2023
Facts and Feelings: Exploring the Implications of Affect in the link between Political Orientation, Cognitive Sophistication, and Motivated Numeracy
Sara Y Bouhamid
FACTS AND FEELINGS:
EXPLORING THE IMPLICATIONS
OF AFFECT IN THE LINK
BETWEEN POLITICAL
ORIENTATION, COGNITIVE
SOPHISTICATION AND
MOTIVATED NUMERACY

By

SARA BOUHAMID

A Thesis submitted to the
Department of Psychology
in partial fulfillment of the requirements for graduation with
Honors in the Major

Degree Awarded:
Summer, 2023
The members of the Defense Committee approve the thesis of Sara Bouhamid defended on April 19, 2023

Dr. David March
Thesis Director

Dr. Lonna Atkeson
Outside Committee Member

Dr. Edward Hansen
Committee Member

Signatures are on file at the Honors Program Office.
In recent years, the United States political landscape has proved tumultuous. Political polarization in various forms (e.g., affective, ideological) has widened (Mason et al. 2016, Webster et al 2022), and emotional and affective language have dominated political discourse (Bellovary et al., 2021; Brady et al, 2020; Pliskin & Halperin, 2021; Shöne et al, 2021; Webster et al., 2021). Perhaps unsurprisingly, uptake and belief in political misinformation has likewise increased (Bakir & McStay, 2018). These polarization-driven processes have been linked to harmful social outcomes, including increased support for anti-democratic norms and disregard for public health measures in the wake of a global pandemic (Olivett et al., 2023; Voelkel et al., 2021). Previous work has investigated mechanisms underlying susceptibility to faulty beliefs in political contexts by exploring how political information processing is influenced by motivated reasoning. From this view, political ideologies bias various reasoning processes including memory recall, belief construction, interpretation and use of data, and evaluation of scientific evidence (Kunda, 1990). Recent advancements in this area have identified the relationship between political identity and various reasoning outcomes including fake news discernment, skepticism about science, and interpretation of scientific data (Kahan 2017, Mason 2016, Taber & Lodge 2006). Yet, recently such results have been portrayed as failing to replicate and replete with conflicting findings and theories (Pennycook & Rand 2019, Wischnewski et al. 2021).

Exemplifying the theoretical conflict in this area is work concerning the role of analytic reasoning skills—sometimes more broadly termed cognitive sophistication—in politically motivated reasoning. Distinct programs of research propose competing hypotheses regarding the role of cognitive sophistication in politically motivated reasoning. The Identity Protective Cognition Account (IPC; Kahan, 2017) suggests that individuals who are high in trait cognitive sophistication tend to show more motivated reasoning in political contexts. Conversely, the
Cognitive Sophistication Account \(^1\) (CSA; Pennycook & Rand 2019) suggests that cognitive sophisticates have a propensity for rational, and therefore accurate thinking regardless of political contexts. Each theory is supported by research indicating at least partial support. The question, then, is which, if either, or both, is correct? The present work attempts to shed light on why these discrepant findings may co-exist, and perhaps identify them as not discrepant at all, but simply two manifestations of the same third, yet unidentified mediator. Here I aim to identify one (of likely many) factor(s) that determine under what circumstances cognitively sophisticated individuals arrive at more politically motivated (supporting IPC) or accuracy driven (supporting CSA) conclusions. In doing so, I argue for a central mediating role of affective arousal (i.e., the extent to which an individual is experiencing a state of increased sympathetic arousal affect while reasoning through a task) in leading cognitive sophisticates to pursue motivated (IPC) versus accurate (CSA) conclusions. I expect that the extent to which cognitive sophisticates are experiencing high arousal as the result of negative related affect (e.g., anger, disgust, fear) will influence them to be more likely to pursue motivated (vs. accurate) conclusions. Below I overview the ideas behind and research supporting both IPC and CSA and review prior research on affect in motivated reasoning before further detailing the current work.

**Reasoning in Political Contexts**

The idea of politically motivated reasoning broadly refers to biased information processing that leads to conclusions aligned with political beliefs (Kunda, 1990; Taber et al. 2009). From this perspective, one’s political world view biases information processing towards a

\(^1\) "Identity Protective Cognition" is a formal title forwarded by the researchers who find evidence in support of the theory (Kahan, 2017). In contrast, "Cognitive Sophistication" is not a formal, or formerly used, title. Other works describing this body of evidence have used terms such as the "Analytic Reasoning Account" or the "Deliberative Reasoning Account" (Pennycook et al., 2021). For clarity, we stick to "Cognitive Sophistication Account" (CSA) throughout the current work.
predetermined conclusion. Such conclusions are those that generally conform to the positions perpetuated by one’s political ingroup. For the ingroup member, arriving at in-group affirming conclusions brings about personal and social rewards and feelings of belonging. In contrast, deviating from the ingroup position causes the individual to feel disloyal to and fearful of isolation from ingroup members (Kahan 2015). Noted above, a nuance highlighted in recent theorizing on politically motivated reasoning speculates on the role of cognitive sophistication, or one’s trait ability to engage in reflective and analytical thinking. On one hand, the aforementioned CSA finds that cognitive sophistication acts as a buffer against motivated reasoning. That is, the extent to which one scores high in cognitive ability tasks (i.e., tasks that measure constructs such as analytic reasoning skills, and numeracy) the less often they engage in politically motivated reasoning (Pennycook & Rand 2019). Yet, IPC suggests the opposite—those high in cognitive reasoning skills engage in more motivated reasoning (Kahan et al., 2017). Below I expand on each of these theories and related findings in more detail.

**Identity Protective Cognition Account**

The IPC (Kahan, 2017) account suggests that reasoning is intertwined with group belonging and social identity goals, which are especially salient in politically polarizing contexts (i.e., “group” and “social identity” in this context refers to political group identity, such as “Democrat/Liberal” or “Republican/Conservative”). IPC occurs when individuals perceive a threat to their (political) identity and reject information that opposes their ingroups beliefs. For example, in research on how partisans process misinformation, IPC suggests that individuals fulfill their social goal to express group belonging by selectively discrediting identity-incongruent (yet factual) information and, on the other hand, affirming misinformation that is
identity-congruent (Kahan 2017). Thus, under the framework of IPC, rewards stemming from group conformity serve as motivation for arriving at a biased conclusion.

With respect to cognitive sophistication, the IPC account explicitly argues that individuals with better cognitive skills (e.g., higher in trait cognitive sophistication, cognitive reflection, analytic reasoning) have a greater propensity to engage in identity protective cognitive strategies. In other words, these individuals are likely to defend their partisan position when completing tasks that expose them to identity-threatening information. Supporting this idea, one study found that increased trait numeracy exacerbated partisan motivated reasoning on a political numeracy task. Trait numeracy is a specific kind of cognitive skill that describes the propensity to draw accurate, rational inferences from quantitative data (Peters et al. 2006). On average, highly numerate individuals perform better on non-political numeracy tasks but not political tasks (Kahan 2013). In a neutral task, participants were asked to determine the effectiveness of a skin cream by discerning if fictional statistics supported the conclusion that the rash got better or worse. On this task, highly analytic participants were more likely to accurately interpret the statistics. Yet, when the problem was politically-laden—participants were tasked with determining efficacy of a gun control regulation for deterring crime—highly analytic partisans were more likely to show politically motivated errors when answers were incongruent with their political worldviews. Specifically, conservative cognitive sophisticates were more inaccurate when the solution suggested that the regulation reduced crime, and liberal cognitive sophisticates were more inaccurate when it increased crime.

IPC explains this pattern by arguing that those with higher analytical abilities are better able to use information processing strategies that support their political beliefs and judgements. In other words, more cognitively capable individuals are better equipped with attitude-consistent
knowledge and cognitive tools to sift through and support their group’s ideological or political position. In sum, IPC posits that cognitively sophisticated individuals are increasingly polarized because of their ability to use cognitive resources to defend their political positions.

**Cognitive Sophistication Account**

Directly contrasting IPC, findings supporting CSA demonstrate that those with greater cognitive skills tend to arrive at non-politically motivated conclusions (Tappin et al. 2020, Pennycook et al. 2019). Evidence for the CSA spans across multiple reasoning outcomes. For example, high analytic thinkers tend to endorse the theory of evolution more often and endorse non-evidence-based alternative medicines less often, regardless of their political affiliation (Gervais, 2015; Pennycook et al., 2022). In the context of political reasoning, one study found that although partisan identity did not predict ability to discern between real and fake partisan-affiliated news headlines, performance on the Cognitive Reflection Test—a measure of the ability to think analytically—did (Pennycook & Rand 2019). Similarly, a recent study found cognitive sophistication (measured using scores on the Cognitive Reflection Test) is positively associated with pro-science beliefs, regardless of political affiliation or ideology-information congruency. For instance, when participants were instructed to evaluate arguments about climate change, cognitive sophistication was associated with decreased polarization. In fact, participants who were high in sophistication showed decreased polarization, whereas those low in sophistication showed an increase in polarization. In sum, CSA argues that cognitively sophisticated individuals have a propensity for reflective, skeptical, and analytical thinking and that high cognitively sophisticated individuals utilize their cognitive skills to arrive at the most accurate conclusion.
Discordance Between IPC and CS Accounts

Considered in light of one another, IPC and CSA are seemingly incompatible. CSA suggests that those with greater ability to think analytically tend to use those skills to arrive at accurate conclusions. On the contrary, IPC suggests that these individuals will exhibit a stronger inclination to pursue a conclusion that aligns with their in-group beliefs. That is, individuals who are more cognitively sophisticated will reason in a more polarized way, because they are best equipped to engage in reasoning strategies that support their motivated conclusions. Both accounts suggest that cognitive sophistication plays an important role in reasoning, but that this analytical prowess is utilized for different goals. Recent findings directly highlight this discordance. Among two large (N = 1,003 and N = 1018) and representative U.S. samples, the previously described correlational evidence for IPC was found in only 3 of 34 politically laden science beliefs (i.e., belief in global warming, the big bang, and evolution; Pennycook et al. 2022).

One reason for conflicting findings may be that research supporting both accounts tend to only measure dispositional analytic reasoning, but do not necessarily measure whether or in what ways individuals are engaging in analytic processing during a given reasoning task. That is, they do not measure online whether high analytic reasoners are using their skills to pursue motivated versus accuracy goals. If someone is high in analytic reasoning skills, it does not necessarily follow that they always use those skills to arrive at accurate conclusions. Thus, in certain situations, skilled analytic thinkers might use their abilities to pursue motivated conclusions (IPC), whereas in other situations they might use them to pursue accurate conclusions (CSA). Overall, this suggests that further research is necessary to determine under what circumstances analytic thinking is employed in pursuit of accurate versus motivated goals.
One possibility that I examine in the current work might be the extent to which one is affectively aroused while engaged in a reasoning task.

**The Possible Role of Affective Arousal as a Determinant**

Affect plays a significant role in our political lives. For example, in the context of online political discourse, the number of words connoting moral emotions (e.g., disgust, anger) and negative affect (e.g., hate, deplorable) within a political tweet predicts its virality (Brady et al., 2020; Shöne et al., 2021). Recently, advertisement data has suggested that around 50% of the campaign advertisements during the 2010, 2012, 2014, and 2016 election/midterm election cycles implicitly induced anger among voters (Webster et al. 2022). Politically induced anger can impact social relationships among Democrats and Republicans, driving them to become more polarized in social settings (e.g., they are not willing to interact with each other; Webster et al. 2022). Related to the current work, prior research suggests that affect is directly involved in political motivated reasoning (Lodge & Taber 2013). The general notion is that individuals automatically associate feelings with political figures, groups, and ideology upon processing political content. This affective reaction signals the desirability of one political group over the other, guiding the evaluation of political content in ways that promote ingroup bias.

More recently, affect has been studied in the context of political identity threat and related reasoning outcomes (Marcus et al. 2000, Mason 2016; Weeks 2015). These studies have specifically investigated the impact of anger related affect evoked by identity threat on political motivated reasoning, and on the propensity to share political propaganda. In one study, participants were assigned to write about a partisan issue (e.g., immigration reform or death penalty) that induced anger related affect (Weeks 2015). After self-reporting their affective state, participants read a false news article that matched the ideological issue they wrote about.
Increased anger-related affect was related to less accurate beliefs when assessing misinformation (Weeks 2015).

Anger-related affect also leads to a general overreliance on prior beliefs and superficial reasoning strategies (Huddy et al. 2015). Prior research suggests that anger boosts biased assimilation of political information in a way that reinforces prior beliefs (Suhay & Erison 2018.) Specifically, when an individual encounters information that contradicts their partisan beliefs, they perceive the information to be invalid and of low-quality (Suhay & Erison 2018). Thus, individuals resist such information, and in turn, they seek out and accept information that bolsters their beliefs or attitudes (Suhay & Erison 2018.) This corroborates with findings that anxiety enhances, while anger suppresses, the search for accurate information. Together, this work suggests that political attitudes tied to anger related affect are sufficient to drive partisan processing of misinformation when claims go uncorrected (Weeks 2015).

Generally negative-valence affective arousal likewise influences non-political reasoning outcomes. For example, in a study that manipulated affective content on a (non-political) reasoning task, participants were more likely to endorse logically invalid inferences than valid ones when participants were primed with negativity (Blanchette et al. 2010). Specifically, the study simultaneously paired reasoning stimuli with the negative or neutral pictures or words with a negative or neutral valence. The participants were then instructed to complete a deductive reasoning task (e.g., making a logically valid inference that connects a situation with its logical conclusion) that contained the emotionally manipulated content. Participants’ affective arousal, measured using skin conductance responses (SCR), corresponded with endorsement of logically invalid inferences on negative content.
In sum, increasing affect has been shown to facilitate politically motivated conclusions. Moreover, affective arousal (which might be particularly high during anger and anxiety states; Taber & Lodge 2006) corresponds with endorsement of logically invalid inferences. Related to the current work, affective arousal might drive motivated reasoning differentially among individuals high and low in cognitive sophistication. As noted above, one’s trait ability to engage in analytic reasoning does not necessarily imply that they use those skills to arrive at accurate or motivated conclusions. Rather, reasoning skills might simply correspond with one’s ability to arrive at any conclusion, regardless of the veracity of those conclusions. In other words, skilled analytic might simply be better at arriving at both motivated (supporting IPC) and accurate (supporting CSA) conclusion, yet which one they arrive at is irrelevant to analytic skill. I examine if what is relevant is the extent to which cognitive sophisticates are experiencing negative affective arousal during a reasoning task, given their implications for motivated reasoning.

**The Current Study**

Toward reconciling discrepant findings on the role of trait cognitive sophistication in political motivated reasoning, the present work examines the potential role of negative affective arousal in compelling relatively more cognitively sophisticated individuals toward relatively more motivated conclusions. In a single study, participants completed (1) a cognitive reflection task (CRT; a measure of trait analytic reasoning), and (2) several political motivated numeracy tasks (a measure of statistical reasoning about the efficacy of political policies). A subset of the numeracy tasks were framed in a negative affectively laden way (e.g., anger inducing) and another subset was framed in neutral way. Importantly, while participants are completing
numeracy tasks, their affective arousal was captured online by measuring skin conductance responses. I hypothesized that:

1. When completing emotionally laden political numeracy tasks, both high and low cognitively sophisticated individuals would arrive at politically motivated conclusions (supporting IPC). Moreover, the extent to which participants are affectively aroused would predict arrival at motivated conclusions.

2. When completing non-affectively framed political numeracy tasks, high (vs. low) cognitively sophisticated individuals would arrive at more accurate conclusions (supporting CSA).

Methods

Participants

Data collection is ongoing. At time of analysis, a total of 61 college students ($M_{age} = 19.72$; Women = 46, Men = 12) recruited through Florida State University’s SONA research system participated and received one hour of credit for completing the study. Thirty-seven participants were categorized as liberal and 24 as conservative based on having scores less than (liberal) or greater than (conservative) the midpoint of our political orientation composite (1-7; midpoint = 4 – “Neither liberal nor conservative”). See Table 1 for descriptive statistics on political orientation within political affiliation.
Table 1.

*Mean general, social, and economic political orientation among liberals and conservatives. Standard deviations are in parentheses.*

<table>
<thead>
<tr>
<th>Political Orientation (PO)</th>
<th>PO Social Issues</th>
<th>PO Economic Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Liberals</strong></td>
<td>2.78 (.75)</td>
<td>2.46 (.73)</td>
</tr>
<tr>
<td><strong>Conservatives</strong></td>
<td>4.96 (.62)</td>
<td>4.92 (.93)</td>
</tr>
</tbody>
</table>

**Measures**

*Cognitive Reflection Task*

To assess trait cognitive sophistication, we used the Cognitive Reflection Task (CRT; Fredrick et al. 2005). The CRT includes four items that aim to assess peoples’ tendency to override intuitive, heuristic thinking with conscious rationale thought. To this end, each item is worded such that there is an obvious and intuitive—yet ultimately incorrect—answer. For example, one item asks: “Emily’s father has three daughters. The first two are named April and May. What is the third daughter’s name?” Whereas the intuitive answer is “June”, the correct answer is “Emily” (Thomson & Oppenheimer 2016). See Appendix A for all CRT items.

*Trait Numeracy*

To tap participants’ trait numeracy more specifically, we administered an additional three cognitive sophistication items. These items mirrored the logic of CRT items, yet unlike the CRT items, these require the use of mathematical reasoning. For example, one item asks: “A bat and a ball cost $1.10 in total. The bat costs $1.00 more than the ball. How much does the ball cost?” Whereas the intuitive answer is 10 cents, the correct answer is 5 cents (Fredrick et al. 2005). See Appendix B for Trait Numeracy items.
Measures of Political Orientation

Participants reported their general, social, and economic political orientation on separate items ranging from 1 = “Very Liberal” to 7 = Very Conservative” and 0 = “I haven’t thought about this much”. Zeros were transformed to missing values before each item was averaged within-person to form a composite political orientation variable. Participants below the midpoint on composite political orientation (midpoint = 4 – “Neither liberal nor conservative”) were categorized as liberals and participants above the midpoint were categorized as conservatives. There were no participants at the midpoint of composite political orientation.

Motivated Numeracy Tasks

General Structure. The layout and structure of the motivated numeracy tasks mirrored the framework of the original study supporting IPC (Kahan, 2017). Specifically, each task first described a contrived empirical study on the efficacy of a political policy initiative. Below the policy description were fictional (though ostensibly real to the participant) statistical results for the study. Fictional results were presented in a 2x2 contingency table. Row headings on the contingency table denoted experimental or quasi-experimental “groups” within the studies, and columns headings denoted decreases or increases in the study’s dependent variable. Thus, a value within a single cell represented the frequency of observations within one (of two) group that lead to an increase (or decrease) in the dependent variable. A full row contained a within-group ratio of observed increases to decreases of the dependent variable. A full column, on the other hand, contained a between-group ratio of increases (in one column) or decreases (in the other column) in the dependent variable.

Last, for each task, two answer options were provided. One answer implied that the study’s findings aligned with a liberal worldview (e.g., that a reallocation of police funds to
social safety net programs led to decreased crime relative to increased crime) and the other answer aligned with a conservative worldview (e.g., that a reallocation of police funds to social safety net programs led to increased crime relative to decreased crime). Two versions for each task were created—one where the *correct answer* supported the liberal worldview and one where the correct answer supported the conservative worldview.

To construct values within each table, I followed the parameters of Kahan’s original contingency table (Kahan et al. 2017). This was implemented to maintain consistency with Kahan’s original study and minimize the possibility of an accurate conclusion from valid causal inferences. Specifically, values were selected such that participants were inclined to use “one of two heuristic alternatives” to discern the answer of these tables: “comparing the number of outcomes in the upper left cell to the upper right cell (‘1 vs. 2’)” or “comparing the numbers in the upper left cell to the lower left cell (‘1 vs. 3’)” (Kahan et al 2017; Wasserman et al. 1990.) Using either of these heuristic strategies could allow the participant to make a causal inference that supports the correct conclusion—despite the participants’ failure to integrate all of the “information necessary” to arrive at the accurate conclusion (Kahan et al 2017.) To avoid this outcome, I multiplied the numbers in each cell of Kahan’s original contingency table by a constant number. In doing so, the use of either heuristic strategy would fail to procure an accurate conclusion. See Figure 1 for an example task and Appendix C for all tasks.
City-level governments are interested in whether defunding the police increases or decreases city level violent crime rates. Government officials are unsure if defunding the police will lead to a drastic increase in the number of violent crimes because officers will have less resources to protect citizens and combat crime, or if defunding the police will soften the causes of violent crimes by freeing up money to fund basic social safety nets that support the community such as low-income housing and food pantries, which will remove reasons to commit crime in the first place.

Researchers studied various cities across the United States to answer this question. The study involved comparing changes in annual violent crime rates within one group of cities that had defunded the police to changes in violent crime rates within a second group of cities that had not defunded the police.

The number of cities in which arrests decreased and the number cities in which arrests increased are recorded below. Although the exact number of arrests in each group is not the same, this does not prevent assessment of results.

Please indicate whether the study shows that defunding the police is likely to decrease crime rates or increase crime rates.

<table>
<thead>
<tr>
<th>Results</th>
<th>Decrease in Crime</th>
<th>Increase in Crime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cities that did reallocate funds</td>
<td>214</td>
<td>42</td>
</tr>
<tr>
<td>Cities that did not reallocate funds</td>
<td>446</td>
<td>150</td>
</tr>
</tbody>
</table>

*Affect and Policy Manipulation.* Diverging from prior work, I created multiple motivated numeracy tasks and manipulated each across two dimensions (in addition to whether the correct answer supported a liberal versus conservative positions). The first dimension was
policy type. We developed eight different policy types that tap current politically contentious topics. These included: (1) bans on abortion, (2) use of critical race theory in elementary education, (3) invitation of controversial public speakers to college campuses, (4) affirmative action in higher education, (5) mandatory anti-bias training for police, (6) social media censorship, (7) defunding the police and (8) inclusion of transgender children in youth sports (See Appendix C).

The second manipulated dimension was affective framing. We created four versions of each of the eight policies that varied in affective framing. To do this I altered the language used in the policy study descriptions. The Neutral version for each policy study described the study in a non-emotional way and provided rationale for both the liberal and conservative viewpoint. The General Affect version likewise provided rationale for the liberal and conservative viewpoint but used moral-emotional language (Graham et al. 2013). The Conservative-Anger inducing version likewise used moral emotional language but only described rationale for why the liberal viewpoint would be supported. And, similarly, the Liberal-Anger inducing version used moral emotional language but only described rationale for why the conservative viewpoint would be supported. In sum, our original motivated numeracy task stimuli included 8 (policy type) x 4 (affective framing) x 2 (correct answer liberal versus conservative) = 64 unique variations.

Last, a single non-political numeracy task from Kahan’s original items was included as the true neutral control (Kahan et al. 2017). This task describes a contrived study on the effectiveness of a skin cream on a rash and follows the same 2x2 contingency as the politically relevant motivated numeracy task. Participants on this task had to discern whether a skin cream was likely to make people’s rash better or worse.
Skin Conductance Response

Skin Conductance is a measure of the sympathetic nervous system response to affective stimuli (Bradley et al. 2001). Specifically, this measures the level of physiological arousal that occurs when viewing negative and positively valanced stimuli by measuring the conductivity of eccrine sweat glands as they are activated. Greater skin conductance occurs with increased sweat release and indicates heightened affective arousal. Participant skin conductance level (SCL) was continuously sampled during the completion of motivated numeracy tasks. Two indices of trial-level SCL were derived by subtracting the mean SCL during the onset of the trial from (1) the mean and (2) the max SCL over the course of the trial.

Procedure

Participants completed the study in a dimly lit private cubicle. After providing consent, participants washed their hands and were outfitted with two electrodes—one on the distal phalange of the left index finger and one on the distal phalange of the left middle finger. Next participants were instructed that they were going “read about and assess nine different policies studies that were recently conducted.” They were informed that the statistical findings from each study, as well as two possible conclusions that could be drawn from the findings would be provided, and that their job was to select the conclusions that were best supported by the data.

Participants then completed nine motivated numeracy tasks—two from each affective framing (eight total) and the non-political skin rash task. Thus, altogether, participants completed two General Affective tasks, two Neutral tasks, two Conservative-Anger tasks, and two Liberal-Anger tasks, and the non-political task. Within each framing type included one task in which the correct answer aligned with a conservative worldview and one task that aligned with the liberal worldview. The policy content within each affective framing type was counterbalanced between
participants using a Latin square technique. The order of task presentation was randomized between participants. Participant skin conductance was measured concurrently as they read, assessed and answered each stimulus and an 11-16 second blank-screen intertrial interval occurred between each task to minimize affective spillover.

Following completion of the motivated numeracy tasks, participants completed the self-report scales. They first completed the 4-item CRT and 3-item trait numeracy task. Participants then rated their support for each of the eight political issues underscored in the motivated numeracy tasks. Last, participants proceeded to complete measures of political affiliation and political orientation.

Results

In what follows I present several results from the current work. These findings are preliminary, as data collection and analyses are ongoing.

*The Relationship Between Motivated and Trait Numeracy*

First, I tested the competing predictions forwarded by CSA and IPC—without considering the possible role of arousal—by examining the relationship between average political bias on all versions of our motivated numeracy stimuli and average performance on the trait numeracy items. To operationalize bias, I computed composite Bias scores for each participant by adding +1 for each time a participant inaccurately answered a task in which the correct answer aligned with the opposing political view; +1 for accurately answering when the correct answer aligned with their own political view; -1 for inaccurately answering when the correct answer aligned with their own political view; and -1 for accurately answering when the correct answer aligned with the opposing political view. Here, a score of 0 indicates no bias (i.e., equal proportion correct/incorrect on ideologically aligned/unaligned trials). Bias scores greater
than 0 indicate some degree of political motivated reasoning, with higher scores indicating more severely ideologically driven responses.

Next, I regressed Bias scores onto mean trait numeracy. There was no relationship between trait numeracy and Bias on reasoning tasks, $b = .36, t = .33, p = .742$. Subsequently, I regressed Bias onto centered numeracy, centered composite political orientation, and their interaction term. There was a significant 2-way interaction between numeracy and political orientation, $b = 1.73, t = 2.21, p = .031$. Analysis of simple slopes revealed opposite (but statistically insignificant) relationships between numeracy and bias among relatively liberal (-1 SD political orientation) and relatively conservative (+1 SD political orientation) participants. Specifically, among liberals, there was a negative relationship between Bias and trait numeracy, $b = -1.58, t = -1.58, p = .120$, suggesting that less numerate liberals exhibited greater political motivated reasoning. In contrast, among conservatives there was a trending positive relationship between Bias and trait numeracy, $b = 2.45, t = 1.55, p = .126$, such that more numerate conservatives exhibited greater political motivated reasoning.

Last, for exploratory purposes, I examined the relationships between Bias scores, political extremity, and trait numeracy. To do this, I coded extremity by assigning values of “3” to participants who reported “1” (Very Liberal) or “7” (Very Conservative) on general political orientation, “2” to participants who reported “2” or “6”, “1” to participants who reported “3” or “5”, and “0” to participants who “4” (neither liberal nor conservative). Thus, larger values indicate greater ideological extremity among both liberals and conservatives. I regressed Bias scores onto centered political extremity, centered trait numeracy, and their interaction term. There was a significant 2-way interaction between trait numeracy and political extremity, $b = -4.27, t = -2.89, p = .0054$. Simple slopes analyses revealed that among individuals high in
political extremity (+ 1 SD) there was a negative relationship between trait numeracy and Bias, \( b = -3.91, t = -2.27, p = .0271 \). Conversely, individuals low in political extremity (- 1 SD), exhibited a positive relationship between trait numeracy and Bias, \( b = 5.62, t = 2.59, p = .0124 \). That is, numerate partisans exhibited less motivated reasoning, whereas numerate moderates exhibited greater motivated reasoning.

**Role of Affect in The Relationship between Motivated Reasoning and Trait Numeracy**

I predicted that the direction of the relationship between motivated reasoning and trait numeracy might depend on whether partisans are in a state of heightened affective arousal while engaged in political reasoning. I began to explore this hypothesis in two ways: first, I modelled participants probability of accurate responding in separate logistic regressions for both correct response types (i.e., liberal aligning, conservative aligning) on each type of affective framing (i.e., General Affective, Liberal-Anger, Conservative-Anger, Neutral) from centered trait numeracy, centered political orientation, and their interaction term. Then I explored the participants’ skin conductance responses while completing motivated reasoning tasks.

**Logistic Regressions:** Across all eight logistic regressions (4 affective frames x 2 political leaning of correct answer), the main effect of political orientation remained non-significant. A main effect of trait numeracy emerged when predicting the probability of arriving at a correct conclusion when tasks were Liberal-Anger framed and the correct answer aligned with conservative views, \( b = 3.11, Z = 3.42, p = .0006 \), and when tasks were General Affect framed and the correct answer aligned with liberal views, \( b = 4.40, Z = 2.22, p = .026 \). On both outcomes, higher trait numeracy predicted greater probability of arriving at an accurate conclusion. A numeracy x political orientation interaction emerged when modeling accuracy on tasks that were Conservative-Angry framed and the correct answer aligned with liberal views, \( b \)
21

$= 1.53, Z = 1.80, p = .0722$. Decomposing this interaction revealed that among partisans low in numeracy, liberals were more likely to arrive at correct conclusions than conservatives, $b = -0.65, Z = -1.67, p = .094$, whereas there were no differences in accuracy probability among partisans high in numeracy, $b = 0.36, Z = 0.82, p = .41$.

**Skin Conductance Response:** Due to a lack of participants with useable skin conductance data, my examination of these data is purely descriptive and exploratory. Participants SCR data were discarded if visual inspection revealed (1) large artifacts or (2) excessively noisy or non-responsive data. The former was likely the consequence of excessive movement by the participant during the task, and the latter was likely due to experimenter error (e.g., failure to properly connect electrodes, use of the wrong software template). In total, 36 of our 61 participants had usable SCR data, including 19 liberals, and 14 conservatives. I computed two indices of trial-level skin conductance—mean skin conductance level (Mean SCL) and max skin conductance level (Max SCL). Mean SCL was scored by subtracting the SCL at the beginning of a trial (a single sample) from the average SCL over the course of that trial (i.e., however long it took the participant to read and answer each prompt). Max SCL was scored by subtracting a trials single sample baseline SCL from the maximum SCL over the course of that trial. See Table 2 for liberals’ and Table 3 for conservatives’ Mean SCL and Max SCL per affective framing condition.
### Table 2

*Mean SCL and Max SCL per affective framing condition among liberals.*

<table>
<thead>
<tr>
<th>Affective Framing</th>
<th>Mean SCL Difference</th>
<th>Max SCL Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Affect</td>
<td>-.13 (.13)</td>
<td>1.22 (.27)</td>
</tr>
<tr>
<td>Liberal-Anger</td>
<td>-.14 (.07)</td>
<td>1.13 (.21)</td>
</tr>
<tr>
<td>Conservative-Anger</td>
<td>.01 (.11)</td>
<td>1.50 (.31)</td>
</tr>
<tr>
<td>Neutral</td>
<td>-.03 (.12)</td>
<td>1.90 (.37)</td>
</tr>
<tr>
<td>Neutral-Skin Rash</td>
<td>-.18 (.15)</td>
<td>1.09 (.32)</td>
</tr>
</tbody>
</table>

### Table 3

*Mean SCL and Max SCL per affective framing condition among conservatives.*

<table>
<thead>
<tr>
<th>Affective Framing</th>
<th>Mean SCL Difference</th>
<th>Max SCL Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Affect</td>
<td>-.17 (.11)</td>
<td>.75 (26)</td>
</tr>
<tr>
<td>Liberal-Anger</td>
<td>-.33 (.16)</td>
<td>.80 (.21)</td>
</tr>
<tr>
<td>Conservative-Anger</td>
<td>-.42 (.16)</td>
<td>.94 (.28)</td>
</tr>
<tr>
<td>Neutral</td>
<td>-.11 (.09)</td>
<td>.96 (.20)</td>
</tr>
<tr>
<td>Neutral-Skin Rash</td>
<td>-.12 (.09)</td>
<td>.85 (.35)</td>
</tr>
</tbody>
</table>
Next, I examined bivariate correlations between Bias scores (collapsed across all affect framing conditions), trait numeracy, political extremity, and grand mean SCL (collapsed across all affect framing conditions) separately among liberals and conservatives. These are shown below in Table 3 and Table 4. There was no significant correlation between SCL and bias among liberals or conservatives. There was a significant relationship between trait numeracy and SCL among conservatives, such that more numerate conservatives recorded greater SCL during trials.

**Table 3**

*Bivariate correlation between bias, trait numeracy, political extremity and mean SCL collapsed across all affect framing conditions for liberal participants.*

<table>
<thead>
<tr>
<th></th>
<th>Liberals</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bias Score</td>
<td>Political Extremity</td>
<td>Trait Numeracy</td>
<td>Comb. Mean SCL</td>
</tr>
<tr>
<td>Bias Score</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Political Extremity</td>
<td>.22 (.21)</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trait Numeracy</td>
<td>-.13 (.47)</td>
<td>.19 (.27)</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>Comb. Mean SCL</td>
<td>.39 (.098)</td>
<td>.32 (.18)</td>
<td>-.26 (.27)</td>
<td>--</td>
</tr>
</tbody>
</table>

**Table 4**

*Bivariate correlation between bias, trait numeracy, political extremity and mean SCL collapsed across all affect framing conditions for conservative participants. P-values are in parentheses.*

<table>
<thead>
<tr>
<th></th>
<th>Conservatives</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bias Score</td>
<td>Political Extremity</td>
<td>Trait Numeracy</td>
<td>Comb. Mean SCL</td>
</tr>
<tr>
<td>Bias Score</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Political Extremity</td>
<td>-.08 (.73)</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trait Numeracy</td>
<td>.098 (.65)</td>
<td>.05 (.80)</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>Comb. Mean SCL</td>
<td>-.28 (.34)</td>
<td>-.21 (.47)</td>
<td>.67 (.01)</td>
<td>--</td>
</tr>
</tbody>
</table>
General Discussion

The current work aimed to shed light on the interplay between affect, trait cognitive sophistication, and politically motivated reasoning, and situate these relationships within the literature on IPC and CSA. My preliminary results were mixed. When examining motivated reasoning collapsed across affective framing, I found opposite trending relationships between trait numeracy and bias among liberals and conservatives. Although these patterns were only trending, cognitively sophisticated liberals seemed to show less bias (supporting CSA), whereas cognitively sophisticated conservatives seemed to show more bias (supporting IPC). Moreover, when ignoring direction of political orientation and instead examining extremity, I found that more extreme partisans benefited from cognitive sophistication (i.e., showed less bias as a function of increased numeracy), whereas moderates did not (i.e., showed more bias as a function of increased numeracy)—these findings align with the CSA perspective. Collecting data from a larger sample may help clarify which of these patterns is robust.

When taking a closer at our affective framing conditions, the findings were likely underpowered. However, I did find that liberals low in numeracy were more likely to arrive at accurate conclusions than conservatives low in numeracy on the Conservative-Angry/correct answer liberal task. Regarding the main effects from the logistic regression, there is partial evidence (specifically on that Liberal-Angry/correct answer conservative and General Affective/correct answer liberal tasks) that those who are high in trait numeracy are able to arrive at accurate conclusions, regardless of their bias. These finding generally support CSA.

Though skin conductance findings were marginal and likely underpowered, it is worth noting that SCL was nearly positively correlated with Bias among liberals. Although these trends did not reach statistical significance in our preliminary sample and should be interpreted with
caution, the descriptive patterns might imply that physiological arousal occurs when individuals interpret affectively framed partisan information. Moreover, there was no relationship between SCL and conservatives, suggesting a possible asymmetry. It is possible that this asymmetry underlies the opposite trending relationships between numeracy and bias between liberals and conservatives. I plan to further assess this possible asymmetry once more data has been collected.

**Situating our Findings in Debate between IPC and CSA**

These findings pose a challenge to arguments made by IPC. Whereas IPC suggests that partisans who are more numerate exhibit a greater tendency to engage in motivated reasoning, I found the opposite. My exploratory analyses on political extremity perhaps posed the most robust counterevidence to IPC—among the most polarized participants (across the left-right spectrum), bias was attenuated as a function of trait numeracy whereas the opposite was true among moderates. This pattern should be explored in more depth, perhaps while integrating SCL analyses upon further data collection.

Additionally, my research adds multiple novel methods to the previous literature on politically motivated reasoning. For example, the current study offers insight into a broader range of issues than those investigated previously. Regarding the CSA account, previous literature has focused on the ability to discern the validity of news headlines that referenced a single election term and prominent individuals in political parties such as Donald Trump and Hillary Clinton (Pennycook & Rand 2019). My study has built upon this by including salient partisan issues that apply to ideology rather than support for presidential candidates. Further, my study is unique in that I sought to manipulate the affective framework of the stimuli to a general affective condition, a neutral condition and a condition aimed at eliciting anger from liberals and
conservatives, respectively. This finding could add insight into the way in which partisans perceive polarizing affective rhetoric in the media.

Prior studies on IPC have also been narrow in their range of political topics they have explored, focusing primarily on gun control and global warming (Kahan 2013; Kahan et al. 2012; Kahan 2017). This study has added additional insights by exploring topics that pertain to a broader range of social policy, health, and public policy concerns. Further, by including current polarizing topics, we can begin to gain insight on how people perceive factual information on wider range polarizing policy issues.

Overall, the current evidence is particularly important considering the promulgation of increasingly polarized rhetoric on social media (Abasattar et al. 2022; Brady et al. 2020). Future studies should investigate the aftermath of viewing affectively framed political information. Prior research has shown that individuals adopt a firmer stance on partisan beliefs after viewing affectively framed rhetoric (Leong et al. 2020; Suhay & Erison 2018; Bail et al. 2018). This suggests that my approach could be used to determine the degree to which moral-emotional language drives individuals to acquiesce in their polarized attitudes. In the future, more focus should be placed upon the differing interpretations of risk-related and emotional-related semantic categories when individuals are tasked with assessing the accuracy of policy-relevant statistics. Such findings could aid in understanding under what conditions individuals are likely to perceive policy-relevant information in a polarized manner. By mitigating the tendency for individuals to become increasingly polarized, attitudes towards public policy could shift in a way that allows partisan groups to come to a consensus on crucial policy initiatives.
Exploring Differences in Policy Type

The difference between liberal and conservative responses to the eight different policy types should also be investigated further. When observing mean accuracy, policy tasks concerning free speech—the social media censorship and invitation of controversial school speakers—were unique. On these, conservatives were particularly likely to answer correctly when the answer confirmed their partisan stance; that social media censorship would lead to decreased user satisfaction ($M=0.769$ $SD=0.438$) and that student satisfaction would decrease if controversial speakers were barred from speaking on campus ($M=0.909$, $SD=0.301$). Ingroup bias among conservatives on other policy tasks was otherwise minimal. The wording of these stimuli included language that is prevalent in the media such as “free speech” and “attacking…opinions.” Thus, these words may play an especially central role in driving polarization, corroborating recent literature (Leong et al. 2020). In the context of IPC, it is also important to consider the sample population in accordance with the wording of the stimuli. The scenarios in these stimuli were positioned on college campuses, and on social media; both of which may encourage the sample population to directly place themselves in the scenario. IPC suggests that people are increasingly motivated to align with their partisan stance on policy issues that may not directly affect them (Kahan 2017). Considering the results from this study, more investigation is needed to determine to what extent the IPC is correct in this regard.

Interestingly, on the free speech tasks, liberal participants tended to answer correctly when the accurate answer aligned with the conservative position. This could indicate that liberals have an open-minded viewpoint towards inviting controversial speakers on campus or limiting community guidelines restrictions on social media. It is also likely that the language in the stimuli was not interpreted as conservative-leaning as we expected. For example, some
participants may have assumed that community guidelines restrictions may target liberal accounts. Similarly, liberal participants may have assumed that liberal speakers with radical viewpoints may be prevented from speaking on college campuses. In either case, the data for these stimuli presents an interesting point of discussion and insight for further consideration.

**Limitations**

One limitation of the current work is that the sample size (so far) is considerably small. To address this, I aim to continue collecting data. Another primary limitation involving the sample stems from its generalizability. The participants were college students receiving a secondary education and are therefore more likely to espouse liberal beliefs. Indeed, our sample was skewed liberal (37 liberals to 24 conservatives), and liberals were relatively more polarized (on average 1.22 away from the midpoint on political orientation) than conservatives (on average .96 away from the midpoint). Additionally, education should also be taken into account considering the participants ability to complete numeracy tasks. Some participants may be better able to discern statistical results due to their education, and therefore they should have a greater advantage over a general population sample. In the future, participants from a more generalizable sample should be included.

Concerning the methods, the motivated numeracy task stimuli were not pretested. Had I tested these stimuli, I would have a better understanding of the extent to which each stimulus is particularly inflammatory and anger inducing. This could have led to misinterpretations, as certain words in the affective stimuli may have been better suited to induce anger in conservatives than liberals or vice versa. Additionally, the SCR measurement could be refined further to allow more detailed insight. Specifically, future studies should aim to distinguish the SCL of the participants between when they read the task, when they deliberate their answer and
in the moment that they answer, respectively. In doing so, we would be able to determine what specific aspects of politically motivated reasoning elicit the highest SCL.

**Conclusions**

In sum, the current work shows that trait numeracy reduces motivated reasoning among partisans, but that the relationship is inconsistent across the political spectrum. Given novel areas of investigation, more research is necessary to determine under what specific conditions individuals who are highly numerate are inclined to use heuristics in a politically motivated manner.
References


Pennycook, G., Bago, B., and McPhetres, J., (2022) Science beliefs, political ideology, and
cognitive sophistication., Journal of Experimental Psychology: General. DOI:

10.1037/xge0001267


and Political Psychology. Cambridge University Press.

DOI:10.1017/CBO9781139032490


Appendix A

Cognitive reflection test, additional questions (Thompson & Oppenheimer 2016)
(1) If you’re running a race and you pass the person in second place, what place are you in? (intuitive answer: first; correct answer: second)
(2) A farmer had 15 sheep and all but 8 died. How many are left? (Intuitive answer: 7; correct answer: 8)
(3) Emily’s father has three daughters. The first two are named April and May. What is the third daughter’s name? (intuitive answer: June; correct answer: Emily)
(4) How many cubic feet of dirt are there in a hole that is 3’ deep x 3’ wide x 3’ long? (intuitive answer: 27; correct answer: none)

Appendix B

Trait Numeracy Items (Fredrick et al. 2005)
(1) A bat and a ball cost $1.10 in total. The bat costs $1.00 more than the ball. How much does the ball cost? _____ cents
(2) If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets? _____ minutes
(3) In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake? _____ days

Appendix C

Transcript of the Stimuli

[C.1 Affirmative Action Affective, Conservative supporting answer]
Universities in the United States have been investigating whether affirmative action increases or decreases overall student body GPA. University administrators are unsure if affirmative action increases overall GPA when the student body is composed of diverse and equally competitive students by bringing diverse perspectives in the classroom, or if affirmative action decreases overall GPA because less competitive minority applicants with worse incoming grades are prioritized over more competitive Caucasian and Asian American applicants with better incoming grades.

Researchers studied several university campuses to answer this question. The study involved comparing changes in overall student body GPA within universities who enacted an affirmative action policy to changes within universities who did not enact an affirmative action policy.

The number of universities in which the overall GPA of the student body increased and the number of universities in which the overall GPA of the student body decreased are recorded below. Although the exact number of students in each group are not the same, but this does not prevent assessment of results.

Please indicate whether the study shows that affirmative action is likely to increase or decrease the overall GPA at a university.
What result does the study support?

1. Universities with affirmative action were more likely to have an increase in overall GPA than those that did not.
2. Universities with affirmative action were more likely to have a decrease in overall GPA than those that did not.

Universities in the United States have been investigating whether affirmative action increases or decreases overall student body GPA. University administrators are confident that affirmative action increases overall GPA because a student body composed of racially and ethnically diverse students brings unique perspectives, and everyone benefits from diversity.

Researchers studied several university campuses to answer this question. The study involved comparing changes in overall student body GPA within universities who enacted an affirmative action policy to changes within universities who did not enact an affirmative action policy.

The number of universities in which the overall GPA of the student body increased and the number of universities in which the overall GPA of the student body decreased are recorded below. Although the exact number of students in each group are not the same, but this does not prevent assessment of results.

Please indicate whether the study shows that affirmative action is likely to increase or decrease the overall GPA at a university.

<table>
<thead>
<tr>
<th>Results</th>
<th>Decrease in GPA</th>
<th>Increase in GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universities with Affirmative Action</td>
<td>19</td>
<td>56</td>
</tr>
<tr>
<td>Universities without Affirmative Action</td>
<td>5</td>
<td>26</td>
</tr>
</tbody>
</table>

Table C1. Conservative Supporting Statistics
What result does the study support?
1. Universities with affirmative action were more likely to have an increase in overall GPA than those that did not
2. Universities with affirmative action were more likely to have a decrease in overall GPA than those that did not

Universities have been investigating the effect of affirmative action on student body GPA. University administrators are confident that affirmative action decreases overall GPA because lower performing minority students with worse incoming standardized test scores may be prioritized over better performing applicants with higher incoming scores.

Researchers studied several university campuses to answer this question. The study involved comparing changes in overall student body GPA within universities who enacted an affirmative action policy to changes within universities who did not enact an affirmative action policy.

The number of universities in which the overall GPA of the student body increased and the number of universities in which the overall GPA of the student body decreased are recorded below. Although the exact number of students in each group are not the same, but this does not prevent assessment of results.

Please indicate whether the study shows that affirmative action is likely to increase or decrease the overall GPA at a university.

<table>
<thead>
<tr>
<th></th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Decrease in GPA</td>
</tr>
<tr>
<td>Universities with Affirmative Action</td>
<td>19</td>
</tr>
<tr>
<td>Universities without Affirmative Action</td>
<td>5</td>
</tr>
</tbody>
</table>

Table C1. Conservative Supporting Statistics

What result does the study support?
1. Universities with affirmative action were more likely to have an increase in overall GPA than those that did not
2. Universities with affirmative action were more likely to have a decrease in overall GPA than those that did not
Universities in the United States have been investigating whether affirmative action increases or decreases overall student body GPA. University administrators are unsure if affirmative action increases overall GPA when the student body is composed of diverse and equally competitive students by bringing diverse perspectives in the classroom, or if affirmative action decreases overall GPA because less competitive minority applicants might be prioritized over more competitive Caucasian and Asian American applicants.

Researchers studied several university campuses to answer this question. The study involved comparing changes in overall student body GPA within universities who enacted an affirmative action policy to changes within universities who did not enact an affirmative action policy.

The number of universities in which the overall GPA of the student body increased and the number of universities in which the overall GPA of the student body decreased are recorded below. Although the exact number of students in each group are not the same, but this does not prevent assessment of results.

Please indicate whether the study shows that affirmative action is likely to increase or decrease the overall GPA at a university.

<table>
<thead>
<tr>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decrease in GPA</td>
</tr>
<tr>
<td>Universities with Affirmative Action</td>
</tr>
<tr>
<td>Universities without Affirmative Action</td>
</tr>
</tbody>
</table>

Table C1. Conservative Supporting Statistics

**What result does the study support?**
1. Universities with affirmative action were more likely to have an increase in overall GPA than those that did not
2. Universities with affirmative action were more likely to have a decrease in overall GPA than those that did not

Researchers have been investigating the effect of banning abortion on women's mental health outcomes. Abortions might prevent women from experiencing long term stress by allowing them the independence to safely avoid unwanted pregnancy, but also might be implicated in long term depression or regret surrounding their choices. It is unclear whether women experience better mental health outcomes or worse mental health outcomes after
receiving an abortion.

Researchers completed an international survey among women before and after they received or decided not (or were unable) to receive an abortion. Some women were surveyed following the implementation of strict abortion restrictions in the region in which they lived. These women therefore did not receive an abortion. Some women were surveyed following the removal of strict abortion restrictions in the region in which they lived. These women therefore did receive abortions.

The study involved comparing changes in the women's mental health outcomes within regions that restricted abortion to changes in women's mental health outcomes within regions that did not restrict abortions.

The number of women who experienced worsened mental health and the number of women who experienced improved mental health in areas with and without strict abortion restrictions are recorded in the table below. The exact number of women in each group is not the same, but this does not prevent assessment of the results.

Please indicate whether the study shows that instating an abortion ban is likely to worsen or improve mental health outcomes.

<table>
<thead>
<tr>
<th>Results</th>
<th>Worsened mental health</th>
<th>Improved mental health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women who did live in a region with an abortion ban</td>
<td>151</td>
<td>47</td>
</tr>
<tr>
<td>Women who did not live in a region with an abortion ban</td>
<td>75</td>
<td>14</td>
</tr>
</tbody>
</table>

Table C2. Statistics that support the conservative position “worsened mental health”

**What result does the study support?**

1. Women who lived in regions with an abortion ban were more likely to experience improvement in mental health outcomes those that did not
2. Women who lived in regions with an abortion ban were more likely to experience worsened mental health outcomes than those that did not

Researchers have been investigating whether banning abortion affects women's long term mental health. Researchers believe that abortions might prevent women from experiencing long term stress by allowing them to safely avoid unwanted pregnancy and therefore avoid suffering
financial hardship. It is unclear whether or not women experience better mental health outcomes or worse mental health outcomes after terminating a fetus.

Researchers completed an international survey among women before and after they received or decided not (or were unable) to receive an abortion. Some women were surveyed following the implementation of strict abortion restrictions in the region in which they lived. These women therefore did not receive an abortion. Some women were surveyed following the removal of strict abortion restrictions in the region in which they lived. These women therefore did receive abortions.

The study involved comparing changes in the women's mental health outcomes within regions that restricted abortion to changes in women's mental health outcomes within regions that did not restrict abortions.

The number of women who experienced worsened mental health and the number of women who experienced improved mental health in areas with and without strict abortion restrictions are recorded in the table below. The exact number of women in each group is not the same, but this does not prevent assessment of the results.

Please indicate whether the study shows that instating an abortion ban is likely to worsen or improve mental health outcomes.

<table>
<thead>
<tr>
<th></th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Worsened mental health</td>
</tr>
<tr>
<td>Women who did live in a region with an</td>
<td>151</td>
</tr>
<tr>
<td>abortion ban</td>
<td></td>
</tr>
<tr>
<td>Women who did not live in a region with an</td>
<td>75</td>
</tr>
<tr>
<td>abortion ban</td>
<td></td>
</tr>
</tbody>
</table>

Table C2. Statistics that support the conservative position “worsened mental health”

**What result does the study support?**
1. Women who lived in regions with an abortion ban were more likely to experience improvement in mental health outcomes those that did not
2. Women who lived in regions with an abortion ban were more likely to experience worsened mental health outcomes than those that did not

[ C7 Abortion Ban – Liberal anger inducing, Conservative supporting answer]

Researchers have been investigating the effects of abortion on women's long term mental health outcomes. Seeking an abortion could lead to long term depression or regret because aborting a
child can be an immoral and impulsive decision. It is unclear whether or not women experience better mental health outcomes or worse mental health outcomes after killing an unborn child.

Researchers completed an international survey among women before and after they received or decided not (or were unable) to receive an abortion. Some women were surveyed following the implementation of strict abortion restrictions in the region in which they lived. These women therefore did not receive an abortion. Some women were surveyed following the removal of strict abortion restrictions in the region in which they lived. These women therefore did receive abortions.

The study involved comparing changes in the women's mental health outcomes within regions that restricted abortion to changes in women's mental health outcomes within regions that did not restrict abortions.

The number of women who experienced worsened mental health and the number of women who experienced improved mental health in areas with and without strict abortion restrictions are recorded in the table below. The exact number of women in each group is not the same, but this does not prevent assessment of the results.

Please indicate whether the study shows that instating an abortion ban is likely to worsen or improve mental health outcomes.

<table>
<thead>
<tr>
<th></th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Worsened mental</td>
</tr>
<tr>
<td></td>
<td>health</td>
</tr>
<tr>
<td>Women who did</td>
<td>151</td>
</tr>
<tr>
<td>live in a region</td>
<td></td>
</tr>
<tr>
<td>with an abortion</td>
<td></td>
</tr>
<tr>
<td>ban</td>
<td>47</td>
</tr>
<tr>
<td>Women who did not</td>
<td>75</td>
</tr>
<tr>
<td>live in a region</td>
<td></td>
</tr>
<tr>
<td>with an abortion</td>
<td></td>
</tr>
<tr>
<td>ban</td>
<td>14</td>
</tr>
</tbody>
</table>

Table C2. Statistics that support the conservative position “worsened mental health”

What result does the study support?
1. Women who lived in regions with an abortion ban were more likely to experience improvement in mental health outcomes those that did not
2. Women who lived in regions with an abortion ban were more likely to experience worsened mental health outcomes than those that did not

Researchers have been investigating whether abortion restrictions affect women's mental health. Abortions might prevent women from experiencing long term stress by allowing them to safely
avoid continuing an unwanted pregnancy, but also might be implicated in long term depression or regret. It is unclear whether women experience better mental health outcomes or worse mental health outcomes after receiving an abortion.

Researchers completed an international survey among women before and after they received or decided not (or were unable) to receive an abortion. Some women were surveyed following the implementation of strict abortion restrictions in the region in which they lived. These women therefore did not receive an abortion. Some women were surveyed following the removal of strict abortion restrictions in the region in which they lived. These women therefore did receive abortions.

The study involved comparing changes in the women's mental health outcomes within regions that restricted abortion to changes in women's mental health outcomes within regions that did not restrict abortions.

The number of women who experienced worsened mental health and the number of women who experienced improved mental health in areas with and without strict abortion restrictions are recorded in the table below. The exact number of women in each group is not the same, but this does not prevent assessment of the results.

Please indicate whether the study shows that instating an abortion ban is likely to worsen or improve mental health outcomes.

<table>
<thead>
<tr>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worsened mental health</td>
</tr>
<tr>
<td>Improved mental health</td>
</tr>
<tr>
<td>Women who did live in a region with an abortion ban</td>
</tr>
<tr>
<td>Women who did not live in a region with an abortion ban</td>
</tr>
</tbody>
</table>

Table C2. Statistics that support the conservative position “worsened mental health”

What result does the study support?
1. Women who lived in regions with an abortion ban were more likely to experience improvement in mental health outcomes those that did not
2. Women who lived in regions with an abortion ban were more likely to experience worsened mental health outcomes than those that did not

[C9 Mandatory Anti-Bias Training – Affective condition, conservative answer]
County police departments have been investigating whether mandatory anti-bias training increases or decreases the number civilians shot by police. Department heads are unsure if anti-bias training will reduce the number of murdered civilian’s because officers will be more aware of their racial biases and therefore will consider alternative options to de-escalate situations before impulsively shooting minority civilians, or if civilian casualties will increase because anti-bias training leads to confusion and anxiety among police officers, making appropriate use of force decisions--and police officers' jobs in general-more difficult than they already are.

Researchers completed a study of police departments in high-crime, inner city areas to answer this question. The study involved comparing changes in civilian casualties within departments that did implement mandatory anti-bias training to changes in civilian casualties within departments that did not implement mandatory anti-bias training.

The number of departments in which the number of civilians shot by police decreased and the number of departments in which the number of civilians shot by police increased are recorded below. Although the exact number of civilians in each group is not the same, this did not prevent assessment of results.

Please indicate whether the study shows that mandatory anti-bias training is likely to decrease or increase the number of citizens who are shot by the police.

What result does the study support?

<table>
<thead>
<tr>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Decrease in the number of citizens shot</td>
</tr>
<tr>
<td>Departments that did require anti-bias training</td>
</tr>
<tr>
<td>Departments that did not require anti-bias training</td>
</tr>
</tbody>
</table>

Table C3. Statistics that support the conservative viewpoint “increase in the number of citizens shot.”

What results does the study support?
1. Departments that required anti-bias training were more likely to have increases in the number of citizens shot by police than those that did not.
2. Departments that required anti-bias training were more likely to have decreases in the number of citizens shot by police than those that did not.

[C10 Mandatory Anti-bias Training – Conservative anger inducing condition, conservative supporting answer]
A County Police Department has been investigating whether mandatory anti-bias training increases or decreases the number civilians shot by police. Department heads think that mandatory anti-bias training will reduce the number of civilian casualties because officers will be more aware of their racist biases and less likely to unjustifiably murder minority civilians.

Researchers completed a study of police departments in high-crime, inner city areas to answer this question. The study involved comparing changes in civilian casualties within departments that did implement mandatory anti-bias training to changes in civilian casualties within departments that did not implement mandatory anti-bias training.

The number of departments in which the number of civilians shot by police decreased and the number of departments in which the number of civilians shot by police increased are recorded below. Although the exact number of civilians in each group is not the same, this did not prevent assessment of results.

Please indicate whether the study shows that mandatory anti-bias training is likely to decrease or increase the number of citizens who are shot by the police.

What result does the study support?

<table>
<thead>
<tr>
<th>Results</th>
<th>Decrease in the number of citizens shot</th>
<th>Increase in the number of Citizens shot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Departments that did require anti-bias training</td>
<td>223</td>
<td>75</td>
</tr>
<tr>
<td>Departments that did not require anti-bias training</td>
<td>107</td>
<td>21</td>
</tr>
</tbody>
</table>

Table C3. Statistics that support the conservative viewpoint “increase in the number of citizens shot.”

What results does the study support?
1. Departments that required anti-bias training were more likely to have increases in the number of citizens shot by police than those that did not
2. Departments that required anti-bias training were more likely to have decreases in the number of citizens shot by police than those that did not

[ C11 Mandatory Anti-bias Training – Liberal anger inducing condition, conservative supporting answer]

A County Police Department has been investigating whether mandatory anti-bias training increases or decreases the number of civilians shot by police. Civilian casualties might increase
because anti-bias training makes police officers anxious, which in turn makes their jobs and use of force decisions even more difficult than they already are.

Researchers completed a study of police departments in high-crime, inner city areas to answer this question. The study involved comparing changes in civilian casualties within departments that did implement mandatory anti-bias training to changes in civilian casualties within departments that did not implement mandatory anti-bias training.

The number of departments in which the number of civilians shot by police decreased and the number of departments in which the number of civilians shot by police increased are recorded below. Although the exact number of civilians in each group is not the same, this did not prevent assessment of results.

Please indicate whether the study shows that mandatory anti-bias training is likely to decrease or increase the number of citizens who are shot by the police.

What result does the study support?

<table>
<thead>
<tr>
<th>Results</th>
<th>Decrease in the number of citizens shot</th>
<th>Increase in the number of Citizens shot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Departments that did require anti-bias training</td>
<td>223</td>
<td>75</td>
</tr>
<tr>
<td>Departments that did not require anti-bias training</td>
<td>107</td>
<td>21</td>
</tr>
</tbody>
</table>

Table C3. Statistics that support the conservative viewpoint “increase in the number of citizens shot.”

What results does the study support?
1. Departments that required anti-bias training were more likely to have increases in the number of civilians shot by police than those that did not.
2. Departments that required anti-bias training were more likely to have decreases in the number of civilians shot by police than those that did not.

[ C12 Mandatory Anti-bias Training – Neutral Condition, Conservative supporting answer]

County police departments have been investigating whether anti-bias training increases or decreases the number civilians shot by police. Department heads are unsure if anti-bias training will reduce civilian casualties because officers become aware of their bias and therefore consider ways to de-escalate situations before shooting minority civilians, or if civilian casualties will increase because anti-bias training might lead to anxiety among police officers, thereby making appropriate use of force decisions more difficult.
Researchers completed a study of police departments in high-crime, inner city areas to answer this question. The study involved comparing changes in civilian casualties within departments that did implement mandatory anti-bias training to changes in civilian casualties within departments that did not implement mandatory anti-bias training.

The number of departments in which the number of civilians shot by police decreased and the number of departments in which the number of civilians shot by police increased are recorded below. Although the exact number of civilians in each group is not the same, this did not prevent assessment of results

Please indicate whether the study shows that mandatory anti-bias training is likely to decrease or increase the number of citizens who are shot by the police.

What result does the study support?

<table>
<thead>
<tr>
<th>Results</th>
<th>Departments that did require anti-bias training</th>
<th>Departments that did not require anti-bias training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decrease in the number of civilians shot</td>
<td>223</td>
<td>107</td>
</tr>
<tr>
<td>Increase in the number of Citizens shot</td>
<td>75</td>
<td>21</td>
</tr>
</tbody>
</table>

Table C3. Statistics that support the conservative viewpoint “increase in the number of citizens shot.”

**What results does the study support?**

1. Departments that required anti-bias training were more likely to have increases in the number of citizens shot by police than those that did not
2. Departments that required anti-bias training were more likely to have decreases in the number of citizens shot by police than those that did not

[ C13 Controversial speakers at schools – Affective Condition, Conservative answer support]

Recently, speakers with controversial views have been prevented from speaking at university campus events. University administrators are interested in the impact of speaker censorship on student's satisfaction. On the one hand, students' satisfaction may increase because students do not want polarizing, possibly even hateful rhetoric on their campus. On the other hand, student satisfaction may decrease because they may consider insights to polarizing content to be valuable, regardless of whether they agree with them, because free speech and constructive dialogue is vital for academic institutions.
Researchers polled various U.S. campuses to address this question. The study involved comparing changes in student's self-reported satisfaction within schools that did take recent action to ban controversial speakers to changes within schools that did not take recent action to ban controversial speakers.

The number of universities in which student satisfaction decreased and the number of universities in which student satisfaction increased are recorded in the table below. The exact number of students in each group is not the same, but this does not prevent assessment of the results.

<table>
<thead>
<tr>
<th>Results</th>
<th>Decrease in Satisfaction</th>
<th>Increase in Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schools that did censor controversial speakers</td>
<td>642</td>
<td>126</td>
</tr>
<tr>
<td>Cities that did not censor controversial speakers</td>
<td>1,338</td>
<td>450</td>
</tr>
</tbody>
</table>

Table C4. Statistics that support the conservative viewpoint; **Decrease in satisfaction**

Please indicate whether the study shows that censoring controversial speakers is likely to decrease or increase student satisfaction

**What result does the study support?**
1. Schools that censored speakers were more likely to have an increase in student satisfaction than those that did not
2. Schools that censored speakers were more likely to have decrease in student satisfaction than those that did not

[C14 Controversial Speakers at schools – Conservative anger inducing condition, conservative supporting answer]

Recently, speakers with controversial views have been prevented from speaking at university campus events. University administrators are interested in the impact of speaker censorship on student's satisfaction. They assume that students' satisfaction may increase because students do not want polarizing and hateful opinions on their campus.

Researchers polled various U.S. campuses to address this question. The study involved comparing changes in student's self-reported satisfaction within schools that did take recent action to ban controversial speakers to changes within schools that did not take recent action to ban controversial speakers.

The number of universities in which student satisfaction decreased and the number of universities in which student satisfaction increased are recorded in the table below. The exact number of students in each group is not the same, but this does not prevent assessment of the results.
Results

<table>
<thead>
<tr>
<th>Schools that did censor controversial speakers</th>
<th>Increase in Satisfaction</th>
<th>Decrease in Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>642</td>
<td>126</td>
<td></td>
</tr>
<tr>
<td>Cities that did not censor controversial speakers</td>
<td>1,338</td>
<td>450</td>
</tr>
</tbody>
</table>

Table C4. Statistics that support the conservative viewpoint; **Decrease in satisfaction**

Please indicate whether the study shows that censoring controversial speakers is likely to decrease or increase student satisfaction

**What result does the study support?**
1. Schools that censored speakers were more likely to have an increase in student satisfaction than those that did not
2. Schools that censored speakers were more likely to have decrease in student satisfaction than those that did not

Researchers polled various U.S. campuses to address this question. The study involved comparing changes in student's self-reported satisfaction within schools that did take recent action to ban controversial speakers to changes within schools that did not take recent action to ban controversial speakers.

The number of universities in which student satisfaction **decreased** and the number of universities in which student satisfaction **increased** are recorded in the table below. The exact number of students in each group is not the same, but this does not prevent assessment of the results.
Recently, speakers with controversial views have been prevented from speaking at university campus events. University administrators are interested whether speaker censorship increases or decreases students' satisfaction. On the one hand, satisfaction may increase because students do not want potentially polarizing rhetoric on their campus. On the other hand, student satisfaction may decrease because they may consider the insights from potentially polarizing content to be valuable, regardless of whether they agree with the content.

Researchers polled various U.S. campuses to address this question. The study involved comparing changes in student's self-reported satisfaction within schools that did take recent action to ban controversial speakers to changes within schools that did not take recent action to ban controversial speakers.

The number of universities in which student satisfaction decreased and the number of universities in which student satisfaction increased are recorded in the table below. The exact number of students in each group is not the same, but this does not prevent assessment of the results.
Results

<table>
<thead>
<tr>
<th></th>
<th>Decrease in Satisfaction</th>
<th>Increase in Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schools that <strong>did</strong> censor controversial speakers</td>
<td>642</td>
<td>126</td>
</tr>
<tr>
<td>Cities that <strong>did not</strong> censor controversial speakers</td>
<td>1,338</td>
<td>450</td>
</tr>
</tbody>
</table>

Table C4. Statistics that support the conservative viewpoint; **Decrease in satisfaction**

Please indicate whether the study shows that censoring controversial speakers is likely to decrease or increase student satisfaction

**What result does the study support?**
1. Schools that censored speakers were more likely to have an increase in student satisfaction than those that did not
2. Schools that censored speakers were more likely to have decrease in student satisfaction than those that did not

[C17 Critical race theory – Affective condition, Conservative supporting condition]

School districts have been interested in the effect of Critical Race Theory curriculum on elementary school student friendships. On one hand, some district officials expect friendships among students to increase because students are more informed about topics of diversity, social justice and inclusion. Alternatively, others might expect a critical race theory curriculum to foster insecurity and resentment among students by teaching them that White people are "oppressors" and Minorities are "the oppressed", thereby leading to decreased friendships.

Researchers have investigated this question in numerous school districts across the country. The study involved comparing the change in number of interracial friendships within schools that have recently mandated critical race theory curriculum to the change in number of interracial friendships within schools that have not recently mandated critical race theory curriculum.

In the table below is the number schools where friendships increased and the number of schools where friendships decreased. The exact number of schools is not the same, but this does not prevent assessment of results.

Please indicate whether the study shows that requiring a mandatory critical race theory course is likely to result in a decrease in friendships or an increase in friendships.
Results

<table>
<thead>
<tr>
<th></th>
<th>Decrease in Friendships</th>
<th>Increase in Friendships</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schools that <strong>did</strong> require Critical Race Theory courses</td>
<td>300</td>
<td>842</td>
</tr>
<tr>
<td>Schools that <strong>did not</strong> require Critical Race Theory courses</td>
<td>84</td>
<td>438</td>
</tr>
</tbody>
</table>

Table C5. Statistics supporting the conservative viewpoint “Decrease in Friendships”

**What result does the study support?**

1. Schools that required a mandatory critical race theory course were more likely to see an increase in friendships than those that did not.
2. Schools that required a mandatory critical race theory course were more likely to see a decrease in friendships than those that did not.

[ C18 Critical race theory – Conservative anger inducing condition, conservative supporting answer ]

School districts have been interested in the effect of Critical Race Theory curriculum on elementary school student friendships. On one hand, some district officials expect friendships among students to increase because students are more informed about topics of diversity, social justice and inclusion. Alternatively, others might expect a critical race theory curriculum to foster insecurity and resentment among students by teaching them that White people are "oppressors" and Minorities are "the oppressed", thereby leading to decreased friendships.

Researchers have investigated this question in numerous school districts across the country. The study involved comparing the change in number of interracial friendships within schools that have recently mandated critical race theory curriculum to the change in number of interracial friendships within schools that have not recently mandated critical race theory curriculum.

In the table below is the number schools where friendships increased and the number of schools where friendships decreased. The exact number of schools is not the same, but this does not prevent assessment of results.

Please indicate whether the study shows that requiring a mandatory critical race theory course is likely to result in a decrease in friendships or an increase in friendships.
<table>
<thead>
<tr>
<th>Results</th>
<th>Decrease in Friendships</th>
<th>Increase in Friendships</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schools that <strong>did</strong> require Critical Race Theory courses</td>
<td>300</td>
<td>842</td>
</tr>
<tr>
<td>Schools that <strong>did not</strong> require Critical Race Theory courses</td>
<td>84</td>
<td>438</td>
</tr>
</tbody>
</table>

Table C5. Statistics supporting the conservative viewpoint “Decrease in Friendships”

**What result does the study support?**
1. Schools that required a mandatory critical race theory course were more likely to see an increase in friendships than those that did not.
2. Schools that required a mandatory critical race theory course were more likely to see a decrease in friendships than those that did not.

[ C19 Critical race theory – Liberal anger inducing condition, conservative supporting answer]

School districts have been interested in the effect of Critical Race Theory curriculum on elementary school student relationships. Specifically, district officials expect a critical race theory curriculum to foster resentment and insecurity among students by inappropriately teaching them that White people are universally "the oppressors" and minorities are universally the "the oppressed", thereby leading to decrease friendships.

Researchers have investigated this question in numerous school districts across the country. The study involved comparing the change in number of interracial friendships within schools that have recently mandated critical race theory curriculum to the change in number of interracial friendships within schools that have not recently mandated critical race theory curriculum.

In the table below is the number schools where friendships increased and the number of schools where friendships decreased. The exact number of schools is not the same, but this does not prevent assessment of results.

Please indicate whether the study shows that requiring a mandatory critical race theory course is likely to result in a decrease in friendships or an increase in friendships.
## Results

<table>
<thead>
<tr>
<th></th>
<th>Decrease in Friendships</th>
<th>Increase in Friendships</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schools that <strong>did</strong> require Critical Race Theory courses</td>
<td>300</td>
<td>842</td>
</tr>
<tr>
<td>Schools that <strong>did not</strong> require Critical Race Theory courses</td>
<td>84</td>
<td>438</td>
</tr>
</tbody>
</table>

Table C5. Statistics supporting the conservative viewpoint “Decrease in Friendships”

**What result does the study support?**

1. Schools that required a mandatory critical race theory course were more likely to see an increase in friendships than those that did not
2. Schools that required a mandatory critical race theory course were more likely to see a decrease in friendships than those that did not

[C20 Critical race theory – Neutral condition, Conservative supporting answer]

School districts are interested whether Critical Race Theory curriculum increases or decreases elementary school student friendships. On one hand, some district officials might expect friendships among students to increase because students are more informed about topics of diversity and inclusion. Alternatively, others might expect an increase in resentment between students of different races, thereby leading to decreased friendships.

Researchers have investigated this question in numerous school districts across the country. The study involved comparing the change in number of interracial friendships within schools that have recently mandated critical race theory curriculum to the change in number of interracial friendships within schools that have not recently mandated critical race theory curriculum.

In the table below is the number schools where friendships increased and the number of schools where friendships decreased. The exact number of schools is not the same, but this does not prevent assessment of results.

Please indicate whether the study shows that requiring a mandatory critical race theory course is likely to result in a decrease in friendships or an increase in friendships.
## Results

<table>
<thead>
<tr>
<th></th>
<th>Decrease in Friendships</th>
<th>Increase in Friendships</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schools that <strong>did</strong> require Critical Race Theory courses</td>
<td>300</td>
<td>842</td>
</tr>
<tr>
<td>Schools that <strong>did not</strong> require Critical Race Theory courses</td>
<td>84</td>
<td>438</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Schools that <strong>did</strong> require Critical Race Theory courses</strong></th>
<th><strong>Schools that <strong>did not</strong> require Critical Race Theory courses</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>842</td>
</tr>
<tr>
<td>84</td>
<td>438</td>
</tr>
</tbody>
</table>

Table C5. Statistics supporting the conservative viewpoint “**Decrease in Friendships**”

**What result does the study support?**

1. Schools that required a mandatory critical race theory course were more likely to see an increase in friendships than those that did not.
2. Schools that required a mandatory critical race theory course were more likely to see a decrease in friendships than those that did not.

[ C21 Social media community guidelines – Affective condition, Conservative supporting answer]

Social media executives have been investigating the effects of account suspensions for community guidelines violations on overall user satisfaction with their platform. Usually, suspensions are administered to users who spread toxic misinformation. It is unclear if the overall user satisfaction decreases because users feel as though social media companies are attacking their ability to express their opinion, or if the user satisfaction increases because users feel as though they are a part of a safer community.

Researchers assessed polls distributed on various social media platforms to answer this question. The study involved comparing changes in users' satisfaction within platforms that have recently made their account suspension policy more restrictive (meaning they suspend more accounts) to changes in user satisfaction within platforms that have recently made their account suspensions policy more relaxed (meaning they suspend less accounts).

The number of users who reported **increased** or **decreased** satisfaction are provided below. The exact number of platform users surveyed on each platform is not the same, but this does not prevent assessment of results. Please indicate whether the study shows that account suspension policies are likely to increase or decrease user satisfaction with the platform.

**What result does the study support?**
Table C6. Statistics that support the conservative position; **Decrease in satisfaction**

**What result does the study support?**

1. Platforms that administered more suspensions were more likely to see an increase in user satisfaction than those that did not.
2. Platforms that administered more suspensions were more likely to see a decrease in user satisfaction than those that did not.

Social media executives have been investigating the effects of account suspensions for community guidelines violations on overall user satisfaction with their platform. Usually, suspensions are administered to users who spread hate speech as well as political and COVID-19 misinformation. Executives feel as though overall user satisfaction should increase because users will feel like they are a part of a safer community that is free of false information, bad ideas, and hurtful, racist, and sexist opinions.

Social media executives have been investigating the effects of account suspensions for community guidelines violations on overall user satisfaction with their platform. Usually, suspensions are administered to users who spread toxic misinformation. It is unclear if the overall user satisfaction decreases because users feel as though social media companies are attacking their ability to express their opinion, or if the user satisfaction increases because users feel as though they are a part of a safer community.

Researchers assessed polls distributed on various social media platforms to answer this question. The study involved comparing changes in users' satisfaction within platforms that have recently made their account suspension policy more restrictive (meaning they suspend more accounts) to changes in user satisfaction within platforms that have recently made their account suspensions policy more relaxed (meaning they suspend less accounts).

The number of users who reported increased or decreased satisfaction are provided below. The exact number of platform users surveyed on each platform is not the same, but this does not prevent assessment of results.

Please indicate whether the study shows that account suspension policies are likely to increase or decrease user satisfaction with the platform.

**What result does the study support?**
Table C6. Statistics that support the conservative position; **Decrease in satisfaction**

**What result does the study support?**

1. Platforms that administered more suspensions were more likely to see an increase in user satisfaction than those that did not.
2. Platforms that administered more suspensions were more likely to see a decrease in user satisfaction than those that did not.

Social media executives have been investigating the effects of account suspensions for community guidelines violations on users' satisfaction with their platform. Suspensions are administered to users who spread what some have called "hate speech" and "misinformation". Executives feel as though overall user satisfaction should decrease because users will feel that account suspensions are an attack on their constitutional right to free speech.

Researchers assessed polls distributed on various social media platforms to answer this question. The study involved comparing changes in users' satisfaction within platforms that have recently made their account suspension policy more restrictive (meaning they suspend more accounts) to changes in user satisfaction within platforms that have recently made their account suspensions policy more relaxed (meaning they suspend less accounts).

The number of users who reported increased or decreased satisfaction are provided below. The exact number of platform users surveyed on each platform is not the same, but this does not prevent assessment of results. Please indicate whether the study shows that account suspension policies are likely to increase or decrease user satisfaction with the platform.

What result does the study support?
## Results

<table>
<thead>
<tr>
<th></th>
<th>Decrease in Satisfaction</th>
<th>Increase in Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platforms that administered more suspensions</td>
<td>27,573</td>
<td>7,575</td>
</tr>
<tr>
<td>Platforms that administered less suspensions</td>
<td>10,807</td>
<td>2,121</td>
</tr>
</tbody>
</table>

Table C6. Statistics that support the conservative position; **Decrease in satisfaction**

**What result does the study support?**

1. Platforms that administered more suspensions were more likely to see an increase in user satisfaction than those that did not
2. Platforms that administered more suspensions were more likely to see a decrease in user satisfaction than those that did not

Social media executives have been investigating whether account suspensions increase or decrease overall user satisfaction with different platforms. Usually, suspensions are administered to users who post false or misleading information. Some executives think that overall user satisfaction decreases because users feel as though suspensions result from free speech censorship, and others think that overall user satisfaction increases because users feel as though they are a part of a more accurately informed community.

Researchers assessed polls distributed on various social media platforms to answer this question. The study involved comparing changes in users' satisfaction within platforms that have recently made their account suspension policy more restrictive (meaning they suspend more accounts) to changes in user satisfaction within platforms that have recently made their account suspensions policy more relaxed (meaning they suspend less accounts)

The number of users who reported increased or decreased satisfaction are provided below. The exact number of platform users surveyed on each platform is not the same, but this does not prevent assessment of results. Please indicate whether the study shows that account suspension policies are likely to increase or decrease user satisfaction with the platform.

What result does the study support?
<table>
<thead>
<tr>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Decrease in Satisfaction</td>
</tr>
<tr>
<td>Increase in Satisfaction</td>
</tr>
<tr>
<td>Platforms that administered more suspensions</td>
</tr>
<tr>
<td>Platforms that administered less suspensions</td>
</tr>
</tbody>
</table>

Table C6. Statistics that support the conservative position; **Decrease in satisfaction**

**What result does the study support?**

1. Platforms that administered more suspensions were more likely to see an increase in user satisfaction than those that did not
2. Platforms that administered more suspensions were more likely to see a decrease in user satisfaction than those that did not

City-level governments are interested in whether defunding the police increases or decreases city level violent crime rates. Government officials are unsure if defunding the police will lead to a drastic increase in the number of violent crimes because officers will have less resources to protect citizens and combat crime, or if defunding the police will soften the causes of violent crimes by freeing up money to fund basic social safety nets that support the community such as low-income housing and food pantries, which will remove reasons to commit crime in the first place.

Researchers studied various cities across the United States to answer this question. The study involved comparing changes in annual violent crime rates within one group of cities that had defunded the police to changes in violent crime rates within a second group of cities that had not defunded the police.

The number of cities in which arrests decreased and the number cities in which arrests increased are recorded below. Although the exact number of arrests in each group is not the same, this does not prevent assessment of results.

Please indicate whether the study shows that defunding the police is likely to decrease crime rates or **increase** crime rates.
Table C7. Statistics that support the conservative viewpoint; “Increase in Crime.”

**What result does the study support?**
1. Cities that defunded the police were more likely to experience *increases* in crime than those that did not
2. Cities that defunded the police were more likely to experience *decreases* in crime than those that did not

<table>
<thead>
<tr>
<th></th>
<th>Decrease in Crime</th>
<th>Increase in Crime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cities that did reallocate funds</td>
<td>446</td>
<td>150</td>
</tr>
<tr>
<td>Cities that did not reallocate funds</td>
<td>214</td>
<td>42</td>
</tr>
</tbody>
</table>

City-level governments are interested in whether defunding the police increases or decreases city level crime rates. Government officials think that defunding the police might reduce violent crimes by freeing up taxpayer money to fund necessary basic social safety nets such as low-income housing and food pantries, which will remove reasons that people have to commit crime in the first place.

Researchers studied various cities across the United States to answer this question. The study involved comparing changes in annual violent crime rates within one group of cities that had defunded the police to changes in violent crime rates within a second group of cities that had not defunded the police.

The number of cities in which arrests decreased and the number cities in which arrests increased are recorded below. Although the exact number of arrests in each group is not the same, this does not prevent assessment of results.

Please indicate whether the study shows that defunding the police is likely to *decrease* crime rates or *increase* crime rates.
Table C7. Statistics that support the conservative viewpoint; “Increase in Crime.”

<table>
<thead>
<tr>
<th>Results</th>
<th>Decrease in Crime</th>
<th>Increase in Crime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cities that did reallocate funds</td>
<td>446</td>
<td>150</td>
</tr>
<tr>
<td>Cities that did not reallocate funds</td>
<td>214</td>
<td>42</td>
</tr>
</tbody>
</table>

What result does the study support?
1. Cities that defunded the police were more likely to experience increases in crime than those that did not.
2. Cities that defunded the police were more likely to experience decreases in crime than those that did not.

City-level governments are interested in whether defunding the police increases or decreases city level violent crime rates. Government officials think that defunding the police will increase the number of violent crimes because officers will be stripped of the resources (e.g., weapons) they need to detect and combat bad people.

City-level governments are interested in whether defunding the police increases or decreases city level violent crime rates. Government officials are unsure if defunding the police will lead to a drastic increase in the number of violent crimes because officers will have less resources to protect citizens and combat crime, or if defunding the police will soften the causes of violent crimes by freeing up money to fund basic social safety nets that support the community such as low-income housing and food pantries, which will remove reasons to commit crime in the first place.

Researchers studied various cities across the United States to answer this question. The study involved comparing changes in annual violent crime rates within one group of cities that had defunded the police to changes in violent crime rates within a second group of cities that had not defunded the police.

The number of cities in which arrests decreased and the number cities in which arrests increased are recorded below. Although the exact number of arrests in each group is not the same, this does not prevent assessment of results.

Please indicate whether the study shows that defunding the police is likely to decrease crime rates or increase crime rates.
Table C7. Statistics that support the conservative viewpoint; “Increase in Crime.”

What result does the study support?
1. Cities that defunded the police were more likely to experience increases in crime than those that did not
2. Cities that defunded the police were more likely to experience decreases in crime than those that did not

<table>
<thead>
<tr>
<th></th>
<th>Decrease in Crime</th>
<th>Increase in Crime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cities that did</td>
<td>446</td>
<td>150</td>
</tr>
<tr>
<td>reallocate funds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cities that did not</td>
<td>214</td>
<td>42</td>
</tr>
<tr>
<td>reallocate funds</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

City-level governments are interested in whether reallocating police department funding increases or decreases city level violent crime rates. Government officials are unsure if defunding the police will increase the number of violent crimes because officers will have less resources to detect and combat crime, or if defunding the police will reduce violent crimes by freeing up money to fund basic social safety nets such as low-income housing and food pantries, which might remove reasons to commit crime in the first place.

City-level governments are interested in whether defunding the police increases or decreases city level violent crime rates. Government officials are unsure if defunding the police will lead to a drastic increase in the number of violent crimes because officers will have less resources to protect citizens and combat crime, or if defunding the police will soften the causes of violent crimes by freeing up money to fund basic social safety nets that support the community such as low-income housing and food pantries, which will remove reasons to commit crime in the first place.

Researchers studied various cities across the United States to answer this question. The study involved comparing changes in annual violent crime rates within one group of cities that had defunded the police to changes in violent crime rates within a second group of cities that had not defunded the police.

The number of cities in which arrests decreased and the number cities in which arrests increased are recorded below. Although the exact number of arrests in each group is not the same, this does not prevent assessment of results.
Please indicate whether the study shows that defunding the police is likely to decrease crime rates or increase crime rates.

<table>
<thead>
<tr>
<th></th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Decrease in Crime</td>
</tr>
<tr>
<td>Cities that did reallocates funds</td>
<td>446</td>
</tr>
<tr>
<td>Cities that did not reallocates funds</td>
<td>214</td>
</tr>
</tbody>
</table>

Table C7. Statistics that support the conservative viewpoint; “Increase in Crime.”

**What result does the study support?**
1. Cities that defunded the police were more likely to experience increases in crime than those that did not
2. Cities that defunded the police were more likely to experience decreases in crime than those that did not

[C30 Transgender athletes – Affective condition, Conservative supporting answer]

School districts have been considering the merits of allowing transgender women to compete in women's high school sports. It is unknown if team morale increases or decreases as a result of allowing transgender women to join the team. On one hand, some believe that players may feel proud that they are able to participate in an inclusive sport, thereby increasing team morale. Alternatively, others believe that allowing transgender women to compete against ciswomen gives them an unfair advantage and will reduce the morale of ciswomen.

Researchers completed a comprehensive study of team morale in numerous school districts across the country. The study involved comparing team morale within a group of districts that did allow transgender women to participate in sports to team morale within a group of districts that did not allow transgender women to participate in sports.

In each group, the number of teams in which team morale decreased and the number of teams in which team morale increased are recorded in the table below. The exact number of districts in each group is not the same, but this does not prevent assessment of the results.

Please indicate whether the study shows that allowing transgender women to participate in sports decreases team morale or increases team morale.
School districts have been considering the merits of allowing transgender women to compete in women's' high school sports. It is unknown if team morale increases or decreases as a result of allowing transgender women to join the team. Districts expect that female athletes may feel proud that they are able to participate in a progressive and open-minded team, thereby increasing team morale.

Researchers completed a comprehensive study of team morale in numerous school districts across the country. The study involved comparing team morale within a group of districts that did allow transgender women to participate in sports to team morale within a group of districts than did not allow transgender women to participate in sports.

In each group, the number of teams in which team morale decreased and the number of teams in which team morale increased are recorded in the table below. The exact number of districts in each group is not the same, but this does not prevent assessment of the results.

Please indicate whether the study shows that allowing transgender women to participate in sports decreases team morale or increases team morale.

| Results |
|------------------|------------------|
| Decrease in team morale | Increase in team morale |
| **Districts that did allow transgender athletes to compete** | 150 | 446 |
| **Districts that did not allow transgender athletes to compete** | 42 | 214 |

Table C8. Statistics that support the conservative condition; “Decrease in team morale.”

**What result does the study support?**

1. Districts that allowed transgender women to participate in sports were more likely to have an increase in team morale than those that did not
2. Districts that allowed transgender women to participate in sports were more likely to have a decrease in team morale than those that did not
School districts have been considering the merits of allowing transgender women to compete in women's high school sports. It is unknown if the team morale increases or decreases as a result of allowing transgender women to join the team. Districts expect that allowing transgender women to compete against women gives them an unfair advantage and will reduce the morale of women.

Researchers completed a comprehensive study of team morale in numerous school districts across the country. The study involved comparing team morale within a group of districts that did allow transgender women to participate in sports to team morale within a group of districts than did not allow transgender women to participate in sports.

In each group, the number of teams in which team morale decreased and the number of teams in which team morale increased are recorded in the table below. The exact number of districts in each group is not the same, but this does not prevent assessment of the results.

Please indicate whether the study shows that allowing transgender women to participate in sports decreases team morale or increases team morale.

<table>
<thead>
<tr>
<th>Results</th>
<th>Decrease in team morale</th>
<th>Increase in team morale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Districts that did allow transgender athletes to compete</td>
<td>150</td>
<td>446</td>
</tr>
<tr>
<td>Districts that did not allow transgender athletes to compete</td>
<td>42</td>
<td>214</td>
</tr>
</tbody>
</table>

Table C8. Statistics that support the conservative condition; “Decrease in team morale.”

What result does the study support?
1. Districts that allowed transgender women to participate in sports were more likely to have an increase in team morale than those that did not
2. Districts that allowed transgender women to participate in sports were more likely to have a decrease in team morale than those that did not
School districts have been considering the merits of allowing transgender women to compete in women's high school sports. It is unknown if team morale increases or decreases as a result of allowing transgender women to join the team. On one hand, some believe that players may feel proud that they are able to participate in an inclusive sport, thereby increasing team morale. Alternatively, others believe that allowing transgender women to compete against ciswomen gives them an unfair advantage and will reduce the morale of ciswomen.

Researchers completed a comprehensive study of team morale in numerous school districts across the country. The study involved comparing team morale within a group of districts that did allow transgender women to participate in sports to team morale within a group of districts than did not allow transgender women to participate in sports.

In each group, the number of teams in which team morale decreased and the number of teams in which team morale increased are recorded in the table below. The exact number of districts in each group is not the same, but this does not prevent assessment of the results.

Please indicate whether the study shows that allowing transgender women to participate in sports decreases team morale or increases team morale.

<table>
<thead>
<tr>
<th></th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Decrease in team morale</td>
</tr>
<tr>
<td>Districts that did allow transgender athletes to compete</td>
<td>150</td>
</tr>
<tr>
<td>Districts that did not allow transgender athletes to compete</td>
<td>42</td>
</tr>
</tbody>
</table>

Table C8. Statistics that support the conservative condition; “Decrease in team morale.”

What result does the study support?
1. Districts that allowed transgender women to participate in sports were more likely to have an increase in team morale than those that did not
2. Districts that allowed transgender women to participate in sports were more likely to have a decrease in team morale than those that did not

Medical researchers have developed a new cream for treating skin rashes. New treatments often work but sometimes make rashes worse. Even when treatments don't work, skin rashes sometimes get better and sometimes get worse on their own. As a result, it is necessary to test any new treatment in an experiment to see whether it makes the skin condition of those who use it better or worse than if they had not used it.
Researchers have conducted an experiment on patients with skin rashes. In the experiment, one group of patients used the new cream for two weeks, and a second group did not use the new cream.

In each group, the number of people whose skin condition got better and the number whose condition got worse are recorded in the table below. Because patients do not always complete studies, the total number of patients in each two groups is not exactly the same, but this does not prevent assessment of the results.

Please indicate whether the experiment shows that using the new cream is likely to make the skin condition better or worse.

<table>
<thead>
<tr>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rash Got Worse</td>
</tr>
<tr>
<td>----------------------------</td>
</tr>
<tr>
<td>Patients that did use the new skin cream</td>
</tr>
<tr>
<td>Patients that did not use the new skin cream</td>
</tr>
</tbody>
</table>

Table C9. Statistics that support the conclusion that the" rash got better."

What result does the study support?
1. Patients who used the new skin cream were more likely to get better than those that didn't.
2. Patients who used the new skin cream were more likely to get worse than those who didn't.

[C35 Skin rash scenario, Skin got worse]

Medical researchers have developed a new cream for treating skin rashes. New treatments often work but sometimes make rashes worse. Even when treatments don't work, skin rashes sometimes get better and sometimes get worse on their own. As a result, it is necessary to test any new treatment in an experiment to see whether it makes the skin condition of those who use it better or worse than if they had not used it.

Researchers have conducted an experiment on patients with skin rashes. In the experiment, one group of patients used the new cream for two weeks, and a second group did not use the new cream.

In each group, the number of people whose skin condition got better and the number whose condition got worse are recorded in the table below. Because patients do not always complete studies, the total number of patients in each two groups is not exactly the same, but this does not prevent assessment of the results.
Please indicate whether the experiment shows that using the new cream is likely to make the skin condition better or worse.

<table>
<thead>
<tr>
<th>Results</th>
<th>Rash Got Worse</th>
<th>Rash Got Better</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients that did use the new skin cream</td>
<td>102</td>
<td>21</td>
</tr>
<tr>
<td>Patients that did not use the new skin cream</td>
<td>213</td>
<td>71</td>
</tr>
</tbody>
</table>

Table C9. Statistics that support the conclusion that the “rash got worse.”

**What result does the study support?**
1. Patients who used the new skin cream were more likely to get better than those who didn't.
2. Patients who used the new skin cream were more likely to get worse than those who didn't.

**Appendix D**

Survey Questions

1. Generally speaking, do you usually think of yourself as a Republican, Democrat, Independent or what?
2. What is your political orientation? (1= Very Liberal, 7= Very conservative)
3. What is your political orientation on social issues? (1= Very Liberal, 7= Very conservative)
4. What is your political orientation on economic issues? (1= Very Liberal, 7= Very conservative)
5. Please rate your feelings towards Democrats (0= very unfavorable, 100= very favorable)
6. Please rate your feelings towards Republicans (0= very unfavorable, 100= very favorable)
7. Police departments should receive less funding, instead, the funding should be allocated to social safety nets. (1= Strongly disagree, 7= Strongly agree)
8. Police should receive mandatory anti-bias training modules, as to avoid instances of racial profiling. (1= Strongly disagree, 7= Strongly agree)
9. Affirmative action should be considered in the college admissions process. (1= Strongly disagree, 7= Strongly agree)
10. Speakers with controversial political rhetoric should be allowed to speak at schools, regardless of the content of their rhetoric. (1= Strongly disagree, 7= Strongly agree)
11. Social media accounts should implement ramifications for users who spread political and scientific misinformation (1= Strongly disagree, 7= Strongly agree)
12. States should have the authority to implement bans and limits on abortion (1= Strongly disagree, 7= Strongly agree)
13. It is beneficial to provide mandated Critical Race Theory courses for students. (1= Strongly disagree, 7= Strongly agree)
14. High schools should allow transgender athletes to compete on the same team as cisgender athletes. (1= Strongly disagree, 7= Strongly agree)