EXPLORING THE UNCERTAIN ROLE OF ACCURACY GOALS IN THE SELECTION AND PROCESSING OF INFORMATION: ACCOUNTING FOR THE ABILITY IN THE THEORY OF MOTIVATED REASONING

By

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ABSTRACT

Drawing from the theory of motivated reasoning, accuracy goals have been considered as a potential remedy for promoting democratic citizenship. Existing literature suggests that accuracy goals may foster balanced information-seeking behavior and objective processing of political information. However, previous work has yielded mixed results. In light of this uncertain role of accuracy goals, this study suggests that several indicators of abilities – news literacy and cognitive sophistication – are prerequisites for accuracy goals to promote unbiased and even-handed reasoning of information. For this, I conducted two online experiments. Results from Study 1 show that news literacy and cognitive sophistication did not enable accuracy-driven individuals to choose information from credible sources or counter-attitudinal information. Findings from Study 2 reveal that even when individuals were cognitively sophisticated, accuracy goals did not lead to favorable evaluations of information supported by strong evidence or pro-attitudinal information. I discuss the implications of the results for the role of accuracy goals.

This dissertation is dedicated to Mom, Yunjeong Yi, and Dad, Sang Keun Ahn.
Thank you for always believing in me.

To my advisor, Dustin Carnahan, whose invaluable support has shaped me into a better researcher. I truly appreciate your guidance on my academic journey.

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INTRODUCTION

For a well-functioning democracy, it is important for citizens to genuinely listen to and understand opposing viewpoints (Sunstein, 2018). Nevertheless, citizens today often gravitate toward information that aligns with their partisan predispositions. While it is worth noting that people do consume counter-attitudinal information to a certain extent as much as they use pro-attitudinal information (Garrett et al., 2013), such information is often met with skepticism and sometimes even viewed negatively, which can inadvertently reinforce one's partisan attitudes (Garrett et al., 2014).

Drawing from the theory of motivated reasoning (Kunda, 1990), scholars have suggested that accuracy goal, referred to as motivations to arrive at accurate conclusions, may foster balanced information-seeking behavior (Kim, 2007; Redlawsk, 2002; Winter et al., 2016) and objective processing of political information (Bolsen et al., 2014; Brenes-Peralta et al., 2021; Druckman, 2012; Groenedyk & Krupnikov, 2021; Peralta et al., 2021; Piertryka, 2016). However, those existing studies have yielded conflicting empirical findings.

What previous work overlooks is that accuracy goals themselves are not sufficient to promote balanced information search and even-handed processing of information. Scholars (e.g., Druckman, 2012; Kunda, 1999; Piertryka, 2016; Winter et al., 2016) have long pointed out that the ability to judge information credibility and understand the logic behind the political information should be equipped for accuracy goals to promote unbiased selection and objective processing of information. However, subsequent work has seldom explored this possibility.

This study considers two indicators of abilities – news literacy and cognitive sophistication – that allow accuracy goals to produce such democratic outcomes. When it comes to the selection of information, I anticipate that news literacy enables individuals to discern the

credibility of information, leading to more reliance on high-quality information and counter-attitudinal information. Regarding information processing, I posit that cognitive sophistication allows individuals to evaluate information impartially and distinguish information quality, which may lead to favorable evaluations of high-quality and counter-attitudinal information.

To investigate this, I conducted two online experiments that manipulated study participants' motivations in their minds. In Study 1, I investigated how individuals motivated by accuracy or directional goals selected news headlines varying in attitudes toward a student loan forgiveness program and the credibility of news organizations. In Study 2, I examined how those driven by accuracy or directional goals evaluated pro- or counter-attitudinal news articles supported by strong or weak evidence.

UNCERTAIN ROLE OF ACCURACY GOALS

Motivated reasoning and accuracy goals

People process information not only through cognition but also through affect (Kunda, 1990). As an alternative to the conventional approach to cognitive processing known as *cold cognition*, Kunda (1990) emphasized the role of affect, or *hot cognition*, and proposed the theory of motivated reasoning. According to the theory (Kunda, 1990), individuals have two distinct types of goals when processing information: Directional and accuracy goals. Directional goals are activated when individuals are encouraged to draw favorable or desirable conclusions, while accuracy goals come into play if individuals intend to arrive at the most accurate or best conclusions possible. To attain such goals, those with directional goals engage in biased information processing. Conversely, those with accuracy goals put in efforts to process information as accurately and objectively.

There is a discussion about whether accuracy goals are the opposite of directional goals. Some scholars (e.g., Druckman, 2012) argue that accuracy goals serve as a comparison point for directional goals. That is, the activation of directional goals naturally minimizes accuracy goals. Other scholars (Lodge & Taber, 2000; Nir, 2011), however, suggest that accuracy and directional goals coexist with each other. Lodge and Taber (2000) suggest the four types of motivated reasoning – *intuitive scientists* (strong accuracy and strong directional goals), *classic rationalists* (strong accuracy goals, weak directional goals), *partisan reasoners* (low accuracy goals, strong directional goals), and *apathetic* (weak accuracy and weak directional goals). Specifically, intuitive scientists are motivated to be evenhanded with evidence and seek accurate conclusions, and at the same time, are likely to update their beliefs based on their pre-existing bias (Lodge & Taber, 2000; Nir, 2011). Similarly, Nir (2011) found that there is a positive correlation between

accuracy and directional goals, indicating the coexistence of both goals.

In a political context, a directional goal indicates one's tendency to arrive at conclusions aligned with their political dispositions (Taber & Lodge, 2006; Druckman, 2012). Those with directional goals search for information that confirms their political beliefs, view such pro-attitudinal information as believable, and spend time dismissing counter-attitudinal information (Taber & Lodge, 2006). Taber and Lodge (2006) point out that motivated reasoning is easily activated even when individuals are asked to have accurate goals.

Democratic ideals of motivated reasoning

Scholars have explored how accuracy or directional goals promote or harm democratic citizenship, especially when people seek out and understand political information. A politically polarized media environment strengthens citizens' reliance on directional goals when processing political information. With the development of information and communication technologies, citizens are able to easily choose political information sources aligned with their partisanship. Partisan selective exposure, referred to as one's tendency to choose information aligned with their political orientation (Stroud, 2017), strengthens biased selection and processing of political information. Moreover, individuals avoid counter-attitudinal information (Garrett & Stroud, 2014).

Partisan news outlets are likely to emphasize facts unfavorable to opposing political parties, invite analysts or commentators who actively criticize the other side (Levendusky, 2013), and frequently portray politics as a persistent state of conflicts between political factions (Bartholomé et al., 2015; Levendusky & Malhotra, 2016). Given these qualities, a preference for pro-attitudinal political media has been shown to strengthen pre-existing bias in favor of one's political orientation (Garrett et al., 2019; Hasell & Weeks, 2016; Levendusky, 2013; Lu et al.,

2019). Those who frequently watch partisan media channels that fit their political preferences are likely to make sense of the world from their biased political viewpoints (Levendusky, 2013) and have negative attitudes toward those with differing opinions (Garrett et al., 2019). Pro-attitudinal media users even feel anger toward political out-group members (Hasell & Weeks, 2016; Lu et al., 2019). In addition, reliance on like-minded information sources increases beliefs in misinformation favorable to their own political parties (Carnahan et al., 2023; Garrett et al., 2019). Groenedyk and Krupnikov (2021) point out that news organizations and politicians put too much emphasis on conflicts, strengthening directional reasoning.

Drawing upon the theory of motivated reasoning, prior research has consistently demonstrated a preference among individuals with directional goals for pro-attitudinal information. Kim (2007) found that individuals motivated to have directional goals exhibited a higher tendency to select pro-attitudinal information regarding abortion issues compared to those with accuracy goals. Similarly, Redlawsk (2002) observed that on-line information processors who were assumed to have directional goals were more likely to search for information about their preferred candidates than disliked candidates. Furthermore, Lundgren and Prislin (1998) revealed that individuals prompted to adopt directional goals allocated more time to reading pro-attitudinal information than those with accuracy goals. Similarly, Winter and colleagues (2016) found that individuals primed to harbor directional goals not only selected more but also dedicated more time to reading attitude-consistent news relative to those with accuracy goals. Additionally, Edgerly and colleagues (2014) show that individuals anticipating disagreement in political discussions gravitated towards reading pro-attitudinal information, and they spent more time engaging with such content.

Furthermore, individuals with directional goals are likely to process political information in a manner that aligns with their partisan attitudes. Bolsen and colleagues (2014) observed that individuals with directional goals were more likely to evaluate a policy favorably if it was supported by their own political parties, compared to those with accuracy goals. In addition, Groenedyk and Krupnikov (2021) found that those primed with directional goals provided higher ratings to pro-attitudinal statements regarding affirmative action. Also, these individuals had stronger attitudes toward affirmative action after reading pro-attitudinal information (Groenedyk & Krupnikov, 2021). These studies suggest that it is relatively easy to activate biased processing of political information that aligns with the preferences of one's political parties.

Uncertain role of accuracy goals in democratic citizenship

As preferences for pro-attitudinal media are often linked to directional goals, accuracy goals have been considered as a potential remedy for promoting democratic citizenship and mitigating these deleterious effects of directional goals (Druckman, 2012). Contrary to directional goals, it is anticipated that accuracy-motivated individuals are less inclined to rely on their political predispositions or partisan heuristics (Druckman, 2012; Pietryka, 2016). Instead, individuals driven by accuracy goals have been expected to engage in a systematic and thorough information-seeking process, potentially enhancing the quality of their decision-making (Pietryka, 2016). Moreover, it is assumed that those with accuracy goals may carefully attend to counter-attitudinal information and invest cognitive efforts in understanding such information as a way to obtain balanced viewpoints (Druckman, 2012). Ultimately, accuracy goals have been suggested as a strategy to foster open-mindedness when encountering credible or counter-attitudinal information.

However, the effectiveness of accuracy goals in mitigating biased selection and processing of political information remains unclear. Some studies suggest that accuracy goals have the potential to diminish the influence of directional goals. For example, Prior and colleagues (2015) conducted an experiment in which some participants were primed to have accuracy goals while responding to factual questions about economic conditions. Their results show that individuals with accuracy goals were unlikely to provide answers aligned with partisan bias compared to other groups (Prior et al., 2015). When it comes to the selection of political information, Kim (2007) found that individuals manipulated to have accuracy goals were more inclined to seek out counter-attitudinal information concerning abortion issues in contrast to those with directional goals. Furthermore, regarding the processing of political information, Bolsen and colleagues (2014) demonstrated that individuals primed with accuracy goals were less inclined to favorably rate a policy supported by their in-partisan group compared to those with directional goals or no goal manipulations (Bolsen et al., 2014). Similarly, research has shown that individuals instructed to adopt open-mindedness tend to seek out counter-attitudinal information (Wojcieszak et al., 2020) and evaluate such information objectively (Groenedyk & Krupnikov, 2021).

On the other hand, other studies do not support the idea that accuracy goals effectively mitigate partisan biases. Redlawsk (2002) found that individuals driven by accuracy goals searched for information about their preferred candidates more than their disliked candidates. Also, Winter et al. (2016) observed that those with accuracy goals did not exhibit a greater tendency to spend more time reading attitude-consistent news articles compared to those with directional goals or no goal manipulations. In terms of processing information, Lundgren and Prislin (1998) found that accuracy goals did not succeed in reducing one's partisan biases.

Similarly, a study by Brenes-Peralta and colleagues (2021) reveals that individuals with accuracy goals evaluated pro-attitudinal information more favorably than counter-attitudinal or balanced information, much like those with directional goals. Moreover, those accuracy-motivated individuals sometimes generated thoughts that bolstered pro-attitudinal information as those with directional goals did (Brenes-Peralta et al., 2021).

Accuracy goals could even harm democratic outcomes. Pietryka and colleagues (2016) investigated situations when accuracy goals lead individuals astray. They argue that accuracy-motivated individuals carefully attend to a range of information as a way to arrive at accurate conclusions. However, when those individuals cannot screen out less credible or misleading information, they may obtain inaccurate outcomes (Pietryka et al., 2016; Druckman, 2012). Through an experiment where study participants were asked to choose political candidates that best represent their interests, Pietryka and colleagues (2016) found that accuracy-motivated individuals were likely to seek out discussants with expertise and look for diverse opinions about political candidates instead of relying on their political predispositions. However, accuracy-motivated individuals relied on faulty information when discussants provided them with inaccurate and biased information (Pietryka et al., 2016).

Those works indicate that an accuracy goal itself might not be sufficient to promote democratic outcomes such as the use of high-quality information or engagement with the other side. Then, what things should be considered for accuracy goals to enhance democratic citizenship? Specifically, under what situations does an accuracy goal succeed in promoting unbiased selection and processing of political information?

ACCOUNTING FOR THE ABILITY IN ACCURACY GOALS

Abilities in motivated reasoning

The current study proposes that one's ability to seek out reputable information sources and understand the logic behind the information is a prerequisite for accuracy goals to promote unbiased and even-handed processing of information. Without such abilities, individuals may rely on misleading or unverifiable information, potentially resulting in uninformed judgments.

Scholars have long suggested that the ability to evaluate the quality of information plays a crucial role in ensuring that accuracy goals produce more desirable outcomes. In the original postulation of the theory of motivated reasoning, Kunda (1999) acknowledges that accuracy goals could reduce accuracy when people rely on faulty rules and lack abilities in inferencing and reasoning information. Kunda (1999) mentioned, *"People motivated to be accurate will continue thinking and reasoning. (…) Sometimes, however, reflection may lead people to retrieve poorer strategies that they mistakenly view as better. In such cases, accuracy goals will decrease accuracy. (…) Worse, when careful thought leads us to bring forth more faulty rules, accuracy goals will increase errors and biases."* Also, Winter and colleagues (2016) raised the possibility that individuals who struggle to discern the quality of information might fail to form well-informed judgments even if they have good intentions to obtain unbiased information. Similarly, Pietryka and colleagues (2016) found that accuracy-motivated individuals made incorrect voting decisions when receiving misleading information. However, subsequent work on the role of accuracy goals has seldom considered this possibility in a fuller way.

While the theory of motivated reasoning has rarely explored such unintended impact of accuracy goals, a substantial body of research in the realm of deliberative thinking suggests that one's ability to process information plays a crucial role in making well-informed decisions.

When individuals deliberate too much within a limited capacity of information processing – that is, beyond their abilities to cognitively process information, they struggle to distinguish high-quality information from low-quality information, leading them to make uninformed decisions. Wilson and Schooler (1991) found that those who considered multiple attributes of alternatives were more likely to make low-quality decisions than those who attended to only a few attributes, probably because consideration of multiple things decreased one's ability to discriminate between alternatives. Moreover, Tordesillas and Chaiken (1999) found that those with introspection struggled to recall important attributes accurately and showed little positive toward such important components, indicating that thinking too much makes individuals less focused on important information. Moreover, those who deliberate beyond their cognitive capacities are likely to be inconsistent in their preferences (Levine et al., 1996), likely because they could not establish their own criteria to judge the importance of components among various attributes.

Research on political heuristics has also shown that consideration of more information does not necessarily lead to better decisions. Lau and Redlawsk (2001) investigated how citizens use five types of political heuristics – candidate's party affiliation, candidate's ideology, endorsements, poll results, and candidate's appearance – in a mock presidential election. They found that politically unsophisticated individuals were less likely to vote for candidates that best represent their political stances when they employ more heuristics. This result implies that the use of more information could lead citizens astray if they do not have adequate abilities to understand complex political issues. Bernard and Freeder (2020) also observed that politically unsophisticated individuals often relied on unverified and irrelevant information. Similarly, Bergan and colleagues (2023) show that those who received fewer political cues made more accurate decisions than those who relied on more cues.

Particularly, when individuals are faced with decisions involving complex matters that demand a high degree of information processing capacity, they tend to make worse decisions compared to decisions involving simple issues. Dijksterhuis and colleagues (2006) found that when people made decisions about simple things, deliberation made better decisions than unconsciousness. However, when faced with complex decisions, deliberation resulted in worse decisions than unconscious decision-making (Dijksterhuis et al., 2006). Moreover, individuals often exhibit inconsistency in their preferences when confronted with complex issues. According to Nordgren and Dijksterhuis (2006), individuals who engaged in deliberative evaluations were more likely to have inconsistent preferences than those who did not deliberate. This tendency was pronounced when individuals deliberated complex matters (Nordgren & Dijksterhuis, 2006).

Nonetheless, when individuals have the capabilities to effectively process complex information, it appears that they are able to make accurate decisions. In a study by Mamede and colleagues (2010), medical experts were tasked with making diagnostic decisions concerning patients' clinical cases, and medical experts showed enhanced decision-making accuracy when they deliberately considered patients' cases in situations involving complex cases. This result is likely attributable to the extensive knowledge and adept information-processing abilities that medical experts have. Similarly, in a political context, Lau and Redlawsk (2001) found that the use of heuristics increased the possibility of correct voting among politically sophisticated individuals.

In conclusion, existing literature suggests that in order for individuals driven by accuracy goals to achieve better outcomes, they should be equipped with specific abilities related to recognizing verifiable information and effectively processing complex information. Then, when

it comes to the unbiased selection and processing of political information, what particular types of abilities should be taken into account?

In this study, I propose two indicators of abilities that enable accuracy-driven individuals to navigate information spaces effectively. The first indicator is *news literacy*, which involves understanding the processes involved in creating, distributing, and consuming news (Ashley et al., 2023; Tully et al., 2022). News literacy is an ability particularly relevant to using information from the media and builds capacities to discern information quality (Ashley et al., 2023; Chan, 2022; Tully et al., 2022). Therefore, I anticipate that news literacy will help individuals with accuracy goals select and objectively process information. The second indicator, *cognitive sophistication*, refers to the general ability to rely on analytical reasoning rather than intuitions when making judgments (Pennycook et al., 2023). It applies not only to information usage but also to everyday situations. Because individuals with high cognitive sophistication are able to process information analytically (Bronstein et al., 2019; Pennycook et al., 2023), this ability is believed to assist accuracy-driven individuals in reaching more accurate conclusions.

A role of news literacy in the selection of information

The current study first investigates the role of abilities that help accuracy-motivated individuals select credible and unbiased information. One key ability is news literacy, which enables individuals to judge the quality of information from an objective viewpoint. News literacy is defined as one's knowledge about how news is produced, disseminated, and consumed, along with the skills to manage these processes (Ashley et al., 2023; Tully et al., 2022). It encompasses five domains of knowledge and skills: a) social and economic contexts in which news is created, b) the process by which actors create news, c) the characteristics of news

contents, d) the dissemination of news among the public, and e) individual factors influencing news consumption.

People often struggle to assess information credibility and may rely on misleading heuristics despite their desire to find credible information (Winter et al., 2016). However, news literacy enables individuals to distinguish high-quality information from low-quality information, such as conspiracy theories or misinformation (Ashley et al., 2023; Chan, 2022; Tully et al., 2022). Previous literature suggests that those with news literacy are able to discern real news from false news (Ashley et al., 2023; Chan, 2022) and tend to authenticate information online (Chan, 2022). In other words, news literacy is essential for fostering the use of high-quality information (Tully et al., 2022). These findings imply that individuals who have a solid understanding of how news is created and disseminated have the ability to detect credible information.

As discussed, individuals with accuracy goals sometimes have difficulties seeking accurate information due to their lack of ability to discern information quality (Pietryka, 2016; Winter et al., 2016). If these individuals are equipped with news literacy, they may be better able to identify credible information sources when deciding what to read. Thus, news literacy may help accuracy-driven individuals select credible information sources. With such rationale in mind, I suggest the following hypothesis.

H1a: When motivated by accuracy goals, individuals with higher news literacy levels will select information from credible sources compared to those with lower news literacy.

Furthermore, it is anticipated that individuals with accuracy goals will reduce biased information searches when they are equipped with news literacy. Prior research (Kim, 2007; Redlawsk, 2002; Winter et al., 2016) has shown that the mere aspiration for accuracy is not

sufficient to foster the selection of counter-attitudinal information. When individuals are less informed about the process by which news is created and disseminated, they struggle to identify verified arguments (Ashley et al., 2023; Chan, 2022; Tully et al., 2022). It would also be challenging for them to detect high-quality arguments in opposing information.

However, when individuals understand how news is produced and distributed, they are able to develop capacities to detect verified arguments (Ashley et al., 2023; Chan, 2022; Tully et al., 2022). These individuals may be better at identifying the values of the other side and recognize that counter-attitudinal information sometimes contains reasonable arguments based on valid grounds and credible sources. In this context, Vraga and colleagues (2009) pointed out that news literacy reduces hostile attitudes toward news outlets presenting opposing perspectives and promotes trust in these outlets. Therefore, accuracy-driven individuals may be more inclined to seek counter-attitudinal information when they are literate about the news industry. In other words, news literacy would encourage individuals who desire balanced perspectives to select counter-attitudinal information more. Therefore, I propose the following hypotheses.

H2a: When motivated by accuracy goals, individuals with higher news literacy levels will be more likely to select counter-attitudinal information compared to those with lower news literacy.

In addition, given that the design of the current study asked study respondents to select one news article they would like to read among a list of pro- or counter-attitudinal news headlines (see Study 1 Method below), the use of more counter-attitudinal information will naturally lead to less selection of pro-attitudinal news headlines.

H3a: When motivated by accuracy goals, individuals with higher news literacy levels will be less likely to select pro-attitudinal information compared to those with lower news literacy.

A role of cognitive sophistication in the selection of information

In addition, I propose that cognitive sophistication is an indicator of ability that enables individuals to discern information quality and choose counter-attitudinal information more frequently compared to pro-attitudinal information. Previous literature (Bronstein et al., 2019; Pennycook & Rand, 2019; Pennycook et al., 2022; 2023) has shown that cognitive sophistication promotes one's ability to detect high-quality information. Specifically, scholars have investigated the role of cognitive sophistication using two particular measures – actively open-mindedness thinking, defined as one's tendency to form beliefs based on evidence and consider alternatives (Bronstein et al., 2019; Pennycook et al., 2023), and performance on cognitive reflection tests, designed to capture one's analytic thinking when faced with questions that could lead to intuitive but incorrect answers (Frederick, 2005; Garrett et al., 2020; Pennycook et al., 2022; Pennycook et al., 2023). Researchers found that those who actively think with open-mindedness are more likely to discern fake news headlines from real news headlines (Bronstein et al., 2019) and believe true information than others (Pennycook et al., 2023). Similarly, those who performed well on cognitive reflection tests are more likely to believe accurate information than others (Pennycook et al., 2022). Garrett and colleagues (2020) also observed a positive relationship between high scores on cognitive reflection tests and belief in true information.

This line of research indicates that cognitively sophisticated individuals have the ability to distinguish the credibility of information. Moreover, if cognitive sophistication is combined with one's motivations to seek accurate information, it would be much easier to detect credible information. In other words, cognitive sophistication may allow individuals with accuracy goals to navigate information spaces and seek out credible information. Therefore, I advance the following hypothesis.

H1b: When motivated by accuracy goals, individuals with higher cognitive sophistication will select information from credible sources compared to those with lower cognitive sophistication.

Furthermore, cognitive sophistication may enable accuracy-driven individuals to use more counter-attitudinal information. Pennycook and Rand (2019) found that individuals with high performance on cognitive reflection tests were better able to distinguish real news from fake news. Moreover, those individuals avoided fake news even when such news was favorable to their political parties (Pennycook & Rand, 2019). This suggests that cognitive sophistication reduces politically biased information searches (Pennycook & Rand, 2019; Pennycook et al., 2022).

Furthermore, cognitive sophistication could help accuracy-driven individuals search for unbiased information. Those who lack cognitive sophistication may struggle to discern information quality although they are motivated to look for accurate information. When they are cognitively sophisticated, however, they may come to realize that counter-attitudinal information sometimes relies on credible sources or reasonable arguments and is worth looking at. Therefore, when those cognitively sophisticated individuals have intentions to look for accurate information, they would be more prone to seek out counter-attitudinal information. With that rationale in mind, I suggest the following hypotheses.

H2b: When motivated by accuracy goals, individuals with higher cognitive sophistication will be more likely to select counter-attitudinal information compared to those with lower cognitive sophistication.

As explained above, the selection of more counter-attitudinal information will be related to the selection of less pro-attitudinal news information because of the nature of the experimental design in the current study (see Study 1 Method below).

H3b: When motivated by accuracy goals, individuals with higher cognitive sophistication will be less likely to select pro-attitudinal information compared to those with lower cognitive sophistication.

Cognitive sophistication and information processing

In addition to the selection of information, this study examines how cognitive sophistication enables accuracy-driven individuals to process political information objectively. This is an important consideration, given that the mere selection of information does not necessarily lead to genuine engagement with that information (Garrett et al., 2014; Taber & Lodge, 2006). Some people – particularly those motivated by directional goals – intentionally choose attitudinally incongruent information to counterargue and ridicule opposing viewpoints. Therefore, scholars have suggested that not only selection behaviors but also cognitive processing of information should be investigated. As Knobloch-Westerwick (2015) pointed out, *"Some criticism originates in defining exposure as a pure matter of choice, which may overlook the varying levels of attention. (…) Exposure and attention are not only conceptually different. They also have different implications empirically for impacts on opinions and knowledge."*

The current study investigates how accuracy goals and cognitive sophistication jointly influence the processing of political information. Extending prior research on the impact of accuracy and directional goals on evaluations of pro- or counter-attitudinal information (e.g., Brenes-Peralta et al., 2021; Druckman, 2012; Groenendyk & Krupnikov, 2021; Taber & Lodge, 2006), I examine how individuals with accuracy goals evaluate the strength of the argument in

high-quality or counter-attitudinal information. Moreover, I explore how cognitive sophistication helps accuracy-driven individuals objectively process such information.

As argued above, cognitive sophistication allows individuals to differentiate true information from false information (Bronstein et al., 2019; Garrett et al., 2020; Pennycook & Rand, 2019). In other words, cognitive sophistication is crucial in ensuring that individuals rely on their analytical reasoning skills rather than intuition in understanding arguments and adequately judging them. Given that individuals regard strong arguments as more persuasive (Hoeken & Hustinx, 2009), cognitively sophisticated individuals will perceive high-quality information as more reliable while negatively evaluating low-quality information based on unsubstantiated arguments or originating from unreputable sources. In other words, cognitive sophistication may allow individuals with accuracy goals to be better at distinguishing argument quality and favorably evaluate strong arguments regardless of whether that information supports or opposes their existing positions. Therefore, I suggest the following hypotheses.

H4a: When motivated by accuracy goals, individuals with higher cognitive sophistication will perceive information with strong evidence as having stronger arguments compared to those with lower levels of cognitive sophistication.

H4b: When motivated by accuracy goals, individuals with higher cognitive sophistication will perceive information with weak evidence as having weaker arguments compared to those with lower levels of cognitive sophistication.

Furthermore, it is expected that a lack of cognitive sophistication would lead accuracy-driven individuals to evaluate counter-attitudinal information more favorably. Individuals tend to perceive pro-attitudinal information as more credible than counter-attitudinal information (Metzger et al., 2020) due to its familiarity and ease of processing. However, when people have

the capacity for analytical reasoning skills rather than relying on intuitions, they are less likely to use partisan cues in evaluating information quality (Pennycook & Rand, 2019; Pennycook et al., 2023). Cognitively sophisticated individuals are thus better at identifying high-quality information regardless of whether information aligns with their pre-existing attitudes (Pennycook & Rand, 2019; Pennycook et al., 2023). In other words, cognitive sophistication helps individuals recognize the value of strong arguments in counter-attitudinal information. They may recognize that counter-attitudinal information often relies on valid evidence and solid underlying logic, which would lead to more favorable evaluations of such information. Therefore, for accuracy-motivated individuals, cognitive sophistication may promote less biased evaluations of counter-attitudinal information. Based on this rationale, the following hypotheses are advanced.

H4c: When motivated by accuracy goals, individuals with higher cognitive sophistication will perceive counter-attitudinal information as having stronger arguments compared to those with lower levels of cognitive sophistication.

H4d: When motivated by accuracy goals, individuals with higher cognitive sophistication will perceive pro-attitudinal information as having weaker arguments compared to those with lower levels of cognitive sophistication.

STUDY 1 METHOD

Overview

In Study 1, I investigated whether and how news literacy and cognitive sophistication moderated the influences of accuracy goals on the selection of news. I conducted an online experiment in which participants were asked to select news headlines on a screen. The news headlines cover student loan forgiveness programs. I chose this topic because it is a contentious political issue in the United States. At the same time, unlike other long-standing controversial issues, such as gun control or abortion, there is a relatively small partisan gap in support of the student loan forgiveness policy. This characteristic may help researchers easily manipulate accuracy or directional goals when reading news headlines about the topic (Benedictis-Kessner et al., 2019).

Participants

Participants were recruited from Cloud Research in May 2024. A number of 726 respondents in the United States over the age of 18 participated in the study.[1] Participants were paid $0.90 for participation. When it comes to the composition of the sample, the mean age was 40.55 years. Of the participants, 70.80% identified as White, and 50.76% identified as male,

[1] Winter and colleagues (2016) investigated the impact of motivations (accuracy, directional, impression, and control conditions) on the selection of pro-attitudinal news articles compared to counter-attitudinal articles with an ANOVA. The study showed an effect size (Cohen's f^2) of 0.343. According to the G*Power 3.1 (Faul et al., 2007), a sample size of 135 is necessary to detect the effect size in an ANCOVA with a power of 0.95, ten covariates, and three groups. However, Winter and colleagues (2016) found a non-significant impact of accuracy goals on news selection although directional goal impacts were observed. It is not sure whether the study included insufficient sample size to detect an impact of directional goals. Also, analyses in this study will include news literacy as a moderator. Considering them, I will recruit more participants (N = 726) to detect a smaller effect size (f^2 = .15) than previous studies.

which is quite similar to the composition of the U.S. population. However, Democrats (60.20%) were oversampled compared to Republicans (28.00%).

Procedures

In an experiment, participants were provided with a consent form. After consenting to the study, participants answered questions about their attitudes toward several policies, including student loan forgiveness programs. I employed a widely used experimental design in previous research exploring the role of accuracy or directional goals (e.g., Brenes-Peralta et al., 2021; Druckman, 2012; Kim, 2007; Pietryka, 2016; Winter et al., 2016; Taber & Lodge, 2006). Participants were randomly assigned to one of three conditions: *Accuracy goal, directional goal, and no goal instructions*. In each condition, participants read an instruction that is intended to evoke specific motivations in the minds of the participants. Prompts for goal manipulations were adopted from existing literature (e.g., Brenes-Peralta et al., 2021; Kim, 2007; Winter et al., 2016). See Appendix C for instructions for goal manipulations.

After reading the goal manipulation instructions, participants were shown a screen with four mock news headlines. Displaying four headlines, similar to the format of news websites like Google News, which often features four headlines from different news organizations on the same topic, may enhance external validity. News headlines were randomly ordered on the screen to minimize order effects. Following prior studies on news selection (e.g., Westerwick et al., 2017; Winter et al., 2016), each news headline on the screen includes source information (name of a news outlet), a title, and a one-sentence summary of each news article. Source information was randomly attached to each news headline in order to isolate the effects of source and headline. Participants were asked to select one news headline they would like to read.

News headlines vary by the credibility of sources (high-credible source vs. low-credible source) and attitudes toward student loan forgiveness programs (support for the programs vs. opposition to the programs). Following the pretest of stimulus materials, *The News York Times* and *The Wall Street Journal* were categorized as high-credible sources while *Daily Kos* and *Breitbart* were considered as low-credible sources. See Appendix D for a list of news headlines. After selecting news headlines, participants answered questions about manipulation checks, news literacy, cognitive sophistication, and demographic information, including political interests and partisanship. In the end, participants were debriefed. All procedures of Study 1 were preregistered on OSF (https://doi.org/10.17605/OSF.IO/HMPD3). All procedures were approved by the Institute of Review Board at Michigan State University.

Pretest of stimulus materials

I conducted a pretest in April 2024 before initiating Study 1 with a number of 121 individuals recruited from Cloud Research. Participants received $0.90 as compensation. First, to ensure that news articles were perceived as supporting or opposing student loan forgiveness programs, participants were provided with four mock news headlines used in Study 1. Participants rated how much each article supports the programs (1 = *strongly oppose* to 5 = *strongly support*). Independent t-test results indicate that participants perceived news headlines supporting student loan forgiveness (M = 4.69, SD = .74 for headline 1; M = 4.36, SD = .81 for headline 2) as significantly more supportive of student loan forgiveness than news headlines opposing student loan forgiveness (M = 1.79, SD = 1.06 for headline 3; M = 1.41, SD = .81 for headline 4). Thus, manipulations for the issue position of the news headlines were successful. See Appendix A Table 1 for details.

[Table 1]

Second, I examined whether participants perceived some news organizations as more credible than other organizations. Participants were asked to report the extent to which they believe each of the news organizations is credible on a 5-point scale (1 = *not at all credible* to 5 = *very credible*). Independent t-test results show that participants perceived *The New York Times* (*M* = 3.18, *SD* = 1.37) and *The Wall Street Journal* (*M* = 3.40, *SD* = 1.32) as significantly more credible than *Daily Kos* (*M* = 2.53, *SD* = 1.28) and *Breitbart* (*M* = 2.26, *SD* = 1.32).[2] In addition, I investigated whether some news organizations were perceived as more liberally oriented than others. Participants reported the political orientations of each news outlet on a 5-point scale (1 = *very liberal* to 5 = *very conservative*). Results show that participants perceived *The New York Times* (*M* = 2.34, *SD* = 1.14) and *Daily Kos* (*M* = 2.60, *SD* = 1.21) as significantly more liberal than *The Wall Street Journal* (*M* = 3.20, *SD* = 1.02) and *Breitbart* (*M* = 4.05, *SD* = 1.12).[3] Thus, manipulations for source credibility and political leaning of the news organizations were successful. See Appendix A Table 1 for details.

Measures

Manipulation checks of goal motivations.

Following Stekelenburg and colleagues (2020), participants were asked on a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*) the extent to which they agreed or disagreed with the six statements when choosing news headlines. Sample items include "I tried to be evenhanded" (accuracy goals)" and "I tried to be aware of my beliefs" (directional goals)." There

[2] To select a list of high- and low-credible news organizations, I referenced the YouGov survey conducted in April 2023 that asks U.S. citizens to answer the degree to which they trusted 22 major news outlets (https://today.yougov.com/politics/articles/45671-trust-in-media-2023-what-news-outlets-trust-poll).

[3] List of conservative and liberal news organizations were referred from Garrett et al. (2019).

are three items for accuracy (α = .70, *M* = 3.48, *SD* = .85) and directional goals (α = .75, *M* = 3.70, *SD* = .77). See Appendix E for a list of questions used in the study.

Selection of news headlines with credible sources

In the study, participants were asked to select one news headline they would like to read from a list of four news headlines. Two news headlines were from high-credible news outlets while the other two news headlines were from low-credible outlets. Thus, the selection of news headlines with credible sources was assessed as a dichotomous variable (0 = *selection of low credible sources*, 1 = *selection of highly credible sources*).

Selection of pro- or counter-attitudinal news headlines

The current study asked participants to choose one news headline they would like to read from a list of four news headlines. Two headlines supported student loan forgiveness while the other two headlines opposed student loan forgiveness. I created pro- or counter-attitudinal news selection measures following Winter and colleagues (2016). At the beginning of the experiment, participants were asked to indicate their attitudes toward student loan forgiveness programs on a 7-point scale (1 = *strongly oppose* to 7 = *strongly support*). Those scoring above four were categorized as supporting student loan forgiveness programs while those scoring below four were categorized as opposing the programs. Given that participants scoring on the mid-point of four cannot be categorized as either favorable or unfavorable to the programs, those participants (*N* = 64) were excluded from the analyses (Winter et al., 2016). To measure pro-attitudinal information selection, participants were categorized into two groups – a) pro-attitudinal news selection group as either the selection of pro-loan forgiveness program news by those supporting the program or the selection of counter-loan forgiveness program by those opposing the program and b) counter-attitudinal news selection group as either the selection of pro-loan forgiveness

program news by those opposing the program or the selection of counter-program by those supporting the program. A dichotomous variable of pro-attitudinal news selection was created (1 = *selection of pro-attitudinal news headlines*, 0 = *selection of counter-attitudinal news headlines*). 74.05 percent of participants selected pro-attitudinal news headlines.

News literacy

I adapted news literacy measures constructed by Ashley and colleagues (2023) and Vraga and Tully (2021). Those items assess one's knowledge about the news industry in the United States and the necessary skills to effectively read the news (Ashley et al., 2023; Vraga & Tully, 2021). I included eight items covering five dimensions of news literacy (Ashley et al., 2023; Vraga & Tully, 2021). A sample question includes "Writing a press release is typically the job of whom?" A number of correct answers were summed up to create a measure of news literacy (M = 5.93, SD = 1.84).

Cognitive sophistication

Adapted from Pennycook and colleagues (2023), I employed two types of measures to capture cognitive sophistication. One is an actively open-minded thinking scale (Bronstein et al., 2019; Pennycook et al., 2022; Pennycook et al., 2023), and the other one is a cognitive reflection test (Frederick, 2005; Garrett et al., 2020; Pennycook & Rand, 2019; Pennycook et al., 2023). While an actively open-minded thinking scale captures one's self-evaluation of a tendency to think analytically and form beliefs based on evidence (Bronstein et al., 2019), cognitive reflection tests tap one's cognitive abilities to reflect on situations and resist reporting intuitively correct but inaccurate responses (Frederick, 2005; Pennycook et al., 2023).

First, in terms of actively open-minded thinking, participants were asked the extent to which they agreed or disagreed with eight statements on a 5-point scale (1 = *strongly disagree* to

5 = *strongly agree*). Sample items include "A person should always consider new possibilities." Responses were averaged to create a measure of actively open-minded thinking (α = .96, *M* = 3.74, *SD* = .70). Higher values on this measure indicate more reliance on evidence and greater consideration of alternative perspectives when shaping beliefs (Bronstein et al., 2019).

Second, a cognitive reflection test score taps one's analytic thinking by asking participants to answer three questions. Respondents may provide intuitive-but-incorrect answers if they do not have high levels of cognitive sophistication (Bronstein et al., 2019). A sample question includes "A bat and a ball cost $1.10 in total. The bat costs $1.00 more than the ball. How many cents does the ball cost?" I employed the most widely used version of the cognitive reflection tests (Bronstein et al., 2019; Frederick, 2005). The number of correct answers given by participants was counted to create a measure of cognitive reflection test scores (*M* = 1.56, *SD* = 1.23).

Control variables

Two types of control variables were used in the analyses. First, demographic information such as age (*M* = 40.55, *SD* = 13.55), gender (50.8% *male*), race/ethnicity (70.8% *White*, 16.5% *African American*, 9.23% *Latino*), education (1 = *grade 8 or lower* to 9 = *graduate or professional degree*, *M* = 6.35, *SD* = 1.75), and household income (1= *under &10K* to 6 = *$100K or over*, *M* = 6.05, *SD* = 1.42) were included. Second, interests in student loan forgiveness programs (1 = *not at all interested* to 4 = *very interested*, *M* = 2.86, *SD* = 1.02) and partisanship (1 = *strong Democrats* to 7 = *strong Republicans*, *M* = 3.22, *SD* = 2.04) were controlled. Also, I controlled whether participants heard of two news sources (*Breitbart* 60.06%, *Daily Kos* 23.97%). Because most of the participants reported that they heard the other two news sources

used in the experiment (*The New York Times* 98.48%, *Wall Street Journal* 95.32%), I did not include them as control variables. See descriptive statistics of variables in Appendix A Table 2.

[Table 2]

Analysis plan

I first conducted a manipulation check to see whether instructions for goal manipulations worked as intended. For this, I created two dummy variables to indicate accuracy and directional goals each, with the no-goal manipulation group serving as the reference group. To test hypotheses, I conducted ordinary least squares (OLS) regression analyses.

STUDY 1 RESULTS

Manipulation checks

To assess whether manipulation prompts succeeded in providing different goals in participants (accuracy goal, directional goal, and no goal), I conducted independent t-tests for each comparison of motivation groups. The manipulation check scale consists of two sets of items measuring accuracy and directional goals. For the accuracy goal item, participants in the accuracy goal condition showed the highest scores (M = 3.59, SD = .84), followed by those in the control (M = 3.54, SD = .82) and the directional conditions (M = 3.31, SD = .87). While no significant difference existed between the accuracy and control conditions (t = .71, p = .480), there were significant differences between the control and directional conditions (t = 3.00, p = .003). In terms of directional goal item, participants in the directional condition showed the highest scores (M = 3.91, SD = .64), followed by those in the control (M = 3.68, SD = .78) and the accuracy conditions (M = 3.52, SD = .83). Significant differences existed between the directional and control conditions (t = 3.67, p = .000) and between the control and accuracy conditions (t = 2.15, p = .032). Given that this study employed widely used experimental prompts for goal manipulations and directional items show significant differences among the three conditions, I assume that manipulation checks were successful. I will discuss manipulation checks in more detail in the general discussion section.

Selection of news headlines from credible news organizations

I first examined how individuals motivated by accuracy or directional goals selected news headlines from credible news organizations. Ordinary least squares (OLS) regressions were conducted. Results show that both accuracy (*Unstandardized coefficient* = .014, p = .737) and directional goals (*Unstandardized coefficient* = -.036, p = .403) did not influence the selection of

news from credible sources, as shown in Appendix A Table 3 Model 1. These findings indicate that simply motivating individuals to reach accurate conclusions is not enough for them to seek credible information sources. As I hypothesized, the ability to discern information quality needs to be considered in exploring the impact of accuracy goals on the selection of information. See Appendix A Table 3 for detailed results.

[Table 3]

Therefore, I investigated whether indicators of abilities – news literacy and cognitive sophistication – moderated the impacts of accuracy or directional goals on the selection of headlines with credible sources. Cognitive sophistication was assessed through an actively open-minded thinking (AOT) scale and a cognitive reflection test score. First, I investigated the role of news literacy. Two interaction terms (*Accuracy goals X news literacy, directional goals X news literacy*) were included in OLS regressions. Findings show that news literacy did not moderate the influence of both accuracy (*Unstandardized coefficient* = -.005, p = .837) and directional goals (*Unstandardized coefficient* = -.015, p = .537) on the selection of news with credible sources. Second, I examined whether the impacts of accuracy and directional goals differ by actively open-minded thinking. Two interaction terms (*Accuracy goals X AOT, directional goals X AOT*) were created. Results show that actively open-minding thinking did not moderate the impact of accuracy (*Unstandardized coefficient* = .031, p = .608) and directional goals (*Unstandardized coefficient* = -.030, p = .624) on the selection of news with credible sources. Lastly, I investigated the interaction effects of cognitive reflection test scores. Findings were consistent with an actively open-minded thinking scale. The cognitive reflection task scores did not moderate the impact of accuracy (*Unstandardized coefficient* = .003, p = .937) and directional goals (*Unstandardized coefficient* = -.033, p = .345) on the selection of news

headlines with credible sources. H1a and H1b were not supported. See Appendix A Table 3 for details.

These findings suggest that knowledge about the news industry does not help individuals select news headlines from credible sources even when they have good intentions to look for credible sources. Also, being equipped with cognitive abilities does not enable individuals to seek out news headlines with credible sources. Although actively open-minded thinking itself was positively associated with the selection of credible sources (*Unstandardized coefficient* = .050, p = .057) at a marginally significant level, as shown in Appendix A Table 3 Model 3, it seems that actively open-minded thinking does not lead accuracy-driven individuals to choose news headlines from credible sources.

Selection of pro- or counter-attitudinal news headlines

First, I examined how accuracy and directional goals influence the selection of pro- or counter-attitudinal news headlines. Findings from an OLS regression show that accuracy goals did not influence the selection of pro-attitudinal news headlines (*Unstandardized coefficient* = -.021, p = .623). However, directional goals promoted the selection of pro-attitudinal news headlines (*Unstandardized coefficient* = .126, p = .002). These findings suggest that individuals driven by accuracy goals do not reduce their reliance on like-minded information, further illustrating the need to consider dimensions of ability – such as news literacy or cognitive sophistication – as potential moderators of the effect of accuracy goals in promoting greater engagement in opposing viewpoints. Additionally, while not a formal hypothesis, results demonstrate the power of directional goals in enhancing engagement of pro-attitudinal information. This indicates that motivating individuals to maintain or defend their prior attitudes

makes them more likely to seek out information aligned with their prior attitudes. See Appendix A Table 4 Model 1 for detailed results.

[Table 4]

Then, does one's knowledge of the news industry or cognitive sophistication enable accuracy-driven individuals less likely to seek out pro-attitudinal information? For this, I examined whether news literacy and cognitive sophistication – actively open-minded thinking and cognitive reflection test scores – moderated the impacts of accuracy or directional goals on the selection of pro-attitudinal news headlines. First, I explored the role of news literacy. Interaction terms (*Accuracy goals X news literacy, directional goals X news literacy*) were included in OLS regressions. I found that news literacy did not moderate the impacts of accuracy (*Unstandardized coefficient* = .027, p = .230) and directional goals (*Unstandardized coefficient* = .016, p = .491) on the selection of pro-attitudinal news headlines, as shown in Appendix A Table 4 Model 2. Second, I explored the interaction effects of actively open-minded thinking and cognitive reflection test scores. Results show that actively open-minded thinking did not moderate the influence of accuracy goals (*Unstandardized coefficient* = -.005, p = .938) and directional goals (*Unstandardized coefficient* = .041, p = .502) on the selection of pro-attitudinal news headlines. See Appendix A Table 4 Model 4. Lastly, I investigated the role of cognitive reflection test scores. Findings from the analyses reveal that the impact of accuracy (*Unstandardized coefficient* = .001, p = .981) and directional goals (*Unstandardized coefficient* = -.044, p = .198) on the selection of pro-attitudinal news headlines did not vary by cognitive reflection test scores. H2a, H2b, H3a, and H3b were not supported. See Appendix A Table 4 for details.

These findings suggest that being literate in the news industry or equipped with cognitive sophistication does not help individuals search attitudinally incongruent news headlines, even if they are willing to reach accurate and objective conclusions.

STUDY 1 DISCUSSION

Informed by the theory of motivated reasoning and the uncertain role of accuracy goals in the theory, Study 1 explores how motivations to reach accurate conclusions play a role in people's selection of news headlines. Specifically, I examine how accuracy and directional goals motivate individuals to choose news headlines with credible sources or with like-minded information. Moreover, this study investigates whether and how several indicators of abilities – news literacy, actively open-minded thinking, and cognitive reflection test scores – assist individuals driven by accuracy goals in choosing news headlines from credible organizations or seeking out news headlines with opposite perspectives.

Results of Study 1 reveal that simply motivating individuals to seek out accurate and objective information may not be enough for them to choose news from credible sources. Also, such motivations do not lead to the selection of perspectives that contradict their attitudes. Moreover, several measures that capture abilities – knowledge about the news industry, a tendency to think actively and be open-minded, and scores of cognitive reflection tests – do not enable them to seek out the news with credible sources or opposite perspectives. In other words, having these abilities does not necessarily lead to balanced information seeking, even when they are motivated to have objective views about specific issues. This finding may reflect the possibility that even accuracy-motivated individuals with high news literacy or cognitive capacities may believe that news organizations aligned with their partisanship are more credible than news organizations showing neutral or opposite perspectives (Metzger et al., 2020). In this context, Metzger and colleagues (2020) pointed out that individuals are likely to choose like-minded news because they perceive this news as more credible than neutral or counter-attitudinal news.

Notably, results show a strong impact of directional goals. While directional goals do not influence the selection of news from credible organizations, those driven by directional goals were more likely to select pro-attitudinal news headlines regardless of their knowledge about the news industry or levels of cognitive sophistication. These findings align with previous research indicating that motivations to achieve desirable outcomes enhance the tendency to look for pro-attitudinal information (Kim, 2007; Edgerly et al., 2014; Winter et al., 2016). Although individuals use their cognitive sophistication to judge issues in their personal lives, partisanship appears to have a more influential role than motivations or abilities when they evaluate political issues.

In conclusion, using data from an online experiment, I investigated how accuracy goals influence information selection. I demonstrated that accuracy goals do not motivate individuals to select political information from credible sources or attitude-incongruent information. Even when they are equipped with news literacy and cognitive sophistication, accuracy goals do not increase the use of credible or counter-attitudinal news. On the other hand, directional goals reinforce one's prior attitudes, leading to the selection of attitudinally congruent news headlines.

While Study 1 explores factors influencing news selection, Study 2 investigates how individuals cognitively process news. Specifically, I will examine how accuracy goals influence one's perception that news articles they read have believable reasons. Also, Study 2 investigates how the impact of accuracy goals on the processing of news varies depending on one's cognitive sophistication.

STUDY 2 METHOD

Overview

In Study 2, I investigated how individuals driven by accuracy goals process news articles they read. Also, I examined whether and how cognitive sophistication moderates the impact of accuracy goals on the processing of news articles. An online experiment was conducted. Participants read and evaluated news articles about the student loan forgiveness program.

Participants

Participants were recruited from Cloud Research in July 2024. A number of 1,200 respondents living in the United States over the age of 18 participated in the study.[4] Participants were paid $1.00 for participation. Regarding the composition of the sample, the average age was 39.49 years. 67.97% identified as White, and 50.04% identified as male, which appears similar to the demographic of the U.S. population. Democrats (45.80%) were oversampled compared to Republicans (32.87%).

Procedures

Following the flow of Study 1, participants were provided with a consent form, asked to answer questions about attitudes toward student loan forgiveness programs, and then randomly assigned to one of three instructions for goal manipulations: *Accuracy goal, directional goal, and no goal instructions*. The same stimuli adopted in Study 1 were used. After receiving the treatment, participants read one of four mock news articles about the student loan forgiveness

[4] Previous studies (e.g., Groenendyk & Krupnikov, 2021) investigated the impact of open-mindedness, similar to accuracy goals, on political information processing. However, those studies have not provided enough information (e.g., R-squared) to calculate an effect size (Cohen's f^2) of the linear regression results. Instead, I relied on an effect size ($f^2 = .15$) used in Study 1. According to the G*Power 3.1 (Faul et al., 2007), a sample size of 1.128 is necessary to detect the effect size in an ANCOVA with a power of 0.95, ten covariates, and twelve groups.

program. News articles vary by the quality of evidence (strong evidence vs. weak evidence) and attitudes toward the programs (support for the programs vs. opposition to the programs). This results in 12 manipulations (goal manipulation X evidence quality X attitudes toward the programs). After selecting news articles, participants were asked to answer questions about manipulation checks, perceptions of argument strength regarding news articles they read, post-exposure attitudes toward the student loan forgiveness program, attention checks, news literacy, and cognitive sophistication. In the end, participants reported demographic information and were debriefed.

News articles with strong evidence include information with citations (O'Keefe, 1998; Youk et al., 2023) and statistical evidence (Hoeken & Hustinx, 2009) about systemic reviews on the effects of student loan forgiveness programs. On the other hand, news articles with weak evidence present anecdotal stories (Hoeken & Hustinx, 2009) about the impacts of student loan forgiveness programs without citations. See Appendix D for news articles used in the study. All procedures of Study 2 were preregistered on OSF (https://doi.org/10.17605/OSF.IO/DCR93) and got approval from the Institute of Review Board at Michigan State University.

Pretest of stimulus materials

I conducted a pretest in June 2024 before conducting Study 2 with a number of 361 individuals recruited from Cloud Research. Participants received $.50 for compensation. Participants were presented with mock articles used in Study 2 (Strong evidence supporting student loan forgiveness programs, weak evidence supporting the programs, strong evidence opposing the programs, and weak evidence opposing the programs). After reading the news article, participants rated the position of the news articles about student loan forgiveness

programs (1 = *strongly oppose* to 5 = *strongly support*) and the quality of evidence (1 = *low quality* to 7 = *high quality*).

As expected, independent t-test results indicate that participants rated pro-student loan forgiveness program articles (M = 4.50, SD = .72 for the news article 1; M = 4.47, SD = .70 for the news article 2) as significantly more supportive of the program than counter-student loan forgiveness program articles (M = 2.07, SD = .92 for the news article 1; M = 2.61, SD = 1.03 for the news article 2). Also, participants rated news articles with strong evidence as having significantly higher evidence quality (M = 5.05, SD = 1.37 for the news article 1; M = 4.37, SD = for the news article 2) than articles with weak evidence (M = 4.35, SD = 1.41 for the news article 1; M = 3.45, SD = 1.69 for the news article 2). See Appendix A Table 5 for details.

[Table 5]

Measures

Manipulation checks for goal motivations

I used the same set of items to measure participants' motivations as were used in Study 1. These items were adapted from Stekelenburg and colleagues (2020). Participants rated their agreement with several statements on a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*) to assess different goals they might have. Three items each for accuracy (α = .68, M = 3.66, SD = .73) and directional goals (α = .72, M = 3.83, SD = .71) were created. See Appendix E for a list of items used in the study.

Exposure to news articles with strong or weak evidence

In the experiment, participants were randomly assigned to read one of four new articles. Two news articles included strong evidence supporting or opposing student loan forgiveness. The other two articles showed weak evidence. Whether participants were exposed to news

articles with strong or weak evidence was operationalized as a dichotomous variable (0 = *exposure to weak evidence*, 1 = *exposure to strong evidence*).

Exposure to pro- or counter-attitudinal news articles

Before reading the experimental stimulus, participants indicated their attitudes toward student loan forgiveness programs on a 7-point scale (1 = *strongly oppose* to 7 = *strongly support*). A score above four was considered as support supporting student loan forgiveness programs while a score below four was categorized as opposing the programs. Because participants scoring on the mid-point of four cannot be classified as favorable or unfavorable to the programs, I excluded those participants (N = 111) from the analyses (Winter et al., 2016).

Study respondents were randomly assigned to read one of four new articles. Two news articles supported student loan forgiveness with either strong or weak evidence while the others opposed it. To construct a measure of pro-attitudinal news exposure, participants were divided into two groups – a) a pro-attitudinal exposure group as either reading the pro-program news by those supporting the program or reading the counter-program news by those opposing the programs and b) a counter-attitudinal exposure group as either reading pro-loan forgiveness program news by those opposing the program or reading counter-program news by those supporting the program (1 = *pro-attitudinal exposure*, 0 = *counter-attitudinal exposure*). 50.95 percent of participants were exposed to pro-attitudinal news articles.

Perceptions of argument strength

Adopted measure of perceived argument strength from Zhao and colleagues (2011), participants were asked to report the degree to which they agreed or disagreed with several statements on a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*). Sample items include "The news article you just read gives a believable reason for supporting (opposing) student loan

forgiveness." Responses were averaged (α = .93, *M* = 3.37, *SD* = .99). Higher scores indicate that participants perceived the news article they read had stronger arguments. See Appendix E for a list of questions.

Cognitive sophistication

Following Study 1, I employed two types of measures to assess cognitive sophistication: An actively open-minded thinking scale (Bronstein et al., 2019; Pennycook et al., 2022) and cognitive reflection test scores (Bronstein et al., 2019; Frederick, 2005; Garrett et al., 2020; Pennycook et al., 2022; Pennycook et al., 2023). For actively open-minded thinking, participants rated on a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*) the extent to which they agreed or disagreed with several statements. I averaged responses to items (α = .82, *M* = 3.71, *SD* = .64). In terms of cognitive reflection test scores, I asked the same questions used in Study 1. I counted the number of correct answers provided by participants (*M* = 1.56, *SD* = 1.23).

Control variables

Following Study 1, demographic information such as age (*M* = 39.49, *SD* = 13.56), gender (50.04% *male*), race/ethnicity (67.96% *White*, 16.23% *African American*, 9.39% *Latino*), education (1 = *grade 8 or lower* to 9 = *graduate or professional degree*, *M* = 6.41, *SD* = 1.79), and household income (1= *under &10K* to 6 = *$100K or over*, *M* = 4.06, *SD* = 1.45) were controlled. Also, interests in the student loan forgiveness programs (1 = *not at all interested* to 4 = *very interested*, *M* = 2.87, *SD* = 1.04) and partisanship (1 = *strong Democrats* to 7 = *strong Republicans*, *M* = 3.31, *SD* = 2.02) were included as control variables. See descriptive statistics of variables in Appendix A Table 6.

[Table 6]

Analysis plan

To test hypotheses, I created dummy variables indicating accuracy and directional goals with the control as a reference group. I also included dichotomous variables indicating exposure to strong evidence or pro-attitudinal news with exposure to weak evidence or counter-attitudinal news as each base group. I conducted ordinary least squares (OLS) regression analyses with and without interaction terms of goals, strong evidence, and pro-attitudinal information. Next, I conducted the moderation effects of cognitive sophistication with each of two measures – an actively open-minded thinking scale and cognitive reflection test scores. As additional analyses, I split a sample into high- and low-cognitive sophistication groups based on a median value of cognitive sophistication. Then, I conducted regression analyses for high- and low-cognitive sophistication groups separately in order to explore whether there exists any different pattern between these two groups. Control variables were included across each of the models.

STUDY 2 RESULTS

Manipulation checks

Following Study 1, I conducted independent t-tests for each comparison of groups in order to see whether the manipulation prompts were successful in providing different goals in participants (accuracy goal, directional goal, and no goal). For the accuracy goal items, participants in the accuracy goal condition showed the highest scores (M = 3.87, SD = .65), followed by those in the control (M = 3.57, SD = .73) and the directional conditions (M = 3.54, SD = .77). Significant differences were observed between the accuracy and control conditions (t = 6.13, p = .000), but there was no significant difference between the control and directional conditions (t =.53, p = .596). In terms of directional goal items, participants in the directional condition showed the highest scores (M = 4.05, SD = .60), followed by those in the control (M = 3.82, SD = .66) and the accuracy conditions (M = 3.62, SD = .80). Significant differences existed between the directional and control conditions (t = 5.15, p = .000) and between the control and accuracy conditions (t = 3.89, p = .000). Because significant differences existed between the accuracy and control conditions for the accuracy-goal item and between the directional and control conditions for the directional goal item, it is assumed that manipulations worked as intended. I will discuss manipulation checks in the general discussion section.

Perceptions of argument strength

To begin with, I investigated how individuals driven by accuracy or directional goals perceived the strength of the arguments about the news article they read. For this, I conducted OLS regression analyses. First, I only included variables (*Accuracy goals, directional goals, strong evidence, pro-attitudinal information*) with the control condition, weak evidence, and counter-attitudinal information as each reference group. Second, I added two-way interactions

(*Accuracy goals X strong evidence, directional goals X strong evidence, Accuracy goals X pro-attitudinal, directional goals X pro-attitudinal, strong evidence X pro-attitudinal)* to the model. Third, I added three-way interactions (*Accuracy goals X strong evidence X pro-attitudinal, directional goals X strong evidence X pro-attitudinal*) to the model.

Findings reveal that accuracy (*Unstandardized coefficient* = -.085, p = .157) and directional goals (*Unstandardized coefficient* = .012, p = .840) did not influence perceptions of argument strength. In addition, I found that exposure to news articles with strong evidence (*Unstandardized coefficient* = .114, p = .021) and pro-attitudinal information (*Unstandardized coefficient* = 1.018, p = .000) promoted perceptions of argument strength. This finding indicates that individuals perceived arguments referencing statistical analyses with academic citations as stronger than those based on anecdotal stories. Also, the result suggests that news articles aligning with individuals' pre-existing attitudes were considered to have stronger arguments than those presenting opposing viewpoints. See Appendix A Table 7 Model 1 for detailed results.

[Table 7]

Analyses of interaction effects, however, show more nuanced effects between goals, evidence quality, and pro-attitudinal information. Accuracy goals did not influence perceptions of argument strength regardless of whether individuals read news articles with strong evidence or pro-attitudinal information, as shown in Appendix A Table 7 Model 3. This implies that accuracy goals alone may not be sufficient to promote unbiased processing of political information if it is not accompanied by the ability to discern high-quality information from low-quality information.

While the current study does not hypothesize the role of directional goals, results show a fairly predictable impact of directional goals: Directional goals had differential impacts on perceptions of argument strength depending on whether the article was pro- or counter-

attitudinal. As shown in Appendix A Table 7 Model 2, the impact of pro-attitudinal news exposure on perceptions of argument strength was stronger (*Unstandardized coefficient* = .256, *p* = .028) among those assigned to receive the directional treatment relative to the control. This finding suggests that individuals motivated by directional goals are more biased in their evaluation of pro-attitudinal information in a way that aligns with their pre-existing attitudes. See Appendix B Figure 1.

Similarly, Appendix A Table 7 Model 3 reveals that the three-way interaction between the directional treatment, strong evidence treatment, and pro-attitudinal treatment further suggests this relationship, though it falls just short of traditional standards of statistical significance (*Unstandardized coefficient* = .457, *p* = .058). Probing further, the nature of this interaction effect suggests that participants in the directional goal condition evaluated stories featuring strong evidence in support of their pre-existing position more favorably than those in the control condition. Directional goals still promoted perceptions of argument strength when pro-attitudinal information relied on weak evidence, but the effect was statistically indistinguishable from the relationship observed in the control. See Appendix B Figure 2.

These findings indicate that accuracy goals had no effect on perceptions of argument strength regardless of the evidence quality or issue positions in the news articles. However, individuals driven by directional goals are motivated to defend their pre-existing attitudes when they encounter like-minded news articles, leading to more favorable evaluations of those news articles. This impact of directional goals becomes much stronger when like-minded news is supported by strong evidence. This result highlights the importance of considering under what circumstances directional goals increase biased information processing (Lodge & Taber, 2000).

Moderation effects of cognitive sophistication

Next, I explored whether cognitive sophistication – assessed through an actively open-minded thinking scale and cognitive reflection test scores – moderated the influence of accuracy and directional goals on perceptions of argument strength in the news article. OLS regressions were conducted. Given that conducting four-way interaction analyses of *goal types X strong evidence X pro-attitudinal information X cognitive sophistication* requires a much larger sample size to maintain the statistical power of analyses, and hypotheses do not propose the joint impact of pro-attitudinal information and evidence quality, I analyzed three-way interactions instead. I first explored the interaction effects of *goal types X strong evidence X cognitive sophistication* with pro-attitudinal information as a control. Then, I examined the moderation effects of *goal types X pro-attitudinal information X cognitive sophistication* with strong evidence as a control.

First, I investigated the interactions of goal types, evidence quality, and cognitive sophistication. In a model, I initially included main variables (*Accuracy goals, directional goals, strong evidence, cognitive sophistication*) with pro-attitudinal information as a control. Then, I added two-way interactions (*Accuracy goals X strong evidence, directional goals X strong evidence, Accuracy goals X cognitive sophistication, directional goals X cognitive sophistication, strong evidence X cognitive sophistication*) to the model. Lastly, I included three-way interactions (*Accuracy goals X strong evidence X cognitive sophistication, directional goals X strong evidence X cognitive sophistication*). I first examined the role of actively open-minded thinking and then investigated the role of cognitive reflection test scores.

Findings from analyses show that actively open-minded thinking did not moderate the impact of accuracy goals (*Unstandardized coefficient* = .085, p = .653), as shown in Appendix A Table 8 Model 3. Also, cognitive reflection test scores did not moderate the influence of

accuracy goals (*Unstandardized coefficient* = .012, *p* = .901), as shown in Appendix A Table 8 Model 6. While cognitive reflection test scores reduced perceptions of argument strengths (*Unstandardized coefficient* = -.072, *p* = .001), as shown in Appendix A Table 8 Model 4, such an ability did not enable accuracy-driven individuals to better perceive the evidence quality in the news article they read. Additionally, exposure to pro-attitudinal information significantly promoted perceptions of argument strength across all models, indicating that individuals favorably evaluate like-minded news articles regardless of the quality of evidence or specific motivations they have. See Appendix A Table 8 for detailed results.

[Table 8]

Second, I conducted three-way interaction analyses of *goal types X pro-attitudinal information X cognitive sophistication* with evidence quality as a control. Two-way and three-way interactions were sequentially added to the model. Results show that actively open-minded thinking did not interact with the impact of accuracy goals (*Unstandardized coefficient* = -.103, *p* = .580), as shown in Appendix A Table 9 Model 2. Also, cognitive reflection test scores did not moderate the influence of accuracy goals (*Unstandardized coefficient* = -.066, *p* = .507), as shown in Appendix A Table 9 Model 4. I also found that reading news articles with strong evidence promoted perceptions of argument strength across all models. See Appendix A Table 9 for detailed results.

[Table 9]

While no significant result was observed for accuracy goals, I detected interesting findings for directional goals. As shown in Appendix A Table 9 Model 2, the interaction of *directional goal X pro-attitudinal information X actively open-minded thinking* (*Unstandardized coefficient* = -.368, *p* = .048) enhanced perceptions of argument strength. This indicates that exposure to

pro-attitudinal news articles significantly enhances their perceptions of argument strength, particularly when actively open-minded thinking values are low. However, as levels of actively open-minded thinking increase, the relationship between pro-attitudinal information and perceptions of argument strength weakens. In other words, individuals with directional goals become more critical of pro-attitudinal information as they analyze things with a higher degree of open-mindedness. See Appendix B Figure 3.

[Figure 3]

These findings suggest that accuracy goals do not assist individuals in processing news articles from objective and balanced viewpoints, even when they possess high levels of cognitive sophistication. Directional goals increase favorable evaluations of pro-attitudinal information. However, actively open-minded thinking seems to mitigate such biased evaluations. H4a, H4b, H4c, and H4d were not supported.

Additional analyses

Furthermore, I conducted additional analyses to explore the moderation effects of cognitive sophistication in different ways. I divided the sample into high- and low-cognitive sophistication groups based on a median value of cognitive sophistication scales. Then, I analyzed three-way interactions of *goal types X strong evidence X pro-attitudinal information* separately for these two groups. Through this process, I could explore whether different trends were observed between the high- and low-cognitive sophistication groups.

First, I investigated the role of actively open-minded thinking. I split the sample into high-actively open-minded (n = 569, 46.9%) and low-actively open-minded thinking groups (n = 644, 53.1%) based on a median value of 3.70. According to the results, among those with low levels of actively open-minded thinking, accuracy goals did not affect perceptions of argument strength

(*Unstandardized coefficient* = -.026, *p* = .774) regardless of the presence of strong evidence or pro-attitudinal information, as shown in Appendix F Table 1 Model 2. However, among those with high levels of actively open-minded thinking, accuracy goals significantly reduced perceptions of argument strength (*Unstandardized coefficient* = -.163, *p* = .041), as shown in Appendix F Table 1 Model 4. This finding suggests that individuals driven by accuracy goals may evaluate news articles more critically, perceiving these articles as less convincing compared to those in the control group. See Appendix F Table 1 for detailed results.

In addition, results reveal that directional goals might have different impacts on perceptions of argument strength depending on actively open-minded thinking levels. Appendix F Table 1 Model 2 shows that an interaction term of directional goals and pro-attitudinal information increased perceptions of argument strength (*Unstandardized coefficient* = .660, *p* = .000) among low levels of actively open-minded thinking group. It indicates that individuals driven by directional goals are likely to perceive that pro-attitudinal information has strong arguments when their actively open-minded thinking levels are low. However, among those with high levels of actively open-minded thinking, directional goals did not influence perceptions of argument strength (*Unstandardized coefficient* = -.051, *p* = .754), as shown in Appendix F Table 1 Model 4. These results indicate that actively open-minded thinking might attenuate the impact of directional goals when pro-attitudinal information is provided. It is consistent with the findings in Appendix A Table 9 Model 2.

Second, I examined the role of cognitive reflection test scores. I divided the sample into high (*n* = 586, 48.3%) and low cognitive reflection test score groups (*n* = 628, 51.7%) based on a median value of 1.5. Results show that accuracy goals have no significant impact on perceptions of argument strength both among low (*Unstandardized coefficient* = -.142, *p* = .108) and high

cognitive reflection test score groups (*Unstandardized coefficient* = -.033, p = .698), as shown in Appendix F Table 2 Models 1 and 4. In terms of directional goals, among those with low levels of cognitive reflection test scores, an interaction term of *directional X pro-attitudinal* increased perceptions of argument strength (*Unstandardized coefficient* = .359, p = .040) while the same interaction term was not significant among those with higher levels of cognitive reflection test result (*Unstandardized coefficient* = .201, p = .236), as shown in Appendix F Table 2 Models 2 and 4. The results were consistent with the analyses using the actively open-minded thinking scale. See Appendix F Table 2 for detailed results.

STUDY 2 DISCUSSION

In Study 2, I explored how motivations to arrive at accurate outcomes influence ways to understand news articles. Specifically, this study investigated how accuracy and directional goals have an impact on perceptions of argument strength in the news articles they read. Moreover, I examined whether and how two indicators of cognitive sophistication – an actively open-minded thinking scale and cognitive reflection test scores – allow accuracy-driven individuals to objectively judge news articles regardless of whether the news contents are aligned with their prior attitudes.

Findings from Study 2 suggest that merely encouraging individuals to reach accurate conclusions may not be sufficient for them to evaluate news articles objectively. Moreover, cognitive sophistication measures – one's trait to view things analytically with open-mindedness and cognitive reflection test scores – could not facilitate accuracy-driven individuals to evaluate news articles without bias. In other words, even when individuals are equipped with both motivations and abilities, it remains challenging to foster even-handed evaluations of political information among those motivated by accuracy goals. Similar to the findings from Study 1, it appears that accuracy-driven individuals may consider pro-attitudinal information to be more reliable than counter-attitudinal information, irrespective of the quality of the evidence. It aligns with recent research indicating that individuals prefer like-minded information because they believe it is credible (Metzger et al., 2020).

Notably, directional goals promoted perceptions of argument strength particularly when individuals were presented with pro-attitudinal information supported by strong evidence. However, the strong influence of directional goals on perceptions of argument strength in pro-attitudinal information was diminished among individuals with high levels of actively open-

minded thinking. These results suggest that the impact of motivations aimed at reaching desirable outcomes may be conditional on evidence quality and, to some extent, cognitive sophistication. These findings are consistent with Kim (2007)'s research, indicating that the impact of directional goals on candidate evaluations is contingent on situational factors such as the extent to which citizens perceive a specific issue as important.

In conclusion, using data from an online experiment, Study 2 explored how accuracy goals have an impact on people's understanding of political information. Results demonstrated that accuracy goals do not lead individuals to objectively evaluate information. This lack of unbiased evaluation persists even among those with high levels of cognitive sophistication, regardless of whether the information presents strong evidence or aligns with their pre-existing attitudes. On the other hand, directional goals were observed to reinforce individuals' prior attitudes under specific circumstances. Specifically, directional goals led to favorable evaluations of pro-attitudinal information when accompanied by strong evidence. Interestingly, in other contexts, the impact of directional goals on such biased evaluations decreases when individuals are cognitively sophisticated.

GENERAL DISCUSSION

Discussion

Drawing from Kunda (1990)'s theory of motivated reasoning, I examined how accuracy goals, referred to as one's motivations to arrive at an accurate conclusion, influence the selection and processing of different types of information. Given the mixed findings on the impact of accuracy goals in previous studies (Brenes-Peralta et al., 2021; Druckman, 2012; Lundgren & Prislin, 1998; Pietryka et al., 2016; Redlawsk, 2002; Winter et al., 2016), I explored their uncertain role. Specifically, I investigated whether several indicators of abilities – news literacy, actively open-minded thinking, and cognitive reflection test results – enable accuracy-driven individuals to seek out credible or counter-attitudinal information and to evaluate information with strong evidence or attitude-inconsistent information favorably.

Findings reveal that motivations aimed at reaching accurate conclusions do not lead to a greater selection of credible information and attitudinally incongruent information, even among those with high levels of news literacy and cognitive sophistication. Furthermore, even when individuals have high cognitive sophistication, accuracy motivations do not result in favorable evaluations of information supported by strong evidence or presenting opposite viewpoints. In contrast, the results underscore the significant influence of directional goals. Individuals driven to defend their own opinions tend to choose pro-attitudinal information. Moreover, those with directional goals are inclined to favorably evaluate pro-attitudinal information when it is accompanied by strong evidence. In other contexts, however, the impact of directional goals was attenuated when individuals have actively open-minded thinking.

There are several explanations for why accuracy goals do not appear to influence the selection and processing of information, even among individuals with high levels of news

literacy or cognitive sophistication. First, there is a possibility that accuracy goals might not be sufficiently manipulated in the study while directional goals were easily evoked. Some scholars argue that directional goals are people's default state. Given that Americans are politically polarized (Iyengar et al., 2012), participants might already harbor directional goals to some extent. If that is the case, directional prompts might reinforce pre-existing directional motivations in their minds. In contrast, accuracy prompts might not have been sufficiently activated to induce changes in news selection behaviors and mitigate biased processing of information.

Relatedly, both studies used student loan forgiveness as a case. Even though student loan forgiveness appears to be a less politically salient issue than gun-related policy or abortions that previous studies employed, it is plausible that an issue itself evoked directional goals in study participants' minds regardless of whether they received accuracy or directional instructions. Although participants were exposed to accuracy prompts in the experiments, accuracy goals might not be successfully evoked because of the nature of the issue. Future studies could explore other less politically oriented issues and investigate the mechanisms of how accuracy-driven individuals choose and process information with those less political issues.

In addition, it is plausible that indicators of abilities employed in both studies – news literacy, actively open-minded thinking, and cognitive reflection test scores – may not fully capture specific dimensions of abilities that were intended to be examined. Prior studies (e.g., Pietryka et al., 2016; Winter et al., 2016) have suggested that individuals who lack abilities to judge information credibility or encounter misleading information might make uninformed decisions, even if they have accuracy goals. If measures such as news literacy, actively open-minded thinking, or cognitive reflection test scores do not strongly correlate with an individual's capacities to judge the credibility of sources or the quality of evidence, these indicators of

abilities may not effectively enable accuracy-driven individuals to seek out credible or counter-attitudinal information. Likewise, they may not facilitate favorable evaluations of information supported by strong evidence or presenting attitudinally incongruent content. Future studies should consider employing alternative measures of abilities that more directly assess one's capability to judge information credibility. This approach could help elucidate whether different indicators of abilities can assist individuals motivated by accuracy goals in searching for credible or counter-attitudinal information and processing such information favorably.

Limitations

This study suffers from a few limitations. First, an accuracy goal scale used for manipulation checks shows relatively low reliability scores in both studies (Study 1: $\alpha = .70$; Study 2: $\alpha = .68$). Also, there is no significant difference in the accuracy goal scale between the accuracy goal and control conditions (Study 1) and the directional goal and control conditions (Study 2). However, it may not necessarily indicate the failure of manipulations, given that manipulation check items adapted from Stekelenburg and colleagues (2020) were not widely used in prior research. Also, they used different experimental prompts to manipulate accuracy and directional goals from other motivated reasoning research. Because most of the studies investigating accuracy and directional goals (Bolsen et al., 2014; Druckman, 2012; Kim, 2007; Taber & Lodge, 2016) did not check whether study participants have specific goals as intended, I had no choice but to employ accuracy and directional goal scales created by Stekelenburg and colleagues (2020). Future research should construct valid and reliable accuracy and directional goal scales.

Second, this study assumes that accuracy goals are separate from directional goals. That is, directional goals are the opposite of accuracy goals (Druckman, 2012). However, some scholars

(Lodge & Taber, 2000; Nir, 2011) argue that accuracy could coexist with directional goals. According to the four types of motivated reasoning suggested by Lodge and Taber (2000), intuitive scientists are motivated to be evenhanded with evidence and seek accurate conclusions, and at the same time, are likely to update their beliefs based on their pre-existing bias. Both accuracy and directional goals coexist in the minds of intuitive scientists. On the other hand, classic rationalists have strong accuracy goals and weak directional goals. If that is the case, intuitive scientists and classic rationalists might have different information selection behaviors or distinct mechanisms of information processing although both individuals have strong accuracy goals. This study employed experimental designs and manipulation prompts that have been widely used in existing research investigating the theory of motivated reasoning (e.g., Druckman, 2012; Kim, 2007; Pietryka, 2016; Winter et al., 2016; Taber & Lodge, 2006). However, with such experimental designs, it is challenging to examine how individuals select and cognitively process information when they have both accuracy and directional goals. Future research could explore this possibility and investigate whether indicators of abilities play a differential role when accuracy goals coexist with directional goals. Following a study by Nir (2011), researchers are recommended to employ a *need-for-cognition* scale as a proxy for accuracy goals and a *need-to-evaluate* scale to tap into directional goals. With these scales, researchers could identify individuals who have both accuracy and directional goals. Also, researchers could compare high- and low levels of accuracy and directional goals instead of looking at each goal as a binary state.

Third, the two experiments in the current study measured moderators – news literacy, actively open-minded thinking, and cognitive reflection tests – after experimental manipulations. Some may argue that these moderators could be influenced by experimental randomization, which could result in posttreatment bias (see Montgomery et al., 2018). However, the moderators

in this study measured the more stable characteristics of participants. Thus, experimental treatments in this study – having specific motivations in participants' minds or reading news articles with strong evidence or pro-attitudinal information – are unlikely to have a significant impact on news literacy, actively open-minded thinking, or cognitive reflection test results. As additional analyses, I conducted analyses of bivariate correlations among goal manipulations and indicators of ability (news literacy, actively open-minded thinking, and cognitive reflection tests) in both Studies 1 and 2. Results show that no significant correlations existed between goal manipulations and indicators of the ability. See Appendix F Table 3 for detailed results. In addition, measuring moderators prior to treatments could have a priming effect, risking contamination of the study (Montgomery et al., 2018). In the current study, it is plausible that participants might have accuracy motivations while taking a cognitive reflection test. Given this, I measured moderators after experimental manipulations. Future studies should explore ways to minimize the priming effects of the pretreatment moderators.

Lastly, the experimental design of Study 1 asked participants to select one news headline they would like to read among a list of pro- or counter-attitudinal headlines. Such a design assumes that pro- or counter-attitudinal selection is a zero-sum game because choosing one type of information leads to avoidance of another type of information. However, previous literature (e.g., Garrett et al., 2013; Stroud, 2017) suggests that pro-attitudinal information use is sometimes positively related to the use of counter-attitudinal information, indicating that information selection may not always operate in a zero-sum manner. The design of Study 1 did not allow for an exploration of this possibility. Future research should design experiments in a way that allows for the simultaneous selection of both pro- and counter-attitudinal information.

Implications

Kunda (1990)'s seminal work on the theory of motivated reasoning has inspired a wealth of research exploring how various motivations in people's minds shape attitudes and beliefs. However, most of the research primarily focuses on the role of directional goals. Particularly in a political context, scholars have investigated how directional goals reinforce partisan identity and biased perceptions of politics. This research includes seeking pro-attitudinal information (Kim, 2007; Winter et al., 2016), believing misinformation (Flynn et al., 2017), and strengthening pre-existing attitudes about contentious issues (Taber & Lodge, 2006). Compared to the extensive research on the role of directional goals, accuracy goals have received much less attention in previous research. Although accuracy goals have been suggested as a remedy to promote democratic citizenship, such as fostering balanced perspectives about the issue or identifying reputable information sources, theories related to accuracy goals remain relatively underdeveloped.

The current study explores the role of accuracy goals, a critical component of the theory of motivated reasoning. Specifically, I investigated whether accuracy goals promote democratic citizenship when paired with the ability to distinguish information quality – a possibility that scholars have long referenced (e.g., Kunda, 1990; Winter et al., 2016) but not yet thoroughly investigated. Findings in the current study indicate that accuracy goals do not lead to outcomes favorable to democratic citizenship, such as relying on credible sources, seeking out opposing perspectives, or carefully considering the other side. Even when accuracy goals are accompanied by greater ability – operationalized here by news literacy and cognitive sophistication – accuracy goals still have no impact. Contrary to expectations suggested by existing literature, accuracy

goals seem unlikely to promote democratic benefits in how citizens decide what political information to select and how to evaluate it.

While accuracy goals have no significant influence on information selection and processing even when paired with higher ability, findings suggest that the ability indicators did influence the effect of directional goals. According to the results, directional goals promoted biased information searches (in favor of pro-attitudinal sources) and more favorable evaluations of pro-attitudinal information. However, these tendencies were weaker among individuals higher in analytical reasoning. From a normative perspective, this suggests that mitigating the influence of directional goals might be a more effective strategy for promoting more democratically beneficial outcomes than attempting to foster accuracy goals. In other words, efforts to minimize individuals' motivations for biased reasoning could be more beneficial in promoting greater reliance on credible information or fostering open-mindedness to opposing opinions. Future research is needed to evaluate this possibility, with further support signifying the need to shift our thinking around how we might promote greater engagement with opposing political views.

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APPENDIX A: TABLES

Table 1

Pretest of stimuli in Study 1

Comparisons	*Mean difference*	*t* (sig.)
Tone of news headlines		
Support SLF 1 & Oppose SLF 1	2.89	21.55 (p = .000)
Support SLF 1 & Oppose SLF 2	3.28	27.00 (p = .000)
Support SLF 2 & Oppose SLF 1	2.57	18.07 (p = .000)
Support SLF 2 & Oppose SLF 2	1.38	23.57 (p = .000)
Credibility of sources		
NYT & Daily Kos	.65	4.17 (p = .000)
NYT & Breitbart	.92	5.66 (p = .000)
WSJ & Daily Kos	.87	5.48 (p = .000)
WSJ & Breitbart	1.13	7.40 (p = .000)
Source leaning		
NYT & WSJ	.86	7.75 (p = .000)
NYT & Breitbart	1.71	10.91 (p = .000)
WSJ & Daily Kos	.60	3.88 (p = .000)
Daily Kos & Breitbart	1.45	9.84 (p = .000)
N	121	

Note. NYT = The New York Times. WSJ = The Wall Street Journal. SLF = student loan forgiveness. Tone of news headlines, credibility of sources, and source leaning were measured on a 5-point scale.

Table 2

Descriptive statistics in Study 1

Variables	M (SD) or %
Experiment condition	
Accuracy goal	32.92%
Directional goal	33.61%
Control condition	33.47%
Information selection [a]	
Selection of credible sources	67.03%
Selection of pro-attitudinal headlines	74.05%
Selection of counter-attitudinal headlines	25.95%
Indicators of abilities	
News literacy [b]	5.93 (1.84)
Actively open-minded thinking [c]	3.74 (.70)
Cognitive reflection test results [d]	1.56 (1.23)
Age	40.55 (13.55)
Gender (male)	50.76%
Race/ethnicity	
White	70.80%
African American	16.53%
Hispanic	9.23%
Education [e]	6.35 (1.75)
Income [f]	4.05 (1.42)
Party identification	
Democrat	60.20%
Republican	28.00%
Independent	11.80%
Interest in student loan forgiveness [g]	2.86 (1.02)
N	726

Note. Means with standard deviations in parentheses or percentages of specific responses. 98.21% of the participants passed an attention check.

[a] Information selection measures are dichotomous variables.

[b] A number of correct answers among eight news literacy questions.

[c] Mean of eight actively open-minded thinking items. Each item was measured on a 5-point scale.

[d] A number of correct answers among three cognitive reflection test questions.

[e] Education was measured on a 9-point scale: 1 = *grade 8 or lower* to 9 = *graduate or professional degree*.

[f] Income was measured on a 6-point scale: 1 = *under $10k* to 6 = *$100k or over*.

[g] Interest in student loan forgiveness was measured on a 4-point scale.

Table 3

The impact of accuracy and directional goals on the selection of news headlines from credible sources.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Predictors	*B (SE)*	*B (SE)*	*B (SE)*	*B (SE)*	*B (SE)*	*B (SE)*
Base: Control						
Accuracy	.014 (.04)	.043 (.14)	.016 (.04)	-.101 (.23)	.012 (.04)	.007 (.07)
Directional	-.036 (.04)	.051 (.15)	-.033 (.04)	.077 (.23)	-.036 (.04)	.014 (.07)
News literacy (NL)	.012 (.01)	.019 (.02)				
Accuracy X NL		-.005 (.02)				
Directional X NL		-.015 (.02)				
AOT			*.050 (.03)+*	.051 (.04)		
Accuracy X AOT				.031 (.06)		
Directional X AOT				-.030 (.06)		
CRT					.022 (.02)	.032 (.02)
Accuracy X CRT						.003 (.03)
Directional X CRT						-.033 (.03)
Age	*-.003 (.00)+*	*-.003 (.00)+*	*-.002 (.00)+*	*-.002 (.00)+*	*-.003 (.00)+*	*-.003 (.00)+*
Gender (Male)	.034 (.04)	.033 (.04)	.030 (.04)	.030 (.04)	.024 (.04)	.024 (.04)
Race/ethnicity (Base: White)						
African American	-.033 (.05)	-.033 (.05)	-.024 (.05)	-.026 (.05)	-.030 (.05)	-.031 (.05)
Hispanic	*-.101 (.06)+*	-.100 (.06)	-.095 (.06)	-.098 (.06)	-.092 (.06)	-.092 (.06)
Race, Other	-.027 (.05)	-.028 (.05)	-.026 (.05)	-.028 (.05)	-.024 (.05)	-.025 (.05)
Education	**.022 (.01)***	**.022 (.01)***	**.024 (.01)***	**.023 (.01)***	*.020 (.01)+*	*.020 (.01)+*
Income	**-.027 (.01)***	**-.027 (.01)***	**-.027 (.01)***	**-.027 (.01)***	**-.026 (.01)***	*-.025 (.01)+*
Partisanship	**-.021 (.01)***	**-.021 (.01)***	*-.018 (.01)+*	*-.018 (.01)+*	**-.022 (.01)***	**-.022 (.01)***
Interest in SLF	-.010 (.02)	-.009 (.02)	-.010 (.02)	-.010 (.02)	-.006 (.02)	-.006 (.02)
Heard of *Breitbart*	-.014 (.04)	-.014 (.04)	-.006 (.04)	-.011 (.04)	-.004 (.04)	-.005 (.04)
Heard of *Daily Kos*	.004 (.05)	.004 (.05)	.009 (.05)	.008 (.05)	.007 (.05)	.007 (.05)
N	721	721	721	721	721	721
Adjusted R^2	.016	.013	.019	.018	.017	.016

Note. + $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$. AOT = actively open-minded thinking. CRT = cognitive reflection test. SLF = student loan forgiveness. OLS regressions were conducted.

Table 4

The impact of accuracy and directional goals on the selection of pro-attitudinal news headlines.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Predictors	*B (SE)*	*B (SE)*	*B (SE)*	*B (SE)*	*B (SE)*	*B (SE)*
Base: Control						
Accuracy	-.021 (.04)	-.181 (.14)	-.024 (.04)	-.008 (.23)	-.022 (.04)	-.024 (.07)
Directional	**.129 (.04)***	.034 (.14)	**.126 (.04)****	-.027 (.23)	**.128 (.04)****	**.196 (.07)****
News literacy (NL)	.007 (.01)	-.007 (.02)				
Accuracy X NL		.027 (.02)				
Directional X NL		.016 (.02)				
AOT			-.033 (.03)	-.045 (.04)		
Accuracy X AOT				-.005 (.06)		
Directional X AOT				.041 (.06)		
CRT					.003 (.02)	.018 (.02)
Accuracy X CRT						.001 (.03)
Directional X CRT						-.044 (.03)
Age	.001 (.00)	.001 (.00)	.001 (.00)	.001 (.00)	.001 (.00)	.001 (.00)
Gender (Male)	-.009 (.04)	-.009 (.04)	-.006 (.04)	-.005 (.04)	-.010 (.04)	-.010 (.04)
Race/ethnicity (Base: White)						
African American	.003 (.05)	-.001 (.05)	-.013 (.05)	-.010 (.05)	-.001 (.05)	-.003 (.05)
Hispanic	-.042 (.06)	-.038 (.06)	-.041 (.06)	-.037 (.06)	-.039 (.06)	-.040 (.06)
Race, Other	-.004 (.05)	.003 (.05)	.000 (.05)	.001 (.05)	-.002 (.05)	-.006 (.05)
Education	-.012 (.01)	-.012 (.01)	-.012 (.01)	-.012 (.01)	-.012 (.01)	-.013 (.01)
Income	.012 (.01)	.008 (.01)	.012 (.01)	.012 (.01)	.013 (.01)	.014 (.01)
Partisanship	.009 (.01)	.009 (.01)	.005 (.01)	.005 (.01)	.008 (.01)	.009 (.01)
Interest in SLF	-.013 (.02)	-.013 (.02)	-.012 (.02)	-.012 (.02)	-.012 (.02)	-.011 (.02)
Heard of *Breitbart*	-.026 (.04)	-.025 (.04)	-.011 (.04)	-.006 (.04)	-.017 (.04)	-.020 (.04)
Heard of *Daily Kos*	.042 (.05)	.039 (.05)	.045 (.05)	.044 (.05)	.044 (.05)	.048 (.05)
N	655	655	655	655	655	655
Adjusted R^2	.014	.013	.015	.013	.013	.013

Note. + $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$. AOT = actively open-minded thinking. CRT = cognitive reflection test. SLF = student loan forgiveness. OLS regressions were conducted.

Table 5

Pretest of stimuli in Study 1

Comparisons	*Mean difference*	*t* (sig.)
Tone of news articles		
Support-strong & Oppose-strong	2.43	16.11 (p = .000)
Support-strong & Oppose-weak	1.89	11.67 (p = .000)
Support-weak & Oppose-strong	2.40	16.10 (p = .000)
Support-weak & Oppose-weak	1.85	11.59 (p = .000)
Evidence quality		
Strong-support & Weak-support	.70	2.46 (p = .015)
Strong-support & Weak-oppose	1.60	5.74 (p = .000)
Strong-oppose & Weak-support	.02	.06 (p = .954)
Strong-oppose & Weak-oppose	.92	3.24 (p = .002)
N	361	

Note. The tone of news articles and evidence quality were measured on a 5-point scale.

Table 6

Descriptive statistics in Study 2

Variables	M (SD) or %
Experiment condition	
Accuracy goal	33.28%
Directional goal	33.36%
Control condition	33.36%
News exposure	
Pro-attitudinal news with strong evidence	24.84%
Pro-attitudinal news with weak evidence	26.11%
Counter-attitudinal news with strong evidence	24.03%
Counter-attitudinal news with weak evidence	25.02%
Perceptions of argument strength [a]	3.37 (.99)
Indicators of abilities	
News literacy [b]	5.84 (1.78)
Actively open-minded thinking [c]	3.71 (.64)
Cognitive reflection test results [d]	1.55 (1.21)
Age	39.49 (13.56)
Gender (male)	50.04%
Race/ethnicity	
White	67.96%
African American	16.23%
Hispanic	9.39%
Education [e]	6.41 (1.79)
Income [f]	4.06 (1.45)
Party identification	
Democrat	45.80%
Republican	21.58%
Independent	32.87%
Interest in student loan forgiveness [g]	2.87 (1.04)
N	1214

Note. Means with standard deviations in parentheses or percentages of specific responses. 99.42% of the participants passed an attention check.

[a] Mean of seven argument strength perception items. Each item was measured on a 5-point scale.

[b] A number of correct answers among eight news literacy questions.

[c] Mean of eight items. Each item was measured on a 5-point scale.

[d] A number of correct answers among three cognitive reflection test questions.

[e] Education was measured on a 9-point scale: 1 = *grade 8 or lower* to 9 = *graduate or professional degree*.

[f] Income was measured on a 6-point scale: 1 = *under $10k* to 6 = *$100k or over*.

[g] Interest in student loan forgiveness was measured on a 4-point scale.

Table 7

The impact of accuracy and directional goals on perceptions of argument strength

	Model 1	Model 2	Model 3
Predictors	*B (SE)*	*B (SE)*	*B (SE)*
Base: Control			
Accuracy (Acc)	-.085 (.06)	*-.171 (.10)+*	-.151 (.12)
Directional (Dir)	.012 (.06)	**-.217 (.11)***	-.099 (.11)
Strong evidence (ST)	**.114 (.05)***	.058 (.10)	.144 (.12)
Pro-attitudinal (PRO)	**1.091 (.05)*****	**1.045 (.10)*****	**1.138 (.12)*****
Acc X ST		.146 (.12)	.113 (.17)
Dir X ST		.180 (.12)	-.050 (.17)
Acc X PRO		.027 (.12)	-.019 (.17)
Dir X PRO		**.265 (.12)***	.026 (.17)
ST X PRO		-.099 (.10)	-.275 (.17)
Acc X ST X PRO			.076 (.24)
Dir X ST X PRO			*.457 (.24)+*
Age	**-.009 (.00)*****	**-.009 (.00)*****	**-.009 (.00)*****
Gender (Male)	*-.086 (.05)+*	*-.086 (.05)+*	*-.086 (.05)+*
Race/ethnicity (Base: White)			
African American	**.199 (.07)****	**.210 (.07)****	**.214 (.07)****
Hispanic	.063 (.09)	.080 (.09)	.082 (.09)
Race, Other	.036 (.08)	.042 (.08)	.046 (.08)
Education	.000 (.02)	.000 (.02)	.000 (.02)
Income	**.034 (.02)***	**.037 (.02)***	**.037 (.02)***
Partisanship	.001 (.01)	.001 (.01)	.001 (.01)
Interest in SLF	**.120 (.03)*****	**.121 (.03)*****	**.119 (.03)*****
N	1097	1097	1097
Adjusted R^2	.353	.356	.357

Note. + $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$. SLF = student loan forgiveness. OLS regressions were conducted.

Table 8

Moderation of cognitive sophistication in the impact of accuracy and directional goals on perceptions of argument strength (control pro-attitudinal)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Predictors	*B (SE)*	*B (SE)*	*B (SE)*	*B (SE)*	*B (SE)*	*B (SE)*
Base: Control						
Accuracy (Acc)	-.089 (.06)	.235 (.36)	.353 (.48)	-.082 (.06)	-.149 (.11)	-.138 (.14)
Directional (Dir)	.009 (.06)	-.087 (.36)	-.341 (.49)	-.016 (.06)	-.103 (.11)	-.167 (.14)
Strong evidence (ST)	**.114 (.05)***	.094 (.30)	.013 (.50)	**.119 (.05)***	.032 (.10)	-.003 (.14)
Acc X ST		.149 (.12)	-.164 (.71)		.099 (.12)	.078 (.19)
Dir X ST		.185 (.12)	.736 (.71)		.157 (.12)	.279 (.19)
AOT	-.054 (.04)	-.005 (.08)	-.016 (.09)			
Acc X AOT		-.108 (.09)	-.140 (.13)			
Dir X AOT		.000 (.09)	.068 (.13)			
ST X AOT		-.024 (.08)	-.003 (.13)			
Acc X ST X AOT			.085 (.19)			
Dir X ST X AOT			-.149 (.19)			
CRT				**-.072 (.02)****	**-.083 (.04)***	*-.097 (.05)+*
Acc X CRT					.011 (.05)	.007 (.07)
Dir X CRT					.025 (.05)	.068 (.07)
ST X CRT					.002 (.04)	.026 (.07)
Acc X ST X CRT						.012 (.10)
Dir X ST X CRT						-.081 (.10)
Pro-attitudinal	**1.093 (.05)*****	**1.092 (.05)*****	**1.091 (.05)*****	**1.102 (.05)*****	**1.103 (.05)*****	**1.105 (.05)*****
Age	**-.009 (.00)*****	**-.009 (.00)*****	**-.009 (.00)*****	**-.009 (.00)*****	**-.009 (.00)*****	**-.009 (.00)*****
Gender (Male)	*-.084 (.05)+*	*-.085 (.05)+*	*-.086 (.05)+*	-.058 (.05)	-.058 (.05)	-.056 (.05)
Race/ethnicity (Base: White)						
African American	**.187 (.07)****	**.194 (.07)****	**.193 (.07)****	**.169 (.07)***	**.172 (.07)***	**.168 (.07)***
Hispanic	.059 (.09)	.058 (.09)	.054 (.09)	.038 (.09)	.039 (.09)	.039 (.09)
Race, Other	.034 (.08)	.037 (.08)	.039 (.08)	.036 (.08)	.032 (.08)	.034 (.08)
Education	-.001 (.02)	-.001 (.02)	.000 (.02)	.008 (.02)	.009 (.02)	.009 (.02)
Income	*.035 (.02)+*	**.037 (.02)***	**.037 (.02)***	*.033 (.02)+*	*.034 (.02)+*	*.033 (.02)+*
Partisanship	-.005 (.01)	-.006 (.01)	-.006 (.01)	-.003 (.01)	-.004 (.01)	-.004 (.01)
Interest in SLF	**.120 (.03)*****	**.119 (.03)*****	**.119 (.03)*****	**.116 (.03)*****	**.117 (.03)*****	**.118 (.03)*****
N	1096	1096	1096	1097	1097	1097
Adjusted R^2	.353	.352	.352	.360	.358	.357

Note. + $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$. AOT = actively open-minded thinking. CRT = cognitive reflection tests. SLF = student loan forgiveness. OLS regressions were conducted.

Table 9

Moderation of cognitive sophistication in the impact of accuracy and directional goals on perceptions of argument strength (control strong evidence)

	Model 1	Model 2	Model 3	Model 4
Predictors	*B (SE)*	*B (SE)*	*B (SE)*	*B (SE)*
Base: Control				
Accuracy (Acc)	.267 (.36)	.065 (.50)	-.115 (.11)	-.164 (.14)
Directional (Dir)	-.111 (.36)	-.800 (.50)	-.152 (.11)	-.198 (.13)
Pro-attitudinal (PRO)	.268 (.30)	-.312 (.50)	**1.025 (.10)*** **	**.960 (.14)*** **
Acc X PRO	.051 (.12)	.439 (.70)	.030 (.12)	.132 (.20)
Dir X PRO	**.286 (.12)***	**1.655 (.70)***	**.258 (.12)***	*.351 (.19)+*
AOT	-.116 (.08)	**-.196 (.10)***		
Acc X AOT	-.101 (.09)	-.047 (.13)		
Dir X AOT	-.007 (.09)	.180 (.13)		
PRO X AOT	**.192 (.08)***	**.346 (.13)****		
Acc X PRO X AOT		-.103 (.19)		
Dir X PRO X AOT		**-.368 (.19)***		
CRT			*-.078 (.04)+*	**-.099 (.05)***
Acc X CRT			.012 (.05)	.046 (.07)
Dir X CRT			.025 (.05)	.056 (.07)
PRO X CRT			-.011 (.04)	.031 (.17)
Acc X PRO X CRT				-.066 (.10)
Dir X PRO X CRT				-.061 (.19)
Strong evidence	**.114 (.05)***	**.115 (.05)***	**.120 (.05)***	**.121 (.05)***
Age	**-.009 (.00)*** **	**-.009 (.00)*** **	**-.009 (.00)*** **	**-.009 (.00)*** **
Gender (Male)	-.081 (.05)	-.075 (.05)	-.056 (.05)	-.055 (.05)
Race/ethnicity (Base: White)				
African American	**.186 (.07)****	**.184 (.07)****	**.176 (.07)***	**.173 (.07)***
Hispanic	.076 (.09)	.074 (.09)	.053 (.09)	.055 (.09)
Race, Other	.049 (.08)	.053 (.08)	.044 (.08)	.041 (.08)
Education	.002 (.02)	.002 (.02)	.008 (.02)	.009 (.02)
Income	*.035 (.02)+*	*.036 (.02)+*	*.033 (.02)+*	*.033 (.02)+*
Partisanship	-.003 (.01)	-.003 (.01)	-.003 (.01)	-.003 (.01)
Interest in SLF	**.120 (.02)*** **	**.121 (.02)*** **	**.117 (.02)*** **	**.117 (.03)*** **
N	1096	1096	1097	1097
Adjusted R^2	.358	.359	.360	.359

Note. + $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$. AOT = actively open-minded thinking. CRT = cognitive reflection tests. SLF = student loan forgiveness. OLS regressions were conducted.

APPENDIX B: FIGURES

Figure 1

Moderation of exposure to pro-attitudinal information in the impact of accuracy and directional goals on perceptions of argument strength

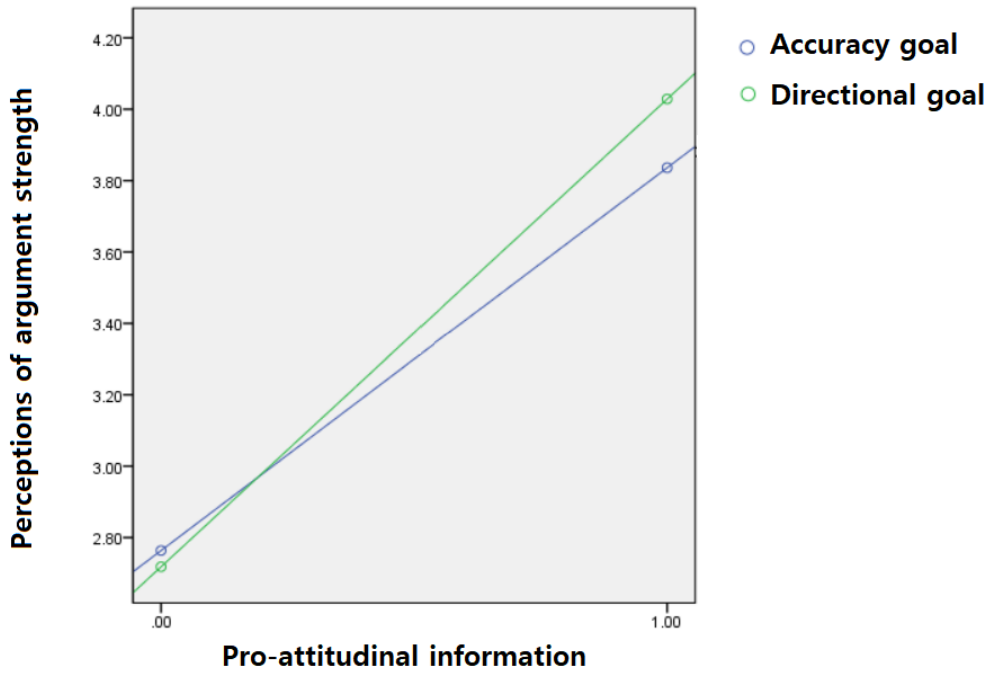


Figure 2

Moderation of exposure to pro-attitudinal information in the impact of accuracy and directional goals on perceptions of argument strength by evidence quality

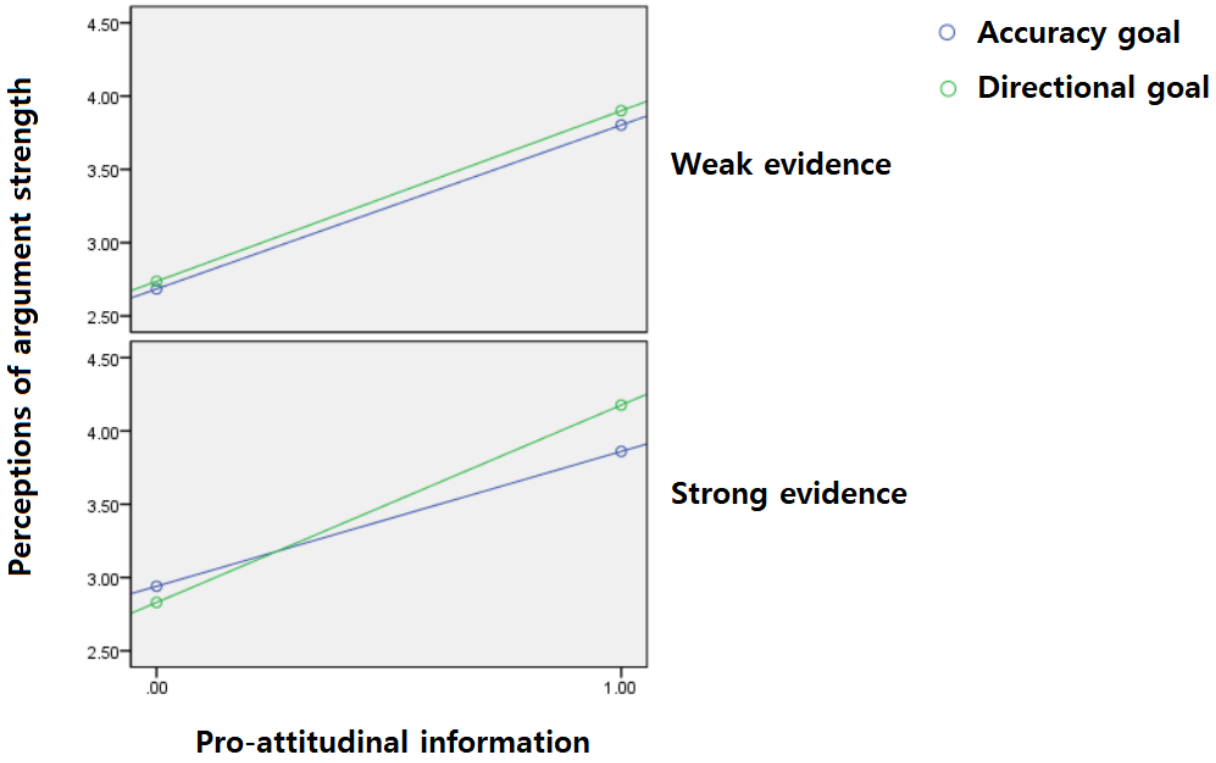
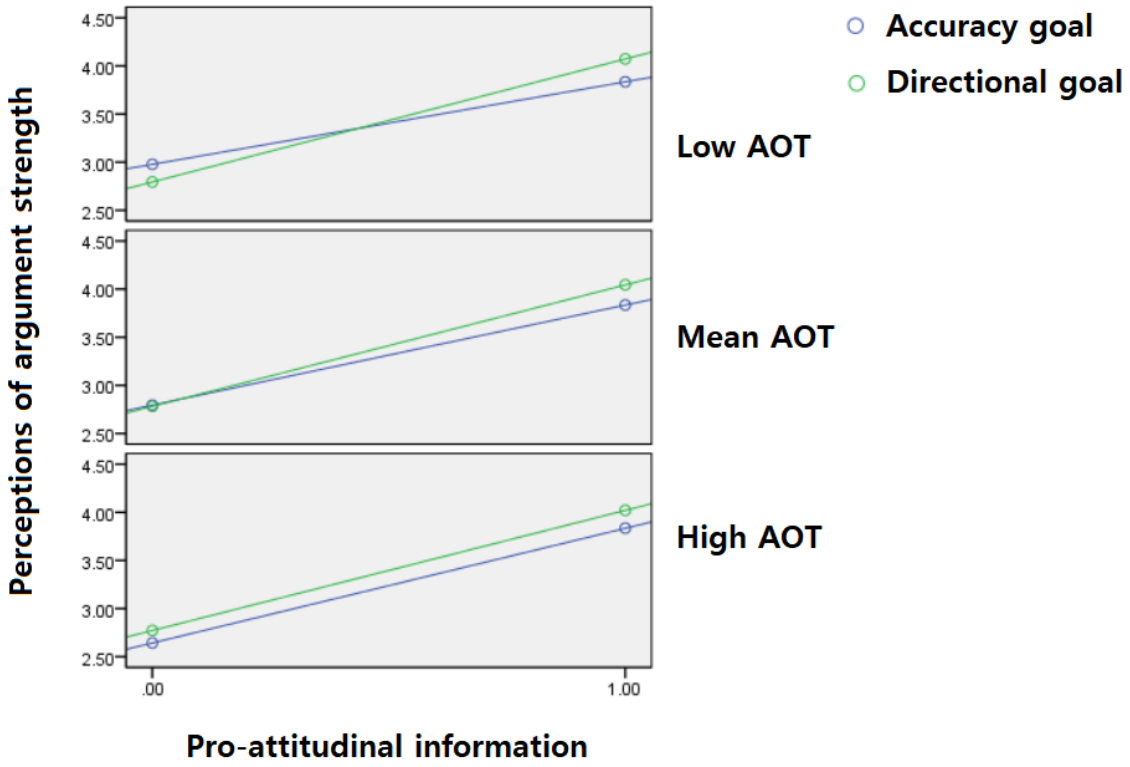


Figure 3

Moderation of actively open-minded thinking in the impact of exposure to pro-attitudinal information on perceptions of argument strength by accuracy and directional goals (control evidence quality)



Note. AOT = actively open-minded thinking.

APPENDIX C: GOAL MANIPULATIONS

1. Accuracy goal

On the next page, you will be asked to choose among a series of news headlines about student loan forgiveness recently published by various news organizations.

When completing this task, imagine you will be participating in a debate as an unbiased judge that will decide whether or not to support student loan forgiveness.

When evaluating each news story, consider how useful it would be to **come to an objective decision**.

It is important that the decision carefully considers all sides in a neutral way, so evaluate stories based on which would help you thoroughly understand the policy and provide the arguments that help you **come to an evenhanded decision**.

2. Directional goal

On the next page, you will be asked to choose among a series of news headlines about student loan forgiveness recently published by various news organizations.

When completing this task, imagine you will be participating in a debate that will decide whether or not to support student loan forgiveness.

When evaluating each news story, consider how useful the information within the story would be to **defend your own position** on the issue.

As a reminder, (*EITHER* you said you opposed student loan forgiveness, so *OR* you said you supported student loan forgiveness, so *OR nothing*) evaluate the stories based on which would best help you win the debate and provide the arguments to **make the best case for your own position**.

3. No goal (Control group)

On the following page, you will be presented with a list of news headlines about student loan forgiveness recently published by various news organizations.

Please choose which story you would most like to read about this topic.

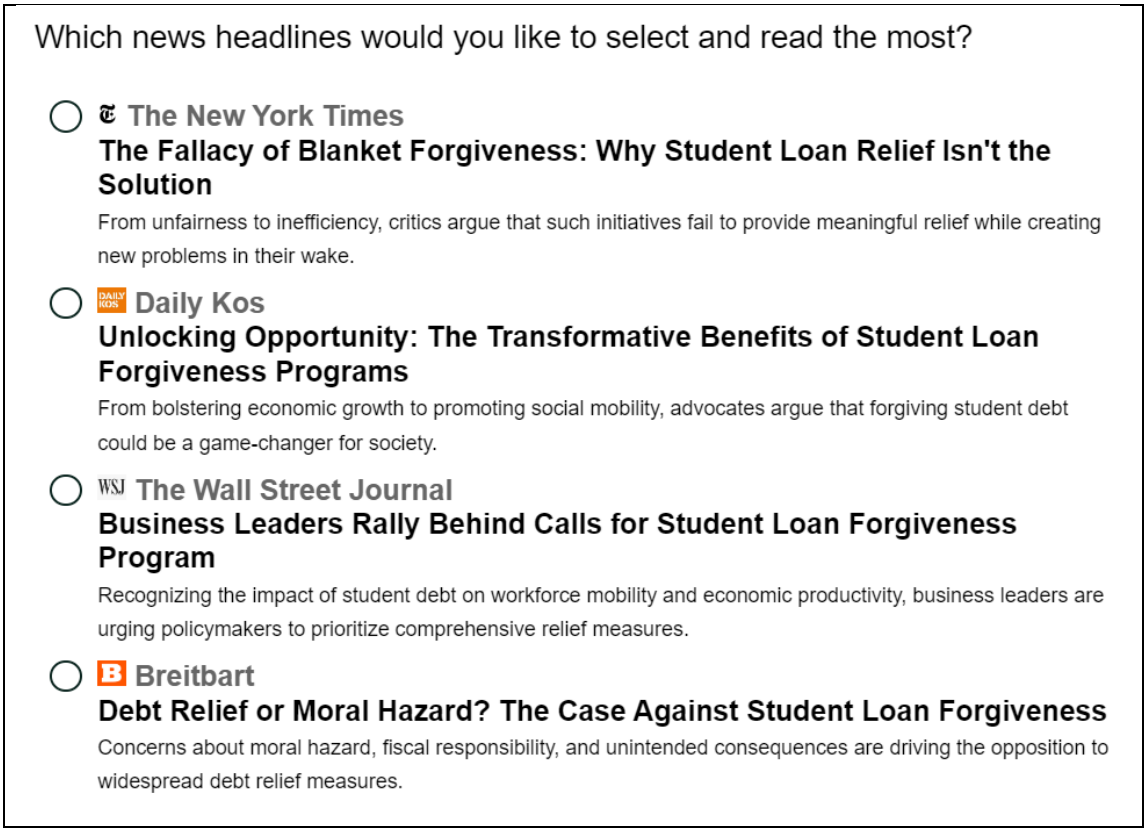
APPENDIX D. NEWS HEADLINES AND ARTICLES

1. News headlines (Study 1)

In Study 1, participants were provided with four mock news headlines on a screen and be asked to select one news headline they would like to read.

* Source information (news outlets) was randomly attached to the news headlines.

* Four news headlines was randomly ordered on a screen.



2. News articles (Study 2)

In Study 2, study participants were asked to read one of the following four news articles.

2.1. Strong evidence with supporting student loan forgiveness

Evidence from Nearly 200 Studies Supports Positive Impacts of Student Loan Forgiveness

By James Park
Date: May 6, 2024

As the U.S. government considers further action to forgive student loans, an academic review of nearly 200 recent studies suggests sizeable positive impacts of student loan forgiveness among eligible borrowers.

Researchers from Harvard University reviewed 192 published studies on the effects of student loan forgiveness, finding that such programs offer substantial benefits to college graduates. Researchers found greater flexibility among eligible borrowers in managing their finances and a higher likelihood of achieving long-term financial goals – such as earlier homeownership and more savings for retirement. Also, the report noted that graduates who benefited from forgiveness programs are significantly more cautious when it comes to taking on additional debt in the future.

These findings advocate the potential for forgiveness programs to usher in a new era of opportunity for individuals burdened by student loans, underscoring the importance of support and investment in these initiatives.

Reference

David, H. (2023). The Positive Effects of Student Loan Forgiveness Programs: A Systemic Analysis. *The Journal of College Education, 10*(3), 132-165.

2.2. Weak evidence with supporting student loan forgiveness

Recent Grad Supports Positive Impacts of Student Loan Forgiveness

By James Park

Date: May 6, 2024

As the U.S. government considers further action to forgive student loans, one college graduate suggests sizeable positive impacts of student loan forgiveness among eligible borrowers.

Sarah Thompson, who graduated college in 2017, was burdened with tens of thousands of dollars in loans after graduation. However, after applying for and receiving forgiveness for her college debt, Sarah reported greater flexibility in managing her finances and stronger progress toward achieving her long-term financial goals – such as earlier homeownership and more savings for retirement. Sarah also noted how she benefited from forgiveness programs, stating, "I am more cautious when it comes to taking on additional debt in the future."

Sarah’s experience shows the potential for forgiveness programs to usher in a new era of opportunity for individuals burdened by student loans, underscoring the importance of support and investment in these initiatives.

2.3. Strong evidence with opposing student loan forgiveness

Evidence from Nearly 200 Studies Casts Doubt on the Effectiveness of Student Loan Forgiveness

By James Park
Date: May 6, 2024

As the U.S. government considers further action to forgive student loans, an academic review of nearly 200 recent studies suggests limited impacts of student loan forgiveness among eligible borrowers.

Researchers from Harvard University reviewed 192 published studies on the effects of student loan forgiveness, finding that such programs have negligible impacts on college graduates. Researchers found only slight improvement among eligible borrowers in managing their finances and little progress in achieving long-term financial goals – such as earlier homeownership and more savings for retirement. Also, the report noted that graduates who benefited from forgiveness programs are significantly more reckless when it comes to taking on additional debt in the future.

These findings raise questions about the potential for forgiveness programs, underscoring the need for a critical reevaluation of support and investment in these initiatives.

Reference

David, H. (2023). The Unintended Consequences of Student Loan Forgiveness Programs: A Systemic Analysis. *The Journal of College Education, 10*(3), 132-165.

2.4. Weak evidence with opposing student loan forgiveness

Recent Grad Casts Doubt on the Effectiveness of Student Loan Forgiveness

By James Park

Date: May 6, 2024

As the U.S. government considers further action to forgive student loans, one college graduate suggests limited impacts of student loan forgiveness among eligible borrowers.

Sarah Thompson, who graduated college in 2017, was burdened with tens of thousands of dollars in loans after graduation. Even after applying for and receiving forgiveness for her college debt, Sarah reported only slight improvement in managing her finances and little progress in achieving long-term financial goals – such as earlier homeownership and more savings for retirement. Sarah also noted her challenges with forgiveness programs, stating, "I am more reckless when it comes to taking on additional debt in the future."

Sarah’s experience raises questions about the potential for forgiveness programs, underscoring the need for a critical reevaluation of support and investment in these initiatives.

APPENDIX E: SURVEY ITEMS

1. Manipulation checks for goal instructions.

Items were adapted from Stekelenburg et al. (2020)

- Please indicate the extent to which you agree or disagree with the following statement: While choosing news articles, I tried to … . (5-point scale: Strongly disagree, Disagree, Neither agree nor disagree, Agree, Strongly agree)

a. Be aware of my belief about the issue.
b. View the information from my perspective.
c. Come up with reasons for why my initial belief was right.
d. View the information in an even-handed way.
e. View the information from various perspectives.
f. Come up with reasons for why my initial belief might be wrong.

2. News literacy

The items were adapted from Ashley et al. (2023). Among 15 items, I selected 7 items (a, b, c, d, e, f, g). Also, I added one more item (h) from Vraga and Tully (2022).

- Please read and answer the following questions.

a. Social media sites like Facebook and Twitter determine which users and content to allow on their sites by relying on… The First Amendment; Their Terms of Service (correct); The Internet Bill of Rights; Their contracts with publishers; Don't know.
b. Who has the most influence on what gets aired on the local TV news? Individual reporters; The anchor/the person reading the news; The cameraman; The producer/editor (correct); Don't know.
c. When it comes to reporting the news, the main difference between a website like Google News and a website like CNN.com is that: Google does not have reporters who gather information, while CNN does (correct); Google focuses on national news, while CNN focuses on local news; Google has more editors than CNN does; Google charges more money for news than CNN does; Don't know

d. Writing a press release is typically the job of: A reporter for CNN.com; A spokesperson for an elected official (correct); A lawyer for Yahoo; A producer for NBC Nightly News; Don't know.
e. Coverage of election campaigns in the news usually centers on: Who's winning (correct); In-depth analysis of where candidates stand on the issues; The candidates' educational backgrounds; Don't know
f. How are most of the individual decisions about what news stories to show people on Facebook made? By computer analysis of what stories might interest you (correct); By editors and journalists that work for news outlets; By editors and journalists that work for Facebook; At random; Don't know.
g. Our personal views can influence our interpretation of news by: Causing us to pay more attention to some information, while ignoring other information; Affecting the news content we seek out; Dismissing arguments that do not match our position; All of the above (correct); Don't know.
h. Which of the following news outlets does not depend primarily on advertising for financial support? CNN; The New York Times; Newsweek magazine; PBS (correct).

3. Cognitive sophistication

Two types of cognitive sophistication measures are suggested by Bronstein et al. (2019), Pennycook and Rand (2019), and Pennycook et al. (2022; 2023). As a comparison to actively open-minded thinking, I included a measure of faith in intuition for facts (Garrett et al., 2020).

3.1. Actively open-minded thinking

Items were adapted from Bronstein et al. (2019).

- Please indicate the extent to which you agree or disagree with the following statement. (5-point scale: Strongly disagree, Disagree, Neither agree nor disagree, Agree, Strongly agree)

a. A person should always consider new possibilities.
b. People should always take into consideration evidence that goes against their beliefs.
c. It is important to persevere in your beliefs even when evidence is brought to bear against them. *(reversely coded)*

d. Certain beliefs are just too important to abandon no matter how good a case can be made against them. *(reversely coded)*
e. One should disregard evidence that conflicts with their established beliefs. *(reversely coded)*
f. Beliefs should always be revised in response to new information or evidence.
g. No one can talk me out of something I know is right. *(reversely coded)*
h. I believe that loyalty to one's ideals and principles is more important than 'open-mindedness.' *(reversely coded)*

3.2. Cognitive reflection test

Items were adapted from Garrett et al. (2020), Frederick (2005), and Pennycook and colleagues (2022; 2023).

- Please answer the following questions.

a. A bat and a ball cost $1.10 in total. The bat costs $1.00 more than the ball. How much does the ball cost (in cents)? [answer $0.05]
b. If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets (in minutes)? [answer 5 minutes]
c. In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake (in days)? [answer 47 days]

3.3. Faith in intuition for facts

Items were adapted from Garrett and Weeks (2017) and Garrett et al. (2020).

- Please indicate to what degree you agree with the following statements. (5-point scale: Strongly disagree, Disagree, Neither agree nor disagree, Agree, Strongly agree)

a. I trust my gut to tell me what's true and what's not.
b. I trust my initial feelings about the facts.
c. My initial impressions are almost always right.
d. I can usually feel when a claim is true or false even if I can't explain how I know.

4. Attitudes toward student loan forgiveness programs

- Next, we want to know how you feel about a few government proposals that have been recently discussed in the news. On a scale of 1 (strongly oppose) to 7 (strongly support), please indicate your position.

a. Student loan forgiveness program

5. Perceptions of argument strength

Items were adapted from Zhao et al. (2011).

- Please indicate the extent to which you agree or disagree with the following statement. The news article you just read … . (5-point scale: Strongly disagree, Disagree, Neither agree nor disagree, Agree, Strongly agree)

a. Gives a believable reason for supporting(opposing) student loan forgiveness.
b. Gives a convincing reason for supporting(opposing) student loan forgiveness.
c. Gives a strong reason for supporting(opposing) student loan forgiveness.
d. Gives a reason that is important to me for supporting(opposing) student loan forgiveness.
e. Helps me feel confident about how best to judge the issue of student loan forgiveness.
f. Would help my friends support(oppose) student loan forgiveness.
g. Puts thoughts in my mind about supporting(opposing) student loan forgiveness.

APPENDIX F: TABLES FOR ADDITIONAL ANALYSES

Table 1

The impact of accuracy and directional goals on perceptions of argument strength (low- and high-AOT)

	Low-AOT			High-AOT		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Predictors	*B (SE)*	*B (SE)*	*B (SE)*	*B (SE)*	*B (SE)*	*B (SE)*
Base: Control						
Accuracy (Acc)	-.026 (.09)	-.189 (.15)	-.236 (.18)	**-.163 (.08)***	-.190 (.14)	-.127 (.16)
Directional (Dir)	.010 (.09)	**-.418 (.16)****	-.294 (.18)	-.008 (.08)	-.089 (.14)	.007 (.17)
Strong evidence (ST)	.051 (.07)	-.031 (.15)	.006 (.17)	**.146 (.07)***	.106 (.13)	.205 (.16)
Pro-attitudinal (PRO)	**.918 (.07)*****	**.648 (.15)*****	**.703 (.19)*****	**1.215 (.07)*****	**1.331 (.13)*****	**1.434 (.16)*****
Acc X ST		.134 (.18)	.232 (.25)		.155 (.16)	.030 (.23)
Dir X ST		.213 (.18)	-.012 (.25)		.206 (.16)	.014 (.24)
Acc X PRO		.204 (.18)	.285 (.25)		-.097 (.16)	-.220 (.22)
Dir X PRO		**.660 (.18)*****	.397 (.26)		-.051 (.16)	-.234 (.23)
ST X PRO		-.042 (.15)	-.145 (.26)		-.142 (.13)	-.335 (.22)
Acc X ST X PRO			-.185 (.36)			.240 (.32)
Dir X ST X PRO			.477 (.36)			.361 (.32)
Age	**-.015 (.00)*****	**-.014 (.00)*****	**-.015 (.00)*****	-.003 (.00)	-.003 (.00)	-.003 (.00)
Gender (Male)	-.072 (.08)	-.061 (.08)	*-.065 (.08)+*	*-.113 (.07)+*	*-.116 (.07)+*	*-.113 (.07)+*
Race/ethnicity						
African American	.062 (.09)	.081 (.10)	.084 (.09)	**.291 (.10)****	**.285 (.11)****	**.283 (.11)****
Hispanic	.106 (.13)	.118 (.13)	.107 (.12)	.056 (.10)	.060 (.12)	.072 (.12)
Race, Other	-.059 (.12)	-.012 (.11)	-.012 (.11)	.134 (.10)	.127 (.10)	.129 (.10)
Education	.019 (.02)	.020 (.02)	.019 (.02)	-.020 (.02)	-.023 (.02)	-.021 (.02)
Income	.011 (.03)	.016 (.03)	.016 (.03)	*.044 (.02)+*	*.047 (.02)+*	*.046 (.02)+*
Partisanship	.015 (.02)	.015 (.02)	.016 (.02)	-.029 (.02)	-.029 (.02)	-.029 (.02)
Interest in SLF	**.182 (.04)*****	**.199 (.04)*****	**.188 (.04)*****	*.061 (.03)+*	*.063 (.03)+*	*.062 (.03)+*
N	506	506	506	590	590	590
Adjusted R^2	.320	.335	.337	.401	.399	.399

Note. + $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$. AOT = actively open-minded thinking. OLS regressions were conducted.

Table 2

The impact of accuracy and directional goals on perceptions of argument strength (low- and high-CRT)

	Low-CRT			High-CRT		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Predictors	*B (SE)*	*B (SE)*	*B (SE)*	*B (SE)*	*B (SE)*	*B (SE)*
Base: Control						
Accuracy (Acc)	-.142 (.09)	*-.260 (.15)+*	-.159 (.16)	-.033 (.08)	-.052 (.15)	-.117 (.17)
Directional (Dir)	.025 (.09)	**-.321 (.15)***	-.201 (.17)	.038 (.09)	-.136 (.16)	-.044 (.18)
Strong evidence (ST)	*.119 (.07)+*	-.028 (.14)	.122 (.16)	*.125 (.07)+*	.173 (.14)	.181 (.17)
Pro-attitudinal (PRO)	**1.174 (.07)*** **	**1.032 (.14)*** **	**1.186 (.17)*** **	**1.027 (.07)*** **	**1.087 (.14)*** **	**1.096 (.18)*** **
Acc X ST		.197 (.18)	-.022 (.24)		.084 (.17)	.240 (.25)
Dir X ST		.260 (.17)	.012 (.24)		.110 (.17)	-.074 (.25)
Acc X PRO		.062 (.18)	-.168 (.25)		-.056 (.17)	.064 (.24)
Dir X PRO		**.359 (.18)***	.098 (.25)		.201 (.17)	.031 (.25)
ST X PRO		.002 (.14)	-.335 (.25)		-.210 (.14)	-.222 (.24)
Acc X ST X PRO			.481 (.35)			-.287 (.34)
Dir X ST X PRO			.543 (.35)			.331 (.34)
Age	**-.008 (.00)****	**-.008 (.00)****	**-.008 (.00)****	**-.009 (.00)****	**-.009 (.00)****	**-.009 (.00)****
Gender (Male)	.025 (.07)	.044 (.07)	.041 (.07)	**-.115 (.07)***	**-.171 (.07)***	**-.159 (.07)***
Race/ethnicity (Base: White)						
African American	.122 (.09)	.136 (.09)	.147 (.09)	**.277 (.11)***	**.300 (.11)****	**.295 (.11)****
Hispanic	.049 (.12)	.098 (.12)	.105 (.12)	.076 (.13)	.081 (.13)	.061 (.13)
Race, Other	.065 (.11)	.077 (.11)	.100 (.11)	-.006 (.10)	.008 (.11)	.020 (.11)
Education	-.010 (.02)	-.008 (.02)	-.008 (.02)	.016 (.02)	.013 (.02)	.013 (.02)
Income	.032 (.03)	.038 (.03)	.038 (.03)	.034 (.03)	.036 (.03)	.037 (.03)
Partisanship	-.001 (.02)	.002 (.02)	-.003 (.02)	-.007 (.02)	-.010 (.02)	-.009 (.02)
Interest in SLF	**.094 (.04)****	**.095 (.04)****	**.095 (.04)****	**.145 (.04)*** **	**.146 (.04)*** **	**.146 (.04)*** **
N	535	535	535	562	562	562
Adjusted R^2	.364	.367	.368	.343	.343	.345

Note. + $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$. CRT = cognitive reflection test. OLS regressions were conducted.

Table 3

Bivariate correlations of goal manipulations and indicators of abilities.

	Study 1		
	News literacy	AOT	CRT
Accuracy goal	-.012	-.008	.026
Directional goal	-.008	-.039	-.018
Control	.019	-.046	-.008
News literacy		.384***	.294***
AOT			.189***
	Study 2		
	News literacy	AOT	CRT
Accuracy goal	.010	-.023	.001
Directional goal	-.007	-.018	-.005
Control	-.003	.041	.004
News literacy		.360***	.291***
AOT			.193***

Note. + $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$. AOT = actively open-minded thinking. CRT = cognitive reflection test.