a lower culpability rating when evaluating him after Obama than when he was first ($p < .001$) and a higher rating of Obama when he came after Trump than when he was first ($p = .011$). Similarly, Republicans gave a higher culpability rating to Trump when he was rated after Obama ($p < .001$), and a lower rating to Obama when he came after Trump ($p = .003$). Non-partisan Others did not differ in their ratings of either Trump ($p = .232$) or Obama ($p = .259$) depending on the order of ratings.

The filler questions did not show any significant interaction of order condition and party affiliation (all ps > .40), lessening the worry that people's first ratings, whether high or low, were simply anchoring them to rate any subsequent questions higher or lower.

Discussion

In this first study, as expected, both Democrats and Republicans showed a strong tendency to view their ingroup politician as less culpable for inciting violence than an outgroup politician engaging in similar speech. I do not suggest that partisanship bias is the only thing that

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[4] There was also a main effect of politician in that Trump was rated higher overall than Obama ($p < .001$), while party alone had no significant effect ($p = .649$), which are not considered further because of the presence of the interaction.

was driving these ratings; each politician's speeches are different in content and it is also possible that people identify as Republicans or Democrats because they believe Obama's or Trump's speeches incite violence. But the questions were not simply about whether the respondents disagreed with, disapproved of, or disliked the speech, but about whether the speech had the potential to incite violence against a group, with the politician being directly responsible for said violence. Both Democrats and Republicans showed a strong tendency to view their ingroup politician as not culpable for inciting violence and the outgroup politician as highly culpable. A great deal of work in moral psychology has shown that when people think an action or person is morally wrong they are more likely to find the action riskier or less effective (as opposed to thinking it's wrong *because* it's risky; Thomas, Stanford, and Sarnecka 2016; Clark, Chen, and Ditto 2015).

As hypothesized, this polarization was significantly reduced when people made their second rating. I still found group differences, but the differences between Republicans and Democrats was smaller, and the differences between how members of each group rated the two politicians was smaller. This suggests that considering the other side's point of view may have made people less biased or polarized in their answers. For example, after a person considers that an ingroup politician would not be responsible for violence someone else commits, they are a little more forgiving of an outgroup politician in a similar scenario.

Interestingly, though the non-partisan Others rated Trump as more culpable for violence than Clinton, they did not show any significant order effects. This fits with the effect being due more to motivational differences than simple anchoring effects. Non-partisans, who were already closer together in their ratings even though they did show a higher judgment against one politician, are not likely to be as pressured to not show political favoritism as they do not have a

preference for either party. Their judgments are more likely to be based on substantive differences than party allegiance, so there was less "bias" to remove based on the survey order.

In Study 2.2 my goal was to replicate this finding with modified stimuli and to test whether asking participants about party affiliation at the beginning of the survey would increase the level of polarization. My reasoning was that asking participants about party affiliation at the beginning of the survey in Study 2.1 may have made people increase their ratings for the opposing party and decrease their ratings for their own party; in other words priming partisan identity even before the main stimuli. Instead, I wanted to test whether asking people about general values might have the opposite effect of party identity questions by asking questions about free speech that were designed to be agreeable to most people. This could happen due to multiple possible routes. Previous work suggests that priming people's general values can affect their judgments about specific issues (Uhlmann et al., 2009; Haidt, 2001). For example, one study showed that framing climate change in a way that primed values important to conservatives greatly reduced differences between liberals and conservatives in their attitudes about climate change (Feinberg & Willer 2013). Activating free speech concepts may make people more tolerant of controversial political speech in this manner. Alternatively, but with a similar outcome, asking questions about values that are shared across political parties may lead people to be more in line with each other and reduce outgroup hostility, for example by priming a common identity ("American") which has been shown to reduce polarization (Levendusky, 2018). As the questions get at fundamental values of free speech and political tolerance, this may make people less polarized in their immediate responses. Finally, affirming values such as free speech would increase the participant's commitment to that general principle, which may cause them to be more consistent in rating the two politicians.

All of these possible mechanisms explain why I would expect more moderate responses with these general questions as opposed to the political identity questions, which may highlight an us-vs-them mentality (Gaertner & Dovidio, 2014) and activate a divisive context and a motivated defense of a particular party's candidate (Leidner & Castan, 2012).

Using a similar design as in Study 2.1, participants in Study 2.2 either first answered the party affiliation questions or first answered general questions about the importance of free speech and political cooperation. Next they saw both scenarios about the accusations against two politicians' speeches inciting violence and rated whether the politician was responsible, with randomized order and a filler page in-between as in Study 2.1. Finally, participants answered either the party affiliation questions or the general questions, whichever they hadn't already done.

In Study 2.2 participants read questions about Hillary Clinton instead of Barack Obama. Although she had not spoken out on police bias or violence against African Americans as much as Obama, she was being covered by the new media at the time and received similar criticism from conservatives as Obama had in response to the killing of police officers (e.g., see Levine, 2016, Martineli, 2016). Moreover, since Hillary Clinton was also running for president, this would help ensure the two politicians were more similar in terms of how relevant they were to their party at the time.

Study 2.2

Method

The study followed the same recruitment and design procedures as 2.1 except as otherwise noted. A total of 970 people were shown the survey, of whom 841 completed it, for a response rate of 86.7%. The sample was 71.8% female, 69.8% white, and diverse with respect to

age. In all, 25.9% were ages 18-29, 25.8% ages 30-44, 32.8% ages 45-59, and 15.6% ages 60 and over. The party affiliation was 50.9% Democrat, 29.7% Republican, and 19.4% Other.

Politician ratings. "Barack Obama" was replaced with "Hillary Clinton" in the scenarios and questions. I also made minor edits to make the scenario slightly more neutral, such as saying the politician "has" made statements instead of "often" makes such statements. In addition, a third question was added after Clinton and Trump ratings asking whether the politician was intending to incite violence, an important component of culpability that has been shown to be affected by moral preferences (Clark, Chen, & Ditto, 2015). Materials are in Appendix 2.

New Manipulation. In this study there were two different order manipulations. In addition to being randomized in which politician participants rated first, Clinton or Trump, participants were randomly assigned to receive either a set of questions about party affiliation first or a set of questions about general free speech values first (with the other block coming at the end of the survey, after the politician ratings). The politicized set included questions about party affiliations, ideology, voting preferences, and how important they thought it was that their candidate win, designed to activate a more polarized mind frame just before rating the politicians. In the set of general values questions, participants answered how much they agreed with a series of four questions designed to be generally agreeable, indicate cross-party values, and activate a shared "American" identity, with questions such as "Freedom of speech is an important foundation of the U.S." and "It is possible for a politician to criticize a group of people without wishing violence on them." I hypothesized that those in the politicized condition, relative to the shared values condition, would be less polarized (between-subjects by political party) in their initial ratings of the first candidate, and would be more consistent (within-subjects) in how they rated the culpability of the two politicians.

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Results

The new item about intent was highly correlated with the other two (Cronbach's $\alpha = .84$) and did not show any important departures for the results, so once again the three items were collapsed into a Culpability rating.

I replicated the main findings from Study 2.1. On the first rating there was a significant interaction between party and politician ($F(2, 812) = 191.627$, $p < .001$) in that Democrats rated Trump as more culpable for violence than Clinton ($p < .001$) and Republicans rated Clinton higher ($p < .001$). As for the non-partisan Others, this time they did not show a significant difference in their ratings of the two ($p = .157$). The same three-way analysis as done in Study 2.1 showed again that these differences were moderated in the second rating ($F(2, 812) = 215.929$, $p < .001$); Democrats and Republicans both decreased how their rating for the opposing politician when rated second ($ps < .001$). For ratings of their own politician, Republicans did increase their rating of Trump's culpability for violence when he was rated after Clinton than when he came first, however Democrats' differences in ratings of Clinton were not statistically significant ($p = .130$), although it was in the same direction. See Figure 2.2 and Appendix Table A2.2 for ratings by group and condition.
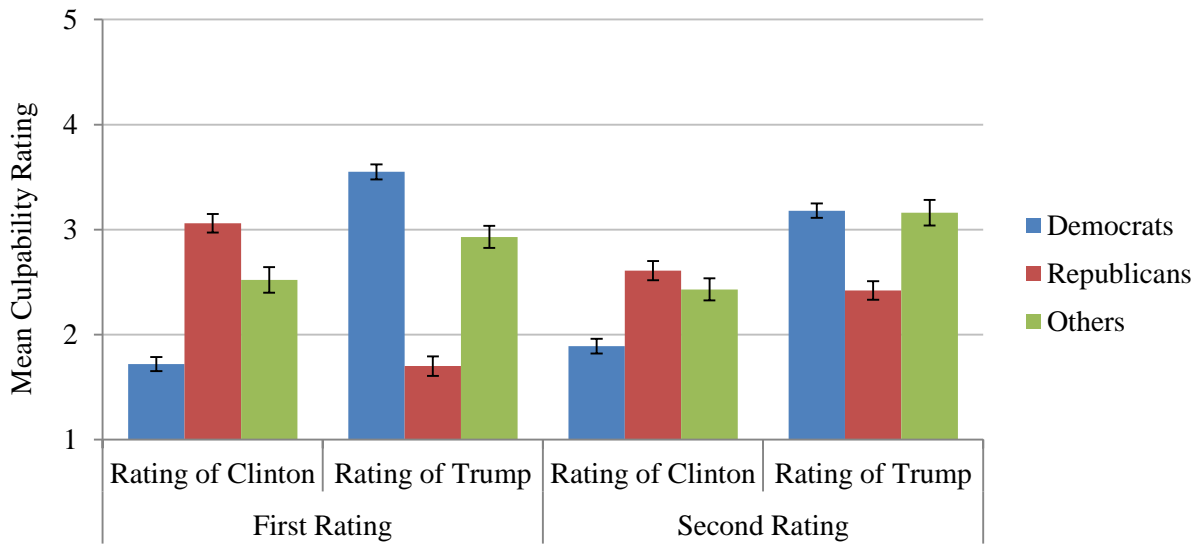
Figure 2.2. Partisan polarization decrease on second rating of politicians in Study 2.2.

I did not find the hypothesized effect difference between politicized and shared value order conditions. There was no significant interaction between the introductory condition, party affiliation, and which politician was being rated on the participant's culpability scores ($F(2, 805) = 0.157$, $p = .855$), meaning the degree of polarization between groups on the first ratings was not affected by which set of questions they had received at the start. Nor were people more consistent in their two ratings (defined as the absolute value of the difference between their culpability ratings for the two politicians) when they were in the shared values introduction ($M = 1.41$, $SD = 1.14$) versus in the politicized introduction ($M = 1.50$, $SD=1.15$; $F(1, 815) = 0.533$, $p = .466$).

However, in exploratory analyses I did find that responses to one of the free speech values questions changed depending on whether it was at the beginning or the end of the survey. People agreed with "It is possible for a politician to criticize a group of people without wishing violence on them" more when the question came at the end of the survey ($M = 4.03$, $SD = 1.17$),

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which is after they had rated both politicians about violence culpability, than at the beginning (M = 3.85, SD = 1.31; $F(1, 816)$ = 4.448, p = .035).

Discussion

As in Study 2.1, I found high polarization in people's first ratings and lower polarization in people's second ratings. However, answering politicized questions or agreeable values questions did not seem to affect how people answered the questions about specific politicians. Between- and within-subjects, partisans were still highly polarized in their ratings of Clinton's and Trump's culpability even after affirming the rights of free speech and freedom to criticize.

One reason could be that even those who did not answer questions about their party affiliation before their politician judgments still connected the survey to one about political attitudes. This may have overshadowed any effect of the general principle questions that came before the survey. It is also possible that the questions, while meant to deliberately, not unconsciously, activate shared values, was too obvious and thus led participants to discount any effects they felt from it (Bless & Schwarz, 2010). Additionally, even though the questions were meant to relate to general principles people would use in judging specific scenarios, they were not necessarily "rules" that directly applied to how one should judge. In particular, it is not inherently incompatible to believe that free speech is incredibly important and still believe this particular politician is inciting violence. This would reduce the effect of the "commitment" being made in the response to the general principle, as there is not necessarily a violation of that principle in judging a scenario. There is room to point out exceptions and differences, which will always be the case in a real-world judgment.

Interestingly, in exploratory analyses I did find that the general question about whether politicians can criticize a group without wishing them violence differed depending on whether

they answered it before rating the specific politicians or afterwards. People agreed more with the item if they answered it at the end of the survey than if they answered it before rating both politicians. Perhaps being able to compare speech that the participants agreed with to speech they disagreed with may have made participants realize that some people might want to limit their candidate's speech, which in turn may have made them more motivated to protect it. Or, after seeing at least one scenario where they likely did not believe the speech caused violence, they were more likely to agree that political speech doesn't necessarily incite violence. Both of these possibilities would be likely to occur in rating the general principle especially after the in-group politician rating, but this study only had the questions after both or neither, not just one.

One unanswered question was whether people's responses to questions about general principles would change if they came after only one candidate. To test this, in Study 2.3 I added a condition where people answered the questions about general principles in-between ratings of each politician as opposed to just at the beginning or the end. For example, Democrats may have more strongly agreed with values of free speech after rating Clinton than after rating Trump and vice versa for Republicans.

In addition to previously discussed work on shifting moral principles, the idea that affirming general principles might be affected by a specific example is supported by past research showing how people can alter their perception of facts and principles in order to support a desired or pre-formed conclusion. One recent study showed that both Republicans and Democrats dispute facts about problems if they disagree with proposed solutions (Campbell & Kay, 2014). Conservatives were less likely to endorse factual statements about climate change when they thought it would lead to government regulation as opposed to free-market solutions. Likewise, liberals showed the reverse pattern when it came to gun control.

This can happen with legal evidence as well, as in a study where mock jurors were more likely to say that eyewitnesses are accurate if their opinion came *after* convicting a defendant in a case that involved an eyewitness identification. More specifically they believed in the accuracy of such identifications *in general* more than they did before they heard the case, while those who acquitted the defendant shifted their belief downward about general eyewitness accuracy (Simon, Snow, & Read, 2004).

In Study 2.3 I wanted to test whether the polarization findings in Studies 2.1 and 2.2 would replicate in a new context, as well as test out the possibility suggested from Study 2.2 regarding changes to general principles depending on survey placement. At the time of designing the survey for Study 2.3 a great deal of election coverage was devoted to allegations of sexual assault against Donald Trump and Bill Clinton. For both men, multiple women had come forward and publicly accused them of sexual assault or harassment, while both men denied wrongdoing. Hillary Clinton wasn't being accused of assault, but she was connected to the allegations because she was accused of enabling a predator and/or attempting to silence Bill Clinton's accusers.

Again, there are many objective differences between the two situations, but I felt there were enough similarities to craft a polling-type question that could be very similarly worded regarding the allegations. I also added some general questions about sexual assault allegations and varied the location of these general questions in the survey. This time they came either at the beginning, in-between the two ratings, or at the end. Additionally they were designed to more directly relate to the scenarios such that they would be more likely to affect responses (e.g., if a person says at first that we should always believe accusations of sexual assault, then they

might feel more obliged to believe the accusations against both politicians than if they had not just committed to that).

I hypothesized that the main pattern from the previous two studies would replicate: partisans would be more polarized on their first ratings than on their second ratings. I also predicted that those who first rated general principles would be more consistent in their ratings of the two politicians. This hypothesis was not met in Study 2.2, but these principles were more directly connected to the scenarios. Finally, I predicted that Democrats would have stronger endorsement of the idea that people should usually believe accusations of sexual assault after they read about Trump's allegations than after they read about Clinton's allegations while Republicans would show the opposite pattern.

Study 2.3

Method

Participant selection was the same as in the previous two studies. A total of 911 people were shown the survey, of whom 806 completed it, for a response rate of 88.5%. The sample was 78.0% White, 65.0% female, and a bit older than the previous studies: 16.0% were ages 18-29, 18.4% ages 30-44, 31.2% ages 45-59 and 34.5% ages 60 and over. The political affiliation was 50.5% Democrat, 33.4% Republican, and 16.1% Other.

Like in Study 2.1 participants first answered party affiliation and voting preference questions. After that, all participants saw the same four sections – Clinton allegation ratings, Trump allegation ratings, general sexual assault questions, and filler questions about TV habits – in an order that depended on their experimental condition.

Both scenarios about Bill Clinton and Donald Trump said that the man has been accused of sexual harassment or assault by multiple women but has not been convicted. In the Trump

scenario it said Hillary Clinton's campaign has used these allegations to say that Trump is a predator and is unfit for office, while in the Clinton scenario it said that Donald Trump's campaign has used these allegations to argue that Hillary Clinton has enabled a predator and is unfit for office. Full materials are available in Appendix 2.

After each scenario, participants answered three questions on a 7-point scale about whether they believed the allegations, whether the allegations reflect badly on those that support Hillary Clinton or Donald Trump, and whether having Bill Clinton or Donald Trump in the White House would send a message that sexual assault is acceptable.

Participants also answered six questions about how much they agreed with some propositions about sexual assault allegations in general, with higher scores indicating greater accuser belief. This included statements such as, "We should always believe people who say they are victims of sexual assault," and "Famous people are often falsely accused of sexual assault because the accusers are trying to get attention" (reverse coded).

Finally, there were some filler questions about interest in politics and TV habits.

The order of these four main sections varied based on which of six conditions participants were in. They either viewed the general sexual assault questions at the beginning before their first politician rating, in-between the two politician ratings, or after both politician ratings, and the order of the two politician ratings was randomized like in previous studies. The filler questions were in-between the politician ratings when the general questions weren't. Otherwise they came at the end.

Results

Specific politician rating outcomes. The three questions about whether the allegations were true, whether they reflected poorly on supporters of each candidate, and whether having the

accused in the White House would send a bad message were again highly correlated ($\alpha = .84$), so they were combined into one scale which I call Seriousness of the allegations.

The main finding from the first study was replicated in this new context. When looking at just initial ratings there was a significant party by politician interaction ($F(2, 826) = 377.46$, $p<.001$; see Figure 2.3 and Appendix Table A2.3). Republicans thought the allegations against Bill Clinton were much worse ($M = 5.00$, $SD = 1.58$) than they were for Trump ($M = 2.23$, $SD = 1.32$; $p<.001$), while Democrats showed the reverse, rating the allegations against Trump very highly ($M = 5.83$, $SD = 1.35$) and giving much lower ratings to Bill Clinton's allegations ($M = 2.53$, $SD=1.21$; $p<.001$). Others did not significantly differ in their rating of Trump ($M = 4.14$, $SD = 1.88$) and Clinton ($M = 3.90$, $SD = 1.62$; $p = .918$).

However, as in Study 2.1 and Study 2.2, both groups were closer to each other on the second ratings ($F(2, 1626) = 498.93$, $p<.001$).
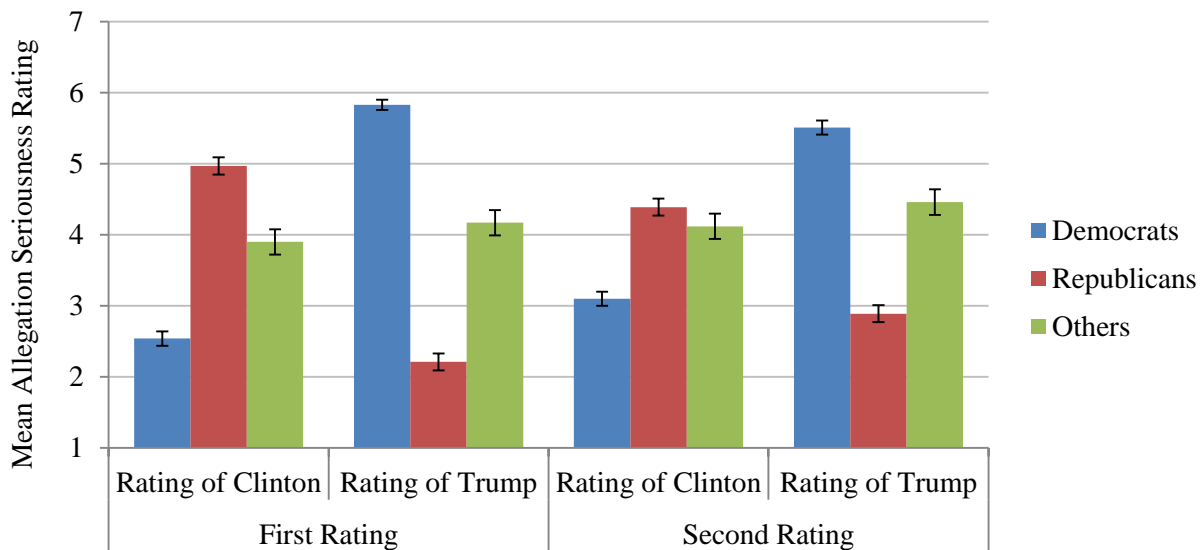
Figure 2.3. Partisan polarization decrease on second rating of politicians in Study 2.3.

Pairwise comparisons showed every planned comparison was significant ($p < .05$) in that for both Democrats and Republicans, they rated the outgroup politician lower and the ingroup politician higher when that person was rated second than when they were rated first.

Location of general questions. Answering the general questions about sexual assault allegations first did reduce polarization between Republicans and Democrats: there was a significant three-way interaction between party affiliation, the politician being rated, and whether the first rating came before or after the general questions ($F(2, 794) = 3.55$, $p = .029$). For both politicians there were smaller differences between the party affiliation groups when the politicians were rated directly after the general sexual assault questions than when the rating was made first (see Figure 2.4).

Figure 2.4. More consistency between political ratings when first asked general principles.

Finally, there was the hypothesized within-subjects consistency effect of the placement of general sexual assault questions ($F(2, 803) = 4.805$, $p = .008$): participants gave more consistent ratings to the two politicians (i.e., smaller within-subjects difference in allegation ratings) when

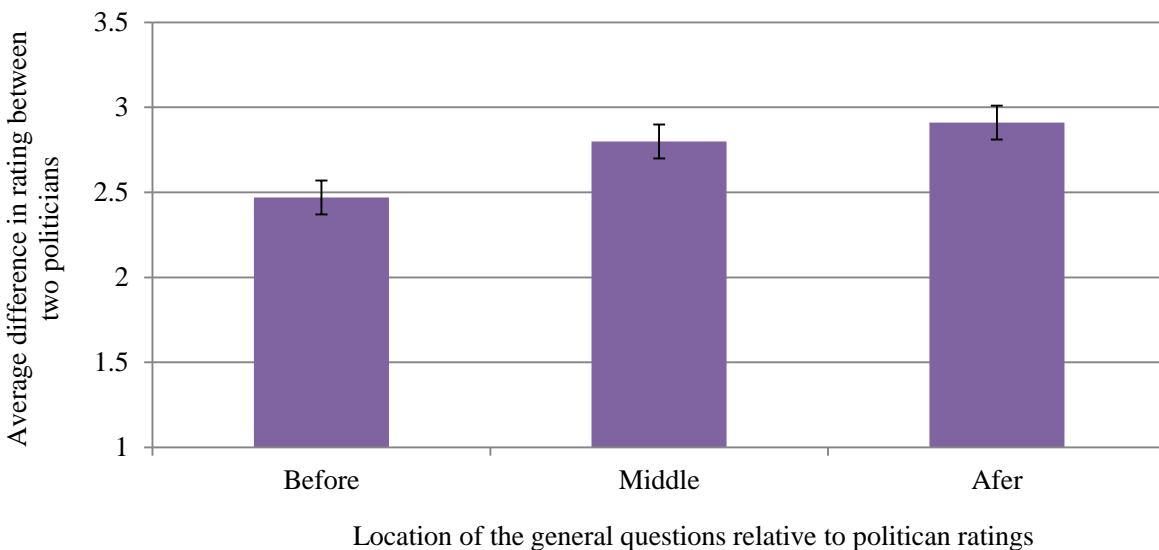the general questions came at the beginning (M_{diff} = 2.46, SD = 1.67) than when they were in the middle (Md_{diff} = 2.80, SD = 1.70) or at the end (M_{diff} = 2.91, SD = 1.73), as seen in Figure 4.

General principle results. For the general questions about believing sexual assault allegations, I decided not to combine them into a single scale because their inter-item reliability was not over the pre-determined threshold of .80 for any combination of items (α = .70), so I looked at each item separately. All six questions showed a main effect of party (ps<.001); Democrats expressed the highest accuser-belief, while Republicans expressed the lowest, and Others were in the middle.

Only one question showed a significant party by location interaction effect. That question was how much they agreed that, "Famous people often get away with sexual assault because of their fame and power" ($F(6, 792)$ = 4.103, p < .001). Pairwise comparisons showed that Others (those that didn't identify or lean towards either party) agreed more with the statement when answering the question just after rating Trump (p = .04) and Republicans agreed most when answering after rating Clinton (p = .03). Democrats did not significantly differ between rating it before both politicians or rating it after Clinton (p = .89) or after Trump (p = 1.00; see Figure 2.5).
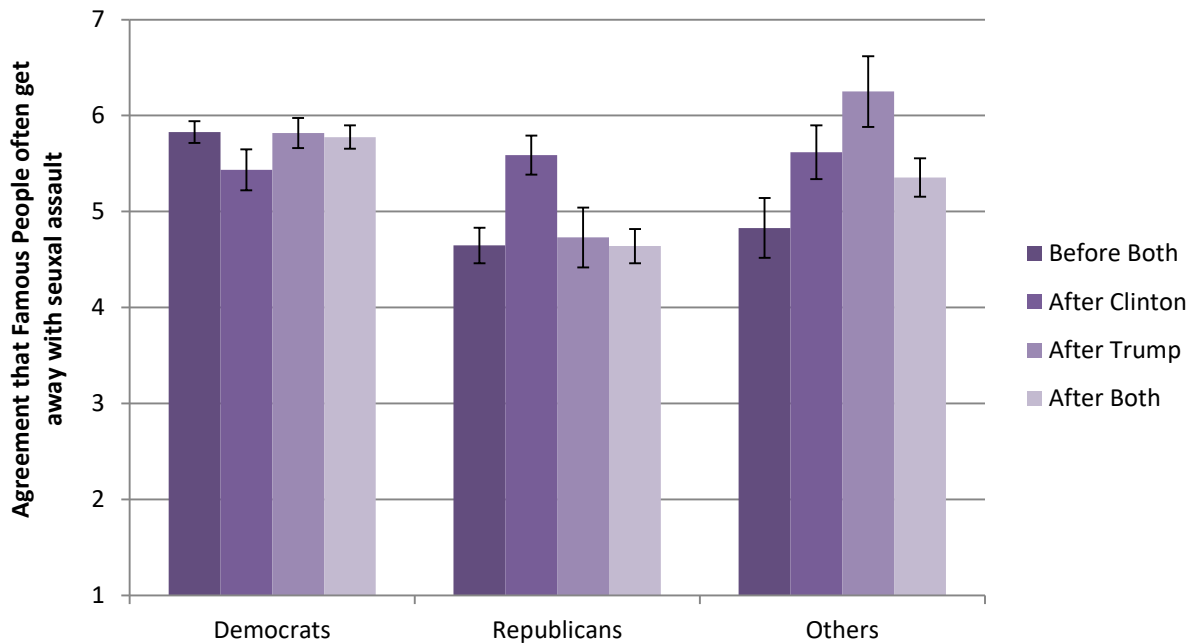
Figure 2.5. Changes in belief towards sexual assault general question based on where the general questions were presented relative to politician ratings

Discussion

In an entirely new context, I replicated the effect of question order on moderating political polarization: the groups were very polarized in their views on the allegations in their first ratings, and somewhat less so in their second ratings. It is completely reasonable to have different perceptions of the allegations against each man since the details, timeline, and evidence are different for each. Thus I cannot say if one group is correct and the other biased and I was not intending to do so with this study. However, there is clearly a partisan divide in how Republicans and Democrats view allegations against people of the opposite party. Those views suggest a level of motivated reasoning, either in especially believing any accusation against an outgroup politician or finding reasons to disbelieve accusations against an ingroup politician. The fact that the second ratings were less polarized suggests that people may be aware of this and are worried about looking hypocritical.

My hypothesis about changes in the general questions yielded mixed results. Only one of the six items I tested showed a significant difference. So while the results were all in the predicted direction and were similar to the result from Study 2.2, this should be interpreted with caution. It is particularly interesting that Republicans, who generally agreed less with the accuser-oriented questions, did suddenly believe more strongly that famous people get away with sexual assault when the question came right after rating Bill Clinton. It is possible a ceiling effect stopped Democrats from showing a similar pattern against Donald Trump, as they already generally strongly agreed with the questions (and believed it slightly less so after Clinton, though the difference was not statistically significant). It is also possible that Trump supporters have a greater motivation to deny the allegations, as it is the candidate himself, and not a spouse, who is being accused of the most serious crimes.

The Other group also seemed to be affected by whether they answered these general questions after questions about Clinton or Trump. They were more likely to agree that famous people often get away with sexual assault when asked after rating Donald Trump than Clinton. This group was more in the middle of the scale and so had more room to move   More of them, on average, had a favorable opinion of Bill Clinton (39.3% favorable) and Hillary Clinton (33.0% favorable) than Donald Trump (23.1% favorable) suggesting that their negative attitudes towards Trump were affecting their responses to the general question asked after rating him. However, this was the only one of several related questions that showed a significant difference, so results should be interpreted with caution at this point.

Finally, I did find that when people first answered general questions about sexual assault allegations and had to commit to responses, they rated the two politicians more similarly than if they had rated the one or both politicians before giving their general response. If it is due to

people committing themselves to general principles, then the effect should be strongest when the principles are very salient, relevant, and committed directly before the specific rating at hand, as was done in this study.

General Discussion

Over the course of three studies, I found a high degree of partisan polarization over different controversial issues. People consistently dismissed accusations against ingroup politicians and believed them strongly against outgroup politicians. Partisans on both sides of the aisle found politicians from the opposing party to be more culpable for accusations against them both in how their speeches may incite violence and in the seriousness of sexual assault allegations against them. I also found that this polarization decreased when people answered questions about the opposing politicians beforehand. Moreover, answering relevant general principle questions before making judgments only sometimes affected responses.

All three surveys were collected in the summer of 2016 during a particularly divisive presidential election, so it is not surprising to find partisan polarization, especially regarding the two leading candidates. It is likely that there was some degree of motivated reasoning happening in that people were motivated to defend the candidate they support and perhaps discredit the opposing candidate. However, the fact that this polarization could be manipulated so easily – just by having people answer questions about opposing politicians – suggests that such partisanship can be reduced by confronting them with their potential biases and getting them to think about opposing situations.

Why did people's judgments change on their second ratings? Given the fact that the filler questions did not show any significant interaction of order condition (all ps > .40) in Study 1, and in the lack of order effects in the non-partisan groups, I think it is unlikely that the

phenomenon can be explained by anchoring effects alone. One likely explanation is that people have a desire to appear non-hypocritical. This would be in line with other studies discussed previously where people are motivated to appear consistent and stick to principles once committed in surveys or other forums. It is also possible that people experienced a genuine change in their opinions after they considered the opposing viewpoint. Further studies could help clarify which of these explanations are true, though they were likely to be hard to disentangle in surveys alone, as we often cannot know if their genuine beliefs differ from what they report. Even if it is a genuine change in attitude, I do not suggest that this short survey manipulation is likely a long-lasting change, as that would require a much more involved and engaging intervention. Instead it suggests that a simple contrast of scenarios did significantly moderate beliefs in a way that may point to a potentially fruitful avenue for interventions in this area.

Interestingly, when people answered general questions it did not consistently affect their answers to specific scenarios. Given that Study 2.3 did show an effect of general principles and Study 2.2 did not, it seems likely that it is important for the general questions to create a possible tension between principles and judgments. If a person would be uncomfortable or feel hypocritical in, for example, saying that we should *always* believe sexual assault allegations but then dismissing such accusations against an ingroup politician, that type of conflict is more likely to result in changes to reported attitudes than a principle that allows more flexibility, such as having free speech is important. Confronting people with conflicting attitudes toward similar issues or potentially hypocritical responses to political judgments may be a simple but useful tool to make people more aware of their own biases and could be explored further as a debiasing strategy.

It should be pointed out that in the current survey, the content of speeches and accusations being judged were not perfectly matched, which is usually desirable in assessing "bias" and not a reasonable difference in judgment between different scenarios. This adds to the realism in the findings, but makes interpreting the polarization somewhat difficult. Future studies could create artificial stimuli so that the content was perfectly matched which would control for actual differences in the content being judged, thus narrowing down the ability of any differences to be explained by causes other than partisan bias. But doing so would remove the ability to investigate how these mental exceptions and nuances allow bias to flourish in complex, real-world scenarios, as was done in these studies.

Polling and survey methodologists, on the other hand, may wish to investigate boundary conditions such as how similar the situations need to be and how close together the questions need to be to find this order effect and to decide when order effects need to be considered and when they do not. Moreover, it is important to consider what the research question is (Charness, Geezy, & Kuhn, 2010) and how the attitude might be expressed in everyday life (Simmons, Brickart, & Lynch, 1993) when deciding whether to use a between or within-person design in regards to asking about polarizing issues. The accusations of sexual assault against Donald Trump and Bill Clinton were often discussed together in the media and likely in people's everyday conversations.

Finally these studies suggest potential areas for interventions aimed at reducing polarization. Affirming general principles of free speech before ratings did not reduce polarization (Study 2.2). However, answering questions about sexual assault accusations did reduce polarization (Study 2.3). This could indicate the importance of specificity and relevance; one of the driving motivators behind the cognitive dissonance we attempted to utilize is the

discomfort of holding conflicting attitudes (Elliot & Devine, 1994), so it is important that the attitudes be recognized as conflicting in order to show a change. This difference may be due to differences in context. People might have found it easy to say that, "Free speech is important," while also saying that, "This politician is inciting violence," because speech that incites violence is not protected by free speech laws. But it may be harder to say, "We should always believe those who make accusations of sexual assault," (or to say that we should never believe accusations unless there is a conviction) and then say we should believe the accusations against one man and not the other.

Throughout this paper, the only manipulation I ever used was the order of questions – all participants saw the same questions and content. This relatively minor change in question order showed a consistent effect across all three surveys where partisans on both sides were less polarized from each other when making their second ratings. This order effect should be considered in the design of future surveys as it could enhance or diminish the actual degree of polarization present. While many pollsters and survey researchers already vary question order and then collapse the difference between conditions, if there is a strong difference between ratings depending on whether it came first or second, collapsing the two may obscure the true value or show less polarization than there actually is between groups (e.g., such as if I had only looked at the average of first and second ratings in this study, and not the much stronger polarization in the more pure first rating). Consideration of how psychological and motivational factors underpin order effects can help determine the best course of action in a given survey or intervention and may help us find methods to help people become aware of, and possibly moderate, their own partisan biases, especially when it comes to judging the credibility of accusations against politicians.

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Chapter 3: Fake News Warning

There is a dangerous and growing distribution of misinformation online – especially on social media sites like Facebook and Twitter – around such important topics as vaccine effectiveness, political information, and conspiracies. A recent RAND report documented the increasing amount and acceptance of false information in our lives and the important real-world consequences it can have on policy, elections, and other important areas (Kavanugh & Rich, 2018). Unfortunately, fact-checking and corrections are not always enough to counteract people's belief in a piece of false information and occasionally may even backfire and cause increased belief in that information (Nyhan & Reifler, 2010). In this particular domain it is often referred to as the Continued Influence Effect or Belief Perseverance, in that previously believed information that is later learned to be false or unreliable continues to impact later judgments (Lewandowsky, Ecker, Seifert, Schwarz, & Cook, 2012; Anderson, Lepper, & Ross, 1980).

In recent years, social media companies like Facebook have been partnering with fact-checking organizations to try and combat the spread of misinformation on their sites. Once a particular article or information source has been identified as false by independent fact-checkers, a decision must be made regarding the best way of utilizing that information. Many sites do not want to block the sharing of such articles, even if they have been identified as false by a fact-checking organization, because they do not want to infringe on the free speech rights of their users or be the "arbiter of truth" in making the determination of what is false (Levi, 2017). Recent concerns have revolved around the impact of doctored photographs and videos. For example, a video of Speaker Nancy Pelosi slowed down to make her look drunk that some sites opted to remove while others left on their platform (Roettgers, 2019). Instead of outright removal, sites may share the fact-checking information or other sources to read, leaving it up to

readers to do research, confront their own biases, and make a reasoned judgment about the likely truth of each article they come across online – a skill that is not widely taught (Britt, Rouet, Blaum, & Millis, 2019).

One method that has been put forward on websites is to attach a warning tag to articles that are shared so that anyone who is exposed to the article is made aware that the accuracy has been disputed by independent fact-checkers. In this way, the content is not being blocked; instead people are being warned that the article is (likely to be) false to, in theory, block the negative impacts of the information. However, while there is meta-analytic evidence that corrections to misinformation can be effective in some circumstances (Walter & Murphy, 2018), multiple studies on fake news have found the social-media style warning tag to be limited in effectiveness, with findings ranging from modest effects to backfire effects (e.g., Ecker, Lewandowsky, & Tang, 2010; Nyhan & Reifler, 2010; Pennycook, Cannon, & Rand, 2018). One study found that using stronger language on the warning, saying in a tag that an article has been "rated false" instead of just "disputed," increased the effectiveness somewhat, but the impact was small and did not look at belief over time (Clayton et al., 2019). Looking at results over time is especially important because of the aforementioned continued influence effect, the memory processes in play that lead to the original information being remembered while the correction is forgotten (Swire & Ecker, 2018).
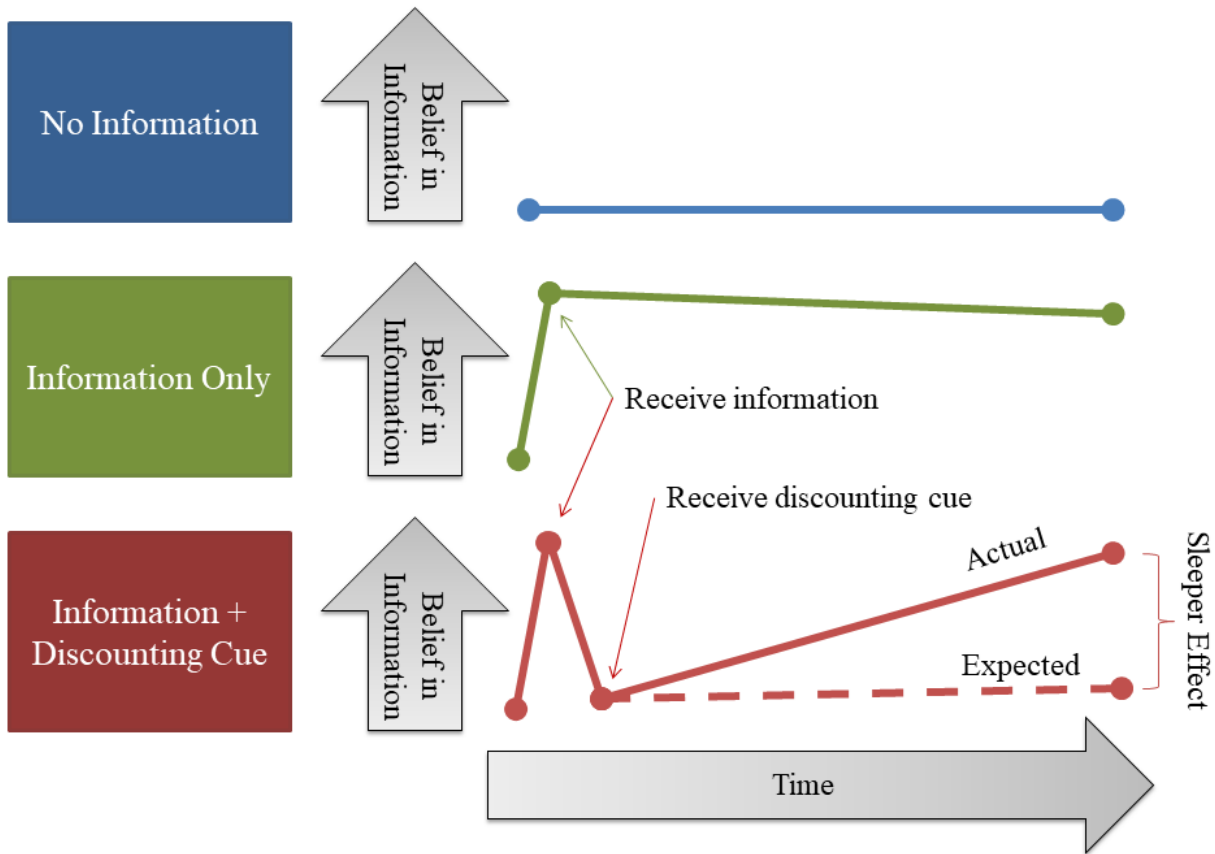
Sleeper Effect

Why does debunked fake news continue to exert influence? From the communications and persuasion literature we know of the "Sleeper Effect," which helps explain why this type of information can take hold and why warnings and fact-checks often do not help. Imagine a person receives a persuasive argument or piece of information that fits in with their existing

beliefs, so they believe it strongly. When the mind processes any information, it quickly and automatically accepts it as "true" (Gilbert, Krull, and Malone, 1990). If nothing else happened, they would likely continue believing it, though over time its influence might fade as through normal forgetting. Now imagine instead that right after they heard and accepted the original information, they received what is called a "discounting cue," some sort of other information telling them the information is not credible. Perhaps they find out it's from an untrustworthy source, or that the presenter has an underlying agenda, or they are directly told the information is false. Now, if asked, they no longer believe the information. What happens in the Sleeper Effect is that over time, that discounting cue gets weaker in memory more quickly, as people often forget where they heard a piece of information, while the information itself remains stored as fact. Thus, sometime later, the influence of the cue wears off while the content of the information stays strong, which is why people believe the information more strongly over time.

Figure 3.1 below shows this effect visually. Those who never receive the information (such as an argument, headline, or fact) have their "belief" remain at zero since they don't know about it. Those who hear only the information, assuming it to be agreeable or convincing, believe it once heard and remain strong in their belief, with perhaps some small amount of decrease over time due to normal forgetting. In the last group, people hear the information and immediately believe it, but then are given a discounting cue that makes their belief go back to zero, like when they learn that the information is false or came from an unreliable source. We would expect their belief to remain at zero over time (assuming no new information), since they now know not to trust it, but instead their belief in the original information rises more and more over time. This rise from their low level belief after the cue is the Sleeper effect.

Figure 3.1. Visual explanation of the Sleeper Effect for three hypothetical groups of people. The top group receives no information so they never believe it, the second only receives the information so they believe it (with some fading), and the last receives the information plus a cue that tells them not to trust the original information. We would expect that after the cue, if trusted, people would look like the top group and continue not believing the information, but instead their belief rises over time.

The mechanism behind this effect is likely based on the way our mental system encodes and stores information. In order to process information at all, it is by default treated as "true" in order to be processed and stored in the mind (Gilbert, 1995). Information we later learn to be incorrect or unreliable then has a "false" tag applied to it. This is explained by Gilbert with the metaphor of a library full of fiction and non-fiction books, where fiction books have a red sticker on them indicating they are fiction while non-fiction books do not have a sticker. If the "fiction" sticker fell off a novel and someone came across it, rather than being unsure if it was true or false

(which would be the case if both types of books had different stickers), the reader would assume it is non-fiction since that's what untagged books are. In our minds, if information is remembered – but without that extra cue to remind us it was false – we would by default think it to be true, especially if under constraint or motivation to not internally investigate it.

These processes likely explain why fact-checks often are not fully (or at all) successful in correcting misinformation. The idea is already stored and processed, and adding that "false" tag may only work temporarily (and that's assuming the discounting cue is trusted over the original source). Facebook, which for a while attached warnings below disputed articles to warn people to be wary of them, recently stopped this practice because of the research showing its lack of or negative effect (see https://newsroom.fb.com/news/2017/12/news-feed-fyi-updates-in-our-fight-against-misinformation/). However, the research studies and websites that have attempted to use warning tags to mitigate belief in fake news have generally presented the warnings with or after the article, which means that the information was already initially processed as true, as explained above. A meta-analysis of the Sleeper Effect literature showed that there was no significant effect (meaning no rise in belief after a discounting cue) if the discounting cue came *before* people heard the argument or information (Kumkale & Albarracín, 2004). In other words, if people were warned about the lack of credibility in information before receiving it, they processed it in a different way and persisted in *not* believing it over time. This fits with other research about correcting misinformation in that warnings about upcoming misinformation are more effective when they come before the incorrect information than after, though those warnings do not offer complete protection (Ecker et al., 2010; Loftus, 2005).

These studies from the communications and misinformation literature suggest that specific, strong, prior warnings that come before fake news headlines are far more likely to be

effective than traditional warnings that have been tested before. However, these studies have mostly been done in non-political realms, and the additional factor of political and identity motivation may limit even the effectiveness of this method that works in other realms, as political misinformation is harder to correct than other realms such as health information (Walter & Murphy, 2017). This may be because misinformation is especially powerful when it goes against a person's worldview, and warnings in such cases are especially likely to be ineffective if they are interpreted as an attack on a person's identity (Paynter et al., 2019).

In one recent study, Pennycook et al. (2018) studied the effect of warning tags over time. Though the main result was about the effect of multiple exposures on belief in fake news, they used fake news items that would favor both Democrats and Republicans, if true, to investigate the effects of political congruency. In the third study of their paper, online participants were presented with a series of fake news headlines (based on debunked political stories from Snopes.com and other sources). Within-subjects, half of the stories people read were friendly to Democrat political views while the other half were friendly to Republican views. Between-subjects, half of the participants saw the headlines with a warning tag attached to it saying the article had been disputed by third-party fact-checkers while the other half did not. One week later, all participants were given a follow-up survey which included asking them to rate the truth of the stories that had seen before, this time without tags for anyone.

Their main results focused on the number of times each headline had been presented (which depended on other manipulations and procedures not discussed here). They found that the more times a particular headline had been presented to a person, with or without a warning, the more they believed it, and that the warning had only a limited effect in lowering belief over time. They also performed analyses of the effect of ideological congruency, finding that

participants were more likely to believe stories that were congruent with their political leaning. What they did not include in their analyses was an interaction between ideological congruency, warning presence, and time on believability. My hypothesis is that the warnings would have reduced the effect of ideological congruency at the initial timepoint, but that the effect would return at a later time. In other words, when participants are told a story is false and then are immediately asked to rate its accuracy, most will rate the story as false regardless of whether it is politically congruent because warnings are generally effective right away. Over time however, as the effect of the warning wears off (which they found), people would raise their belief in the congruent story because it would have seemed more plausible and positive to believe before the warning, while the belief in the incongruent stories would remain low. Thus, I would expect to see a significant three-way interaction between warning type, timepoint, and ideological congruency. More specifically, I expected that at Time 1 the warning would reduce the effect of political congruency (showing less or no difference in ratings between politically congruent and incongruent information), while there would be no such interaction at Time 2 (with a significant effect of congruency regardless of original warning type). This is because of a greater motivation to believe the news before the correction came, thus a stronger initial encoding that would show a stronger sleeper effect. I conducted a secondary data analysis of their paper to look for this interaction to help guide the development of my study.

Secondary Data Analysis

I used Pennycook et al.'s data posted to https://osf.io/txf46/ and corresponded with the first author to ensure I was using the proper variables. I collapsed the data across their other manipulations of whether items were presented in a testing phase or not and used the average accuracy rating of news items (divided by congruent or incongruent for each person) that were

presented at both Time 1 and Time 2 (i.e., ignoring items presented in only one of those surveys). I conducted a 2 x 2 x 2 mixed ANOVA testing for the interaction between warning type (between-subjects; present or not present), political congruency (within-subjects; congruent or incongruent), and time point (within-subjects; Time 1 or Time 2) on the rating of the accuracy of fake news items. Results by warning condition are in Figure 3.2 below.
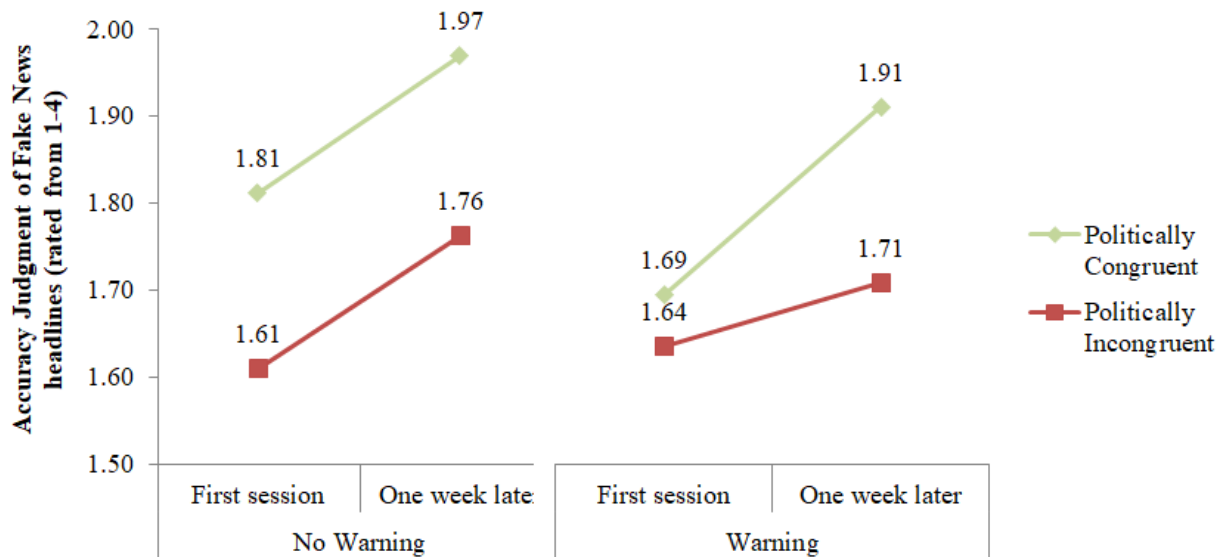
Figure 3.2. Warning label on fake news only reduces belief in politically congruent fake news and only at initial timepoint.

The results are in the expected direction, but did not reach statistical significance for the three-way interaction, $F(1,503) = 1.734$, $p = .189$, likely due to the small effect of the warning at all which requires more power to detect. For example, at Time 1, there was the hypothesized two-way interaction when looking at the full sample ($F[1,839] = 5.316$, $p = .021$) in that politically congruent items were only rated as more accurate than incongruent items when there was not a warning. But when restricting it to the smaller sample of those who returned for the

second survey, the interaction was no longer statistically significant ($F[1,504] = 3.444, p = .064$)

despite virtually identical mean values.

Looking at the values in each condition (see Figure 3.2 above) suggests that the modest

effect of the warning Pennycook et al. found at their first session was mostly due to lowering the

accuracy rating of the politically *congruent* fake news item. In other words, people were already

more skeptical of the politically incongruent fake news and the warning didn't reduce that any

further, while the warnings did make people more skeptical about the politically congruent fake

news. At least this was the case directly after the warnings were presented (although not

statistically significant); within just one week, there was no difference between those who had

and had not received a warning.

Though the evidence requires additional confirmation, the pattern supports my hypothesis

that the motivation to believe the congruent fake news makes it especially susceptible to the

Sleeper Effect in that the content of the information would be more believed from the start and

the false tag less strong (relative to the incongruent information). The authors suggest another,

similar explanation in a later paper, stating that it is not motivated but "lazy" reasoning leading

to the difference based on congruency (Pennycook & Rand, 2018), and that what people are

doing is assessing the plausibility of a headline they come across (and in general, politically

friendly news will be seen as more plausible). This fits with other motivated reasoning literature

in other contexts that shows congenial information is processed more quickly and is uncritically

accepted, whereas negative information is met with more (often appropriately so) skepticism

(Ditto & Lopez, 1992). Whether it is more about the motivation to disbelieve causing extra

skepticism, or the motivation to believe causing justification, the fact remains that the major

problem in the fake news study was the lack of effectiveness of the warning *over time*. People

seemed to accept the warning by reducing their rating of fake news accuracy (especially for politically congruent news). But after one week they had forgotten the cue but retained the information and believed it even more strongly since they had now been exposed to it twice.

Purpose of the Present Study

Though Facebook has stopped using the "disputed" tag, and some researchers have called on social media to avoid tags as a solution because of its limited impact, warnings remain one of the most straightforward and implementable methods of correcting information when they do work. Given that the structure is already set and easily implementable (when paired with reliable fact-checking data which would always be necessary in any solution to identify fake news), if such warnings could be made more effective, this would be a more simple, acceptable, and implementable solution to curb the negative effects of fake news.

This leads me to my goal of improving the effectiveness of such warnings by taking what has been learned from the misinformation and sleeper effect literature and applying it to this situation of political fake news online. In particular, to be most effective the warning would need to come before the information, should contain clear and strong language (that it is false, not just disputed), and give the reason it is not true (in this case, that it was entirely made up). Such warnings would also need to be assessed over a longer period of time than one session in order to properly analyze possible continued influence. This assessment over time would more accurately reflect the real-world scenario where people see fake news while browsing online and then are affected by it at a later date, for example when having a political conversation, deciding who to vote for, or judging a speech on TV.

In this study, I used a similar paradigm to previous fake news studies, where people see fake headlines within a group of true headlines and are warned about their inaccuracy, but added

a condition where people were warned *before* the false headlines. I compared this to the traditional warning tag below a headline and to one that came after they had read and judged the headline, which allows a baseline measure of the belief in the news item without a warning. I hypothesize that giving people a warning before the article will be the most effective in getting people to disbelieve the article over time. It may also reduce the effect of political motivation on belief. If the pre-warning prompts people to think more critically about the headline as they read it, then they may show less difference between fake news that supports or opposes their political alignment. Pre-warnings also lead to better encoding of the information as false to enhance accurate recall at later times (Ecker et al., 2010).

Hypotheses:

H1: Warnings that come before a false news headline will be more effective at lowering accuracy ratings of the headlines than warning tags that come with or after the headline.

H2: Belief in the accuracy of false news headlines will increase over time but will increase the least for those in the pre-warning condition.

H3: False news that is congruent with a participant's political beliefs will be rated as more accurate than news that goes against a person's political leanings.

H4: The effect of political congruency on accuracy judgments will be smallest when warnings come before a headline.

I will also be exploring potential moderators of receptiveness to both the fake news headlines and the warning type that was presented, including social media use, political identity and ideology variables, and feelings towards various institutions (including political groups and news media), as well as the order of some survey sections to check for priming and other order effect biases.

Methods

Sample

Participants were recruited from Amazon's Mechanical Turk, an online platform where workers complete short tasks for a small amount of money. The study took place over two sessions, spaced two weeks apart, and paid $0.75 for each 4-8 minute sessions. Workers had to be U.S. citizens, be over the age of 18, come from a U.S. IP address, and agree to take part in both sessions in order to participate in this study. The first survey collected data from 541 individuals, and the second had 429, for a return rate of 79.3%. Importantly, the return rate did not differ based on political affiliation ($\chi^2(2) = 4.265$, $p = .119$) or on experimental condition ($\chi^2(2) = 0.839$, $p = .657$).

For most of the following analyses, only the 418 participants who fully completed both surveys were included. This ensures that the sample is consistent between analyses in order to make appropriate comparisons at each timepoint and measure. Given the three experimental conditions, with 80% power and two-tailed α of .05, I can detect an f effect size from a one-way ANOVA as small as 0.152 (which is equivalent to a Cohen's d of 0.305, a small-to-medium effect).

Procedure

Time 1. After consent and some demographics, participants were asked a few questions about their political behavior, including their interest in following political news and what political party they identify with out of a list of many (or other, or none). Those who identified as either Democrat or Republican were then asked if they were strongly or not so strongly identified to that party. Those who did not select either of those two parties initially were asked which of the two they leaned towards (or none). This allowed me to create both a 7-point and 3-

point political affiliation scale. On the 7-point scale, those at a 1 or 7 strongly identified as either a Democrat or Republican respectively, those at 2 or 6 were not so strong identifiers, those at 3 and 5 lean towards that party, and those at 4 are non-leaning independents. The 3-point scale collapses each side of the scale and includes leaners with party identifiers, as is commonly done in political polls because independents who profess a leaning to one party generally vote and behave similar to party identifiers (Keith et al., 1986).

Feelings towards institutions. There was a section about feelings towards a variety of groups, level of trust in news sources, voting intentions for the next election, and a single item about conspiracy disposition. Half of participants saw this at the beginning of the survey (after political orientation but before the news headlines), while the other half saw it at the end of the survey (after the news headlines), in order to see whether exposure to the news items as a whole (true and false) impacted perceptions of online news or groups more broadly.

Ratings of news headlines. In the main body of the survey, people saw a series of 15 news-like headlines, each presented on its own page under a photograph similar to the cards that would be seen on a social media feed. Below each headline were two questions asking participants how interesting the story was (from 1 = "Not at all interesting" to 5 = "Extremely interesting") and how accurate they thought it was (from 1 = "Completely false" to 5 = "Completely true").

Twelve of the headlines were written by me based on multiple credible sources from mainstream news and thus are considered "true." Three of the headlines were made up by me, and checked online to ensure there had not been any news stories on the topic (whether true or false), and were the "false" stories.

For both the true and false headlines there was an equal mix of headlines considered to be "Democrat-friendly," "Republican-friendly," and "Politically neutral," with the partisan-friendly news either being positive towards that party or politicians or negative towards the other party. The headlines were randomly ordered for each person, except that the false headlines could not be one of the first three seen, and the first and last headline was always a politically neutral true item. Table 3.1 below shows all of the false headlines used, as well as one example of a true headline of each type. All study materials and headlines are in Appendix 3.

Table 3.1
Examples of true and false news headlines use in study

	False headlines (all)	**True headlines (one example each)**
Democrat-friendly	RNC Chair Ronna McDaniel called President Trump "f***ing idiot" in a closed meeting and suggested it may be better if Democrats win the next election	President Trump's 2017 inaugural committee is said to be under criminal investigation by federal authorities due to financial fraud around donations
Republican-friendly	Discussing voter fraud allegations in private meeting, Tom Perez, DNC Chair, suggested that electing Democrats "more important" than the letter of the law	Online group fighting to outlaw alcohol found to be Democratic activist campaign designed to reduce support for Republican candidate Roy Moore
Politically-neutral	Leaked company documents show top E-cigarette company Juul–which insisted it didn't market to teens– sought teens for focus groups and as models	The Weather Channel is being sued over accusations that it is illegally collecting and selling user's personal location data

To pick the false items I used in the study, I conducted a small pilot test on Reddit with a list of many made-up news headlines I created. People were given a list of 16 headlines, some that Democrats would find appealing and some that Republicans would find appealing[5], and they were told upfront that all were completely false. For each they were asked to rate on a 5-point scale how believable each story would be if they didn't know it was false. The survey was posted to reddit.com/r/SampleSize, a forum where people post survey requests for anonymous respondents. To maintain privacy, no demographics were collected other than political party, where they could identify or lean towards either Democrat or Republican, or state that they did not lean towards either. There were 100 respondents in all: 71 Democrats, 13 Republicans, and 16 non-leaning independents[6]. Figure 3.3 below shows the items and how they were rated by each group, sorted by believability of the opposing party (e.g., for the Democrat-friendly news items, sorted by which were most believable to Republicans). The top one of each was chosen for the study based on high overall believability and small differences between parties; even though all of the headlines were more believable to the side they were friendly towards, these two were less far apart than others. Other discarded headlines, for example, may have been highly believable to one party but not to another. This would have added to the difficulty in disentangling politically-motivated biases from just expectation bias. The two political stories were also relatively well matched in content, involving a person in charge of the party's national organization making a private comment that would be quite negative for them if made public, and also fitting with general accusations from the other side that have been made in the real

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[5] Due to an error in initial selection of items, there were 9 Pro-Republican headlines and 7 Pro-Democrat headlines tested, rather than 8 and 8. I created a set of loosely matched items to compare (e.g., one about paid protestors against Trump, and one about paid rally attendees of Trump), and mistakenly had two negative items about Hillary Clinton in a row instead of another against Trump.

[6] While this is relatively unbalanced, it was sufficient to see clear differences in the headlines between groups and select the ones that were the most *broadly* believable, meaning they were generally believable both to people who the news was friendly towards and those to whom it was not.

world. A separate study conducted by other researchers also found the chosen items had similar

levels of plausibility and were seen as favorable to the intended group (or non-partisan in the

neutral case; Lindsay, Rode, & Ditto, 2019).

| (Democrat-friendly items) How believable is this headline? (1-5)	Dems	Reps	Neither	Average (by group)
Ronna McDaniel, chair of the RNC, caught on tape in closed meeting calling Trump a "complete f***ing idiot" and suggesting it may be better if Democrats win	3.6	3.7	3.7	3.7
Some "supporters" at Donald Trump's campaign rallies admitted to being actors paid to increase crowd size	3.9	3.3	4.0	3.7
Fox News commentator makes jokes about assassinating Nancy Pelosi, receives no repercussions	3.8	2.8	3.6	3.4
Largest Pro-Trump SuperPAC shut down after leader was found to be Russian operative	3.7	2.6	3.2	3.2
High-ranking Army general releases statement that military has never been weaker than under President Trump	3.2	2.3	3.3	2.9
Trump declares that he will re-instate the draft and remove exemptions for minor medical conditions that he used to defer Vietnam draft	2.8	2.2	3.3	2.8
Hillary Clinton secretly donated all profits from her book sales to human rights charities	2.6	1.2	1.9	1.9

(Republican-friendly items) How believable is this headline? (1-5)	Dems	Reps	Neither	Average (by group)
Tom Perez, chair of the DNC, caught on tape saying that Democrats just need to win, regardless of what the voters want	3.5	4.2	3.9	3.9
CNN commentator makes jokes about assassinating President Trump, receives no repercussions	2.1	4.2	2.4	2.9
Some "protesters" at Donald Trump's campaign rallies admitted to being actors paid to increase protest size	3.0	4.0	3.6	3.5
High-ranking Army general releases statement that military has never been stronger than under President Trump	2.8	3.8	3.4	3.4
Uncovered Planned Parenthood records indicate that federal money was illegally used for abortion services	2.2	3.8	2.9	2.9
Health records show that DNC covered up Hillary Clinton's cancer diagnosis during campaign	2.7	3.3	3.0	3.0
Hillary Clinton SuperPAC folds even before she declares candidacy because of campaign finance violations	2.4	2.9	2.9	2.7
Hillary Clinton found to have been colluding with Saudi Arabia during her 2016 presidential campaign	2.3	2.8	2.9	2.6
Trump donates all profits from Mar-A-Lago gained during presidency to Veterans organization	1.5	2.5	1.7	1.9

Figure 3.3. Results by political leaning from headline selection pilot, sorted by believability from the opposing political party.

Warning manipulation. For the three false news items, people were randomized to one of

three warning conditions. Those in the "Warning-After" condition were only told after they had

answered the two questions about the article that the headline was false; when they advanced to

the next page they were told, "**Warning: the previous story on the previous page was found**

to be entirely made up and false." In the "Warning-During" condition, most similar to previous studies and the prior Facebook usage, a box with similar language (saying the "above" story instead of "on the previous page") was presented directly under the article as part of the image. Finally, in the "Warning-Before" condition, the headline and image was obscured and covered with a box containing a similar warning about the "following" image. Participants had to click to acknowledge they understood that before they could see the image and answer the questions; see Figure 3.4 below.

Participants saw the same warning for all three news items in their survey, and there was no condition where people were not told that the items were false. However, since people in the Warning-After condition rated the accuracy judgment of the item before the warning, this is the best control measure of the baseline belief in the fake news item for comparison with other conditions at Time 1.
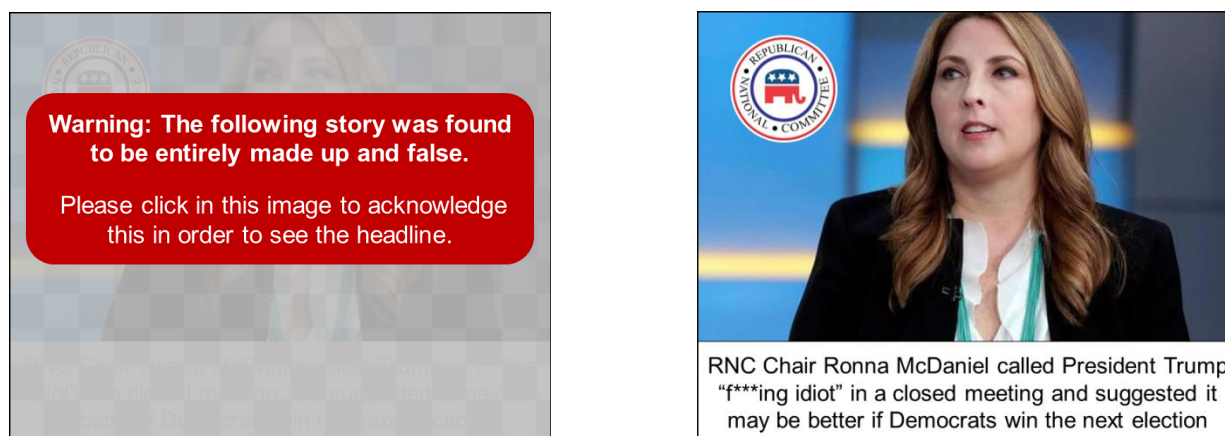
Figure 3.4. How the "Warning-Before" for a false headline appeared to participants. Shows image before clicking (left) and after clicking (right). True headlines would be in a similar style to the card on the right, while "Warning-During" false headlines had a similar red box below the headline (with the text referring to the "above study"), and the Warning-After were given similar text on the next page about the "previous study".

At the end of the first survey, they were reminded that they saw both true and made up headlines and were told that all the ones they were told were false really were made-up. They were reminded about the follow-up in two weeks and given a chance to leave feedback in an open-ended text box.

Time 2. Two weeks after they completed the first survey, participants were emailed a link to complete the second survey through Mturk. Three days later a reminder email was sent to participants who had not yet taken the follow-up survey. The Time 2 survey was open for a total of seven days to ensure that participants had enough time to take the survey, but not so long that they could have a much longer time period between surveys than other participants.

The survey was similar to the first, starting with two 5-point self-report questions about how much they had used social media and how much they had followed political news since the prior survey. Next, in a similar format to the Time 1 survey, they again saw a series of headlines with images above them and questions below them. All three of the false headlines were presented again along with nine of the previous true headlines (leaving out one Democrat-friendly, one Republican-friendly, and one politically neutral true news item). Additionally, there were four new headlines added that were drawn from recent news: one Democrat-friendly, one Republican-friendly, and one politically neutral true news item, as well as one politically-neutral fake news items that was taken from Snopes as a recent story that had been shared around. There were no warnings during the headline rating phase in the Time 2 survey.

Under each headline they were again asked to rate the interestingness and accuracy of the story on a 5-point scale. In addition, they were asked if they remember seeing the story in the Time 1 survey two weeks ago (Yes, Unsure, or No) and if they had seen anything about this story outside of this survey (Yes, Unsure, or No). The stories related to the three false headlines

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from Time 1 were made up by me and checked that they had not been claimed online before, so it is highly unlikely that participants could have seen anything about the story outside of the survey, indicating a possible false memory for anyone reporting Yes to the latter.

Order manipulation. As in the first survey there was a separate manipulation of section order at the end of the survey unrelated to the warning condition. One section asked about their awareness of their own potential biases, with questions about how accurate they thought they were, which type of headlines (politically congruent or politically incongruent) they were more likely to search for more information about, how effective they thought their warning was, and how well they generally are at spotting fake news. The other section was a page that presented a list of all 19 headlines they had seen across both surveys, and participants were asked to decide whether each was – on the whole – more likely "True" or "False." Participants were randomly assigned to receive either the self-awareness questions first or the True/False judgment first. This was for an exploratory investigation of whether prompting people to think about their biases, which may put them in a more critical thinking state, would change their subsequent ratings of news accuracy.

Debrief. At the end of the second survey, participants were reminded of which headlines were false, told about the headlines that were explicitly made up for the study, and were allowed to write any comments or thoughts before being thanked and paid.

Measures

Outcome variables. I have three main outcomes that will be assessed regarding fake news beliefs. First is the judgment of the accuracy (on a scale of 1 to 5) of each of the false news items rated at Time 2. Ideally, all would be a "1" because all participants were told all the items were completely false, so anything above that indicates some belief in the information. The next

main outcome is the binary judgment made at the end of the Time 2 survey regarding whether each of the three fake news items was true or false. Finally, each participant had a count of how many of the three false items they (incorrectly) judged to be true at the end of the study.

Predictor variables. The first main predictor of interest is the experimental condition they were in, a three-level categorical variable: Warning-Before condition ($n = 139$), Warning-During ($n = 136$) condition, and Warning-After condition ($n = 140$). In regressions the latter was chosen as a reference group because it is likely to be the least effective and thus is most similar to a control group.

The second main predictor is, for the first two outcomes, whether the news items they were judging were congruent or incongruent with their political beliefs. For example, for a Democrat participant the Democrat-friendly news items would be "congruent" and the Republican-friendly news "incongruent." I will be looking at both the main effects of congruency and experimental condition as well as their interaction, which would show whether the warning type impacted how differently they rated congruent and incongruent items. Including those who leaned towards either party there were 255 Democrats, 110 Republicans, and 50 non-partisans in the analysis sample.

Other predictors include social media usage (a 5-point self-report question at Time 2 about the past two weeks), the number of true headlines correctly rated as true (which may indicate a general response bias towards "true" or may indicate increased knowledge of political news; O'Connell and Greene, 2017), conspiratorial thinking (measured by a single 5-point item about agreeing with the statement, "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" taken from Uscinski, Klofstad, & Atkinson, 2016), and interest in political news (a 5-point

self-report question). These will help assess personal characteristics that may be related to a

generally increased belief in fake news items. Descriptives are in Table 3.2.

Table 3.2

Descriptives of main variables used in models from N = 418 completer sample

	M (SD)
Personal Variables	
Conservatism (1="Extremely Liberal" to 7="Extremely conservative")	3.32 (1.69)
Belief in global conspiracies (1="Strongly disagree" to 5="Strongly agree")	2.63 (1.28)
Interest in political news (1="Not interested at all" to 5="Extremely interested")	3.47 (1.03)
Political Party (1="Strong Democrat" to 7="Strong Republican")	3.21 (1.99)
Social media use between surveys (1="Not at all" to 5="A great deal")	3.24 (1.09)
Intention to vote in next election (1="Extremely Unlikely" to 5="Extremely Likely")	4.47 (1.04)
News-related study outcomes	
Number of false items believed to be true (0 to 3)	1.36 (0.96)
Number of true items believed to be true (0 to 12)	7.37 (2.21)
False Democrat-friendly accuracy judgment (1="Completely false" to 5="Completely true")	2.73 (1.22)
Republican-friendly fake news accuracy judgment (1="Completely false" to 5="Completely true")	2.47 (1.07)
Politically-neutral fake news accuracy judgment (1="Completely false" to 5="Completely true")	3.39 (1.07)
Feelings towards groups and institutions	
Feeling towards DNC (0="Completely cold/negative" to 100= "Completely warm/positive")	44.41 (29.31)
Feeling towards RNC (0="Completely cold/negative" to 100= "Completely warm/positive")	29.42 (28.36)
Feeling towards Democrat voters (0="Completely cold/negative" to 100= "Completely warm/positive")	58.87 (28.08)
Feeling towards Republican voters (0="Completely cold/negative" to 100= "Completely warm/positive")	38.29 (30.08)
Feeling towards Donald Trump (0="Completely cold/negative" to 100= "Completely warm/positive")	27.29 (33.45)
Trust in information	
Trust in information from online news sources (1="Not at all" to 5="A great deal")	2.74 (0.92)
Trust in information from social media (1="Not at all" to 5="A great deal")	2.21 (1.01)
Trust in information from traditional news sources (1="Not at all" to 5="A great deal")	2.90 (1.08)
Trust in information from government resources (1="Not at all" to 5="A great deal")	2.60 (1.07)
Trust in information from family and friends (1="Not at all" to 5="A great deal")	2.65 (0.96)
Binary truth judgment at end of study	*Percent*
Percent believing that the Democrat-friendly fake news was true	42%
Percent believing that the Republican-friendly fake news was true	31%
Percent believing that the politically-neutral fake news was true	63%

Note: These are not controlling for party like many analyses do. Since there are more Democrats in the sample than Republicans, the overall averages lean more liberal/Democratic.

Order analyses. I will also be looking at the effect of the order of questions in both the first and second survey. For the Time 1 survey I will be looking at whether responses to the feelings towards institutions (e.g., feeling thermometers, trust in news sources) changed depending on whether they were completed before or after the news headlines to measure if exposure to the fake news stories had any other impact on feelings or intentions. In the Time 2 survey I will be looking at whether either the self-awareness questions or the number of false items believed changed depending on which section came first.

Results

Accuracy Judgments

The main outcome was the rating of the accuracy of the news items at Time 2 depending on warning condition at Time 1, separated by political congruency. The results for each group are in Figure 3.5 below. From the plot, it is clear that the warning that came after the headline (i.e., after the Time 1 rating and two weeks before the Time 2 rating) had no impact on reducing the belief in the accuracy of either politically congruent or incongruent news items between surveys. The Warning-During and Warning-Before conditions were relatively effective at Time 1, but by Time 2 the levels of belief in the items appears nearly identical to that of the group that only got the warning after the headline**.** The politically congruent news stories were always believed more than the incongruent, although the difference is almost completely gone in the Time 1 judgment in the Warning-Before condition.
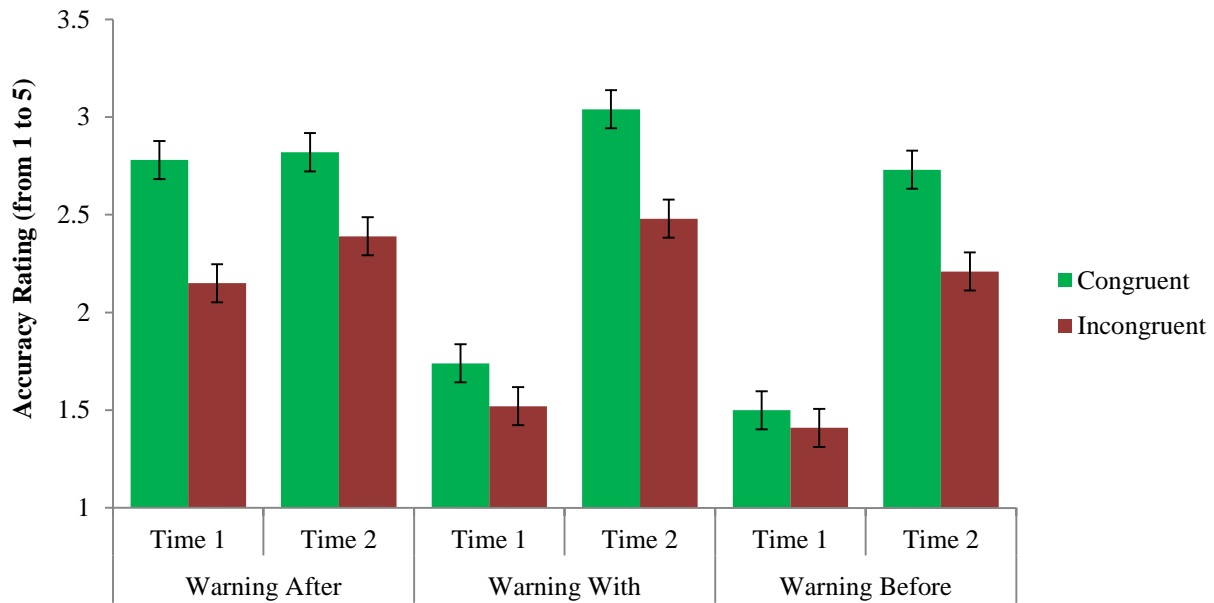
Figure 3.5. Partisan participants' ratings of the accuracy of politically congruent and incongruent fake news headlines at Time 1 and Time 2 based on warning condition. Error bars indicate one standard error of the mean.

The primary analysis to test this hypothesized interaction was linear mixed regression predicting accuracy judgment of political fake news items based on the congruency with participant's political views, warning condition, and their interaction, controlling for within-person variation. This analysis will only consider the Democrat-friendly and Republican-friendly news items and only include those who identified or leaned towards one of those parties ($n = 365$, 87.3% of the sample) in order create the "congruency" value (which would be missing for the politically neutral items and participants).

At Time 1 I found significant effects of congruency, warning condition, and their interaction. In particular, congruent fake news was judged as more accurate than incongruent fake news ($b = 0.631$, $SE = 0.113$, $p < .001$), and both the Warning-During ($b = -0.631$, $SE = 0.135$, $p < .001$) and Warning-Before ($b = -0.734$, $SE = 0.135$, $p < .001$) conditions had lower ratings than the reference category of Warning-After. The significant interaction terms for

congruency with both warning conditions showed that the difference in accuracy judgments between congruent and incongruent items was significantly smaller in both the Warning-During (b = -0.410, SE = 0.161, p = .011) and Warning-Before (b = -0.549, SE = 0.161, p < .001) conditions than in the Warning-After condition.

While the analysis showed the intended effect and hypothesized pattern, the important outcome is the judgment at Time 2 to ensure the warnings were effective over time. I repeated the same analysis on the Time 2 judgments, assessing accuracy rating as predicted by congruency, warning location at Time 1, and their interaction. I did not control for the Time 1 judgment because the Time 1 judgment is, by design, extremely related to the experimental condition and would cause collinearity issues and impact findings – those in the Warning-After condition rated the accuracy of the headline before learning it was false, unlike the other two conditions, and thus have much higher Time 1 ratings. Controlling for this first rating, or looking at change scores, would therefore also remove (or even reverse) a large amount of the impact of the experimental condition.

At Time 2 there was still a significant effect of congruency (b = 0.420, SE = 0.120, p < .001) such that items that were politically congruent were on average judged to be more accurate than incongruent items when controlling for warning condition. Relative to the control condition of Warning-After, neither of the location conditions – Warning-Before (b = -0.184, SE = 0.143, p = .201) and Warning-During (b = 0.083, SE = 0.143, p = .563) – were statistically significant, meaning that neither of those warning manipulations were associated with any difference in average accuracy judgments relative to the Warning-After condition. Neither interaction term was significant either (both ps > .400), meaning that the average difference between accuracy judgments for congruent and incongruent items at Time 2 did not significantly differ based on

experimental condition. Additionally, in a separate analysis with political party as an interaction term, Democrats and Republicans were not significantly different from one another in the amount that political congruency affected their accuracy ratings ($b = -0.236$, $SE = 0.151$, $p = .118$).

Belief in Fake News Truth at End of Survey

The next analysis was on the measure at the end of the survey, where participants saw a list of all the news items they had seen and had to make a binary judgment on each one of them as to whether the stories were true or false. On average, participants believed 1.36 of the items (out of 3) at the end, and this did not significantly differ based on warning location ($F(2, 408) = 2.071$, $p = .127$). However, there were some differences in individual items. In particular, the Democrat-friendly false news item did show an effect of warning location ($\chi^2(2) = 9.660$, $p = .008$), with those in the Warning-Before condition having the lowest rates of belief in the news. This pattern did not appear for the other two items. Additionally, there was the expected congruency effect for belief in both political news items, ($ps < .05$) in showing a difference in rate of belief based on political party that was not present for the politically neutral item ($p = .340$). Table 3.3 shows the percent believing each item by group and condition.

I conducted three logistic regressions for the three false news items separately to assess any interactions between political party and warning condition and did not find a significant effect for any (all $ps > .05$).

Count of False Items Believed

Finally, I conducted a series of regressions predicting the number of the false items that were rated as "True" in the final assessment of all news items. All three of these models were restricted to the 409 participants who were not missing on any of the eight items used in any of

the models (since some of the self-report questions were optional, therefore participants could fully complete the survey without them).

Table 3.3

Final belief in fake news by experimental condition and political party

	Percent believing **Politically Neutral** false news as true	Percent believing **Democrat-friendly** false news as true	Percent believing **Republican-friendly** false news as true
	B	*B*	*β*
	(SE)	*(SE)*	*(SE)*
Experimental Condition			
Warning-Before	63%	**32%**	27%
Warning-During	62%	**51%**	29%
Warning-After	65%	**43%**	36%
Political Party			
Democrat	66%	**47%**	**23%**
Non-leaning Independent	57%	**38%**	**44%**
Republican	60%	**33%**	**44%**

Note: Items in bold were significant at $p<.001$ in χ^2 tests.

Those in both the Warning-Before and Warning-During conditions had a lower number of false items believed than those in the Warning-After condition, but neither were statistically significant (ps > .05). The model with just experimental condition had an R^2 value of .010, meaning that the experimental condition accounted for just 1% of the variation in number of false items believed to be true. Coefficients of the model are in Table 3.4 below. Additionally, I ran a post-hoc *f*-test comparing the coefficients of the Warning-Before and Warning-During variables to see if those two conditions significantly differed from one another in predicting false items, and they did not ($F(1, 406) = 2.781$, $p = .096$).

Table 3.4

Predictors of increased number of false items believed to be true

	Regressing number of false items rated as true by experimental condition	With political variables added	With political and online news variables added
	(Model 1)	(Model 2)	(Model 3)
Experimental Condition			
Warning-Before	-0.211	-0.183	-0.161
	(0.116)	(0.115)	(0.113)
Warning-During	-0.016	-0.012	-0.056
	(0.117)	(0.116)	(0.114)
Political Variables			
Ideology (higher means more conservative)		-0.027	-0.013
		(0.029)	(0.028)
Interest in politics		-0.008	-0.051
		(0.046)	(0.047)
Conspiratorial Disposition		0.141***	0.141***
		(0.038)	(0.037)
Online News Variables			
Social Media Usage			0.019
			(0.044)
Trust in online news			-0.025
			(0.051)
True news stories rated as true			0.098***
			(0.022)
Constant	1.426***	1.164***	0.550
	(0.083)	(0.231)	(0.325)
Observations	409	409	409
R-squared	0.010	0.044	0.093

Note: All models are restricted to the sample that was not missing on any of the items in any model.

For the political variables added in the second model, there was no significant effect of being higher in conservatism or being more interested in politics. However, there was a significant effect of conspiratorial belief, measured by how much they agreed or disagreed (on a 5-point scale) that big events are controlled by a secret group working against the rest of us. This model had an R^2 of 0.044 meaning that the addition of the political variables explained an additional 3.3% of the variation in number of false items believed beyond experimental condition. Importantly, conspiratorial thinking was only predictive of believing more false

stories; there was no significant correlation between that conspiracy item and believing more of the true stories at Time 1 (r = -.030, p = .544).

In the final model, I added self-reported social media usage in the prior two weeks and self-reported trust in online news sources, neither of which predicted the number of false items believed as true. I did find that the more true news stories were (correctly) believed as true, the more false items were also rated as true. These news-related personal variables explained an additional 4.9% of the variance in the outcome of false news items believed.

Order Effects

In the Time 1 survey there was a section asking participants for their feelings towards political groups, their likelihood to vote and the trust they have in various news sources. I tested whether any of these measures differed based on whether this section came at the beginning or the end of the survey to assess whether exposure to the news items (both true and false, and mostly negative) would impact people's responses, for example by decreasing trust in online news or increasing intention to vote. There were no significant or practical differences by order condition on any variable (all ps > .10 before any multiple comparison corrections, assessed by multiple ANOVAs).

In the Time 2 survey, after rating the headlines, I varied whether participants first responded to a series of self-awareness questions about their own biases and memory (including how accurate they thought there memory was, how often they seek more information about online news stories, and how effective they thought their warning was), or first guessed which of the 19 headlines were true and which were false (with the other section coming directly after). There was no significant impact on the number of false items rated as true ($F(1, 414) = 1.262$, $p = .262$) or the number of true items rated as true ($F(1, 413) < .001$, $p = .997$) depending on

whether participants had first judged their own memory and bias or not. There were also no

significant impacts on any of the self-judgment questions depending on whether they came first

or after the True/False judgment of headlines (all *p*s > .20) or which warning condition

participants were in (all *p*s > .40).

Discussion

Overview of Results

Against my hypothesis and the prior sleeper effect literature, giving the warning about

false news before participants read the headlines was generally not effective in limiting the long-

term belief in the accuracy of fake news. The warning before the news had a strong impact on

immediate ratings, bringing accuracy ratings down near the bottom of the scale and with no

difference based on political congruency. Over time, though, that difference largely went away.

Two weeks after reading the headline people who had received that strong warning rated the

accuracy of those news items at similar levels as those who had received the warning after the

headline. This is based on the primary outcome of the accuracy judgment; for the binary

judgment made at the end of the survey, the warning showed some more possible promise.

Relative to the Warning-During tag, as had been used by Facebook and in past studies, the before

warning lowered the percent of people guessing the Democrat-friendly news item from 51% to

32%. However, it did not significantly impact the other two items. It also still showed the

congruency effect in how Democrats and Republicans preferentially believed the story friendly

to their side. This fits with prior data and shows that what is left even after a strong warning is a

tendency to believe what fits with our political views.

As expected, political congruency was highly related to the accuracy judgment, such that

people thought that news more friendly to their political party was more likely to be accurate

than news that was not, even though they were told that all of it was false. Past research has shown that this political effect is driven not just by motivation to find truth in the friendly story, but that the congruent information is accepted more uncritically or "lazily" while the incongruent information is given more critical thought about why one should be (rightfully) skeptical of it (Pennycook & Rand, 2018). The Warning-Before was designed to get people to think more critically about all the headlines and thus reduce this congruency effect. It was very effective at the initial timepoint in this regard, but showed the same congruency effect over time. It is possible that it may have shown more of an effect one week out if the warning decayed slower than others, but that by two weeks it was at similar levels. This effect occurred similarly for both Democrats and Republicans, who did not significantly differ in the amount they were affected by political orientation of the news. This was not surprising given past research showing similar levels of information processing bias between liberals and conservatives (Ditto et al, 2018).

This study shows that even a strong discounting cue, telling people that a headline was entirely made up and presenting it before the information, which has worked in other persuasion contexts, is still not strong enough to overcome such a powerful effect of fake news. These discouraging results support a solution that goes beyond warnings, trying to limit the amount of false information that is distributed in the first place, rather than trying to rely on warnings or corrections to mitigate their impact, such as how Facebook and YouTube are now starting to remove content that aims to misinform people.

From consideration of the Sleeper Effect, given that people did moderately believe the news without a cue (as seen from the results in the control/Warning-After condition), and the immediate reduction in news belief with a cue, both the argument and cue were strong. It was not merely the case that people did not believe what the discounting cue was telling them,

otherwise the results from the two warning conditions would not have had such a difference from the control condition. Particularly for the politically congenial fake news headlines, the information may have fit so well in with people's beliefs that once it was heard, even if people were in a skeptical mindset when reading the article, it seemed believable and fit in with existing attitudes that were easily incorporated. This may have made the memory of it stronger than the warning to not believe in it. Many studies of the Sleeper Effect have been done in areas such as trying to sell people something, which may not lead to the same amount of resistance to a cue telling a person not to trust it as an outrage-inducing political story that matches what on already believes about the other party's negative behavior.

One thing that did come out as a significant predictor of believing false headlines was conspiratorial thinking which matches with Chapter 1 showing those higher in conspiratorial thinking were more susceptible to generating false memories of political events. It may be that this goes along with a less analytical style or more dogmatic form of thinking that other researchers have found associated with belief in fake news (Bronstein, Pennycook, Bear, Rand, & Cannon, 2018), and that targeting specific groups of people may be important in the future.

The lack of order effects in both surveys show that these are robust effects not easily swayed by small manipulations. Asking people to introspect about warnings and fake news did not make them any more or less likely to judge questionable news items as true, and being faced with a mix of true and false items that likely were difficult to answer did not make people any more or less confident in their own accuracy. Nor did it change any partisan differences in responses. Again, this demonstrates the importance of solutions going beyond those that rely only on introspection of one's own biases as corrective solutions.

Limitations

There were multiple important limitations of this study. For one, people knew they were participating in a research study. It is unknown exactly how that would have impacted these results – for example the warnings may have been less effective because people were suspicious of the agenda of the researchers in giving the warning, or they may have been more effective than they would be in the real world if people trusted in the authority of the information (e.g., one participant commented that they wished to know who had rated the story as false, as that would help them decide whether to trust it). These warnings were quite strongly worded, saying the headline was found to be "entirely false and made up" in order to show a strong discounting cue. In the real world, without the ground truth knowledge I had in this study, the authorities putting out such warnings may not be as able to use such assured language. Power was good for a typical research study, but given the modest impacts of warnings found in other studies, a larger sample might be needed to detect real but small effects. The Warning-Before condition was consistently better than the Warning-After condition in lowering the effect of fake news but was rarely statistically significant, so a larger sample may have helped either find the effect more consistently or more confidently kept the null hypothesis of a lack of an effect.

One important note about the politically neutral false news item is that it was quite similar to actual accusations that had happened against the company. While the claim about leaked documents and teens in focus groups was entirely made up, there had been news stories about the company being accused of marketing to teens in the past that participants may have been confused about. For those who said they remembered seeing the story outside of the survey, I followed up with an open-ended question asking them about it. Most responses indicated familiarity with the accusation about marketing to teens in general, rather than the specific claim made in this study such as, "*Snapchat briefly did a segment in one of their little*

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news things in the Discover tab on Juul being attacked for appealing to teens" and "*I vaguely remember reading just the headline of an article that said that JUUL was marketing to young adults*" and "*I just remember seeing a lot of things on the news about Juul and teens, but I do not remember the details*." Thus, the high ratings of accuracy for that item may reflect confusion between it and genuine news that had been around. The item was designed to be similar to accusations that had been made before for believability (similar to how the political items aligned with accusations about Democrats committing voter fraud or Republicans secretly hating Trump), but may have been too close to treat as a genuinely false item for this study. Since most analyses dealt with either comparing the two political items, or comparing rates across, this is not likely to have an important impact on any of the results aside from higher levels of belief on average. This presents an important aspect for future research to address, in that often the "fake" news being spread is not simply entirely made up but misleading or incorrect in some way. News that is similar to real events, or based on outdated information, or presented in a misleading manner may have similar negative effects as a completely untrue story, but may be harder to detect and correct.

Next Steps

Though this particular intervention was not generally successful, the results are in line with other research showing the lack of effectiveness in warnings, the high impact of political congruency, and the importance of individual cognition in belief in fake news articles. Future studies may look to other methods to prompt critical thinking in individuals reading headlines, or may try to reach specific individuals. Trying to get more realistic and real-world behavior and data around the belief in, and sharing of fake news will also help us learn more and be better able to study possible mechanisms and interventions. Additionally, real-world behavior may test

other important outcomes that could affect effectiveness. For example, the pre-warning may cause some readers to choose not to read that headline, which would completely halt the spread of misinformation for that person. In this study, participants had to click to read the headline after seeing the warning, but one participant mentioned that if they had seen that in their news feed, they would choose not to read it and expose themselves to misinformation.

Finding ways to prompt critical examination, avoid bias, and limit the influence of fake news will continue to be an important area to address. This is especially true on social media, where the low barrier to entry and algorithm-driven distribution that prioritizes views and clicks over accuracy drives the high spread of fake news on such platforms (Martens, Aguiar, Gomez-Herrera, & Mueller-Langer, 2018). The influence of such articles is likely even greater than what is shown in research studies like this, since the act of asking participants to rate articles makes them more critical in judging accuracy (Moravec, Kim, Dennis, & Minas, 2019), meaning that real-world belief is likely even higher than what is demonstrated in research.

Research on the continued effects of misinformation on memory have pointed out that the reason corrections are often ineffective is that the original information has already been accepted as legitimate and true (Seifert, 2002), which is why discounting cues that come before the misinformation have been effective in the past at avoiding later belief in the incorrect information (Kumkale & Albarracín, 2004). When the information fits strongly with a person's worldview, that is when a correction is most likely to lead to a backfire effect, where they believe the information even more strongly (Cook, Ecker, & Lewandowsky, 2015). As negative attitudes towards opposing parties increase, negative information about opposing candidates and their immoral behavior is likely to be accepted readily, even when in a skeptical mindset. In a practical sense, this shows how difficult it is to encourage the rejection of fake news that people

want to believe, even those who believe they are thinking critically and skeptically about headlines they come across. No matter how many warnings people receive, how many corrections they are given, or how many updates are learned, the news that people want to believe is likely to be accepted over time, and the rest rejected, leading to a self-fulfilling cycle of partisan expectations.

Given this, it may be that individual-level interventions are not going to be effective, and that structural changes that limit the appearance and spread of fake news in the first place is the only effective way to contain its dangerous influence (Levi, 2017). While a simple change to increase the effectiveness of warning tags would be beneficial, and warnings that come before false information are likely going to be generally better than a correction that comes after, it is not likely to have a large enough impact to be an adequate solution to this important and growing problem.

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Conclusion

As political information and misinformation becomes more prevalent in today's society, it is more important than ever to understand the biases that affect how people judge such news as well as the factors associated with acceptance and rejection of them. The studies presented here have looked at various methods to investigate and overcome biases, some of which have been successful in other domains, and generally found that political biases were quite powerful and persistent. Not only can they cause people to judge things in a biased manner, but also to alter their memory of past attitudes, create new memories that weren't there before, and ignore or forget important corrective information.

Chapter 1 showed that attitudes towards issues and politicians have strong influence not just on our current judgments but on our memory of past judgments and events. Most people are not aware of this, and the more people think their memory is accurate, the more they fall prey to such congruency. Participants indicated a strong preference for acting and appearing consistent: only 15.8% of respondents agreed with the statement, "It doesn't bother me much if my actions are inconsistent," and 74.4% agreed with, "I make an effort to appear consistent to others." This preference, rather than being a moderator of congruency bias as expected, was strong among most participants, as acting and appearing consistent are generally valued positively. Because of this, when people's attitudes have changed, such as towards political candidates, their memory is often changed as well to make it seem like they have been consistent over time, both to themselves and others.

Chapter 2 followed up on this thread to try and use that preference to appear consistent as a way to reduce extremity of differences in response to judging a similar accusation against opposing politicians. The simple order effects manipulation was designed to instill a pressure to

respond with bias and against hypocrisy. Had the differences between judgments stayed exactly the same regardless of order, we could infer that people did not see any hypocrisy in judging the two scenarios differently. Had the judgments been exactly the same when paired, we could infer that people, when pressured, do not find truly enough differences in the scenario to justify different responses and thus report that they would judge the scenario exactly the same in order to avoid the appearance of hypocrisy. The data in this chapter describes something in between these extremes, which indicates there is both a rational justification and some semblance of trying to avoid bias. This is likely how such politicized responses, for example finding merit in sexual assault allegations against an outgroup politician but not allegations against an ingroup politician, remain justified in people's internal and external responses. I would not expect such a small manipulation to have a lasting effect on judgments, but the process itself may be effective for judgments at a particular timepoint or as part of ongoing efforts to make people aware of their biases.

In Chapter 3, real-world applications of these ideas were investigated to create and test a practical intervention attempting to make people reject fake news headlines that they come across on social media. In particular, a warning was designed such that, based on past research, it was expected to be more successful than similar ineffective warnings for fake news with just a simple change in the order of information, warning people against a particular headline before they had a chance to process it. The goal was to ensure that all false news is rejected, regardless of political congeniality to a person, but even the strongest type of warning was limited in its effectiveness over time. It was initially effective, and showed improvement over past warnings by some measures. If warnings are to be used in a similar way, presenting them before information may still be more effective overall, both because of the possibility of improvement

(especially in other contexts not tested here), and because users then have the ability to opt out of reading it. Giving such a warning before they have read the headline, and requiring them to opt in, means that the content of the headline, and whether it supports or opposes one's political beliefs, cannot be used as a cue to decide whether to read the potentially false information.

Some of the most critical contributions of this work are the real-world settings these processes were investigated in, the mixture of methodological and applied relevance, and the use of within-subjects repeated methods to assess memory and other changes over time. While the studies were all done online and in a research setting, they assessed judgments about real politicians in applied settings that have significant real-world consequences. Using actual politicians, issues, and elections allows investigation into how these processes occur in the real world, where there is nuance, context, and many other factors at play that affect decision-making. What is clear is that people are motivated to be consistent, loyal, accurate, and rational, and in making difficult political judgments about controversial scenarios, it may hard to satisfy all of those needs. When these motivations conflict, as I have attempted to create in various ways throughout these studies, people appear to, knowingly or not, inadvertently alter judgments, memories, and responses in order to protect their image to themselves and others. As Democrats and Republicans in the U.S. grow further apart ideologically, and similar polarization is seen in much of the world, the importance of understanding these motivations and how they play a role in our interactions will continue to grow.

Appendix 1 – Chapter 1 materials

Time 1, First Survey During Primary

Intro
Overview of the study
- This survey will ask you about your attitudes and beliefs about the current presidential election. You do not need to be politically active or support any particular candidate to participate.
- It will take approximately 3-8 minutes and you will receive $0.70 for completing it fully.
- This is a University study and has no affiliation with any candidate, campaign, political party, or polling firm.
- There are no right or wrong answers to any question; we just want to know your honest opinions.
- There may be a similar follow-up survey in a few months time that you would be asked to complete.
- Participants must be U.S. citizens at least 18 years old who are eligible to vote and willing to take the follow-up survey to be eligibility for this survey.

Eligibility
Are you a U.S. citizen at least 18 years old who is eligible to vote?
 Yes
 No
This survey will have a follow-up in a few months time which we would like some the same participants to complete. Participants need to be willing to complete this follow-up, if selected, to complete this survey. You will be notified through Mturk when it is available using your Worker ID; we will not be collecting your email address or any other identifiable information. If you do not plan to still be using MTurk throughout the rest of 2016, please do not participate in this HIT.

Do you agree to complete the follow-up survey if selected?
 Yes
 No

Initial leanings and affiliations
Thinking about the country overall, how would you describe the state of the nation (U.S.) these days?
 Excellent
 Good
 Average
 Poor
 Terrible

When it comes to politics, do you generally think of yourself as liberal, moderate, conservative, or something else?
 Very liberal
 Liberal

Slightly liberal
Moderate/middle-of-the-road
Slightly conservative
Conservative
Very conservative
Libertarian
Don't know/Not political
Other (please specify):

How interested have you been in following the 2016 presidential election?
Extremely interested
Very interested
Moderately interested
Slightly interested
Not at all interested

How politically active do you feel you've been in the 2016 presidential election? This can
include behaviors like voting, reading about and discussing candidates, caucusing, volunteering
for a campaign, displaying signs for a candidate, donating money, etc.
Extremely active
Very active
Moderately active
Slightly active
Not at all active

Which party do you most identify with?
Democratic Party
Republican Party
Green Party
Libertarian Party
Constitution Party
Independent
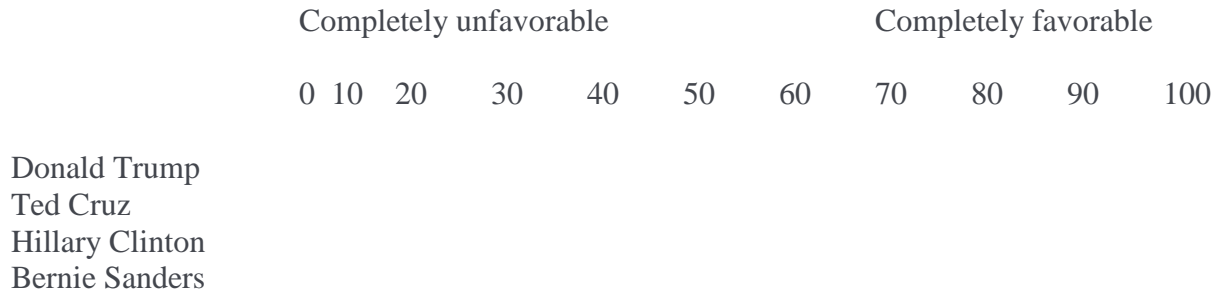Other party (please list here):

Which of the following two parties do you most identify with, even if you only lean that way?
Democratic
Republican
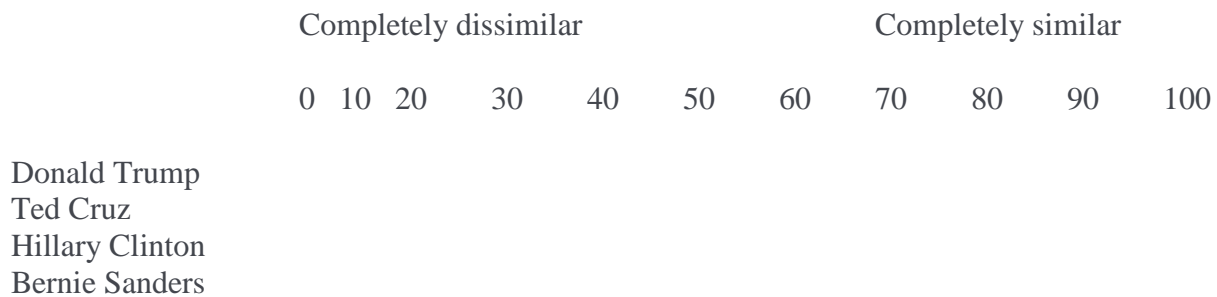Can't pick/truly don't lean either way

Who do you plan to vote for in the 2016 presidential election, if you've decided?
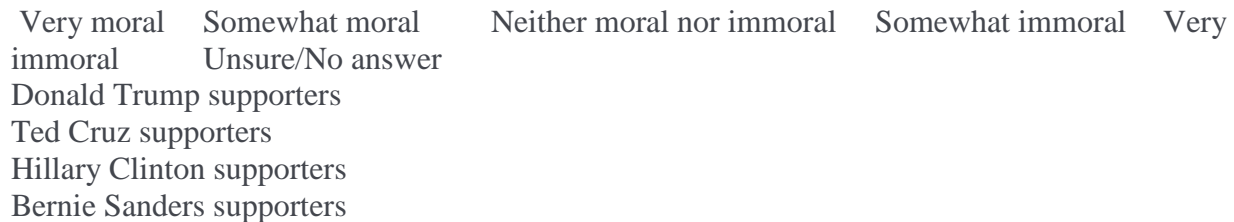
Everyone questions
Please rate how favorably or unfavorably you view each of the following current or former
candidates.

	Completely unfavorable							Completely favorable			
	0	10	20	30	40	50	60	70	80	90	100

Donald Trump
Ted Cruz
Hillary Clinton
Bernie Sanders

Please rate how similar you think your views are to each of the following current or former candidates.

	Completely dissimilar							Completely similar			
	0	10	20	30	40	50	60	70	80	90	100

Donald Trump
Ted Cruz
Hillary Clinton
Bernie Sanders

In general, how moral or immoral do you think it is to support each of the following current or former candidates? That is, how much do you think that supporting this candidate indicates moral or immoral character?

Very moral   Somewhat moral   Neither moral nor immoral   Somewhat immoral   Very immoral   Unsure/No answer
Donald Trump supporters
Ted Cruz supporters
Hillary Clinton supporters
Bernie Sanders supporters

Do you think the overall tone of the Democratic primary presidential campaign has been generally positive or negative?
 Very positive
 Somewhat positive
 Neither positive nor negative
 Somewhat negative
 Very negative
 Unsure/No answer

Would you describe the Democratic Party today as united or divided?
 Very united
 Somewhat united
 Neither united nor divided

Somewhat divided
Very divided
Unsure/No answer

Do you think the overall tone of the Republican primary presidential campaign has been generally positive or negative?
Very positive
Somewhat positive
Neither positive nor negative
Somewhat negative
Very negative
Unsure/No answer

Would you describe the Republican Party today as united or divided?
Very united
Somewhat united
Neither united nor divided
Somewhat divided
Very divided
Unsure/No answer

Currently, groups not affiliated with a candidate are able to spend unlimited amounts of money on advertisements during a political campaign. How much do you think this kind of spending should be limited by law, ranging from a complete ban (1) to being completely unrestricted (7)?

Should be completely banned Should be completely unrestricted

1   2   3   4   5   6   7

How acceptable or unacceptable do you think it is for a presidential candidate to receive support and take donations from outside interest groups such as super PACs and corporations, ranging from completely unacceptable (1) to completely acceptable (7)?

Completely unacceptable   Completely acceptable

1   2   3   4   5   6   7

Democrat questions
Who do you prefer to win the Democratic nomination for president in 2016?
Hillary Clinton
Bernie Sanders
Someone else/none of these
Unsure/No answer

How important do you think it is that your preferred candidate be the party's nominee?
 Extremely important
 Very important
 Moderately important
 Slightly important
 Not at all important

How happy would you be if your preferred candidate is selected to be the party's nominee?

	Not at all happy				As happy as I could possibly be	
1	2	3	4	5	6	7

How angry would you be if your preferred candidate is not selected to be the party's nominee?

	Not at all angry				As angry as I could possibly be	
1	2	3	4	5	6	7

How important do you think it is that a Democrat (not just your preferred candidate) be elected to the presidency this election?
 Extremely important
 Very important
 Moderately important
 Slightly important
 Not at all important

How bad do you think it would be for the country if a Republican ends up elected to the presidency?
 Not bad at all
 A little bad
 Moderately bad
 Very bad
 Extremely bad

For each candidate, please say how likely you would be to vote for them if they became the Democratic nominee for president.

	Definitely would	Probably would	Probably would not	Definitely would not	Unsure
Hillary Clinton					
Bernie Sanders					

What do you think is the probability that each candidate will win the democratic nomination out of these two? Your choices must sum to 100%.
Hillary Clinton
Bernie Sanders
Total

How fair do you think the Democratic National Committee has been during the primary process so far?
 Extremely fair
 Moderately fair
 Slightly fair
 Neither fair nor unfair
 Slightly unfair
 Moderately unfair
 Extremely unfair
 Don't know/Unsure

During the primary season so far, how harsh do you think each candidate's tone has been in opposing the other Democratic candidate?

Not at all harsh   Slightly harsh Moderately harsh   Very harsh   Extremely harsh
        Don't know/Unsure

Hillary Clinton
Bernie Sanders

Please rate how much you agree or disagree with the following statements about Hillary Clinton.
 Strongly disagree   Disagree   Somewhat disagree   Neither agree nor disagree
        Somewhat agree   Agree   Strongly agree

Hillary Clinton is honest and trustworthy.
Hillary Clinton has the right experience to be president.
Hillary Clinton has the kind of personality and temperament it takes to serve effectively as president.

Republican questions

Before Trump was named the presumptive nominee, who did you prefer to win the Republican nomination for president in 2016?
 Donald Trump
 Ted Cruz
 John Kasich
 Marco Rubio
 Jeb Bush
 Ben Carson
 Someone else/none of these: _____
 Unsure/Can't answer

How likely are you to vote for Donald Trump if he becomes the official Republican nominee for president?
 Definitely would
 Probably would
 Probably would not
 Definitely would not
 Unsure

Overall, how much do you think Donald Trump is helping or hurting the image of the Republican Party?

Completely hurting   Completely helping
1   2   3   4   5   6   7

How happy are you that Donald Trump has been declared the party's presumptive nominee?

Not at all happy   As happy as I could possibly be

1   2   3   4   5   6   7

How angry are you that Donald Trump has been declared the party's presumptive nominee?

Not at all angry   As angry as I could possibly be

1   2   3   4   5   6   7

How important do you think it is that a Republican (not just your preferred candidate) be elected to the presidency this election?
 Extremely important
 Very important
 Moderately important
 Slightly important
 Not at all important

How bad do you think it would be for the country if a Democrat ends up elected to the presidency?
 Not bad at all
 A little bad
 Moderately bad
 Very bad
 Extremely bad

How fair do you think the Republican National Committee has been during the primary process so far?
 Extremely fair
 Moderately fair
 Slightly fair
 Neither fair nor unfair
 Slightly unfair
 Moderately unfair

Extremely unfair
Don't know/Unsure

During the primary season, how harsh do you think the tone of these three most recent candidates was in opposing the other Republican candidates?
Not at all harsh   Slightly harsh Moderately harsh   Very harsh   Extremely harsh
        Don't know/Unsure
Donald Trump
Ted Cruz
John Kasich

Please rate how much you agree or disagree with the following statements about Donald Trump.
Strongly disagree   Disagree   Somewhat disagree   Neither agree nor disagree
        Somewhat agree   Agree Strongly agree
Donald Trump is honest and trustworthy.
Donald Trump has the right experience to be president.
Donald Trump has the kind of personality and temperament it takes to serve effectively as president.

Demographics
Finally, please answer some demographic information about yourself.
What year were you born?

How many years have you lived in the U.S.?

What is your gender?
 Male
 Female
 Other: _____

What race/ethnicity do you most identify with?
 Non-Hispanic White/Caucasian
 Black/African American
 Hispanic/Latino
 Asian/Asian American
 Native American
 Pacific Islander
 Arab American/Middle Eastern
 Mixed/Multi-racial:
 Other (please specify)

Time 2, Second Survey Before General Election

Intro

- This is a follow-up to a survey we posted on Mturk in May. You should only have qualified for this HIT if you took the previous study; if this is not the case, please exit this survey and return the HIT.
- This survey will ask you about your attitudes and beliefs about the current presidential election. You do not need to be politically active or support any particular candidate to participate.
- It will take approximately 4-8 minutes and you will receive $0.75 for completing it fully.
- This is a University study and has no affiliation with any candidate, campaign, political party, or polling firm.
- There are no right or wrong answers to any question; we just want to know your honest opinions.
- There may be a similar follow-up survey in a few months time that you would be offered (not required) to complete.
- Participants must be U.S. citizens at least 18 years old who are eligible to vote.

Eligibility
Did you complete a survey from this Requester in May about your political beliefs?
Yes
No

This survey might have a second follow-up in a few months time which we would like some the same participants to complete. Agreeing to the second follow-up or not will have no impact on you taking this HIT today - we are asking just to know how many would be willing to return.

Would you be willing to complete a follow-up survey in a few months if selected?
Yes
No

Thinking about the country overall, how would you describe the state of the nation (U.S.) these days?
Excellent
Good
Average
Poor
Terrible

When it comes to politics, do you generally think of yourself as liberal, moderate, conservative, or something else?
Very liberal
Liberal
Slightly liberal
Moderate/middle-of-the-road
Slightly conservative
Conservative
Very conservative
Libertarian

Don't know/Not political
Other (please specify): _____

How interested have you been in following the 2016 presidential election?
Extremely interested
Very interested
Moderately interested
Slightly interested
Not at all interested

How politically active do you feel you've been in the 2016 presidential election? This can
include behaviors like voting, reading about and discussing candidates, caucusing, volunteering
for a campaign, displaying signs for a candidate, donating money, etc.
Extremely active
Very active
Moderately active
Slightly active
Not at all active

Which party do you most identify with?
Democratic Party
Republican Party
Green Party
Libertarian Party
Constitution Party
Independent
Other party (please list here): _____

If the 2016 presidential election were being held today, for whom would you vote?
Hillary Clinton, the Democrat
Donald Trump, the Republican
Other: _____

How likely are you to end up voting for the candidate you just selected for president in
November?
Already voted
Definitely will
Probably will
50-50 chance
Small chance
Definitely will not/Won't vote

Regardless of who you support or want to win, what do you think is the percent chance that each
of the following candidates will end up winning the presidency? (responses must add to 100%)
Hillary Clinton : _____
Donald Trump : _____

Someone else : _____
Total : _____

Current Attitudes (everyone)
In this section we will be asking you about your current attitudes and beliefs about various candidates and former candidates. Some of your answers may have changed from the last survey and some may not have changed, but please answer based on your current attitudes.

Please rate how favorably or unfavorably you currently view each of the following current or former candidates.

Completely unfavorable   Completely favorable

0   10   20   30   40   50   60   70   80   90   100

Donald Trump
Ted Cruz
Hillary Clinton
Bernie Sanders

Please rate how similar you think your views are to each of the following current or former candidates.

Completely dissimilar   Completely similar

0   10   20   30   40   50   60   70   80   90   100

Donald Trump
Ted Cruz
Hillary Clinton
Bernie Sanders

In general, how moral or immoral do you think it is to support each of the following current or former candidates? That is, how much do you think that supporting this candidate indicates moral or immoral character?
Very moral   Somewhat moral   Neither moral nor immoral   Somewhat immoral   Very immoral   Unsure/No answer
Donald Trump supporters
Hillary Clinton supporters

Would you describe the Republican Party today as united or divided?
Very united
Somewhat united
Neither united nor divided
Somewhat divided
Very divided
Unsure/No answer

Would you describe the Democratic Party today as united or divided?
Very united
Somewhat united
Neither united nor divided
Somewhat divided
Very divided
Unsure/No answer

Overall, how much do you think Donald Trump is helping or hurting the image of the Republican Party?

      Completely hurting   Completely helping

   1   2   3   4   5   6   7

Overall, how much do you think Hillary Clinton is helping or hurting the image of the Democratic Party?

      Completely hurting   Completely helping

   1   2   3   4   5   6   7

Please rate how much you agree or disagree with the following statements about Hillary Clinton.
Strongly disagree   Disagree   Somewhat disagree   Neither agree nor disagree
    Somewhat agree   Agree Strongly agree
Hillary Clinton is honest and trustworthy.
Hillary Clinton has the right experience to be president.
Hillary Clinton has the kind of personality and temperament it takes to serve effectively as president.

Please rate how much you agree or disagree with the following statements about Donald Trump.
Strongly disagree   Disagree   Somewhat disagree   Neither agree nor disagree
    Somewhat agree   Agree Strongly agree
Donald Trump is honest and trustworthy.
Donald Trump has the right experience to be president.
Donald Trump has the kind of personality and temperament it takes to serve effectively as president.

Democrat Current Attitudes
How happy are you, currently, that Hillary Clinton was selected to be the Democratic party's nominee?

      Not at all happy   As happy as I could possibly be

   1   2   3   4   5   6   7

How angry are you, currently, that Hillary Clinton was selected to be the party's nominee?
Not at all angry   As angry as I could possibly be

1   2   3   4   5   6   7

How important do you think it is that a Democrat be elected to the presidency this election?
Extremely important
Very important
Moderately important
Slightly important
Not at all important

How bad do you think it would be for the country if a Republican ends up elected to the presidency?
Not bad at all
A little bad
Moderately bad
Very bad
Extremely bad

Republican Current Attitudes
How happy are you that Donald Trump is the Republican party's nonimee?
Not at all happy   As happy as I could possibly be

1   2   3   4   5   6   7

How angry are you that Donald Trump is the Republican's nominee?
Not at all angry   As angry as I could possibly be

1   2   3   4   5   6   7

How important do you think it is that a Republican be elected to the presidency this election?
Extremely important
Very important
Moderately important
Slightly important
Not at all important

How bad do you think it would be for the country if a Democrat ends up elected to the presidency?
Not bad at all
A little bad
Moderately bad

Very bad
Extremely bad

Non-partisan Current Attitudes
 How angry are you that Hillary Clinton is the Democratic party's nominee?
 Not at all angry   As angry as I could possibly be

 1   2   3   4   5   6   7

How angry are you that Donald Trump is the Republican party's nominee?
 Not at all angry   As angry as I could possibly be

 1   2   3   4   5   6   7

How important do you think it is for the country for third-party candidates to get more exposure
and acceptance?
Not at all important
Slightly important
Moderately important
Very important
Extremely important
Don't know/unsure

How fair do you think the electoral college system is?
Extremely unfair
Somewhat unfair
Neither fair nor unfair
Somewhat fair
Extremely fair
Don't know/unsure

Memory Questions (everyone)
In May, you completed a survey that asked questions similar to the ones you just answered.
  In the next questions, please do your best to remember your feelings and attitudes at the time
you completed this survey in May. Based on your memory of how you felt, answer these
questions in the same way you answered them then.

 Take a minute now to think back to how you were feeling when you took this survey in May so
you can answer your questions as you answered them then at that time. If you don't remember
exactly how you responded to a question, just give your best guess based on your memory of that
time.

When you took the survey in May, how favorably or unfavorably did you view each of the
following current or former candidates?
 Completely unfavorable   Completely favorable

0   10   20   30   40   50   60   70   80   90   100

Donald Trump
Ted Cruz
Hillary Clinton
Bernie Sanders

When you took the survey in May, how similar did you think your views were to each of the following current or former candidates?
         Completely dissimilar   Completely similar

         0   10   20   30   40   50   60   70   80   90   100

Donald Trump
Ted Cruz
Hillary Clinton
Bernie Sanders

When you took the survey in May, how moral or immoral did you think it was to support each of the following current or former candidates? That is, how much did you think that supporting this candidate indicated moral or immoral character?
Very moral   Somewhat moral   Neither moral nor immoral   Somewhat immoral   Very immoral   Unsure/No answer
Donald Trump supporters
Ted Cruz supporters
Hillary Clinton supporters
Bernie Sanders supporters

When you took the survey in May, did you think the overall tone of the Democratic primary presidential campaign had been generally positive or negative?
Very positive
Somewhat positive
Neither positive nor negative
Somewhat negative
Very negative
Unsure/No answer

When you took the survey in May, did you describe the Democratic Party as united or divided?
Very united
Somewhat united
Neither united nor divided
Somewhat divided
Very divided
Unsure/No answer

When you took the survey in May, did you think the overall tone of the Republican primary presidential campaign had been generally positive or negative?
Very positive
Somewhat positive
Neither positive nor negative
Somewhat negative
Very negative
Unsure/No answer

When you took the survey in May, did you describe the Republican Party as united or divided?
Very united
Somewhat united
Neither united nor divided
Somewhat divided
Very divided
Unsure/No answer

Democrat Memory Questions
When you took the survey in May, who did you prefer to win the Democratic nomination for president in 2016?
Hillary Clinton
Bernie Sanders
Someone else/none of these
Unsure/No answer

When you took the survey in May, how important was it that your preferred candidate become the Democratic nominee?
Extremely important
Very important
Moderately important
Slightly important
Not at all important

When you took the survey in May, how happy would you have been if Hillary Clinton was selected to be the Democratic party's nominee?

Not at all happy   As happy as I could possibly be

1   2   3   4   5   6   7

When you took the survey in May, how angry would you have been if Bernie Sanders was not selected to be the Democratic party's nominee?

Not at all angry   As angry as I could possibly be

1   2   3   4   5   6   7

When you took the survey in May, how important did you think it was that a Democrat be elected to the presidency this election?
Extremely important
Very important
Moderately important
Slightly important
Not at all important

When you took the survey in May, how bad did you think it would be for the country if a Republican ended up elected to the presidency?
Not bad at all
A little bad
Moderately bad
Very bad
Extremely bad

When you took the survey in May, what did you think was the probability that each candidate would win the democratic nomination out of these two? Your choices must sum to 100%.
Hillary Clinton : _____
Bernie Sanders : _____
Total : _____

When you took the survey in May, how much did you agree or disagree with the following statements about Hillary Clinton?
Strongly disagree   Disagree   Somewhat disagree   Neither agree nor disagree   Somewhat agree   Agree   Strongly agree
Hillary Clinton is honest and trustworthy.
Hillary Clinton has the right experience to be president.

Hillary Clinton has the kind of personality and temperament it takes to serve effectively as president.

Republican Memory Questions
When you took the survey in May, who did you report preferring to win the Republican nomination for president in 2016 before Trump was named the presumptive nominee?
Donald Trump
Ted Cruz
John Kasich
Marco Rubio
Jeb Bush
Ben Carson
Someone else/none of these: _____
Unsure/Can't answer

When you took the survey in May, how likely were you to vote for Donald Trump if he became the official Republican nominee for president?
Definitely would
Probably would
Probably would not
Definitely would not
Unsure

When you took the survey in May, how much did you think Donald Trump was helping or hurting the image of the Republican Party?

      Completely hurting   Completely helping

     1   2   3   4   5   6   7

When you took the survey in May, how happy were you that Donald Trump had been declared the party's presumptive nominee?

      Not at all happy   As happy as I could possibly be

     1   2   3   4   5   6   7

When you took the survey before in May, how angry were you that Donald Trump had been declared the party's presumptive nominee?

      Not at all angry   As angry as I could possibly be

     1   2   3   4   5   6   7

When you took the survey in May, how important did you think it was that a Republican (not just your preferred candidate) be elected to the presidency this election?
Extremely important
Very important
Moderately important
Slightly important
Not at all important

When you took the survey in May, how bad did you think it would be for the country if a Democrat ended up elected to the presidency?
Not bad at all
A little bad
Moderately bad
Very bad
Extremely bad

When you took the survey in May, how much did you agree or disagree with the following statements about Donald Trump?

Strongly disagree   Disagree   Somewhat disagree   Neither agree nor disagree
        Somewhat agree   Agree   Strongly agree
Donald Trump is honest and trustworthy.
Donald Trump has the right experience to be president.
Donald Trump has the kind of personality and temperament it takes to serve effectively as
president.

Memory Experience (everyone)
You've now finished answering questions about how you remember responding to the first
survey in May.

How difficult was it to remember your attitudes from that time?
        Very easy to remember   Very difficult to remember

        1   2   3   4   5   6   7

How accurate do you think you were in recalling your previous attitudes?
        Completely guessing Completely accurate

        1   2   3   4   5   6   7

How intensely did you experience emotion while remembering your past feelings and attitudes
during the primary season?
        Detached and unemotional   Intensely emotional

        1   2   3   4   5   6   7

How much have your attitudes changed since you completed the first survey in May?
        Not at all   Extremely

        1   2   3   4   5   6   7

False Memories (everyone)
Now, we would like to see how much you remember about recent events and statements
surrounding Hillary Clinton. Please let us know which of these you remember happening.
Please do not look up any of these events taking the survey; we just want your honest
recollections.
I remember this happening   I know this happened but I don't remember any other details about
it   I do not remember this happening
The FBI director stated that Clinton was reckless and careless in handing her emails
Leaked emails showed Hillary Clinton staffers making negative statements about Bernie Sanders
and his supporters
Bernie Sanders endorsed Hillary Clinton for president
Clinton was caught on tape swearing at a Trump supporter after a rally

Clinton apologized for remarks about 'Superpredators' made years ago regarding criminal justice reform

Clinton was found to have deleted records from Hillary Victory Fund that showed she used funds meant for Senate candidates for her Presidential campaign.

Audio from an interview years ago showed Clinton laughing while discussing a case where she defended a rapist she believed was guilty

Clinton helped raise money for a Hurricane Matthew fundraiser during a break in campaigning

Clinton brought attention to the Flint water crisis before the president declared a state of emergency

Now, we would like to see how much you remember about recent events and statements surrounding Donald Trump. Please let us know which of these events you remember happening. Please do not look up any of these events taking the survey; we just want your honest recollections.

I remember this happening   I know this happened but I don't remember any other details about it   I do not remember this happening

Leaked audio from 2005 showed Trump making sexually aggressive comments about women

Trump was invited to Mexico by and held a joint press conference with Mexican President Enrique Peña Nieto

Trump held a large fundraiser to raise money for people affected by the Flint Water Crisis

The Trump Foundation was ordered to stop fundraising in New York because it was not properly licensed as a charity to solicit money.

Trump criticized the parents of a fallen Muslim American soldier for speaking at the Democratic National Convention

The Trump Foundation was fined for an illegal campaign donation to the Florida Attorney General investigating Trump University

Trump was caught on tape using a racial slur for Hispanics during a visit to Mexico

A photo surfaced that showed Trump shaking hands with Vladimir Putin while visiting Russia

Trump received an endorsement from the union of Immigrtion and Custome Enforcement employees

How confident are you that you accurately recalled the events on the previous two pages?
        Not at all confident   Completely confident

        1   2   3   4   5   6   7

On the previous pages, there were some true events and some false events. Many people can come to remember things that didn't happen, especially if the events are believable and fit with a person's expectations. We want to make it clear that the following events were not true:

- A photo surfaced that showed Trump shaking hands with Vladimir Putin while visiting Russia
- Trump was caught on tape using a racial slur for Hispanics during a visit to Mexico
- Trump held a large fundraiser to raise money for people affected by the Flint Water Crisis

- Clinton was found to have deleted records from Hillary Victory Fund that showed she used funds meant for Senate candidates for her Presidential campaign.
- Clinton was caught on tape swearing at a Trump supporter after a rally
- Clinton helped raise money for a Hurricane Matthew fundraiser during a break in campaignin

Time 3, Final Survey After Election

Intro
- This is another follow-up to a survey we posted on Mturk in May and again in late October. You should only have qualified for this HIT if you took the previous study; if this is not the case, please exit this survey and return the HIT.
- This survey will ask you about your attitudes and beliefs about the current presidential election. You do not need to be politically active or support any particular candidate to participate.
- It will take approximately 5-10 minutes and you will receive $0.80 for completing it fully.
- This is a University study and has no affiliation with any candidate, campaign, political party, or polling firm.
- There are no right or wrong answers to any question; we just want to know your honest opinions.
- There may be a similar follow-up survey in a few months time that you would be offered (not required) to complete.
- Participants must be U.S. citizens at least 18 years old who are eligible to vote.

Eligibility
Did you complete a survey from this Requester in May and again in October or November about your political beliefs?
Yes
No

Initial leanings and affiliations
Thinking about the country overall, how would you describe the state of the nation (U.S.) these days?
Excellent
Good
Average
Poor
Terrible

When it comes to politics, do you generally think of yourself as liberal, moderate, conservative, or something else?
Very liberal
Liberal
Slightly liberal
Moderate/middle-of-the-road
Slightly conservative
Conservative

Very conservative
Libertarian
Don't know/Not political
Other (please specify): _____

Which party do you most identify with?
Democratic Party
Republican Party
Green Party
Libertarian Party
Constitution Party
Independent
Other party (please list here): _____

If you voted in the 2016 presidential election, who did you vote for?
Hillary Clinton, the Democrat
Donald Trump, the Republican
Other candidate: _____
Did not vote

Was your choice more of a vote FOR your candidate or AGAINST the other candidates?
For my candidate
Against the other candidates
Did not vote

How surprised were you by Donald Trump being elected president?
Extremely surprised
Very surprised
Moderately surprised
Slightly surprised
Not at all surprised

Which of the following emotions are you feeling about Trump being elected president? (Select all the apply)
Hopeful
Happy
Optimistic
Interested
Regretful
Anxious
Scared
Sad
Ashamed
⊗None of the above

Current Attitudes (everyone)

In this section we will be asking you about your current attitudes and beliefs about various former candidates. Some of your answers may have changed from the last survey and some may not have changed, but please answer based on your current attitudes.

Please rate how favorably or unfavorably you currently view each of the following current or former candidates.

Completely unfavorable   Completely favorable

0   10   20   30   40   50   60   70   80   90   100

Donald Trump
Ted Cruz
Hillary Clinton
Bernie Sanders

Would you describe the Republican Party today as united or divided?
Very united
Somewhat united
Neither united nor divided
Somewhat divided
Very divided
Unsure/No answer

Would you describe the Democratic Party today as united or divided?
Very united
Somewhat united
Neither united nor divided
Somewhat divided
Very divided
Unsure/No answer

Please rate how much you agree or disagree with the following statements about Hillary Clinton.
     Strongly disagree   Disagree   Somewhat disagree   Neither agree nor disagree
     Somewhat agree   Agree   Strongly agree
Hillary Clinton is honest and trustworthy.
Hillary Clinton has the right experience to be president.
Hillary Clinton has the kind of personality and temperament it takes to serve effectively as president.

Please rate how much you agree or disagree with the following statements about Donald Trump.
     Strongly disagree   Disagree   Somewhat disagree   Neither agree nor disagree
     Somewhat agree   Agree   Strongly agree
Donald Trump is honest and trustworthy.
Donald Trump has the right experience to be president.
Donald Trump has the kind of personality and temperament it takes to serve effectively as president.

How fair do you think the electoral college system is?
Extremely fair
Somewhat fair
Neither fair nor unfair
Somewhat unfair
Extremely unfair
Don't know/Unsure

For future presidential elections, would you support or oppose changing to a system in which the president is elected by direct popular vote, instead of by the Electoral College?
Support (i.e., change to popular vote)
Oppose (i.e., keep electoral college system)
Don't know/Unsure

Democrat Current Attitudes
How happy are you that Hillary Clinton was the Democratic party's nominee in this election?
        Not at all happy   As happy as I could possibly be

        1   2   3   4   5   6   7

How angry are you that Hillary Clinton was the Democratic party's nominee in this election?
        Not at all angry   As angry as I could possibly be

        1   2   3   4   5   6   7

In general, how important is it to be loyal to your party's nominee in the general election campaign, even if you preferred someone else in the primary?
Extremely important
Very important
Moderately important
Slightly important
Not at all important

Republican Current Attitudes
 How happy are you that Donald Trump was the Republican party's nominee in this election?
        Not at all happy   As happy as I could possibly be

        1   2   3   4   5   6   7

How angry are you that Donald Trump was the Republican party's nominee in this election?
        Not at all angry   As angry as I could possibly be

        1   2   3   4   5   6   7

In general, how important is it to be loyal to your party's nominee in the general election campaign, even if you preferred someone else in the primary?
Extremely important
Very important
Moderately important
Slightly important
Not at all important

Non-Partisan Current Attitudes
How angry are you that Hillary Clinton was the Democratic party's nominee in this election?
     Not at all angry   As angry as I could possibly be

    1   2   3   4   5   6   7

How angry are you that Donald Trump was the Republican party's nominee in this election?
     Not at all angry   As angry as I could possibly be

    1   2   3   4   5   6   7

How important do you think it is for the country for third-party candidates to get more exposure and acceptance?
Not at all important
Slightly important
Moderately important
Very important
Extremely important
Don't know/unsure

Memory Questions (everyone)
In May, you completed a survey that asked questions similar to the ones you just answered. You then completed a follow-up survey just before the election with more similar questions. The survey was posted in late October - some people took it the last week of October and some took it the first week of November.

In the next questions, please do your best to remember your feelings and attitudes at the time you completed this survey just before the election in late October or early November. Based on your memory of how you felt, answer these questions in the same way you answered them then.

Take a minute now to think back to how you were feeling when you took this survey just before the election in late October/early November so you can answer your questions as you answered them then at that time. If you don't remember exactly how you responded to a question, just give your best guess based on your memory of that time.

When you took the survey just before the election, how favorably or unfavorably did you view each of the following current or former candidates?

Completely unfavorable   Completely favorable

0   10   20   30   40   50   60   70   80   90   100

Donald Trump
Ted Cruz
Hillary Clinton
Bernie Sanders

When you took the survey just before the election, did you describe the Democratic Party as united or divided?
Very united
Somewhat united
Neither united nor divided
Somewhat divided
Very divided
Unsure/No answer

When you took the survey just before the election, did you describe the Republican Party as united or divided?
Very united
Somewhat united
Neither united nor divided
Somewhat divided
Very divided
Unsure/No answer

When you took the survey just before the election, who did you plan to vote for if the election were held that day?
Hillary Clinton, the Democrat
Donald Trump, the Republican
Other: _____

When you took the survey just before the election, what did you think was the percent chance that each of the following candidates would end up winning the presidency? (responses must add to 100%)
Hillary Clinton : _____
Donald Trump : _____
Someone else : _____
Total : _____

When you took the survey just before the election, how much did you agree or disagree with the following statements about Hillary Clinton?

Strongly disagree   Disagree   Somewhat disagree   Neither agree nor disagree
Somewhat agree   Agree Strongly agree
Hillary Clinton is honest and trustworthy.
Hillary Clinton has the right experience to be president.
Hillary Clinton has the kind of personality and temperament it takes to serve effectively as president.

When you took the survey just before the election, how much did you agree or disagree with the following statements about Donald Trump?
Strongly disagree   Disagree   Somewhat disagree   Neither agree nor disagree
Somewhat agree   Agree Strongly agree
Donald Trump is honest and trustworthy.
Donald Trump has the right experience to be president.
Donald Trump has the kind of personality and temperament it takes to serve effectively as president.

Democrat Memory Questions
When you took the survey just before the election, how happy were you that Hillary Clinton was selected to be the Democratic party's nominee?
Not at all happy   As happy as I could possibly be

1   2   3   4   5   6   7

When you took the survey just before the election, how angry were you that Hillary Clinton was selected to be the Democratic party's nominee?
Not at all angry   As angry as I could possibly be

1   2   3   4   5   6   7

When you took the survey just before the election, how bad did you think it would be for the country if a Republican ended up elected to the presidency?
Not bad at all
A little bad
Moderately bad
Very bad
Extremely bad

The final two questions here are about the first survey you completed in May of 2016.

When you took the survey in May, who did you prefer to win the Democratic nomination for president in 2016?
Hillary Clinton
Bernie Sanders
Someone else/none of these
Unsure/No answer

When you took the survey in May, how important was it that your preferred candidate become the Democratic nominee?
Extremely important
Very important
Moderately important
Slightly important
Not at all important

Republican Memory Questions
When you took the survey just before the election, how happy were you that Donald Trump was selected to be the Republican party's nominee?

Not at all happy   As happy as I could possibly be

1   2   3   4   5   6   7

When you took the survey just before the election, how angry were you that Donald Trump was selected to be the Republican party's nominee?

Not at all angry   As angry as I could possibly be

1   2   3   4   5   6   7

When you took the survey just before the election, how bad did you think it would be for the country if a Democrat ended up elected to the presidency?
Not bad at all
A little bad
Moderately bad
Very bad
Extremely bad

The final question here is about the first survey you completed in May of 2016.

When you took the survey in May, who did you prefer to win the Republican nomination for president in 2016 before Trump was named the presumptive nominee?
Donald Trump
Ted Cruz
John Kasich
Marco Rubio
Jeb Bush
Ben Carson
Someone else/none of these: _____
Unsure/Can't answer

Non-Partisan Memory Questions
When you took the survey just before the election, how angry were you that Hillary Clinton was the Democratic party's nominee?

Not at all angry   As angry as I could possibly be

1	2	3	4	5	6	7

When you took the survey just before the election, how angry were you that Donald Trump was the Republican party's nominee?

Not at all angry   As angry as I could possibly be

1	2	3	4	5	6	7

When you took the survey just before the election, how important did you think it was for the country for third-party candidates to get more exposure and acceptance?
Not at all important
Slightly important
Moderately important
Very important
Extremely important
Don't know/unsure

When you took the survey before the election, how fair did you think the electoral college system was?
Extremely unfair
Somewhat unfair
Neither fair nor unfair
Somewhat fair
Extremely fair
Don't know/unsure

Media and Consistency Questions (everyone)
That was the end of the memory questions. The final pages will ask about your current attitudes towards news media and then will ask a few questions about yourself.

In general, when you think about traditional, mainstream news media outlets, how often do you think they...

	Never	Sometimes	About half the time	Most of the time	Always
Are fair?					
Are accurate?					
Are unbaised?					
Tell the whole story?					
Can be trusted?					

In general, when you think about internet-only news sites and political blogs, how often do you think they...

	Never	Sometimes	About half the time	Most of the time	Always
Are fair?					

Are accurate?
Are unbaised?
Tell the whole story?
Can be trusted?

How much do you agree or disagree with the following statements?
Strongly disagree   Somewhat disagree   Neither agree nor disagree   Somewhat agree
          Strongly agree
I make an effort to appear consistent to others.
I want my close friends to be predictable
It doesn't bother me much if my actions are inconsisent
I think that most people can be trusted.
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.

Self-Enhancement (everyone)
Please answer how true each of the following statements are about you.

I have not always been honest with myself.
1 (Not true)
2
3
4 (Somewhat true)
5
6
7 (Very true)

I always know why I like things.
1 (Not true)
2
3
4 (Somewhat true)
5
6
7 (Very true)

It's hard for me to shut off a disturbing thought.
1 (Not true)
2
3
4 (Somewhat true)
5
6
7 (Very true)

I never regret my decisions.
1 (Not true)
2
3
4 (Somewhat true)
5
6
7 (Very true)

I sometimes lose out on things because I can't make up my mind soon enough.
1 (Not true)
2
3
4 (Somewhat true)
5
6
7 (Very true)

 I am a completely rational person.
1 (Not true)
2
3
4 (Somewhat true)
5
6
7 (Very true)

I am very confident of my judgments.
1 (Not true)
2
3
4 (Somewhat true)
5
6
7 (Very true)

I have sometimes doubted my ability as a lover.
1 (Not true)
2
3
4 (Somewhat true)
5
6
7 (Very true)

I sometimes tell lies if I have to.

1 (Not true)
2
3
4 (Somewhat true)
5
6
7 (Very true)

 I never cover up my mistakes.
1 (Not true)
2
3
4 (Somewhat true)
5
6
7 (Very true)

There have been occasions when I have taken advantage of someone.
1 (Not true)
2
3
4 (Somewhat true)
5
6
7 (Very true)

I sometimes try to get even rather than forgive and forget.
1 (Not true)
2
3
4 (Somewhat true)
5
6
7 (Very true)

I have said something bad about a friend behind his/her back.
1 (Not true)
2
3
4 (Somewhat true)
5
6
7 (Very true)

When I hear people talking privately, I avoid listening.
1 (Not true)

2
3
4 (Somewhat true)
5
6
7 (Very true)

I never take things that don't belong to me.
1 (Not true)
2
3
4 (Somewhat true)
5
6
7 (Very true)

I don't gossip about other people's business.
1 (Not true)
2
3
4 (Somewhat true)
5
6
7 (Very true)

Final Questions
In this survey and the previous one, you were asked to remember your previous feelings and attitudes towards various candidates and political parties, as well as give your current attitudes. What our research has shown is that some people remember their feelings as more in line with their current attitudes than they actually were. For example, if a person begins to feel more positively about a candidate over time, they may remember feeling more positive about them in the past than they actually felt.

Do you think this may have happened to you for any of the questions? Do you have any comments on whether you attitudes or memory have changed a lot over the time between these surveys?
_____

(Optional) If you have any other comments you wish to share about the surveys, the research, the election, or anything else, please write them here.
_____

All analyzed study materials/questions

All studies, party affiliation question
Generally speaking, do you usually think of yourself as a Republican, a Democrat, an Independent, or something else?
Republican / Democrat / Independent / Something else

(If Independent or Something else)
As of today, do you lean more to the Republican Party or more to the Democratic Party?
Republican / Democrat / Neither

Study 2.1, Trump scenario and ratings
In his campaign speeches, Donald Trump often paints Muslims in a negative light: questioning their patriotism, implying dangerousness in their religion, and emphasizing the role they play in violent terrorist attacks. Some people believe that this kind of speech is dangerous because it has the potential to incite anti-Muslim violence.

To what extent do you think Trump's comments about Muslims have the potential to incite anti-Muslim violence?
Not at all likely / Slightly likely / Somewhat likely / Very likely / Extremely likely

If someone commits violence against Muslims after listening to Donald Trump's speeches, how responsible do you think Donald Trump is for it?
Not at all responsible / Slightly responsible / Somewhat responsible / Very responsible / Extremely responsible

Study 2.1, Obama scenario and ratings
In his official speeches, Barack Obama often paints police officers in a negative light: questioning their judgment, implying dangerousness in their culture, and emphasizing the role they play in violent attacks on African-Americans. Some people believe that this kind of speech is dangerous because it has the potential to incite anti-Police violence.

To what extent do you think Obama's comments about police officers have the potential to incite anti-police violence?
Not at all likely / Slightly likely / Somewhat likely / Very likely / Extremely likely

If someone commits violence against police officers after listening to Barack Obama's speeches, how responsible do you think Barack Obama is for it?
Not at all responsible / Slightly responsible / Somewhat responsible / Very responsible / Extremely responsible

Study 2.1, Trump scenario and ratings
In his campaign speeches, Donald Trump has painted Muslims in a negative light: questioning their patriotism, implying dangerousness in their religion, and emphasizing the role they play in

violent terrorist attacks. Some people believe that this kind of speech is dangerous because it has the potential to incite anti-Muslim violence, even if he says that he is only criticizing the ones carrying out attacks, not the whole group.

To what extent do you think Donald Trump's comments about Muslims have the potential to incite anti-Muslim violence?
Not at all likely / Slightly likely / Somewhat likely / Very likely / Extremely likely

If someone commits violence against Muslims after listening to Donald Trump's speeches, how responsible do you think Donald Trump is for it?
Not at all responsible / Slightly responsible / Somewhat responsible / Very responsible / Extremely responsible

Regardless of how you think others will react to his speeches, how much do you think Donald Trump is intending to incite violence against Muslims?
Not at all / A little bit / A moderate amount / A great deal / Completely

Study 2.2, Clinton scenario and ratings
In her campaign speeches, Hillary Clinton has painted police officers in a negative light: questioning their judgment, implying dangerousness in their culture, and emphasizing the role they play in violent attacks on African-Americans. Some people believe that this kind of speech is dangerous because it has the potential to incite anti-police violence, even if she says she is only criticizing the ones involved in civilian shootings, not the whole group.

To what extent do you think Hillary Clinton's comments about police officers have the potential to incite anti-police violence?
Not at all likely / Slightly likely / Somewhat likely / Very likely / Extremely likely

If someone commits violence against police officers after listening to a speech by Hillary Clinton, how responsible do you think Hillary Clinton is for it?
Not at all responsible / Slightly responsible / Somewhat responsible / Very responsible / Extremely responsible

Regardless of how you think others will react to her speeches, how much do you think Hillary Clinton is intending to incite violence against police officers?
Not at all / A little bit / A moderate amount / A great deal / Completely

Study 2.2, Binding condition questions
How much do you agree with the following statement: "Freedom of speech is an important foundation of the U.S."
Strongly disagree / Somewhat disagree / Neither agree nor disagree / Somewhat agree / Strongly agree

How much do you agree with the following statement: "It is important to have multiple political parties in a democracy."

Strongly disagree / Somewhat disagree / Neither agree nor disagree / Somewhat agree / Strongly agree

How much do you agree with the following statement: "It is possible for a politician to criticize a group of people without wishing violence on them."
Strongly disagree / Somewhat disagree / Neither agree nor disagree / Somewhat agree / Strongly agree

How much do you agree with the following statement: "The media often exaggerates political news in order to increase ratings."
Strongly disagree / Somewhat disagree / Neither agree nor disagree / Somewhat agree / Strongly agree

Study 2.3, Trump scenario and ratings
Donald Trump has been accused of sexually harassing or assaulting a number of women over the last few decades. At least one woman filed a claim against him, though he has never been convicted in a criminal court or admitted guilt for any of these assaults. Hillary Clinton's campaign has used these accusations to portray him as a predator unfit for office, while Donald Trump says these are false claims intended to distract from the real issues. Overall, how truthful do you think these accusations against Donald Trump are?
1 ("None of them are at all true") to 7 ("They are all completely true")

How much do you think these allegations reflect badly on people who continue to support Donald Trump?
1 ("Does not reflect badly at all on people who support Donald Trump") to 7 ("Reflects very badly on people who support Donald Trump")

Do you think that having Donald Trump in the White House would send a message to men in the U.S. that sexual harassment is acceptable?
1 ("Doesn't send this message at all") to 7 ("Definitely sends this message")

Study 2.3, Clinton scenario and ratings
Bill Clinton has been accused of sexually harassing or assaulting a number of women over the last few decades. Bill Clinton has settled at least one claim, though he has never been convicted in a criminal court or admitted guilt for any of these assaults. Donald Trump's campaign has used these accusations to portray Hillary Clinton as someone who enabled a predator and attempted to silence the women who made the allegations. Hillary Clinton says these are false claims, and that Donald Trump is using them to distract from his own issues. Overall, how truthful do you think these accusations against Bill Clinton are?
1 ("None of them are at all true") to 7 ("They are all completely true")

How much do you think these allegations reflect badly on people who support Hillary Clinton?
1 ("Does not reflect badly at all on people who support Hillary Clinton") to 7 ("Reflects very badly on people who support Hillary Clinton")

Do you think that having Bill Clinton in the White House would send a message to men in the U.S. that sexual harassment is acceptable?
1 ("Doesn't send this message at all") to 7 ("Definitely sends this message")

Study 2.3, General questions about sexual assault allegations
How much do you agree or disagree with the following statements?
"Women who accuse famous people of sexual assault often face retaliation in the form of smear campaigns."
1 ("Completely disagree") to 7 ("Completely agree")

"We should always believe people who say they are victims of sexual assault."
1 ("Completely disagree") to 7 ("Completely agree")

"Famous people are often falsely accused of sexual assault because the accusers are trying to get attention."
1 ("Completely disagree") to 7 ("Completely agree")

"When a famous person talks about women in a degrading way, this encourages more sexual assaults in general."
1 ("Completely disagree") to 7 ("Completely agree")

"Famous people often get away with sexual assault because of their fame and power."
1 ("Completely disagree") to 7 ("Completely agree")

Appendix Table A2.1

Study 2.1 politician Culpability ratings by order and party affiliation

	Rating of Obama's Culpability	Rating of Trump's Culpability
	Mean (SD)	Mean (SD)
Democrat Participants (*n* = 356)		
Rated Obama first	1.80 (0.89)	3.26 (1.12)
Rated Trump first	2.09 (1.01)	3.76 (1.11)
Republican Participants (*n* = 238)		
Rated Obama first	3.68 (1.17)	2.45 (0.95)
Rated Trump first	3.26 (1.19)	1.97 (1.11)
Other Participants (*n* = 114)		
Rated Obama first	2.38 (0.88)	2.89 (1.11)
Rated Trump first	2.59 (1.25)	3.21 (1.23)

Appendix Table A2.2

Study 2.2 politician Culpability ratings by order and party affiliation

	Rating of Clinton's Culpability	Rating of Trump's Culpability
	Mean (SD)	Mean (SD)
Democrat Participants (*n*=422)		
Rated Clinton first	1.72 (0.85)	3.22 (1.07)
Rated Trump first	1.89 (0.82)	3.57 (1.00)
Republican Participants (*n*=246)		
Rated Clinton first	3.03 (1.13)	2.35 (0.97)
Rated Trump first	2.73 (1.16)	1.70 (0.83)
Other Participants (*n*=154)		
Rated Clinton first	2.55 (1.14)	3.27 (1.19)
Rated Trump first	2.37 (1.15)	2.92 (1.13)

Appendix Table A2.3

Study 2.3 politician allegation ratings by order and party affiliation

	Rating of Clinton's Allegations	Rating of Trump's Allegations
	Mean (SD)	Mean (SD)
Democrat Participants (*n*=439)		
Rated Clinton first	2.53 (1.21)	5.51 (1.41)
Rated Trump first	3.10 (1.27)	5.83 (1.35)
Republican Participants (*n*=289)		
Rated Clinton first	5.00 (1.57)	2.89 (1.56)
Rated Trump first	4.40 (1.53)	2.23 (1.32)
Other Participants (*n*=148)		
Rated Clinton first	3.90 (1.62)	4.47 (1.68)
Rated Trump first	4.12 (1.41)	4.14 (1.88)

Appendix 3 – Chapter 3 Study Materials

Instructions:
This study will take place in two sessions about two weeks apart. In this first session, you will be reading a series of news headlines and answering questions about what you think of each one. You will also be asked some questions about yourself, such as demographics, political affiliations, and perceptions of news sources. The second survey will arrive in about two weeks from now.

We expect this to take approximately 10 minutes, with some variation. Please only complete this survey if you are over 18 years of age, in the United States, and willing and able to complete both HITs. At the end of the survey, you'll be given a randomized code that you will submit on Mturk to receive the payment.

Are you a U.S. Citizen?
o   Yes
o   No

What is your age in years?
_____

Are you willing to commit to taking a follow-up survey in two weeks?
o   Yes, I agree to take the follow-up survey.
o   No, I would like to take just this survey.

First we have some general questions about you.

What is your gender?

o   Male
o   Female
o   _____

What is your racial or ethnic identify? Check all that apply.
☐   White
☐   Black or African American
☐   American Indian or Alaska Native
☐   Asian or Asian American
☐   Native Hawaiian or Pacific Islander
☐   Middle Eastern or North African
☐   Hispanic or Latino/Latina
☐   Other: _____

How interested are you in following political news?
o   Not interested at all

o   Slightly interested
o   Moderately interested
o   Very interested
o   Extremely interested

Generally speaking, how you rate your ideological orientation, from extremely liberal (1) to extremely conservative (7)?
o   1 - Extremely liberal
o   2 - Liberal
o   3 - Somewhat liberal
o   4 - Moderate/Middle of the road
o   5 - Somewhat conservative
o   6 - Conservative
o   7 - Extremely conservative

Generally speaking, do you usually think of yourself as a Republican, a Democrat, an Independent, or something else?
o   Democrat
o   Republican
o   Independent
o   Other (please specify): _____
o   No preference

[If Republican] Would you call yourself a strong Republican or a not very strong Republican?
o   Strong
o   Not very strong

[If Democrat] Would you call yourself a strong Democrat or a not very strong Democrat?
o   Strong
o   Not very strong

[If Neither] Out of the following two, would you say you lean more towards the Democratic party or the Republican party?
o   Lean Democratic
o   Lean Republican
o   Don't lean towards either

Trust in groups

We would like to know your feelings towards the following people and groups on a scale from 0 to 100. A score of 0 indicates a very cold/unfavorable view of the person or group, while a score of 100 would indicate a very warm/favorable view.
    Cold/Unfavorable   Warm/Favorable

    0   10   20   30   40   50   60   70   80   90   100
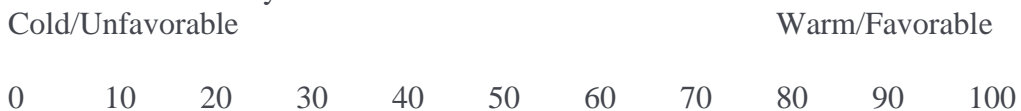
Democrat voters
Republican voters
President Donald Trump
The Democratic National Committee (DNC)
The Republican National Committee (RNC)

Some people vote on national elections and some do not. Thinking about the next national election in 2020, how likely are you to vote in it?
o   Extremely unlikely
o   Somewhat unlikely
o   Neither likely nor unlikely
o   Somewhat likely
o   Extremely likely

How much do you trust information that you receive from the following sources?

	Never	Sometimes	About half the time	Most of the time	Always
Traditional news outlets	o	o	o	o	o
Social media	o	o	o	o	o
Online-only news sources	o	o	o	o	o
Government information	o	o	o	o	o
Friends and family	o	o	o	o	o

Please rate how much you agree with this statement: "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."
o   Strongly disagree
o   Somewhat disagree
o   Neither agree nor disagree
o   Somewhat agree
o   Strongly agree

News Headline Ratings
On the following pages, you'll be shown a series of 12 news headlines like you might see online about events from 2018. It's possible you will have seen some or all of these before, and possible you won't have seen any – it is fine either way.

For each news story, you'll be asked to rate how it affected you.

There will be space at the end of the survey for comments, where you can explain any of your answers if you wish or state if anything was unclear.

Please read the following headline and then answer the questions about it.

[Insert headline; see end for all used]

How interesting is the story in the above headline?
o   Not at all interesting
o   Slightly interesting
o   Moderately interesting
o   Very interesting
o   Extremely interesting

How much truth do you think there is to this story?
o   Completely false
o   Mostly false
o   About half true
o   Mostly true
o   Completely true

[Repeated for all headlines]

Thank you! That is all the questions we have for you today. Please keep in mind that we presented headlines that were both true and false - all headlines that were not true were noted as such.

Remember that you will be getting a follow-up survey through Mturk in about two weeks that you agreed to participate in. You will be paid for your time in both surveys.

If you have any general comments to share or answers you want to explain, you may write them here if you wish.
_____

Headlines used in Part 1

True Democrat-Friendly news

Mitch McConnell, Senate Majority Leader, insists he has "no particular role" in ending standoff, is absent from talks with GOP and President Trump

President Trump's 2017 inaugural committee is said to be under criminal investigation by federal authorities due to financial fraud around donations

Review of 2018 shows U.S. stock markets had the worst year since recession in 2008; experts link to President Trump's trade disputes with China

Turnover in President Trump's Cabinet appointments during early years is at record high relative to last 100 years of presidencies

True Republican-Friendly News

Current and former Planned Parenthood employees allege that the organization routinely mistreats and discriminates against pregnant workers

Elizabeth Warren received bipartisan criticism for releasing DNA test to support her claims of Native American ancestry

2018 showed large gains in jobs added to economy, rise in average worker wages, and reduced unemployment according to Job Market Report

Online group fighting to outlaw alcohol found to be Democratic activist campaign designed to reduce support for Republican candidate Roy Moore

True Non-Partisan News

The Weather Channel is being sued over accusations that it is illegally collecting and selling user's personal location data

Over 20,000 drug convictions in Massachusetts were overturned en masse after "rogue" forensic chemist was found to have fraudulently tainted them

Bill Cosby appeals sexual assault conviction and sentence, citing trial errors by judge; is denied bail while awaiting appeal

Suicide rate for U.S. adults has more than doubled in recent years, which researchers have linked at least partially to significant rise in opioid addiction

False News Headlines

Democrat-Friendly Fake News

RNC Chair Ronna McDaniel called President Trump "f***ing idiot" in a closed meeting and suggested it may be better if Democrats win the next election

Republican-Friendly Fake News

Discussing voter fraud allegations in private meeting, Tom Perez, DNC Chair, suggested that electing Democrats "more important" than the letter of the law

Non-Partisan Fake News

Leaked company documents show top E-cigarette company Juul–which insisted it didn't market to teens–sought teens for focus groups and as models

Time 2 Follow-Up Materials

Thank you for coming back to take the follow-up survey! It is similar in length and content to the first survey. We expect it to take about 10 minutes.

How much do you feel that you have followed the news in the past two weeks since last survey?
o   Not at all
o   A little
o   A moderate amount
o   A lot
o   A great deal

How much do you feel that you have used social media in the past two weeks since last survey?
o   Not at all
o   A little
o   A moderate amount
o   A lot
o   A great deal

On the next pages, you will be asked to again rate 16 headlines as if they were news stories you came across online. Some of them are the same as from the last survey, while others are new. You may have seen some of these in the news before now; it is fine whether or not you have. Please just give your best judgment of each one without looking up other information online.

Please read the following headline and then answer the questions about it.

[Insert headline]

How interesting is the story in the above headline?
o   Not at all interesting
o   Slightly interesting
o   Moderately interesting
o   Very interesting
o   Extremely interesting

How much truth do you think there is to this story?
o   Completely false
o   Mostly false
o   About half true
o   Mostly true
o   Completely true

Do you remember seeing this headline in the Part 1 survey of this study two weeks ago?
o   No
o   Unsure
o   Yes

Have you seen or heard anything about this story outside of this survey? (e.g. heard about it from a friend, saw it on the news, read about it on social media, etc.)
o   No
o   Unsure
o   Yes

[Repeat for all headlines]

[If relevant] You reported seeing this story outside of the survey: "RNC Chair Ronna McDaniel called President Trump "f***ing idiot" in a closed meeting and suggested it may be better if Democrats win the next election."

Can you briefly share more about where you heard it and what you felt about it?
_____

[If relevant] You reported seeing this story outside of the survey: "Discussing voter fraud allegations in private meeting, Tom Perez, DNC Chair, suggested that electing Democrats "more important" than the letter of the law."

Can you briefly share more about where you heard it and what you felt about it?
_____

[If relevant] You reported seeing this headline outside of the survey: "Leaked company documents show top E-cigarette company Juul–which insisted it didn't market to teens–sought teens for focus groups and as models."

Can you briefly share more about where you heard it and what you felt about it?
_____

Self-Awareness Questions
In the first study, you received a warning attached to some articles saying that were false. How effective do you think a warning like the one you saw would be in getting you to distrust a headline on social media?
o   Not effective at all
o   Slightly effective
o   Moderately effective
o   Very effective
o   Extremely effective
o   N/A - I don't remember the warning I received

In general, how accurately do you think you are able to recall whether a particular piece of news you heard is true or false?
o   Not accurately at all
o   Slightly accurately
o   Moderately accurately
o   Very accurately
o   Extremely accurately

When you see a headline online, how often do you seek additional information to confirm whether it is true or false?
o   Never
o   Rarely
o   Sometimes
o   Often
o   Almost always

If you come across a news story, are you more likely to seek out additional information about it if it supports your political views (e.g. something positive about your party or negative about an opposing politician) or if it goes against your political views (e.g. something negative about a politician of your party or positive about an opposing party)?
o   More likely to seek additional information about a news story that supports my views
o   Equally likely to seek information about a story whether or not it supports my political views
o   More likely to seek additional information about a news story that goes against my views

True or False Judgments

Some of the headlines presented in these two surveys were false and had associated warnings explaining as such, while those without a warning were created as a composite from multiple real headlines from mainstream sources.

Out of the headlines you saw over these past two surveys, we would like you to decide whether you think it's more like that it is mostly a true store or if it is mostly a false story. Please do not do any outside searches, just use your own intuition and your memory of these stories from this survey or other things you've seen. We recognize some stories can have a mix of truth and false; please judge whether on the whole you think the claim in general is true or false.

Do you believe the claim in this headline is overall true (or mostly true) or overall false (or mostly false)?

<div align="center">True   False</div>

[Insert all headlines used in studies, without pictures]

Debrief
This study was seeking to compare the effectiveness and perceptions of different types of warning labels for false news stories. The three headlines you received a warning about in Part 1 were all entirely made up by the researchers for this study. Whether or not you remembered which were the false stories, this will help us better understand what types of warnings are more effective.

As a reminder, the below headlines all had a warning labeling them as false in part 1, and were entirely made up by the researchers for the purpose of this study:

RNC Chair Ronna McDaniel called President Trump "f***ing idiot" in a closed meeting and suggested it may be better if Democrats win the next election

Discussing voter fraud allegations in private meeting, Tom Perez, DNC Chair, suggested that electing Democrats "more important" than the letter of the law

Leaked company documents show top E-cigarette company Juul–which insisted it didn't market to teens–sought teens for focus groups and as models

Additionally, this headline in Part 2 was taken from a satire site and is not true:

A couple in California named their newborn child "☺☺☺", the first U.S. child to have emojis on their official birth certificate

All the rest of the headlines were from credible mainstream news sources, though we cannot completely verify their veracity.

Please click below to acknowledge that you read the above information and recognize those four stories were false.
o   Yes, I read the above information and recognize those headlines are not true.

Thank you! That is the end of this study. If you have any comments to share about your feelings on the warnings you received, or factors that make you seek out additional information about news, or anything else you'd want to share about fake news online, please let us know here:

_____

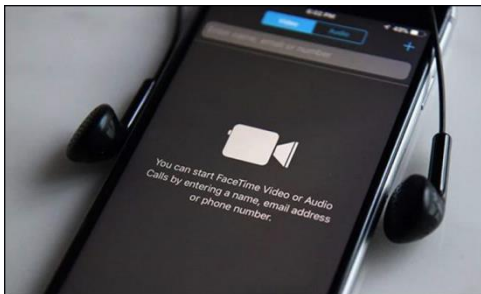**News Headlines Added to Part 2**

True Democrat-Friendly

A White House ethics oversight group found that Ivanka Trump used her personal email account to conduct official government business
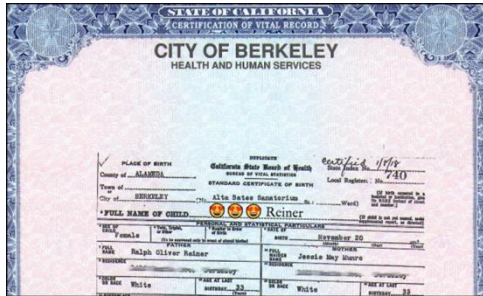
True Republican-Friendly

Ralph Northam, Democratic Governor of Virginia, has rejected calls to resign over blackface photo in his college yearbook

True Non-Partisan

Bug with Apple's FaceTime software allowed users to eavesdrop on the microphones of other users without their knowledge or permission

False Non-Partisan

A couple in California named their newborn child "😍😍😍", the first U.S. child to have emojis on their official birth certificate