# COGNITIVE, AFFECTIVE, AND PERSONALITY PREDICTORS OF CONFIRMATORY POLITICAL INFORMATION SEEKING

by

Michael Brunswick

A thesis submitted to the faculty of
The University of North Carolina at Charlotte
in partial fulfillment of the requirements
for the degree of Master of Arts in
Psychology

Charlotte

2021

Approved by:

_____
Dr. Sara Levens

_____
Dr. Doug Markant

_____
Dr. Alexia Galati

# ABSTRACT

MICHAEL BRUNSWICK: COGNITIVE, AFFECTIVE, AND PERSONALITY PREDICTORS OF CONFIRMATORY INFORMATION SEEKING
(Under the direction of DR. SARA LEVENS)

Confirmation bias is the phenomenon where an individual seeks, navigates, and processes information in ways to reinforce previously held beliefs or attitudes. Contentious political climates exacerbate effects of confirmatory information seeking, with potentially dire divisive consequences. The present two studies bring together current research in political science and psychology to try to predict confirmation bias behaviors. Specifically, the studies assess affective constructs, including mood state, emotion regulation, and need for affect (NfA), as well as personality driven cognitive constructs, including openness to new experiences and need for cognition (NfC) on the seeking of confirmatory or non-confirmatory political information. Data from Study One was collected before and after the 2016 election and examines the impact of openness to experience, emotion regulation, and their interactions on the seeking of confirmatory political information. Study Two data was from a multi-timepoint survey in the first year and a half of President Trump's term to examine the impact of emotional state, NfA, NfC, and emotion regulation, and their interactions on discussion seeking with those of dissimilar political views. Multiple moderated hierarchical regressions suggest that individuals who use more engagement-oriented emotion regulation strategies (like reappraisal), have high NfC, or high NfA may be less likely to seek information that confirms their political views. These findings suggest that there may be a combinatorial influence of cognitive and affective influencers related to real world information seeking indicative of confirmation bias.

TABLE OF CONTENTS

# LIST OF TABLES

# LIST OF FIGURES

# LIST OF ABBREVIATIONS

| | |
|---|---|
| CCES | The Cooperative Congressional Election Study |
| EPA | Environmental Protection Agency |
| NfA | need for affect |
| NfC | need for cognition |
| VIF | variance inflation factor |
| UNCC | University of North Carolina at Charlotte |

## Introduction

People constantly rely on assumptions and belief systems to make decisions. However, in certain contexts it may be more beneficial for individuals to shift to using factual, less biased, and more objective thinking patterns to form their opinions and decisions. A particular context heavily characterized by strong belief systems influencing decisions is politics (Arceneaux, et al 2017). In the United States, a two-party system and partisan news media have created an environment where individuals often rely on their belief systems to seek, navigate, or assign credibility to new information, rather than the pursuit of factual and credible information. This confirmatory environment reinforces existing viewpoints as correct rather than allowing an individual to incorporate new information and non-confirmatory content into their thinking. Considering the vast amount of information on the internet, and the information propagation capabilities of social media, it is critical for individuals to be able to identify accurate, trustworthy information and form opinions that do not rely on previous beliefs alone. Research delving into cognition, affect, and personality interactions may provide a way for researchers to mitigate or decrease information seeking behaviors indicative of confirmation bias in contexts where individuals more intensely attempt to avoid experiences of cognitive dissonance. By combining the cognitive, affective, and personality based ways that individuals seek belief consonant information, we may be able to identify interconnected cognitive and affective traits that impact the way an individual searches for, finds, and interacts with information (Mischel & Shoda, 1995). Such research could also aid in identifying ways to help individuals engage with information both cognitively and emotionally to facilitate the incorporation of information into their worldview that challenges their previous beliefs, rather than just denying or ignoring the non-confirmatory information. The literature review and studies that comprise this Thesis bring

together current research in political science and psychology to dive further into the cognitive-affective, personality, and emotion regulation individual differences that predict the seeking of confirmatory or non-confirmatory political information.

# Literature Review

## *Confirmation Bias*

The term "confirmation bias" itself was popularized in the 1970's after Peter Wason showed that when an individual believes they have formed an accurate hypothesis to a problem, they will test to confirm their generated hypothesis, rather than disprove their hypothesis (Klayman, 1995). What is now known as the Confirmation Bias effect was observed initially in the 2-4-6 Induced Rule Discovery Task. This simple task had participants attempt to identify a mathematical rule (in this study, the numbers needed to be in ascending order) following review of a sequence of three numbers (a triple) by presenting their own triples and being informed (with immediate feedback) whether the triples they provided would fit the rule. For example, being presented the triple 2-4-6 led many to believe the correct rule was to add two. As individuals tested their hypothesis of what the rule was, they were more likely to offer triples that confirmed their hypothesized rule of 'adding two' (i.e., 4,6,8) and less likely to offer suggestions which would disprove their hypothesized rule (i.e., 3,6,9). Their focus was on confirming their initial hypothesis even though there could be other valid rules and ways to test for the validity of those rules.

The reason for this outcome, trying to confirm their original hypothesis rather than testing to disprove their hypothesis, was that individuals quickly recognized a rule (their hypothesized solution) and tested information that would be more likely to be confirmatory for their hypothesis and fixated on testing sequences that fit the rule rather than ones that did not (Klayman, 1995). This was inferred through the tendency of participants to quickly become confident, with insufficient evidence, that they had correctly identified the rule. Once individuals believed they had identified the rule, their desire and ability to generate and test a hypothesis

which disproved or challenged their original hypothesis significantly diminished. Future researchers pointed out issues and confounds with the task. Specifically, it became apparent that when self-generating content to test a hypothesis (such as in the rule discovery task) there are naturally more false positives in testing. Many individuals tended to continually test for positive feedback (because they were hyper focused on the confirmatory information from their positive testing feedback) without realizing the best way to get new information is to start repeatedly testing for negative feedback. In other words, the most efficient way to gather evidence to identify the correct rule in Wason's initial study, was to repeatedly test sequences of numbers that deviated from the rule of their previous sequence rather than confirming it. Testing for deviations of a rule is more efficient because every negative test would narrow down testing for the next sequence of proposed numbers (Klayman, 1995). If individuals got stuck testing for positive feedback, their generation of triples would often attempt to prove their original hypothesis correct, representing a tendency to try and 'confirm' their initial solution, rather than utilizing the best method for accurately identifying the rule. If individuals tested sequences that resulted in negative feedback, then their generation of triples would not be representative of a desire to confirm their generated rule, rather it would just be the most efficient way to gather information to identify the rule.

To further explore the phenomenon of confirmation bias, Wason created the Wason Selection task (Wason, 1966). This task tested hypothesis confirmation through deductive reasoning. Four cards were placed on a table with numbers on one side and consonants or vowels on the other. Study participants could see two cards with numbers (3 and 8) and two cards with a color (red and brown). They would then be prompted to test the accuracy of a proposition with the following prompt:

> "Each card shown here has a number on one side, and a patch of color on the other. If a card shows an even number on one face, then the opposite face is red. Which card(s) must you turn over in order to test the truth of the proposition, with no unnecessary cards being turned over?"

The solution is to flip the card with the 8 and the brown card. Wason observed that fewer than 10% of participants identified the correct cards to accurately test the proposition (Wason, 1966; Evans, 2017). The most common error was flipping the red card. This is explained by a tendency to 'confirm' the proposition 'if even, then red' rather than a tendency to disprove the false positive 'if not red, then not even'. These initial studies were the first to highlight a powerful and consistent cognitive phenomenon that can directly influence the way individuals interact with information and others.

While Wason was the first to illustrate and test confirmation bias, research in this area has expanded to reveal a range of confirmation bias behaviors. As understanding of confirmation bias has increased, the definition of confirmation bias has evolved. Our operation definition of confirmation bias is the following: confirmation bias refers to seeking, navigating, and processing information in ways that reinforce previously held beliefs or attitudes. Confirmation bias is a complex topic with many facets. The prior definition connects the many forms of confirmation bias that have been examined in the literature. As an illustration of the complexity of confirmation bias as an area of research, Joshua Klayman (1995) outlines multiple forms of confirmation bias, summarized below.

1) Being so overconfident in a belief to the point of remaining overconfident in the face of additional evidence
2) Searching for evidence in a manner that results in the data found to favor an individual's original hypothesis
3) Interpreting information or evidence in favor on one's hypothesis (i.e., data confirming the hypothesis is trustworthy while data challenging it is erroneous)
4) Revising confidence in a hypothesis insufficiently due to biased interpretation of evidence

5) Difficulty generating new hypotheses (even when recognizing the old one is insufficient)

In the present set of studies, we mainly focus on the second form of confirmation bias, searching for evidence in such a way that the information found tends to favor an individual's original hypothesis. This form of confirmation bias has critical real-world consequences.

While initial confirmation bias literature focused on logic tasks to show gaps in hypothesis testing, researchers began to observe real world behavior driven by the effect. For example, it was observed that in some cases, preexisting beliefs may become more deeply entrenched when someone is faced with a strong opposing viewpoint. One study (Lord et al, 1979) showed that providing mixed evidence on the efficacy of capital punishment to two groups of individuals (one group being advocates of capital punishment and one group being opponents of capital punishment) resulted in both groups becoming more entrenched in their initial viewpoints after engaging in observed discourse (Klayman, 1995). An obvious explanation for this is that individuals want to believe they are correct to avoid facing their own incorrect judgments. Like how participants tested their own hypothesis in Peter Wason's initial studies, individuals who have preexisting views showed a proclivity to use evidence to confirm their views rather than to disprove their views (Klayman, 1995). The way individuals tend to confirm their perspective, rather than positively engaging with non-confirmatory information, reflects a simple inference: individuals do not like to be wrong and will actively seek to prove themselves correct to soothe emotional or cognitive discomfort. More recent supporting evidence of this surrounds the U.S 2012 election (Thibodeau et al, 2015). Researchers discovered that preceding the election, liberals would often seek out information that supported beliefs that their preferred candidate would win (Thibodeau et al, 2015). Liberals also tended to look for information falsifying, or arguing against, claims that the Republican nominee would win. Further, liberals

would mentally strip credibility away from sources whose claims were not consistent with the election outcome they expected. Although this effect was observed more in liberals at that time, individuals from both ends of the political spectrum displayed high belief bias before the election by expecting that their preferred candidate would win. They sought, navigated, and cognitively manipulated information to strengthen their view (Thibodeau et al, 2015). These findings are consistent with the confirmatory hypothesis testing first discovered by Peter Wason in 1960 and illustrate the observable influence of confirmation bias on an individual's behavior. Research is now focusing on exploring the way individuals interact with information to better understand the process of how and why individuals may engage in behavior meant to confirm rather than challenge their views.

*Behavioral Components of Confirmation Bias*

Current approaches to studying confirmation bias attempt to break down the process of navigating and seeking information, to identify what patterns may support behavior representative of confirmation bias. To date three observable information navigation components relating to confirmation bias have been identified: selective exposure, source cues, and content cues (Knoblock-Westerwick et al, 2012, 2015, 2015 & Westerwick et al, 2017).

*Selective exposure* refers to the behavioral preference to choose attitude consistent messages (information aligned with certain perspectives that indicate reinforcement of shared assumptions or preexisting beliefs), over attitude-discrepant messages (information misaligned with certain perspectives which indicate a challenge to shared assumptions or preexisting beliefs) (Knoblock-Westerwick et al, 2015). This preference to choose attitude consistent messages is the behavioral outcome which predicates Festinger's theory of cognitive dissonance: everyone strives for cognitive consistency to produce "consonant relations among cognitions" (Festinger

1957, Westerwick et al, 2012). For example, people who do not frequently use online news sources show a tendency to selectively expose themselves to messages aligned with their viewpoints (Knoblock-Westerwick et al, 2011). This can be explained in part, by the consistent and logical inference from confirmation bias literature that thoughts (and subsequently our behaviors) can be irrationally influenced by beliefs to properly align with one another to avoid mental or physical discomfort.

Another facet of information navigation that is related to confirmation bias, are source cues. *Source cues* are identifying pieces of sources that guide individuals in judging the validity and credibility of an information source. Source cues are internalized inferences that easily identify with viewpoints or ideologies. For example, someone who has a conservative belief system could more easily recognize a conservative politician's website as a useful source for themselves because the "cue" of the conservative ideology aligns with their viewpoints. People look for source cues when they encounter a new source of information. The cues help individuals determine the validity and consistency of the source based on how the source's cues align with their own preexisting attitudes or beliefs (Westerwick et al, 2017). Once an individual identifies a source (often through reliance of cues signaling information aligned with a particular viewpoint) that individual can then navigate the information in the source with less risk of discomfort. Additionally, source cues are often used to quickly decide the validity or invalidity of other sources of information (i.e., cues such as identities of individuals or political activist groups on Facebook or Twitter may communicate stances on a variety of political issues such as the National Rifle Association being pro-gun or evangelical groups being pro-life). Using source cues, a conservative individual may detect information as from left leaning sources, and therefore be less inclined to trust the information. This very effect, which was observed above in

Thibodeau, et al (2015), influences the way individuals seek, navigate, or think about information.

Content cues can also be used to signal an ideological origin that would facilitate confirmation bias. *Content cues* are often derived from organizational and stylistic communication choices (Westerwick et al, 2017). For example, article titles and subheadings may be content cues (e.g., articles with political slants may use words more immediately identifiable with a particular viewpoint such as 'Democrats ignore' or 'Republicans attack'). Content may also be bolded, italicized, or placed strategically to catch an individual's attention and influence how one may navigate the information they are selectively exposing themselves to (Westerwick et al, 2017). While source cues aid individuals in determining validity and consistency of information from a source, content cues more directly influence the way individuals may or may not choose to selectively expose themselves to more specific information (i.e., choosing to read a specific article or a particular post on social media may be the result of content cues framing information in a particular way).

Together, selective exposure, source cues, and content cues are observed and utilized in news reports, media, and other external/environmental sources to influence how information is found and navigated. They can be used to guide individuals to find, identify with, and use information differently. Interestingly, source and content cues are external stimuli effects that influence internal information processing processes to bias how we interact with specific information. There are also internal processes that also likely influence the way individuals use information, facilitating or mitigating confirmation bias. Identifying these internal cognitive and affective traits could be useful for more fully understanding confirmation bias behaviors, as well as how to mitigate negative effects of such behaviors.

*Cognitive and Affective Processes Associated with Confirmation Bias*

Two cognitive and affective processes that have been identified as associated with confirmation bias are need for cognition and need for affect. Need for cognition (NfC), represents how much a person enjoys cognitive engagement and having responsibility for their own thinking (Cacioppo & Petty, 1982). This cognitive trait represents an individual's relationship with their own thinking and offers insight into individual differences of cognition in general. To help understand the impact of NfC on confirmation bias behavior, researchers tend to group people based on whether their NfC is high or low. People with high NfC tend to enjoy the relationship they have with thinking and the responsibility associated with it. Although high NfC means individuals may engage with a wider variety of information that is less slanted, often the information high NfC individuals seek is still consistent enough with their viewpoints, so that their higher cognitive engagement can serve to reaffirm a belief or attitude more intensely (Westerwick et al, 2017). Individuals who have a high NfC may also use the skills associated with cognitive preference of engagement to validate their own beliefs by more fluidly and capably discrediting unbiased information in favor of their preexisting viewpoints (Arceneaux, et al 2017 & Westerwick et al, 2017). High NfC therefore has the potential to support *less* confirmation bias when an individual engages with a wider variety of less biased information, as well as *more* confirmation bias when an individual engages with and discredits unbiased information in favor of their preexisting viewpoint. People with a low NfC, on the other hand, tend avoid effortful thinking more generally, they have less trust in mainstream sources of information, and spend more time selectively exposing themselves to one-sided sources of information (Westerwick, et al 2017). Interestingly, there is often little difference in confirmatory outcome in how high and low NfC individuals reaffirm their viewpoints when

seeking, navigating, and using new information. Where they differ is in process, individuals with high NfC more often, seek and use unbiased sources of information to reinforce, or challenge, their views, whereas individuals with low NfC seek more biased information that aligns with their viewpoints. Regardless of where an individual falls on the NfC scale, the behavioral tendency to align belief and information seeking is strong. The smaller difference in confirmation bias behavior between high and low NfC also suggests an individual's NfC is just one internal individualized cognitive trait which could aid in influencing whether someone displays confirmation bias behaviors.

Need for affect (NfA), on the other hand, refers to how much someone enjoys affect and engagement with their emotions (Maio & Esses, 2001; Appel & Maio, 2012). This internal trait represents the relationship individuals have with their own emotion and offers insight into individualized differences of affect. Like NfC, individuals are often separated into two groups: those with a high or low NfA. Individuals with a higher NfA actively place themselves in emotion inducing events and may have more extreme attitudes on issues (Maio & Esses, 2001: Appel & Maio, 2012). Individuals with a lower NfA, on the other hand, show less motivation and interest in experiencing strong emotion; thus, they actively avoid emotion inducing situations (Maio & Esses, 2001; Appel & Maio, 2012).

A team of political scientists recently proposed a model of reasoning which suggests having a mixture of low and/or high NfA and NfC may allow individuals to mitigate confirmation bias outcomes and override or challenge their intuitive political beliefs by being more ‘reflective’ (Arceneaux et al, 2017). Arceneaux and colleagues found that when participants were exposed to unpopular actions from either the Democratic or Republican party, individuals who were high in NfA and low in NfC held opposing political parties to higher

standards than their own party while individuals who had lower NfA and higher NfC were more likely to hold both parties to the same standards.

To expand on these findings and examine how NfA and NfC impacted changes in reflective evaluations of political information, a subsequent study was conducted where individuals evaluated how likely they would be to vote for their state governor (on a scale from 0 to 100) after reading a fictional report that presented the governor as a loyal actor of their political party or a disloyal actor of their political party (by either signing a public safety bill into law or not). Following this, participants completed an unrelated questionnaire to create cognitive and psychological distance between the first and second parts of the study. In the second part of the study, they were informed that the previous information given to them about their state governor was fictitious and part of the study, and hence they were asked to reevaluate their voting decision (on the same scale). Since all participants of the study shared the same political affiliation as the governor, the first voting evaluation were subtracted from the second to examine how evaluations of the governor changed following the disclosure that the information presenting the governor as loyal or disloyal to his political party was made up. It was found that those who were both high in NfA and low in NfC had positive views that increased after learning the information was fictious, and they were therefore considered less reflective thinkers. In contrast those who were both low in NfA and high NfC had positive views that decreased after leaning the information was fictious indicating greater willingness to adjust their voting evaluation upon learning the governor had not done something considered positive for the state—these individuals were considered more reflective thinkers. Together, these findings suggest that combinations of NfA and NfC may influence how much individuals rely on motivated reasoning versus reflective thinking.

*Confirmation Bias in the Context of Politics*

Politics are inherently emotional due to being grounded in party identification and motivated reasoning (Arceneaux, 2017). Motivated reasoning is an emotionally grounded phenomenon which consists of using existing beliefs as guides for decision making and information seeking. Motivated reasoning explains how existing attitudes often serve as heuristics which prevent disconfirming information from reaching an individual and their subsequent formed opinions (Arceneaux, 2017). Most individuals have some form of attachment to their political party's platform and have an important reason to find evidence to support their attitudes or beliefs (to avoid cognitive dissonance, individuals find and trust information that aligns with their viewpoints). It is difficult to find an individual who does not have some political view on one topic or another that cannot be traced back to a party's political platform. Because of this, much literature examining confirmation bias focuses on political attitudes and behavioral outcomes reflective of confirmatory information seeking, navigating, and interpretation (e.g., selectively exposing oneself to information aligned with previously held beliefs or engaging with unbiased information and becoming more reinforced in previously held beliefs) (Knoblock-Westerwick et al, 2012, 2015, 2017 & Westerwick et al, 2017). The influence preexisting beliefs can have on the way information is found, interpreted, and used, means that politics is an ideal setting to study confirmation bias as well as what cognitive and affective factors may influence confirmation bias behaviors.

Mercier & Sperber (2011) suggest any form of reasoning is argumentative. They also discuss the role confirmation bias may have in political discourse and argumentative behavior. People who are skilled arguers tend to be more interested in winning an argument rather than discovering a truth that contradicts their stance (which coincides with hypothesis testing meant to

confirm a belief rather than challenge one). A goal of debate or discourse should not be to win an argument, but rather to provide opportunity for thoughtful engagement of viewpoints where individuals can incorporate new information into their own perspectives or logically and coherently reject new information while avoiding confirmatory tendencies.

To understand the divisive and entrenching effect of political discourse, Arceneaux and colleagues (2017) examined motivated reasoning in a political context by proposing their Intuitionist Model of Political Reasoning (See Figure 1 below).

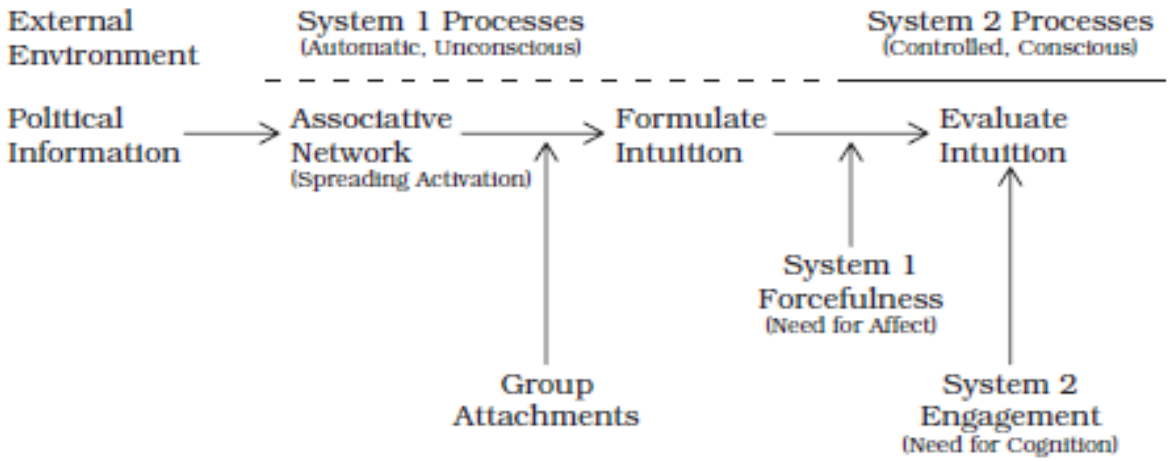



*Figure 1: Intuitionist Model of Political Reasoning*

This model incorporates NfC and NfA as the motivating internal and individualized cognitive-affective characteristics which influence whether an individual is willing to reflect on their viewpoints in the face of disconfirming information. Within the model, two information processing systems were presented. The first system is automatic, largely intuitive, and is dependent on NfA influencing the degree to which an individual is motivated to rely on existing beliefs or engage with the affective discomfort that comes from facing information misaligned with one's preexisting beliefs. The second system is effortful, engaged, and dependent on NfC

influencing the degree to which an individual is motivated to objectively evaluate their intuitive response. These two processing systems, taken from dual-process theories, suggest heuristic and analytical based information processing systems often act simultaneously and can conflict with one another (De Neys, 2006). Incoming information or mental tasks can require greater cognitive effort when an individual's beliefs conflict with the information being presented to them. However, the cognitive effort requirement is lower when there is no cognitive dissonance as the individual's beliefs are in alignment with or confirm the presented information and response (De Neys, 2006). Considering these styles of information processing, the Intuitionist Model of Political Reasoning attempts to account for the influence of motivated reasoning (i.e., party identification) on logically valid conclusions, but it neglects to include other individualized internal cognitive and affective traits such as emotional states, emotion regulation strategies, and personality types that could also influence motivated reasoning and confirmation bias behaviors. Further, while the model attempts to incorporate the roles of NfC and NfA (and how they could potentially influence more reflective thinking) it remains untested in the context of real-world confirmatory information seeking (reflective of the second form of confirmation bias Klayman (1995) identified). In addition, expanding the NfC and NfA framework to include influential components such as anxiety level (emotional state), an individual's tendency to engage or disengage to manage their emotions (emotion regulation), and the openness of an individual to new experiences (personality) would give rise to a more comprehensive, nuanced, view of internal characteristics that may influence confirmatory information seeking.

*Emotional State*

One affective component that may be especially critical in influencing confirmatory information seeking is someone's emotional state. A 2014 study examined the effect of mood

states on decision making in undergraduate participants. After being emotionally primed with comedy clips (positive prime) or tragedy clips (negative prime) from movies, participants responded to hypothetical situations involving financial gains and losses, and health risks. When examining participants self-reported reasoning for the choices they made, Mohanty & Suar found that individuals in the negative prime condition made decisions, and justified them, with increased fluency, speed, and flexibility than those in a positive mood (Mohanty & Suar, 2014). This finding suggests that when a person is in a negative emotional state, they may be more capable of rationalizing or favoring their decisions (especially when it is related to sensitive issues like financial security and personal health). In this way, negative mood states could influence whether a person becomes further rooted in a belief, attitude, or the correctness of their decisions. Relatedly, another study by Jonas and Frey (2005) found that negative mood promotes a desire for decision consonant information rather than decision dissonant information. Specifically, Jonas and Frey (2005) found that individuals in a negative mood rated consonant information as more pleasant and dissonant information as more annoying, than individuals not in a negative mood (Jonas & Frey, 2005). Given that heightened anxiety or negative emotional states may lead to less desire to engage with challenging information, we predict that an individual in a negative emotional state would engage in increased confirmatory information seeking compared to someone in a positive or neutral emotional state.

*Emotion Regulation*

In addition to NFA and an individual's mood, another affective process that may influence confirmatory information seeking is emotion regulation. Emotion regulation refers to the strategies used by individuals to manipulate the intensity and duration of an emotional response to a stimulus (Gross, 1998). In the context of confirmation bias, the stimulus could be

new (potentially dissonant) information, an unexpected event, or an interpersonal interaction. As an individual experiences an emotional response, they implement emotion regulation strategies in varying situations based upon their goals, personal experiences, and emotional tendencies (Gross & John, 2003). Certain strategies may be more adaptive or appropriate than others and depend on the situation and individual. For example, an individual who must be around friends or family who have dissimilar political views, may emotionally manage being around their friends or family by starting conversations on topics where there is likely to be agreement rather than disagreement.

The field of affective science has found, broadly speaking, that people tend to regulate negative emotions (i.e., anger and anxiety) through one of two types of strategy approaches. These are 1) disengagement approach strategies such as avoidance (choosing not to acknowledge certain pieces of information), distraction (placing focus on other things), or suppression (keeping emotions to themselves rather than expressing them) and 2) engagement strategies such as reappraisal which involves viewing information with a different perspective to change the meaning of the information (Sheppes et al, 2014). For example, an individual who must be around friends or family with dissimilar political views may alleviate negative emotions resulting from difficult conversations by reframing the conversations as tests of their ability to clearly express their views in uncomfortable situations. Emotion regulation strategies may be particularly critical to explore in the context of confirmation bias because an individual's regulation strategy may directly influence whether an individual is able to cope with engaging with challenging information. We hypothesize that an individual who habitually uses disengagement strategies may engage in more confirmatory information seeking, while an

individual who habitually uses engagement-oriented strategies, may be more likely to manage dissonant information and thereby engage in less confirmatory information seeking.

*Personality*

The final internal construct that may influence information seeking tendencies is openness to experience. Openness to experience is one of the Big 5 Personality Traits (Openness, Conscientiousness, Extroversion, Agreeableness, and Neuroticism) which prevail in personality literature. Personality traits provide insight into individual differences in how individuals interact with the social world (Arceneaux et al, 2017). For example, openness is a personality trait commonly related to improved cognitive ability and is moderately correlated to NfA and NfC (Arceneaux et al, 2017). People who have higher levels of openness also tend to seek experiences of learning and are more willing to travel (Arceneaux et al, 2017). These findings suggest that openness may be associated with confirmation bias behavior as being low or high in openness to experience could influence the way someone perceives or accepts new information. Openness has two factors (fantasy and new ideas) which relate to measurable cognitive outcomes such as verbal and nonverbal intelligence (Melinder et al, 2020). However, there is less literature exploring how openness influences problem solving skills in specific work or life related contexts. Melinder et al, (2020) explored confirmation bias effects in child forensic interviewing. Using an updated version of the Wason selection task, they measured whether an individual would seek to confirm a propositional rule presented by the researchers or try to disprove the proposition presented by choosing appropriate responses to a five-card task. Higher openness (specifically the facets of fantasy and ideas) was related to better performance on the selection task and less confirmatory behavior during interviewing. We therefore hypothesize that individuals higher in openness will display less confirmatory information seeking and that

individuals who have higher openness to experience may benefit more from engagement-oriented emotion regulation, as they are naturally more inclined and comfortable facing difficult emotions.

*The Present Studies*

In review, external components (selective exposure, source cues, and content cues) and an individual's cognitive and affective traits, including: NfC, NfA, anxiety, engagement or disengagement emotion regulation strategies, and openness to experience may collectively influence an individual's information seeking and navigation. In addition, NfC and NfA may influence the emotion regulation strategies used by individuals when interacting with new discordant information. Further, openness to experience may facilitate engagement-oriented emotion regulation skills as people who are more open tend to enjoy learning and experiencing new things (potentially including engaging with and exploring one's emotions).

Politics provides a unique context to study these influences outside the lab as motivated reasoning and preexisting belief systems dominate how individuals find and engage with information. We propose two studies that will explore the impact of these traits on the way individuals expose themselves to views aligned or misaligned with their own. The goal of Study One is to begin incorporating cognitive and affective components not already included in the Intuitionist Model of Political Reasoning, namely emotion regulation and openness, into an analysis of confirmatory information seeking. Study one will use survey data before (pre-election) and after (post-election) the 2016 presidential election that includes an individual's self-reported emotion regulation habits, self-reported openness to experience, and confirmatory information seeking behaviors as measured by a news article selection task included in the post-election survey. Study one has three hypotheses.

1. Individuals with higher openness to experience will choose to read news articles that challenge their views more often than individuals with lower openness to experience.

2. Individuals who more frequently use engagement-oriented emotion regulation strategies, specifically forms of reappraisal, will choose to read news articles that challenge their viewpoints more often than individuals who use disengagement-oriented emotion regulation strategies more frequently.

3. Habitual use of engagement-oriented emotion regulation strategies (i.e., reappraisal) will moderate the impact of openness on confirmatory information seeking, such that individuals with high openness to experience and greater use of reappraisal will choose to read news articles which challenge their views more than individuals with high openness to experience and high disengagement-oriented emotion regulation strategies.

The goal of Study Two is to further build on Study One by expanding the Intuitionist Model of Political Reasoning to include the influence of anxiety and emotion regulation strategies on confirmatory discussion seeking. Study two uses data from a National Science Foundation funded multi time point survey collected from June of 2017 to September of 2018 to examine the impact of heightened anxiety, emotion regulation strategies, NfC, and NfA on whether individuals actively seek engagement with persons of opposing political viewpoints (non-confirmatory information seeking). Study Two has five hypotheses.

1. High anxiety will be negatively associated with willingness to engage in political conversation with someone of dissimilar political viewpoints.

2. High use of engagement-oriented emotion regulation strategies will be positively associated with willingness to engage in political conversation with someone of dissimilar political viewpoints.

3. High NfC will be positively associated with willingness to engage in political conversation with someone of dissimilar political viewpoints.

4. High NfA will be positively associated with willingness to engage in political conversation with someone of dissimilar political viewpoints.

5. Cognitive and affective traits will interact such that certain combinations of traits will predict more or less conversations with someone with dissimilar political viewpoints than

oneself (e.g. individuals with a high NfC and who frequently use engagement-oriented emotion regulation strategies will show more willingness to engage in political conversation with someone of dissimilar political viewpoints than someone with high NfC who frequently uses disengagement-oriented emotion regulation strategies).

## Study One: Methods

The dataset used comes from The Cooperative Congressional Election Study, referred to as CCES (Ansolabehere et al., 2017 & Maestas et al, 2017). This survey has been conducted every even-year since 2006 and explores how Americans view Congress and hold their elected officials accountable during elections. It also aids in exploring how political behavior and experiences may vary with geography or social context. The 2016 CCES survey contained Common Content data of 64,600 cases split through 60 research teams that had purchased 1000 or more survey cases each. Common content made up 50% of each team's survey questions while each teams' own questions made up the other 50%. YouGov conducted the survey online and collected data in two waves: the pre-election wave of the questionnaire was in the field from September 28th to November 7th; the post-election wave was in the field from November 9th to December 14th.

### *Participants*

Of the 1000 respondents who took the pre-election survey, 811 also took the post-election survey (~81% retention rate). Approximately 46.7% were male (53.3% female) and the average age was 47.32 (SD = 17.38). Roughly 73.6% were White, 12.5% Black, 6.7% Hispanic, 2.8% Asian, 2.4% Mixed, .7% Native American, and .9% other. Variables used in Study 1 come from both the Common Content of the CCES as well as the questions submitted by the UNC Charlotte research team.

### *Measures*

*Openness to Experience*. Openness was recorded alongside extraversion and cautiousness. Individuals received a prompt asking participants to indicate the extent they agreed or disagreed with statements of personality traits when applied to themselves. For openness,

participants rated the statements: “I see myself as: Open to new experiences, curious” on a likert scale (1-7; strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree, strongly agree).

*Engagement Emotion Regulation Strategies*. Engagement oriented emotion regulation strategies were measured with 3 questions. Participants received a prompt directing them to answer questions about their emotional life (how they regulate and manage their emotions). Specifically, these questions focused on emotional experience (what individuals feel inside). The statements rated by participants were: “When I want to feel less negative emotion (such as sadness or anger), I change the way I'm thinking about the situation, “When I’m faced with a stressful situation, I make myself think about it in a way that helps me stay calm.”, and “I control my emotions by changing the way I think about the situation I am in.” Responses to each question were recorded via a likert scale (1-7; strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree, strongly agree). Responses to all questions were averaged to create an engagement emotion regulation score.

*Disengagement Emotion Regulation Strategies*. Disengagement regulation strategies were measured with 5 questions. Participants received a prompt directing them to answer questions about their emotional life (how they regulate and manage their emotions). Specifically, these questions focused on emotional experience (what individuals feel inside) and emotional expression (how individuals showed their emotions through behaviors like talking and gesturing). Statements measuring disengagement strategies such as avoidance, distraction, and suppression included: “I keep my emotions to myself”, “I control my emotions by not expressing them.”, “When I feel negative emotions, I make sure not to express them.”, “I avoid situations that make me feel strong emotions.”, and “I control my emotions by avoiding stressful

situations." Responses were recorded via a likert scale (1-7; strongly disagree, disagree, somewhat disagree, neutral, somewhat agree, agree, strongly agree). Responses to all questions were averaged to create a disengagement emotion regulation score.

*Confirmatory information seeking.* In the pre-election survey participants completed questions assessing their partisan views on gun control and climate change. In the post-election survey participants completed a news article selection task that featured mock gun control and climate change news articles (50% received gun control articles and 50% received climate change articles). Each version of the task had four articles to choose from. Two articles of the four presented real, previously used source and content cues to signal clear ideological positions conveying the contents of each article. The other two articles were distraction articles not related to political issues (these two articles were the same for both versions). Each participant was prompted to select two articles to read, and they indicated their choice by selecting the two articles with their mouse. To determine whether an individual made choices indicative of having displayed confirmatory information seeking, their responses to the news article task were coded based on their pre-election responses to the partisan gun control and climate change questions. Individuals who choose to read the news article aligned with their existing views and a distraction article were coded as 2 (having displayed high confirmatory information seeking; as they actively chose to engage with political information only aligned with their views). While individuals who choose to read news article opposing their existing views and a distraction article were coded as 0 (displaying no confirmatory information seeking; as they actively chose not to engage with political information aligned with their views). Individuals who chose to read both political articles (one aligned and one misaligned with their views) were coded as 1 (displaying moderate confirmatory information seeking; as they actively chose to engage with

both information aligned with their view but also information that challenged their view). Participants who chose to read both distraction articles were excluded from the final analysis. The pre-election questions assessing gun control and climate change, as well as the post-election news article selection task, are described below.

*Pre-election Questions: Preexisting Gun Control and Climate Change Viewpoints.* Baseline viewpoints on gun control will be derived from four statements where respondents indicated being for or against (or in support of, or in opposition to) certain actions which included: "Background checks for all guns including at gun shows over the internet", "Prohibit state and local governments from publishing the names and addresses of all gun owners", "Ban assault rifles", and "make it easier for people to obtain a concealed carry permit." Similarly, baseline viewpoints for climate change were determined through being in support or opposition of four climate change prompts. These four statements were: "Give the EPA more power to regulate carbon dioxide emissions", "raise the required fuel efficiency for the average automobile from 25 mpg to 35 mpg", "Require a minimum amount of renewable fuels (wind, solar, and hydroelectric) in the generation of electricity even if electricity prices increase somewhat", and "Strengthen enforcement of the Clean Air Act and Clean Water Act even if it costs US jobs". Responses indicating support of a measure was coded as 1 and not supporting a measure coded as 0. Responses were summed (questions 2 and 4 for gun control were reverse coded) so that for both partisan issues, a code of 4 represented being pro-gun control or in support of climate change policies for all 4 items, and a code of 0 indicated being against all gun-control or climate change items, with a score of 1, 2 or 3 indicating a range of partial support. Participants were recoded (to a value of 1) as supporting gun control or climate change if they had a summary score of 3 or 4. Participants were recoded (to a value of 0) as against gun control

or climate change if they had a summary score of 0 or 1. Participants with a score of 2 were excluded from analysis as they were not clearly for or against the policies. The coding schema was used to identify when a participant was selecting confirmatory or non-confirmatory articles in the Article Selection Task (described below).

*Post-election Article Selection Task.* Confirmatory information seeking was measured with the article selection task (See appendix A; figures 3 and 4) from the post-election data. Individuals choose two of four articles they would be interested in reading. During the post-election survey, 50% percent of the 811 respondents received version A with four articles (one pro-gun control, one anti-gun control, and two distraction articles) and the other half received version B with 4 articles (one pro-climate change, one anti-climate change, and two distraction articles). The UNC Charlotte research team provided instructions to randomize who received what set of articles and to ensure that each article could successfully be chosen. When participants reached the article selection task, they were asked to: "Please click on the TWO articles you would be interested in reading." Each participant chose two selections out of four options and responses were coded according to the confirmatory information seeking variable previously discussed.

*Control Variables*

All control variables were taken from the Common Content of the CCES data.

*Age.* Age was measured by subtracting participants provided birthyear from 2016.

*Gender.* Participants self-reported their gender (coded as 1=male and 2=female).

*Race.* Participants were asked which racial or ethnic group best described them from the following options: 1=White, 2=Black, 3=Hispanic, 4=Asian, 5=Native American, 6=Mixed, 7=Other, 8=Middle Eastern.

*Education.* Participants reported the highest level of education they completed using the following scale: 1=No HS, 2=High School Graduate, 3=Some college, 4=2-year degree, 5=4-year degree, 6=Post-grad.

*Party identification.* Political party identification was captured on a 7-point scale where participants chose the ideological placement which best represented their political views using the following scale: 1=Strong Democrat, 2=Not very strong Democrat, 3=Lean Democrat, 4=Independent, 5=Lean Republican, 6=Not very strong Republican, 7=Strong Republican, 8=Not sure. Participants who indicated that they are unsure of their political affiliation were excluded from the final analyses.

*Family income.* Participants self-reported their family income over the past year using a 16 point scale ranging from less than $10,000 a year to more than $500,000 a year. These values were recoded into three categories of 1) low income (less than $10,000-$49,999), 2) moderate income ($50,000-$99,999), and 3) high income ($100,000 or more).

*Data Analysis*

Of the original 1000 participants for the CCES data 189 individuals did not take the follow up survey, 155 indicated no political lean in their political party identification, 169 showed no clear pre-existing views on gun control or climate change (determined from the summation score of the climate change and gun control questions in the first survey), and 41 chose to read both distraction articles. The final sample included 446 participants. The average age was 50.7 (SD=17.13) and 46.6% of the respondents were male. Roughly 78.3% were White, 8.7% Black, 7.2% Hispanic, 2.2% Asian, .2% Native American, 1.8% Mixed, 1.1% other, and .4% Middle Eastern. Ten (2.2%) had no high school education, 18.2% were high school graduates, 25.3% had some college, 11.9% had a 2-year degree, 26.5% had a four-year degree,

and 15.9% went on to post-graduate education. Self-reported political ideology shows that 30.3% were strong Democrats, 15.7% were not very strong Democrats 12.1% leaned Democrat, 12.6% leaned Republican, 12.8% were not very strong Republicans, and 16.6% were strong Republicans. Lastly, 38.9% reported income from the previous year as: low income ($10,000-$49,999), 39.4% reported moderate income ($50,000-$99,999), and 21.7% reported high income ($100,000 or more). For the dependent variable, 63 (14.1%) of participants chose to read the non-confirmatory article and one distraction article, 172 (38.6%) read both the confirmatory and non-confirmatory articles, and 211 (47.3%) read confirmatory articles and one distraction article.

Next, we screened the sample for outliers and missing data. Engagement emotion regulation had 13 univariate outliers and openness to experience had 49. Mahalanobis distance (a measurement of how many standard deviations a data point is away from the distributions mean) was used to identify 44 multivariate outliers. Littles MCAR showed 35 cases of missing data for income were missing at random ($p$=.377). Engagement emotion regulation, disengagement emotion regulation, and openness showed normal distributions on histograms, box and whisker plots, P-P, and Q-Q plots. Variance inflation factor (VIF; a measure of how much variance of a regression coefficient is increased because of collinearity) scores (>10 for engagement emotion regulation and openness to experience) indicated the assumption of noncollinearity was violated for regression analysis. All outliers were included in the final analysis as data was collected via likert scales and accurately depicted participant responses. After removing cases of missing data, the sample size of the final regression analyses was 411.

To prepare for the data for the regression analysis, interaction terms were computed by multiplying the openness to experience variable with the engagement emotion regulation strategy use and disengagement emotion regulation strategy use variables to create two interaction

variables: openness to experience x engagement emotion regulation strategy and openness to experience x disengagement emotion regulation strategy.

## Study One Results

Before conducting the regressions, bivariate correlations were tested for all variables of study one. Means, standard deviations and zero order correlations between all variables are presented in Appendix B (See Table 3). There were several correlations of interest. Disengagement emotion regulation showed a negative correlation with confirmation bias behavior (r=-.11, $p<.05$) and a positive correlation with engagement emotion regulation (r=.26, $p<.01$).Additionally, openness was positively correlated to engagement emotion regulation (r=.25, $p<.01$). Although all correlations are weak, significance suggests there may be meaningful associations between emotion regulation style, openness to experience, and confirmation bias behavior.

We also examined the outcome distribution of the article selection task. As anticipated the distribution was skewed such that 211 participants selected the confirmation article and one distraction article, 172 participants selected articles that both reinforce and challenge their views, and 63 participants selected the article that challenges their views and a distraction article (41 participants chose distraction only, they were not included in analysis). Confirmatory information seeking was entered as the dependent variable in each regression. Age, gender, race, education, party identification, and family income were included as control variables. Two regressions were conducted; one with the openness to experience x engagement emotion regulation strategy interaction term and one with the openness to experience x disengagement emotion regulation strategy interaction term. Main effects coefficients were examined to test hypothesis 1 (higher openness is associated with less confirmatory article selection) and hypothesis 2 (greater use of engagement-oriented emotion regulation is associated with less confirmatory article selection than use of disengagement-oriented emotion regulation). To test

hypothesis 3 (that individuals who use more engagement oriented emotion regulation and who have higher openness will show less confirmatory information seeking than those who use disengagement oriented emotion regulation strategies) we examined whether a significant increase in $R^2$ after introducing the third step of the regression analysis was present for each of the regressions that would indicate a significant increase in predictive validity of the interaction terms on confirmatory information seeking (Cohen et al, 2003).

The results of the two regressions predicting confirmatory information seeking from openness to experience, engagement emotion regulation, disengagement emotion regulation, and the interaction effects of openness to experience on emotion regulation strategies are reported below in Table 1. Steps one and two were the same for both regressions and will be reported first, followed by the results for step 3. Step one indicated that the variance ($R^2$) accounted for by the control variables was 0.009 (adjusted $R^2$=.009), which was not significantly different from zero ($F_{(6, 404)}$=.591, $p$=.737). Next, openness to experience, engagement, and disengagement emotion regulation were added to the regression equation in step two. Although the change in variance of step two ($DR^2$=.009) was not a significant increase in variance from step one ($DF_{(3,401)}$=2.170, $p$=.091), disengagement emotion regulation was significantly negatively associated with confirmatory article selection ($\beta$=-.115, $p$=.028) such that as disengagement increased, confirmatory article selection increased. Notably, this was the only main effect found and was also the opposite association than what was predicted. In step three, the interaction effects of emotion regulation strategy with openness were ran in two separate regressions. Neither interaction term was a significant predictor of confirmatory article selection. In the regression examining the impact of engagement emotion regulation interacting with openness, the change in variance ($DR^2$) accounted for was 0.000, which was not a significant increase in variance from

step two (D$F_{(1, 400)}$ =.142, $p$=.706). In the regression examining the impact of disengagement emotion regulation interacting with openness, the change in variance (D$R^2$) accounted for was equal to .000, which was also not a statistically significant increase in variance from step two (D$F_{(1, 400)}$ =.004, $p$=.949).

*Table 1: Hierarchical Regression Predicting Confirmatory Article Selection*

| Measures | $\beta$ | $R$ | $R^2$ | $\Delta R^2$ | $\Delta F$ | $df$ |
|---|---|---|---|---|---|---|
| Step 1 | | .093 | .009 | .009 | .591 | 6, 404 |
| Gender | -.037 | | | | | |
| Race | .001 | | | | | |
| Education | .010 | | | | | |
| Political Party ID | -.024 | | | | | |
| Age | .062 | | | | | |
| Income | .056 | | | | | |
| Step 2 | | .157 | .025 | .016 | 2.170 | 3, 401 |
| EngagementER | -.037 | | | | | |
| DisengagementER | -.115* | | | | | |
| Openness | .009 | | | | | |
| Step 3 | | | | | | 1, 400 |
| OpenxEngagement | .096 | .158 | .025 | .000 | .142 | |
| OpenxDisengagement | -.015 | .157 | .025 | .000 | .004 | |

Note: Betas are reported from the step at which the variable was entered into the equation. *$p$< .05. ***$p$ < .001.

## Study One Discussion

Study one attempted to build on the Intuitionist Model of Political Reasoning by including emotion regulation and openness to experience as possible affective and cognitive predictive traits of confirmatory information seeking. After answering questions assessing political stance on issues of gun control and climate change, emotion regulation habits, and personality, participants completed an article selection task that was used to predict low, moderate, and high confirmatory information seeking. Contrary to expectations, Hypothesis 1, that higher openness to experience would lead to less confirmatory article selection, was not supported. The lack of association was unexpected given openness to experiences connection to performance on the Wason Selection Task and relation to NfC and NfA (Arcenueaux et al, 2017 & Melinder et al, 2020). One explanation for the lack of significance may be the measurement of openness with one self-reported question. Another potential explanation is differences in the dependent variables from prior studies and the present study. In the present study, the article selection task is a direct measure of confirmatory selective exposure (did participants choose to read articles aligned with their views). In Melinder (2020) the dependent variable was the solution to a problem that required logical reasoning (a modified version of the Wason Selection Task).

With respect to our second hypothesis that higher engagement-oriented emotion regulation scores would lead to less confirmation bias behavior, and higher disengagement-oriented emotion regulation scores would lead to more confirmation bias behavior, the data also did not support our hypothesis. Instead of the predicted positive association between disengagement emotion regulation and confirmatory article selection we observed a negative

association. Specifically, for every one standard deviation decrease in self-reported use of disengagement emotion regulation, participants saw an equal one standard deviation increase in likelihood to read articles aligned with their viewpoints. These findings suggest individuals who avoid, suppress, or distract to emotionally regulate themselves *less* are more likely to seek out confirmatory political information. While unexpected, one possible explanation for this finding is that participants who use disengagement-oriented emotion regulation more, are more likely to disengage from tasks in general, and thereby more likely to select articles by chance, which may lead to more selection of non-confirmatory articles than otherwise. It is also possible that individuals may engage with political information differently when there is no social component. For example, when navigating political information, the absence of social influence may minimize worry of stigma or judgments for one's political views and result in individuals who often withdraw from politics to more confidently and comfortably selectively engage with information that is aligned with their views. While both explanations are possible, they are just speculation. The negative association between disengagement emotion regulation and non-confirmatory article selection is so counter to expectation that we are really not sure what might be driving the finding.

Regarding our third hypothesis, that emotion regulation will moderate the effect of openness in predicting confirmatory article selection, this was also not supported by the data; neither disengagement nor engagement emotion regulation moderated the effect of openness. Based on the absence of support Hypothesis 1 and 2, we would no longer expect any variable interactions.

*Study One Limitations*

Study one has several limitations. The gun control and climate change questions used to identify existing political viewpoints were asked in the pre-election survey. Given the article selection task was given to participants after the election, and it used issues of gun control and climate change, it is plausible that time and real-world occurrences (such as a mass shooting or a natural disaster) could have altered an individual's gun control and climate change views in between the time they took the pre-election and post-election survey. Ideally, participants would be asked questions indicating their political views at the same time they completed the article selection task. This would provide stronger evidence that their behavior on the task either confirms or challenges their views in the moment. The time difference between the pre and postelection is also a potential explanation for the lack of predicted associations between openness, engagement emotion regulation, and article selection. It could be that opinions shifted during the few months between the pre and post-election survey, which would affect the analyses.

Another limitation of study one may be the use of self-reported openness to experience. While there are plenty of people who have accurate perceptions of self, there are also many who do not. Study used 1 question for the openness to experience variable, which means adequate measurement of the personality trait could lead to different results. To build on study one and explore additional cognitive and affective traits that may expand the Intuitionist Model of Political Reasoning, study two examines the impact of mood state, NfC, NfA, and emotion regulation style on non-confirmatory discussion seeking.

## Study Two: Methods

Study two's survey data examined the role of emotion regulation in political activism. It was a multi-time point, nationally representative sample (N=4000) that began in June of 2017, the first year of Trump's presidency and continued into March 2018, ending with data collection following the February 14, 2018 mass shooting at the Marjory Stoneman Douglas High School in Parkland, FL.

### *Participants*

Of the initial 4,000 participants the average age was 48.89 (SD=16.66), 1837 participants were men (~45.7%), and 2163 were women (~54.3%). Roughly 71.8% of the sample was White, 11.5% Black, 9.7% Hispanic (or Latino), 2.5% Asian, 1.4% Native American, and 1.8% reported being of mixed race.

### *Measures*

*Engagement Emotion Regulation Strategies.* Respondents were prompted to think about recent political news that was upsetting and to then rate how they used different strategies to manage or control their emotions to feel better. Engagement-oriented strategies were measured with 4 questions modified from the Emotion Regulation Questionnaire (Gross & John, 2003) and the Coping Response Inventory (Moos & Schaefer, 1993). Questions assessing engagement-oriented strategies of emotion regulation included statements such as: "I tried to step back and view upsetting political news more objectively", "To feel better, I focused on the longer term meaning of the situation", "To feel more positive emotion (hope, happiness, pride), I changed the way I thought about upsetting political news", "To feel less negative emotion (worry, anger, sadness, disgust), I changed the way I thought about upsetting political news". All respondents rated their tendency to use each strategy in a political context on a scale of 1 (never) to 5 (very

often). Responses to all questions were averaged to create an engagement emotion regulation score.

*Disengagement Emotion Regulation Strategies.* Disengagement-oriented emotion regulation strategies were measured with 4 questions modified from the Emotion Regulation Questionnaire (Gross & John, 2003) and the Coping Response Inventory (Moos & Schaefer, 1993). Respondents were prompted to think about recent political news that was upsetting and to then rate how they used different strategies to manage or control their emotions to feel better. Questions assessing disengagement-oriented emotion regulation strategies included statements such as: "I avoided reading or watching upsetting political news to feel better", "I distracted myself by focusing on other non-political things", "I controlled my emotions about upsetting political news by not expressing them", and "I kept my emotions about upsetting political news to myself". All respondents rated their tendency to use each strategy in a political context on a scale of 1 (never) to 5 (very often). Responses to all questions were averaged to create a disengagement emotion regulation score.

*Need for Cognition.* NfC was measured via two questions from the NfC scale (Cacioppo & Petty, 1982). Respondents rated the statements "I like to have responsibility for handling situations that require a lot of thinking." and "I prefer simple rather than complex problems." from 1 (strongly disagree) to 5 (strongly agree). The responses from these scores were averaged ("I prefer simple rather than complex problems" will be reverse coded).

*Need for Affect.* NfA was measured by three questions focusing on how much individuals enjoy feeling strong emotions ("When I feel strong emotions, I feel a greater sense of belonging to my political group(s).", "Feeling strong emotions is essential to making changes in society.", and "My emotions about politics are strongly affected by the emotions of those around me"). All

three questions were recorded from 1 (strongly disagree) to 6 (strongly agree). The NfA measure will be the average of these three questions.

*Emotional State (Anxiety).* Anxiety was measured by asking individuals to rate the amount of worry, concern, or fear they felt when thinking about recent political news on a scale from 1 (don't feel at all) through 10 (feel very strongly).

*Non-Confirmatory information seeking.* Non-confirmatory information seeking was recorded as the degree to which respondents reported seeking conversations with individuals who hold dissimilar political viewpoints within the past 6 months. Participants received a prompt: "In the past 6 months, how often you would say you have: sought discussion of politics with people who hold different views from yours." and responded on a likert scale (1 = never, 5 = very often).

*Control Variables*

All control variables were taken from the first two waves of data collection.

*Age.* Age was measured across both waves by subtracting birthyears reported from respondents from the year the survey was taken.

*Gender.* Participants self-reported their gender (coded as 0=male and 1=female).

*Race.* Participants were asked which racial or ethnic group best described them from the following options: 1=White, 2=Black, 3=Hispanic, 4=Asian, 5=Native American, 6=Mixed, 7=Other, 8=Middle Eastern.

*Education.* Participants reported the highest level of education they completed using the following scale: 1=No HS, 2=High School Graduate, 3=Some college, 4=2-year degree, 5=4-year degree, 6=Post-grad.

*Party identification.* Political party identification was captured on a 7-point scale where participants chose the ideological placement which best represented their political views using the following scale: 1=Strong Democrat, 2=Not very strong Democrat, 3=Lean Democrat, 4=Independent, 5=Lean Republican, 6=Not very strong Republican, 7=Strong Republican, 8=Not sure. Participants who indicated that they are unsure of their political affiliation were excluded from analyses.

*Family income.* Participants self-reported their family income over the past year using a 16 point scale ranging from less than $10,000 a year to more than $500,000 a year. These values were recoded into three categories of 1) low income (less than $10,000-$49,999), 2) moderate income ($50,000-$99,999), and 3) high income ($100,000 or more).

*Homogeneity of political network.* Participants were asked "How would you describe the ideological make-up of friends you interact with regularly online or in person?" Responses were rated from 1 to 7 (1 indicated their social group was mostly liberal, 4 indicated they were equally liberal and conservative, and 7 indicated they were mostly conservative). Reponses were recoded so individuals who rated their friend's ideologies at a 4 (equally liberal and conservative) were recoded as low homogeneity, while individuals who rated their friend's ideologies from 1-3 or 5-7 had increasingly homogeneous political social networks.

*Data Analysis*

Of the 4,000 cases in original dataset 1,173 were omitted as they had no responses to the NfC or NfA questions. From the remaining 2,817 cases 610 identified as independents and were not used for the final analysis per inclusion criteria. The average age of the remaining 2,217 respondents was 54.23 (SD = 16.61). There were 981 men (44.2%). Seventy-five percent of respondents were White, 11.3% were Black, 8.1%% were Hispanic, 1.6% were Asian, 2.1%

were Mixed, and <1 % identified as Native American, other, or Middle Eastern. Roughly 3% had no high school education, 34.6% were high school graduates, 21% had some college experience, 11% had 2-year degrees, 20% had 4-year degrees, and 10% experienced some post graduate education. Self-reported party identification shows that 27.6% identified as strong Democrats, 16.2% identified as not very strong Democrats, 11.4% identified as leaning Democrat, 11.8% leaned Republican, 14% were not very strong Republicans, and 16.8% were strong Republicans. Determined by asking how participants viewed the ideological views of their friends, 28.1% of individuals have homogenous networks and 15.6% have heterogenous social networks. Lastly, 45.5% reported (from the previous year) as low income ($10,000-$49,999), 28.7% reported moderate income ($50,000-$99,999), and 13.9% reported high income ($100,000 or more).

The dataset for study two was screened for outliers and missing data There were multiple univariate outliers (81 for Disengagement, 31 for Engagement, and 90 for NfA). Mahalanobis distance was used to identify 306 multivariate outliers ($p$<.001). There were 1,556 cases of missing data (265 for income, 1,247 for homogeneity of political network, and 44 for political party identification). Littles MCAR showed the missing data was missing at random ($p$=.279). Histograms, P-P plots, and Q-Q plots of engagement emotion regulation, disengagement emotion regulation, NfA, and NfC showed normal distributions despite outliers. Anxiety however was not normally distributed. VIF scores (<2) indicated the assumption of noncollinearity was satisfied for multiple regression. Given all variables were measured with likert scales, these deviations from assumptions of normality leave the dataset adequate for hierarchical multiple regression. All outliers were included in the final analysis. After removing cases of missing data, the final sample for the regression analyses was 850.

Next, interaction terms were computed by multiplying the NfC and NfA variables with the engagement emotion regulation strategy use and disengagement emotion regulation strategy use variables to create four interaction effects: NfC and NfA x engagement emotion regulation strategy and NfC and NfA x disengagement emotion regulation strategy.

## Study Two Results

Before conducting the regressions, bivariate correlations were examined for all variables of study two. Means, standard deviations and zero order correlations between all variables are presented in Appendix B (See Table 4). Anxiety (r=.09, $p<.01$), NfC (r=.23, $p<.01$), NfA (r=.15, $p<.01$), disengagement emotion regulation (r=-.12, $p<.01$), and engagement emotion regulation (r=.19, $p<.01$) were all significantly correlated to non-confirmatory discussion seeking. Additionally, engagement emotion regulation was significantly correlated to disengagement emotion regulation (r=.33, $p<.01$).

Next, four regressions were conducted with *non*-confirmatory information seeking (defined as how often in the past 6 months individuals sought conversation with someone who held *different* political views) as the dependent variable. In step one, age, gender, race, education, party identification, family income, and homogeneity of political network were included as control variables. The independent variables (anxiety, NfC, NfA, engagement emotion regulation, and disengagement emotion regulation) were entered as predictors in step two, and the interaction terms as predictors in step three. Four regressions were conducted in total, testing the NfC (and NfA) x engagement emotion regulation strategy interaction term, or the NfC (and NfA) x disengagement emotion regulation strategy interaction terms. Main effect coefficients were examined to confirm hypothesis 1 (higher anxiety predicts less discussion with individuals of dissimilar views), hypothesis 2 (higher engagement emotion regulation scores predict more discussion of those with dissimilar views and higher disengagement emotion regulation scores predicts less discussion of those with dissimilar views), hypothesis 3 (higher NfC predicts more discussion of those with dissimilar views), and hypothesis 4 (higher NfA predicts more discussion of those with dissimilar views). To test hypothesis 5 (that NfC/NfA may moderate

effects of engagement or disengagement emotion regulation) we examined whether a significant increase in $R^2$ after introducing the third step of the regression analysis is present for each of the four regressions that would indicate a significant increase in predictive validity of the interaction term on confirmation bias behavior (Cohen et al, 2003).

The results of the four regressions predicting discussion seeking with those of dissimilar political views from anxiety, engagement emotion regulation, disengagement emotion regulation, NfC, NfA, and interaction effects of NfC/NfA on emotion regulation strategies are reported below in Table 4. As steps one and two were the same for all four regressions, these are reported first, followed by reporting step three respectively for all four regressions. Step one indicated that the variance ($R^2$) accounted for by the control variables equaled .028 (adjusted $R^2$=.02), which was significantly different from zero ($F_{(7, 842)}$=3.455, $p$<.001). Gender was negatively associated with the dependent variable ($\beta$=-.077, $p$=.026) indicating that females are more likely to seek non-confirmatory discussion with others. Age also showed a negative association ($\beta$=-.075, $p$=.032) suggesting older individuals are less likely to seek non-confirmatory discussions with others. Income was positively associated with discussion behavior ($\beta$=.074, $p$=.042) such that those with higher income are more likely to seek discussion with those of dissimilar political views than those with lower income.

Next, anxiety, engagement emotion regulation, disengagement emotion regulation, NfC, and NfA were included in step two. The change in variance (D$R^2$) accounted for was .094, which was a statistically significant increase from step one (D$F_{(5, 837)}$=17.988, $p$<.000). No main effects were found for anxiety and therefore hypothesis 1 was not supported. In contrast, hypothesis 2 was supported as emotion regulation was positively associated with the dependent variable ($\beta$=.199, $p$=.000) indicating that individuals who use more engagement-oriented

emotion regulation were more likely to seek conversations with those with non-confirmatory views. In further support of hypothesis 2, disengagement emotion regulation showed a negative association ($\beta$=-.166, $p$=.000), revealing that those who used less disengagement emotion regulation were more likely to seek non-confirmatory discussions. Hypotheses 3 and 4 were also supported as NfC ($\beta$=.169, $p$=.000) and NfA ($\beta$=.118, $p$=.001) were positively associated with the discussion behavior; both higher NfC and NfA predicted seeking out more non-confirmatory political discussions.

In step three, the interaction effects of NfC and NfA with engagement and disengagement emotion regulation were entered into their own separate regression equations. For the NfC x Engagement emotion regulation interaction term, the change in variance (D$R^2$) accounted for was equal to .005, which was a statistically significant increase in variance from step two (D$F_{(1, 836)}$ = 5.011, $p$=025). The NfCxEngagement interaction term was statistically significant ($\beta$=-.073, $p$=.025) providing partial support for hypothesis 5. To explore this finding further we plotted the interaction (see Figure 2 below). As the graph illustrates, the source of the interaction is the differential effect of NfC at low versus high engagement-oriented emotion regulation. At high levels of engagement-oriented emotion regulation, NfC does little to increase non-confirmatory discussion seeking. In contrast, at lower levels of engagement-oriented emotion regulation, NfC, increases nonconfirmatory discussion behavior.

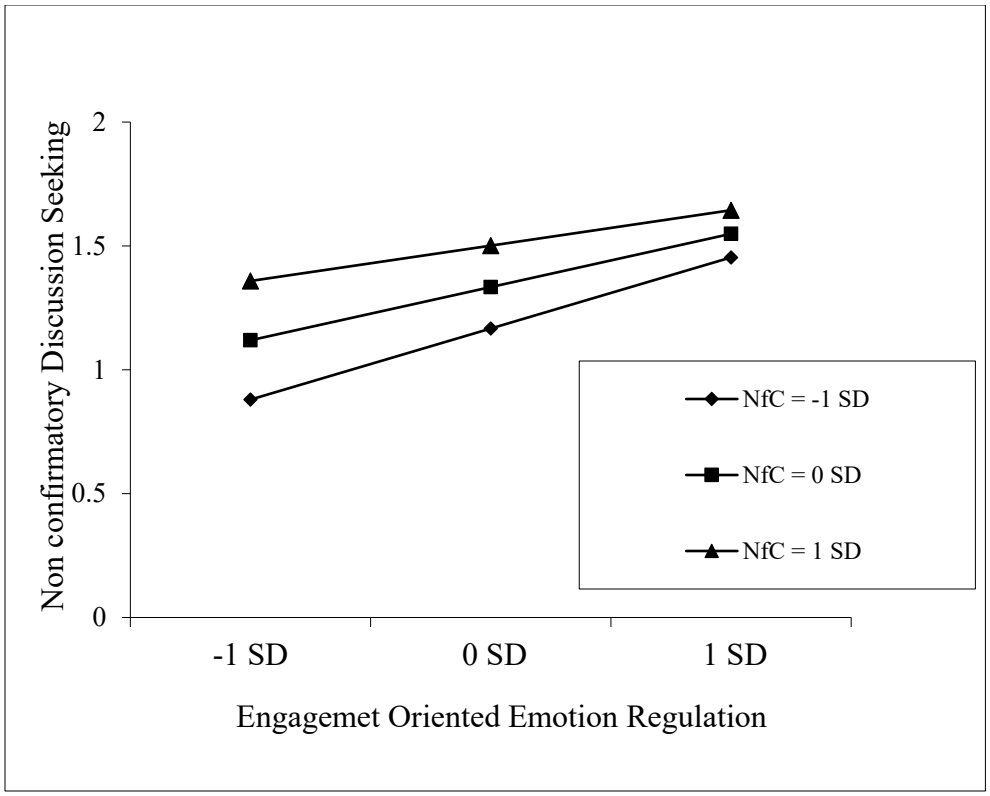



*Figure 2: NfCXEngagement*

For the regression examining the NfC x Disengagement emotion regulation interaction term, the change in variance (D$R^2$) accounted for was equal to .00, which was not a statistically significant increase in variance accounted for above the variability contributed by the previous predictor variables entered in step two (D$F_{(1, 836)}$ =.096, $p$=.756).

For the regression examining the NfA x Engagement emotion regulation interaction term, the change in variance (D$R^2$) accounted for was equal to .001, which was not a statistically significant increase in variance accounted for above the variability contributed by the previous predictor variables entered in step two (D$F_{(1, 836)}$ =.576, $p$=.448).

For the NfA x Disengagement emotion regulation interaction term, the change in variance accounted for (D$R^2$) was equal to .001, which was not a statistically significant increase in variance accounted for above the variability contributed by the previous predictor variables entered in step two (D$F_{(1, 836)}$ =1.007, $p$=.316).

*Table 2: Hierarchical Regression Predicting Non-Confirmatory Discussion Seeking*

| Measures | *β* | *R* | $R^2$ | $\Delta R^2$ | $\Delta F$ | *df* |
|---|---|---|---|---|---|---|
| Step 1 | | .167 | .028 | .028*** | 3.455 | 4, 842 |
| Gender | -.077* | | | | | |
| Race | .042 | | | | | |
| Education | .033 | | | | | |
| PID | -.057 | | | | | |
| Age | -.075* | | | | | |
| Income | .074* | | | | | |
| Network | .040 | | | | | |
| Step 2 | | .350 | .122 | .94*** | 17.988 | 5, 837 |
| Anxiety | .046 | | | | | |
| NfC | .169*** | | | | | |
| NfA | .118*** | | | | | |
| DisengagementER | -.166*** | | | | | |
| EngagementER | .199*** | | | | | |
| Step 3 | | | | | | |
| NfCXEngagement | -.073* | .357 | .127 | .005* | 5.011 | 1, 836 |
| NfCXDisengagement | -.010 | .350 | .122 | .000 | .096 | 1, 836 |
| NfAXEngagement | .025 | .350 | .123 | .001 | .576 | 1, 836 |
| NfAXDisengagement | .033 | .351 | .123 | .001 | 1.007 | 1, 836 |

Note: Betas are reported from the step at which the variable was entered into the equation. *$p < .05$. ***$p < .001$.

## Study Two Discussion

To continue to build on the Intuitionist Model of Political Reasoning and study one, study two included anxiety level, NfC, NfA, and emotion regulations styles as predictive traits for non-confirmatory political discussion seeking. Hypothesis 1, that increased anxiety would predict more confirmation bias behavior, was not supported. We found no association between anxiety levels and non-confirmatory discussion seeking. The lack of significance contrasts our expectations given the literature suggesting that individuals in negative mood states show preference for attitude consonant information (Jonas & Frey, 2005) and are capable of and willing to rationalize their financial and health related decisions in ways that favor or support those decisions (Mohanty & Suar 2014). One explanation for this in study two may be the fact that participants reported their anxiety in relation to "recent political news" and may not reflect their anxiety levels at the time of taking the survey or their anxiety levels when seeking discussions with others.

Regarding Hypothesis 2, that more frequent use of engagement emotion regulation would predict less confirmatory information seeking and that more use of disengagement emotion regulation would predict more confirmatory information seeking, findings supported the hypothesis. For every standard deviation increase in engagement emotion regulation, there was an equal standard deviation increase in seeking conversation with those of dissimilar viewpoints. Similarly, for every standard deviation decrease in disengagement emotion regulation, there was an equal standard deviation increase in conversation seeking with those with dissimilar views. Frequent use of engagement-oriented emotion regulation strategies, such as reappraisal, may help individuals take a more active role in seeking new information as they have more adaptive and useful mental tools for reframing stressful emotional experiences. Alternatively, frequent

avoidance, suppression, or distraction may render some incapable of or unwilling to engage with information and viewpoints of those with oppositional or otherwise dissimilar opinions. These results suggest that engagement-oriented emotion regulation strategies may be helpful for breaking down communication barriers and streamlining cross-aisle political discussions. In addition, findings also suggest that habitual use of engagement-oriented emotion regulation strategies could result in the continuation of, or strengthening of, cross-aisle communication barriers. Emotion regulation and affect literacy could be a potential intervention for increasing engagement with information that challenges existing beliefs while also not becoming more entrenched in existing views.

Both hypothesis 3, that increased NfC would predict less confirmatory discussion seeking, and hypothesis 4, that increased NfA would predict less confirmatory discussion seeking, were also supported. For each standard deviation increase in NfC and NfA there was an equal standard deviation increase in non-confirmatory political discussion seeking. These findings suggest that enjoying the relationship one has with their own cognitions and feelings seems to facilitate political discussion seeking with whose views may challenge one's own. Finding pleasure in the responsibility of one's own 'thinking' or 'feeling' suggests a level of awareness and perception that may aid individuals in superseding intuitive thinking related to motivated reasoning. In some contexts, such as politics, NfC and NfA may aid individuals in expanding their information networks to include sources that are not aligned with or are outside their existing worldview.

Regarding hypothesis 5, that NfC and/or NfA would moderate effects of emotion regulations styles in predicting non-confirmatory discussion seeking, there was partial support. Examination of Figure 2 suggests that NfC has a greater impact on individuals with low

engagement-oriented emotion regulation than those with high engagement-oriented emotion regulation. This may be because less frequent use of engagement emotion regulation and having a lower NfC could result in less desire to engage with and think about information misaligned with one's views. On the other hand, having a higher NfC might help individuals who do not frequently use engagement emotion regulation strategies become more interested in or capable of engaging with new information. Engagement-oriented emotion regulation strategies may facilitate cognitive and emotional engagement for low NfC individual (and less for high NfC individuals as they are already more engaged). While NfA had no significant interaction with either emotion regulation style the findings from the NfC and engagement interaction suggest there is an important relationship between cognition and affect that may underlie the political information seeking behaviors of individuals.

Findings also revealed a number on unexpected associations. Females engaged in more non-confirmatory discussion seeking than males. The reason for these findings is unclear, previous research has suggested women show less confirmation bias in situations where interdependent decisions are made while men show less confirmation bias in situations where independent decisions are made (Traut-Mattausch, et al 2011). In the context of study two, it would make sense women sought more dissimilar political discussion given the outcome variable is reflective of interdependent communication.

Additionally, it was shown that as individuals get older, they are less likely to seek information that is misaligned with their own views. Although it is unclear as to why, one longitudinal study showed that over the span of five decades women developed more stable and unchanging sociopolitical views (Alvin et al, 1992). However, another study suggests that younger and older American adults are equally open to changing their views on government and

political issues (Tyler et al, 1991). While the above research is not directly related to confirmatory information seeking, attitudes towards government and sociopolitical climates often drive information seeking and discussion seeking behaviors. Existing research on confirmation bias and age finds little differences of confirmatory information seeking outcomes between age groups (Koslowski & Maqueda, 1993; Rassin & Kuiipers 2010), so it remains largely unclear as to what led to the increased age predicting less non-confirmatory discussion seeking. We also found that as self-reported income increases, so too does seeking conversation with someone of dissimilar political views. While this finding was unexpected, one possible explanation is that higher paying jobs may require interaction with more diverse range of individuals facilitating engagement in conversations with those with different political views.

*Study Two Limitations*

Study two has several limitations. The question assessing political discussion behavior was broad and could be interpreted in multiple ways: "In the past 6 months, how often you would say you have sought discussion of politics with people who hold different views from yours." It is easy to see how participants can have differing interpretations of what it means to have 'sought' out discussions with others and what topics may or may not count as political. For example, some may consider talking with family members, certain friends, or close work colleagues with differing views as common place and not requiring concerted effort to seek and engage. Whereas other individuals may live in ideologically homogeneous areas where having conversations with someone of dissimilar views requires significant effort. Further, having additional information about each participant's non confirmatory discussion goals could reveal nuance and perspective for future work. It would be beneficial to provide much more direct and specific language on what defines seeking conversation to understand the findings more. Despite

the broadness of the dependent variable in study two, the focus of person-to-person discussion seeking offers a unique strength to the study. Regardless of motivation behind engaging in non-confirmatory discussions, any exposure to another individuals opposing beliefs creates circumstance for the widening of an individual's worldview or beliefs. Another limitation of study two was the reliance on 2 questions for NfC and 3 questions for NfA. Both traits have established measures with additional questions that could have strengthened the measure of both variables for the study. The dataset for study two focused on political information. While this was crucial for making interpretations regarding the independent variables it also means the results must be carefully generalized to situations where individuals rely heavily on motivated reasoning and system 1 processing. Lastly, the measure for anxiety focused on "recent political news" and was not reflective of each participants mood state at the time of the survey. In addition, we did not ask participants to report their anxiety levels when seeking discussions with others. Rather, the anxiety measure was a general assessment of degree of anxiety surrounding current political events. A more accurate or specific measure of anxiety may illustrate the hypothesized association. In the future, researchers could ask participants to rate their anxiety while discussing politics with individuals with different ideological views. Alternately, researchers could prime participants with anxiety inducing questions or tasks before measuring confirmatory or non-confirmatory information seeking outcomes.

## General Discussion

Study one and two contributed to gaps in literature surrounding the cognitive and affective traits that influence confirmatory and non-confirmatory information seeking in political contexts where existing beliefs dominate decision making**.** Overall, the findings from study one did not support our hypotheses and only disengagement emotion regulation showed a significant effect on article selection. Despite our predictions based on previous literature (Arceneaux et al, 2017 & Melinder et al, 2020), openness to experience did not influence confirmatory article selection. Findings also suggested there is no influence of engagement emotion regulation style on whether individuals chose to read articles aligned with their political views.

Study one contributes little to the Intuitionist Model of Political Reasoning and related literature (Arceneaux, 2017) but it does reveal some important considerations for future work and interpretations on how disengagement can influence confirmatory information seeking. Experimental tasks benefit greatly by controlling for psychological distance and effects of time on an individual's political views. Study one provided an unexpected result, that higher disengagement emotion regulation predicted less confirmatory article selection. While the reason for this is unclear there are a few possible explanations. One may be that individuals who disengage more may have been more likely to choose articles at random or at first glance. Another may be that without the presence of any judgment or social influence, those who typically disengage from emotional discomfort surrounding politics may have found themselves able to more comfortably engage with information aligned with their views since the article selection task lacked any interpersonal or social accountability.

Findings from study two, on the other hand, largely supported our hypotheses and successfully expand the Intuitionist Model of Political Reasoning and literature surrounding

confirmatory information seeking (Arceneaux et al, 2017 & Westerwick et al, 2017). Study two identifies key cognitive and affective influencers on non-confirmatory discussion seeking. Specifically, individuals who use more emotion regulation strategies like reappraisal and less disengagement strategies such as avoidance or suppression, report engaging in more non-confirmatory discussion seeking. Additionally, study two suggests that increased enjoyment of and engagement with one's thinking and feeling can lead to more discussions with those who have dissimilar political views. These results both align, and contrast, with expectations from the Intuitionist Model of Political Reasoning as well as recent findings that NfC and NfA may have a role in processing incoming information that is not aligned with one's worldview (Arceneaux et al, 2017 & Westerwick et al, 2017).

For example, previous literature suggests that having a high NfC may be a trait that aids individuals in finding less biased sources (Westerwick et al, 2017) and overriding motivated reasoning or system one processing (Arceneaux et al, 2017). The literature also revealed that having a high NfC does not automatically mean an individual uses unbiased information accurately, as in some cases individuals use their desire and enjoyment of thinking to discredit information that challenges their views (Westerwick et al, 2017). Study two's results, which suggest that a high NfC did in fact predict seeking more non-confirmatory information, aligns with the literature as seeking discussions with those of dissimilar views reflects a desire to engage with new information. However, there is no way to know what impact such conversations had on that individual—did the conversations lead to a shift in viewpoint, or greater entrenchment? Although we cannot tell from the present findings whether high NfC individuals incorporated the beliefs of others, or not, the finding suggests that having more enjoyment for one's thinking predicted higher engagement with individuals who held dissimilar views. This

exposure to contrasting ideas is vital to begin any process of considering evidence for another viewpoint.

Arceneaux (2017) suggested that individuals who are high in NfA may show more reliance on motivated reasoning as their heightened enjoyment of emotion may lead to a reliance on information processing styles that are associated with entrenched beliefs. Instead, our findings showed that higher NfA predicts more dissimilar political conversation seeking with other individuals. It may be that having a higher NfA leads to more empathy and understanding for another's views which could facilitate non-confirmatory discussion seeking, or it may be that higher NfA supports greater enjoyment of intense emotional states, discussions, or arguments, which may also facilitate non-confirmatory discussion seeking.

While NfC and NfA play a role influencing the way individuals search for and engage with information, study two's findings also suggest that emotion regulation strategy style may be an important centerpiece for establishing engagement or disengagement-oriented habits in the face of emotionally upsetting information. Study two's findings suggest that emotion regulation should be incorporated into the Intuitionist Model of Political Reasoning (Arceneaux, 2017). It is also possible that engagement emotion regulation strategies could be a teachable real-world technique that could mitigate the tendency for individuals to seek confirmatory information. Helping individuals understand, appreciate, and view their own thinking more objectively could help bridge gaps in reasoning that increase an individual's tendency to use engagement-oriented emotion regulation. One particularly challenging aspect of research that attempts to understand and possibly minimize bias may be identifying successful methods of increasing self-awareness in individuals who are emotionally caught up in their own worldviews. As NfA is strongly related to system one processing and NfC is related to system two processing in the Intuitionist

Model, it may be that emotion regulation styles could function as a bridge that aids individuals in purposefully overriding intuitive emotional responses (motivated reasoning) to engage in more effortful and conscious thinking.

In support of our positions above, high engagement-oriented emotion regulation had more impact on increasing non-confirmatory discussions with others in low NfC individuals than high NfC individuals. This suggests that developing a healthy relationship with the way one thinks may be important for minimizing behavior representative of confirmation bias. Becoming more engagement oriented when managing negative emotions can dramatically mitigate effects of low NfC by helping individuals think about their emotional experience and act accordingly. This implies there could be a deeper connection between the enjoyment of one's own thinking and how likely someone is to utilize engagement-oriented emotion regulation in situations where they are faced with information that challenges their worldviews. Like previous literature, the interaction also suggests that high NfC alone does not equate to using one's enjoyment of thinking in unbiased ways and in study two it is the ability to think about one's emotions that leads to less biased information seeking outcomes (Westerwick et al, 2017).

Enjoying the relationship we have with our own thinking and feeling may be an important part of developing healthier and overall, more beneficial information seeking habits. For example, Westerwick and colleagues (2017) finding that individuals with high NfC tend to find and use less biased news sources suggest individuals can use their enjoyment of thinking to find better sources of information. Although those individuals may simply use their increased engagement with their own thinking to discredit or mentally manipulate those sources in favor of their own views, it could be argued that awareness of one's own cognitive tendencies and emotional experiences could help mitigate such confirmatory effects. Perhaps emotion regulation

styles could play a key part in aiding individuals to become more or less reliant on system one or system two processing, as people who habitually engage with their emotions may have more comfort with their own discomfort and be more capable of putting in the cognitive effort required to override intuitive thinking.

Numerous similarities and differences between studies one and two give insight into the interpretations and usefulness of their findings. Study one and two are similar in their reliance on surveys for data collection as well as measurement collection across multiple time points. For study one, it is unclear how the time between the pre and post survey may have affected an individual's viewpoints on gun control or climate change. Whereas in study two it is unclear how recent anxiety over political news may or may not be associated with discussion seeking with those with opposing views. While both studies measured the impact of emotion regulation, the findings were very different between the studies as there were contradictory results. Although it is unclear as to what caused this, the best answer may be that without any social judgment or influence individuals who usually disengage from political information found themselves more willing to engage with the information aligned with their views knowing there was reason to disengage or withdraw emotionally. The different findings between the two studies may also reveal an important distinction between the variables that can influence confirmatory information seeking. Interacting with information digitally (such as on the article selection task) compared interacting with information through another human being who holds differing views than one's own, may be an important distinction for future researchers to consider.

*Future Directions*

Study 1 and study 2 explored confirmatory political information seeking through the lens of cognitive and affective traits that influence how individuals process incoming information.

Given both studies utilized survey data, one major improvement moving forward would be to shift to an experimental design within a lab environment. Combining aspects of both studies, such as the experiment of study 1 and the inclusion of NfC and NfA measures in study 2, could provide an insightful exploratory examination of political confirmation bias. Rather than use survey data collected over multiple time points, researchers could design studies where individuals arrive on locations and begin their participation by completing experimental tasks *before* providing any self-reported data via questionnaires. For example, the article selection task used in study 1 (or modified versions of such tasks) could be more useful in making inferences of confirmation bias behavior by recording information seeking and navigation habits prior to any measurement of an individual's political views or cognitive/affective traits. To further maximize the efficacy of such data, other tasks that involve reflection on the information individuals selectively expose themselves to and engage with should also immediately follow any tasks. Future work should aim to explore facets of confirmation bias beyond information seeking to include other traits of the phenomenon such as an inability to accept new evidence or generate a better hypothesis in the face of information misaligned with one's view. These gaps in the literature may be more easily understood by continuing to explore the role thinking and feeling may have in shaping one's predisposition to rely on automatic (system 1) processing or more effortful (system 2) processing.

In conclusion, study one and two contribute to the Intuitionist Model of Political Reasoning and the related literature by including new cognitive and affective traits that influence confirmatory and non-confirmatory information seeking. Notably, NfC, NfA, and emotion regulation styles have significant impact on predicting whether someone seeks conversations with others who have viewpoints that differ from their own. This Thesis has explored the

predictors of political confirmatory information seeking and has contributed to the literature by identifying internalized traits and real-world emotion management techniques that can help individuals interact with information they previously may have avoided. Considering all findings, it seems that emotion regulation styles may have a role in mitigating confirmation bias in contexts of political information seeking. Specifically, engagement-oriented emotion regulation seems to increase non-confirmatory discussion seeking for those with lower NfC compared to those with higher NfC. Although the reason for this relationship is not clear, the interaction effect suggests there is an important interplay between cognitive and affective processes that are influencing behaviors indicative of confirmation bias. These implications have profound importance, as finding ways to help individuals recognize the value of engaging with and then examining evidence that is not aligned with one's own view in a fair, objective way could be incredibly beneficial to individuals and society at large.

# References


Alwin, D. F., Cohen, R. L., & Newcomb, T. M. (1992). Aging and the Stability of Sociopolitical Orientations. In *Political attitudes over the life span: the Bennington women after fifty years* (pp. 135–172). essay, Univ. of Wisconsin Press.

Ansolabehere, S., & Schaffner, B.F., Cooperative Congressional Election Study, 2016. Common Content. August 4, 2017. Cambridge, MA: Harvard University. http://cces.gov.harvard.edu

Appel, M., Gnambs, T., & Maio, R. Gregory. (2012). A Short Measure of the Need for Affect. *Journal of Personality Assessment*. doi:10.1080/00223891.2012.666921.

Arceneaux, K., Vander Wielen, J. R. (2017). *Taming Intuition: How Reflection Minimizes Partisan Reasoning and Promotes Democratic Accountability*. United Kingdom. Cambridge University Press.

Cacioppo, J. T., & Petty, R. E. (1982). The need for cognition. *Journal of Personality and Social Psychology*, *42*, 116–131. doi:10.1037/0022-3514.42.1.116

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences*, 3rd edition Mahwah, NJ: Erlbaum.

De Neys, W. (2006). Dual processing in reasoning: two systems but one reasoner. *Psychological Science, 17(5)*:428-33. doi: 10.1111/j.1467-9280.2006.01723.x.

Evans, J. S. B. T. (2017). *Wason selection task.* In R. F. Pohl (Ed.), *Cognitive illusions: Intriguing phenomena in thinking, judgement, and memory* (p. 150–164). Routledge/Taylor & Francis Group.

Festinger, L. (1957). *A Theory of cognitive dissonance*. Stanford, CA: Stanford University Press.

Gross, J.J. (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology, 2*, 271-299. doi: 10.1037/1089-2680.2.3.271

Gross, J.J., & John, O.P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology, 85,* 348-362. doi:10.1037/0022-3514.85.2.348

Jonas, E., Graupmann, V., & Frey, D. (2005). The Influence of Mood on the search for Supporting Versus Conflicting Information: Dissonance Reduction as a Means of Mood Regulation? *Personality and Social Psychology Bulletin, 32,* 3-15. doi: 10.1177/0146167205276118

Knobloch-Westerwick, S., & Kleinman, S.B. (2012). Preelection Selective Exposure: Confirmation Bias Versus Informational Utility. *Communication Research, 39,* 170-193. doi:10.1177/0093650211400597

Knobloch-Westerwick, S., Johnson, K.B., & Westerwick, A. (2015). Confirmation Bias in Online Searches: Impacts of Selective exposure Before an Election on Political Attitude Strength and Shifts. *Journal of Computer-Mediated Communications, 20,* 171-187. doi: 10.1111/jcc4.12105

Knobloch-Westerwick, S., Mothes, C., Johnson, B.K., Westerwick, A. and Donsbach, W. (2015), Political Online Information Searching in Germany and the United States: Confirmation Bias, Source Credibility, and Attitude Impacts. *Journal of Communication, 65*, 489-511. doi:10.1111/jcom.12154

Koslowski, B., & Maqueda, M. (1993). What Is Confirmation Bias and When Do People Actually Have It? *Merrill-Palmer Quarterly, 39*(1), 104-130. Retrieved April 20, 2021, from http://www.jstor.org/stable/23087302

Lord, C., Ross, L., & Lepper, M.C. (1979). Biased assimilation and attitude polarization: The effects of prior theories on subsequently considered evidence. *Journal of Personality and Social Psychology*, 37.

Maestas, C., Levens, S., Atkinson, L., Cooperative Congressional Election Study. 2016. UNCC Common Content. 2017. University of North Carolina at Charlotte. http://cces.gov.harvard.edu

Maio, G. R., & Esses, V. M. (2001). The Need for Affect: Individual Differences in the Motivation to Approach or Avoid Emotions. *Journal of Personality, 69,* 583-614. doi: 10.1111/1467-6494.694156

Mercier, H., & Sperber, D. (2011). Why do humans reason? Arguments for an argumentative theory. *Behavioral and Brain Sciences, 34,* 57-111. doi: 10.1017/S0140525X10000968

Melinder, A., Brennen, T., Husby, MF., & Vassend, O. (2020). Personality, confirmation bias, and forensic interviewing performance. *Applied Cognitive Psychology*, 1-11. doi:10.1002/acp.3674

Mischel, W & Shoda, Y (1995). A cognitive-affective system theory of personality: Reconceptualizing situations, dispositions, dynamics, and invariance in personality structure. *Psychological Review. 102 (2):* 246–268. doi:10.1037/0033-295X.102.2.246

Mohanty, N.S., & Suar, D. (2014). Decision Making Under Uncertainty and Information Processing in Positive and Negative Mood States. *Psychological Reports: Employment Psychology & Marketing, 115,* 91-105. doi: 10.2466/20.04.PR0.115c16z2

Moos, R. H., & Schaefer, J. A. (1993). Coping resources and processes: Current concepts and measures. In L. Goldberger & S. Breznitz (Eds.), Handbook of stress: Theoretical and clinical aspects (2nd ed., pp. 234-257). New York: Free Press.

Rassin, E., Eerland, A. & Kuijpers, I. (2010), Let's find the evidence: an analogue study of confirmation bias in criminal investigations. *Journal of Investigative Psychology and Offender Profiling.7*: 231-246. https://doi.org/10.1002/jip.126

Sheppes, G., Scheibe, S., Suri, G., Radu, P., Blechert, J., & Gross, J. J. (2014). Emotion regulation choice: A conceptual framework and supporting evidence. *Journal of Experimental Psychology: General,* 143(1), 163. doi: 10.1037/a0030831

Thibodeau, P., Peebles. M. M., Grodner, J. D., & Durgin, H. F. (2015). The Wished-For Always Wins Until the Winner Was Inevitable All Along: Motivated Reasoning and Belief Bias Regulate Emotion during Elections. *Political Psychology, 36,* 431-448. doi:10.1111/pops.12100

Traut-Mattausch, E., Jonas, E., Frey, D., Zanna, M. *(2011)* Are there "His" and "Her" Types of Decisions? Exploring Gender Differences in the Confirmation Bias. *Sex Roles* ***65,*** 223–233. https://doi.org/10.1007/s11199-011-0009-2

Tyler, T. R., & Schuller, R. A. (1991). Aging and attitude change. *Journal of Personality and Social Psychology, 61*(5), 689–697. https://doi.org/10.1037/0022-3514.61.5.689

Wason, P. C. (1966). Reasoning. In B. M. Foss (Ed.), *New horizons in psychology 1*. Harmondsworth: Pelican.

Westerwick, A., Johnson, K. B., & Knobloch-Westerwick, S. (2017). Confirmation biases in selective exposure to political online information: source bias vs. content bias. *Communication Monographs, 84,* 343-364. doi:10.1070/03637751.2016.1272761

# APPENDIX A: ARTICLE SELECTION TASK

Participants received the following prompts:

> "Please randomize the image with 50% receiving Image A and 50% receiving Image B. Record the randomization and report it in a separate variable; make each of the four article areas in each image selectable; record article selection in two separate variables, one for each selection."
>
> "Please click on the **TWO** articles you would be interested in reading."

Figure 3 (Version A)

News Image A

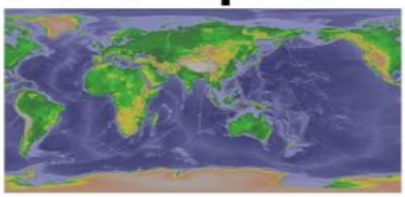
Figure 4 (Version B)

News Image B

# THE DAILY NEWS

## Climate Change Debate

### Conflicting Scientific Reports

**Tipping Point Nears?**

New reports from leading climate scientists argue that the risks associated with climate change have increased significantly as ice sheets melt at a faster rate than anticipated. Greater reduction in greenhouse emissions may be needed to prevent irreversible global warming. **(Cont. page 3)**

**Lukewarm Landing?**

Earth's climate might be headed for a "lukewarm landing" instead of disaster. Recent evidence shows that scientific models may have overestimated the potential negative effects of C02 emissions. Current policies to address global warming may impose unjustified costs. (Cont. page 3)

**10 FT SNAKE AT PLAYGROUND**

Authorities have been searching day and night for a giant snake – reportedly the length of a truck- that they spotted slithering near a park and playground. An officer saw the snake (Continued page. 5)

**BLOCKBUSTER MONEY MAKERS**

The U.S. film industry posted $29 billion in revenues in 2015, with box office receipts growing at a steady rate of 7%. Viewers are now looking for more variety and quality for their (Continued page. 5)

# APPENDIX B: STUDY ONE AND TWO MEANS, STANDARD DEVIATIONS, AND BIVARIATE CORRELATIONS

*Table 3: Mean, Standard Deviation, & Bivariate Correlations for Study 1 (n=411)*

| | Mean | SD | CBias | Age | Income | Gender | Race | Educ | PID | EngER | DisER | Open |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CBias | 1.22 | .77 | ___ | .07 | .03 | -.05 | -.02 | .05 | -.04 | -.03 | -.11* | .01 |
| Age | 50.70 | 17.13 | .07 | ___ | -.08 | -.12** | -.17** | -.13** | .16** | -.05 | -.11* | .07 |
| Income | 1.84 | .76 | .03 | -.08 | ___ | -.12** | -.04 | .30** | .08 | -.01 | -.06 | .05 |
| Gender | 1.54 | .50 | -.05 | -.12** | -.12** | ___ | .04 | -.12** | -.16** | .14** | .00 | .05 |
| Race | 1.50 | 1.20 | -.02 | -.17** | -.04 | .04 | ___ | .01 | -.13** | .02 | .03 | -.01 |
| Educ | 3.87 | 1.45 | .05 | -.13** | .30** | -.12** | .01 | ___ | -.05 | .12* | -.03 | .10* |
| PID | 3.60 | 2.35 | -.04 | .16** | .08 | -.16** | -.13** | -.05 | ___ | -.20** | -.10* | -.11* |
| EngER | 4.64 | 1.09 | -.03 | -.05 | -.01 | .14** | .02 | .12* | -.20** | ___ | .26** | .25** |
| DisER | 4.00 | 1.10 | -.11* | -.11* | -.06 | .00 | .03 | -.03 | -.10* | .26** | ___ | -.08 |
| Open | 5.26 | 1.32 | .01 | .07 | .05 | .05 | -.01 | .10* | -.11* | .25** | -.08 | ___ |

Note: * indicates correlation is significant at .05 level, ** indicates correlation is significant at .01 level

*Table 4: Mean, Standard Deviation, & Bivariate Correlations for Study 2 (n=850)*

| | Mean | SD | CBias | Gender | Race | Educ | PID | Network | Age | Income | Anx | NfA | DisER | EngER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EngER | .19** | -.01 | .03 | .05* | .10** | .06 | .02 | .04 | .08** | .10** | .33** | ___ | | |
| DisER | -.12** | .11** | .01 | .04 | .02 | .02 | -.07** | -.04 | .08** | .01 | ___ | .33** | | |
| NfA | .15** | .05* | .02 | -.02 | -.17** | -.078* | -.08** | -.03 | .27** | ___ | .01 | .10** | | |
| NfC | .23** | -.19** | -.00 | .26** | -.01 | -.06 | -.05* | .19** | -.12** | -.08** | -.11** | .08** | | |
| Anx | .09** | .21** | .05 | -.09** | -.17** | .04 | -.00 | -.10** | ___ | .27** | .08** | .08** | | |
| Income | .09** | -.12** | -.04 | .38** | .06** | -.08* | -.06* | ___ | -.10** | -.03 | -.04 | .03 | | |
| Age | -.09** | -.03 | -.14 | -.15** | .10** | .07* | ___ | -.06* | -.00 | -.08** | -.07** | .02 | | |
| Network | .01 | .10** | -.03 | -.10** | .00 | ___ | .07* | -.08* | .04 | -.08* | .02 | .06 | | |
| PID | -.02 | -.06* | -.14 | -.04* | ___ | .00 | .10** | .06** | -.17** | -.17** | .02 | .10** | | |
| Educ | .09** | -.07** | -.04 | ___ | -.04* | -.04* | -.15** | .38** | -.09** | -.02 | .04 | .05* | | |
| Race | .01 | .01 | ___ | -.04 | -.14** | -.03 | -.14** | -.04 | .05* | .02 | .01 | .03 | | |
| Gender | -.11** | ___ | .01 | -.07** | -.06* | .10** | -.03 | -.12** | .21** | .05* | .11** | -.01 | | |
| CBias | ___ | -.11** | .01 | .09** | -.02 | .01 | -.09** | .09** | .09** | .15** | -.12* | .19** | | |
| SD | 1.03 | .50 | 1.12 | 1.46 | 2.33 | .48 | 17.13 | .74 | 2.95 | 1.08 | .82 | .79 | | |
| Mean | 2.24 | .56 | 1.52 | 3.40 | 3.63 | .36 | 50.70 | 1.64 | 5.28 | 3.49 | 3.00 | 2.69 | | |
| | CBias | Gender | Race | Educ | PID | Network | Age | Income | Anx | NfA | DisER | EngER | | |

Note: * indicates correlation is significant at .05 level, ** indicates correlation is significant at .01 level