University of Nevada, Reno

**Bridging the Minority Influence Gap:
The Roles of Social Identification and Prototypicality**

A dissertation submitted in partial fulfillment of the requirements for the degree of
Doctor of Philosophy in Social Psychology

by

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Abstract

Continued partisan division in the U.S. prevents collaboration to solve important societal problems. However, adherents of different political parties are not homogenous; within every group exist minority viewpoints that can influence the majority. Building on extant literatures on social identity, persuasion and minority influence, the present research sought to delineate conditions under which a minority within one's group can change the attitudes of the majority when the ingroup is involved in a broader intergroup conflict.

This dissertation proposes the Minority/Majority Model of Persuasion (3MP) and tests its predictions in the context of carbon tax policy. Majority influence is conceived of as a moderated mediation process whereby the effect of message source group membership (ingroup vs. outgroup) on message elaboration is moderated by strength identification as a Democrat or Republican. Minority influence is a doubly moderated mediation with the impact of an ingroup or outgroup message source on elaboration of a carbon tax-related message moderated by both the ingroup prototypicality of message source and strength of identification. Minority influence is hypothesized to be stronger for non-focal, yet related attitudes.

Following four pilot studies, the main experiment ($N = 551$) varied the political party of the message source, message source prototypicality, and whether the message (pro- vs. anti-carbon tax) represented a majority or a minority position within the message source's party. Strength of social identification and need for cognition were also assessed.

Results did not support the 3MP. Regardless of message source or content, Democrats did not vary in their evaluation of a carbon tax, with more favorable views linked to greater strength of social identification. Republicans were responsive to minority influence, but the process was best captured with a simple mediation such that reading a pro-carbon tax message from an ingroup source produced more favorable elaboration and more positive carbon tax attitudes. When receiving an anti-carbon tax message, Republicans resembled Democrats in that persuasive effects were minimal. Effects on related attitudes did not emerge. Findings indicate that Republicans are open to persuasion about carbon tax if the message comes from a fellow Republican. Implications for persuasion and minority influence are discussed.

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Chapter 1: Introduction

The ideological divide between American Republicans and Democrats continues to grow (Pew Research Center, 2014) as does the animosity between these groups (e.g., Chozick, 2016; Viser & Jan, 2016). Between 1994 and 2014, Democrats and Republicans have consistently grown apart on a variety of issues (Pew Research Center, 2014) including global warming and climate change (Funk & Kennedy, 2016a).

On March 30, 2017, *Yale Environment 360*, an online magazine, published a story entitled, "Climate Converts: The Conservatives Who Are Switching Sides on Warming." The story featured a think tank comprised of Republicans, conservatives, and Libertarians engaged in grass roots efforts designed to promote a "...rethinking of the conventional conservative and libertarian approach to climate change" (Gunther, 2017, para 13). More important than the surprising notion of divergent thinking on climate change within a political party is the idea that political social change may come from within the group.

One reason that Democrats and Republicans might have drifted apart is due to Democrats and Republicans selectively exposing themselves to ingroup messages and sources, while avoiding outgroup messages (Dvir-Gvirsman, 2014). The absence of shared sources (e.g., shared media outlets) fosters antagonism and furthers the reliance on ingroup members to be the vehicles of change. Continued partisan division in the U.S. citizenry, and the acrimony between politicians of different camps impede desperately needed progress on social and economic policies, placing democracy at a standstill. Traditional approaches to intergroup conflict have included modulating social categorization and group identity (e.g., de-categorization; Ensari & Miller, 2001) or

promoting increased intergroup contact (Pettigrew & Tropp, 2006). Neither option

appears viable in the current hyperpartisan climate. However, as demonstrated by the

Yale Environment 360 article mentioned above, groups need not be homogenous in their

viewpoints; ingroup minority factions interested in propagating positive change do exist.

This research focuses on potential ways to attenuate intergroup conflict through social

influence. The aim of this research is to address intragroup attitude change by employing

theoretical perspectives pertaining to group membership (social identity), persuasion, and

minority influence.

      Though considerations of group membership have largely been absent from

traditional approaches to persuasion (e.g., Elaboration Likelihood Model; Petty &

Cacioppo, 1986), a social identity approach to persuasion suggests that ingroup status is

essential for attitude change to occur, as ingroup status promotes trust and cooperation

(Williams, 2001), and facilitates message elaboration (McGarty et al.,1994). Put

succinctly, only an ingroup member can be a vehicle for influence and change. Other

research also suggests that prototypical ingroup members are more influential than less

prototypical ingroup members (van Knippenberg & Wilke, 1992) and prototypicality can

provide "credits" towards deviancy and innovation (Platow & van Knippenberg, 2001).

However, whereas some research suggests that deviant ingroup members get a

conditional "pass" for their ingroup status (Alvaro & Crano, 1997; Crano & Chen, 1998),

other research suggests that deviant ingroup members are devalued and derogated by

fellow ingroup members (Marques et al., 1988).

      The purpose of this dissertation is to (1) examine the influence that a deviant

ingroup source exerts on the views of fellow ingroup members when the ingroup is involved in a broader intergroup conflict, and (2) delineate those situations that facilitate minority influence. Building on prior minority influence work (Alvaro & Crano, 1997; Crano & Chen, 1998; Crano & Seyranian, 2009), this proposal outlines a model of majority and minority influence emphasizing strength of social identification and message source prototypicality as key factors of a moderated mediational model of persuasion.

Historically, persuasion and social influence have largely been treated as two separate domains of research, especially in the context of intergroup relations. This research seeks to extend prior work aimed at bridging this gap (e.g., Mackie et al., 1990) thereby contributing to both the psychology of persuasion as well as the social psychology of intergroup conflict. This research can also inform work related to minority influence and intragroup attitude change (e.g., political psychology). Finally, given the cycle between antagonism and selective exposure (Dvir-Gvirsman, 2014), it is increasingly important to identify successful means of communication. This research can also expand our knowledge of how to effectively communicate politicized scientific and public safety messages to U.S. citizens.

Chapter 2 reviews past research on minority influence. The chapter reviews conversion theory (Moscovici, 1980) and provides an overview of the context/comparison-leniency contract model (Alvaro & Crano, 1997; Crano & Chen, 1998; Crano & Seyranian, 2009). This chapter also examines research on the consequences of deviancy within groups particularly within the context of political

attitudes. Chapter 3 presents a social identity approach to persuasion with focus on self-categorization and referent informational influence theories. Chapter 2 also includes social identity-related research pertaining to prototypicality, strength of social identification, and the relationship between group membership and trust.

Chapter 4 reviews research pertaining to attitude change. The chapter begins with an overview of attitudes (definition, dimensions, structure), and concludes with research pertaining to commonly-used dual process models of persuasion (ELM: Petty & Cacioppo, 1986 & HSM: Chaiken et al., 1989) as well as a single-process model of persuasion (Unimodel: Kruglanski & Thompson, 1999). Chapter 4 provides a summary of research pertaining to message source characteristics related to credibility including perceived source expertise and trustworthiness.

Chapter 5 introduces a new model of minority and majority influence ("MMMP" [3MP]). The 3MP proposes two distinct processes for minority and majority influence. Majority influence is a moderated mediation process whereby the relationship between source group membership status (ingroup vs. outgroup) and the extent of elaboration of a message is moderated by the strength of the target's social identification with the ingroup. Influence by an ingroup source communicating a majority message is reserved solely for the focal attitude. Minority influence is a doubly moderated mediation process such that the relationship between source group membership and the extent of elaboration of a message is moderated by the prototypicality of the message source but only for targets that strongly identify with the ingroup. Any influence by the message source impacts only attitudes related to the focal attitude.

Chapter 6 reviews global warming and climate change and the partisan split related to these topics. The chapter also summarizes research on climate change and message source characteristics commonly studied in persuasion research. Chapter 7 offers an overview of the proposed study and outlines relevant hypotheses.

Chapter 8 presents a summary of results of four pilot studies designed to pretest study logistics and materials, and preliminarily explore relationships between potential covariates and the primary variables of interest. Chapter 9 present the results of the main study, including tests of all study hypotheses. Chapter 10 encapsulates a discussion of the main study's findings as they relate to hypotheses, minority influence specifically, as well as the implications the findings have for social identity- and persuasion-related research.

Chapter 2: Minority Influence

Though much research in social psychology has investigated how majorities enlist the compliance of minorities, the influence that minorities within larger groups have on the mainstreams has garnered special attention. Though smaller in number an often weaker in social power, the views and beliefs expressed by minorities facilitates social change. As such, minority influence has enjoyed a long history in social psychological research. Early on, researchers proposed two distinct processes for minority and majority influence (e.g., Moscovici et al., 1969); an idea still supported today.

This chapter first reviews early work on minority and majority influence focusing specifically on Moscovici's (1980) conversion model. The chapter then examines research pertaining to deviancy and dissent within groups especially as they relate to the perception and treatment of ingroup deviant members. The chapter concludes with an overview of the context/comparison-leniency contract model.

Conversion Theory

Pioneering work on minority influence arguably began with Moscovici et al. (1969), which sought to respond to Asch's (1951) seminal work on the power of a majority in producing conformist behavior. Instead of focusing on the majority however, Moscovici and colleagues (1969) were interested in the innovative minority. This early work focused heavily on a minority's behavioral style with the authors positing that a minority can facilitate attitude change to the extent that the minority appears consistent. In a series of studies, Moscovici et al. (1969) demonstrated that a minority faction of confederates convinced participants that an objectively blue disk was green in color. The

authors attributed this successful conversion to the minority's consistent behavioral style. Out of this research sprang Moscovici's (1980) conversion theory.

One assumption made by Moscovici et al. (1969) was that within-group disagreement threatens group coherence and results in conflict, which must be resolved or reconciled. There are several options available for reconciliation or resolution. Ingroup members with dissenting views can opt to remain quiet and publicly comply with the majority viewpoint. Similarly, ingroup members can also engage in a social comparison process to determine the "correct" or normative perspective and align their views with that of the majority. Another way ingroup members can reconcile or resolve differences of opinion is to critically evaluate their own position against the merits and content of an opposing position, a process referred to as validation (Moscovici, 1980).

When presented with a majority viewpoint, individuals are likely to engage in a social comparison process, which affirms their place within both the majority and the ingroup. Moscovici (1980) considered this process to be mostly passive, involving little critical reflection. However, according to Moscovici (1980), a minority viewpoint, which by definition is deviant, garners attention and drives ingroup members to validate the advocated position of the minority against their own viewpoints. This results in a "preoccupation" (Moscovici, 1980, p. 215) with the deviant message and facilitates more systematic processing. Hence, although the social comparison route (reserved for majorities) requires little elaboration and time, the validation process results in a delay. Moscovici (1980) acknowledged that the minority viewpoint "is subjected to relentless criticism" but asserted that the minority can "pick up converts along the way" (p. 215).

As mentioned previously, though Moscovici and colleagues (1969) insisted that the minority position be consistent, other research has suggested that flexibility or compromise is the more important factor for minority influence to occur (e.g., Nemeth, 1986).

In short, Moscovici (1980) argued that disagreement within a group creates social conflict, which can be reconciled through social comparison and compliance or a validation process involving careful consideration of the viewpoint. According to Moscovici (1980), the majority influences ingroup members via compliance (public acceptance) due to a need to be accepted or liked by ingroup members (normative influence; Deutsch & Gerard, 1955) and because the majority has the power to reward and punish. Minorities, on the other hand, can influence ingroup members via internalization (informational influence; Deutsch & Gerard, 1955). That is, whereas conformity is about public expression, informational influence is about private agreement or internalization (i.e., conversion) and whereas normative influence derives from a need to align with ingroup norms, informational influence is about evidence and validity of reality (Deutsch & Gerard, 1955; Moscovici, 1980). Moscovici (1980) consigned normative influence for majorities and reserved informational influence for minorities.

Other perspectives on social influence do not distinguish between informational and normative influence, proposing instead, a single process of influence originating from group membership (see Chapter 3). According to social identity theory, only ingroup members can be influential (David & Turner, 1999); hence, it is important to consider how *deviant* in-group members are perceived and treated within the ingroup.

Deviancy and Dissent

Despite potential negative consequences, deviancy and dissent are not uncommon within groups (Haslam & Reicher, 2012). Individuals might be motivated to dissent because of disloyalty or disengagement potentially stemming from low identification that results in withdrawal, noncompliance, and indifference to group norms (Packer, 2008). Individuals might dissent because of loyalty to the group (i.e., strong identification) and concern that the group is going down the wrong path thereby wanting to improve the group (Packer, 2008). Individuals might dissent due to moral convictions that clash with group norms (Monin et al., 2008). Moreover, individuals can dissent to express individuality and uniqueness (Imhoff & Erb, 2009). Social identity is derived from a need to be both the same and different at the same time (Brewer, 1993). As such, individuals, especially strong identifiers, have strong reasons to stay in a group despite holding a dissenting opinion. Although there are several reasons for dissent, there is likely a penalty for dissention.

Derogation

The so-called black-sheep effect (Marques et al., 1988) holds that as a result of social identification, ingroup members react more severely towards normative violations stemming from an ingroup member than an outgroup member as dissenting ingroup members pose a viable threat to the ingroup. Marques et al. (1988) argued that devaluation of a dissenting ingroup member allows the ingroup to maintain overall positivity. Through a series of studies, Marques et al. (1988) demonstrated that, when a relevant social identity is salient and the norm violation is a defining feature of the group,

evaluations are more extreme for the ingroup than for the outgroup. That is, ingroup

members who conform are liked more than outgroup members who conform (to their

group) and ingroup members who do not conform are disliked more than outgroups who

do not conform. As Marques et al. (2001) put it, "perception of someone as being a

deviant discredits and devalues them, and reduces their persuasive potential" (p. 401). In

other words, the so-called black sheep effect suggests that members of an ingroup who do

not conform to ingroup norms may be negatively evaluated by other ingroup members,

which subsequently invalidates their message. Deviant ingroup members can be

recategorized as outgroup members, marked as traitors (i.e., evaluated negatively), and

lose influence (Marques et al., 1988). For example, a Republican might categorize

Republicans advocating a minority position (e.g., pro-climate change policy) as RINOs

(Republicans In Name Only) and dismiss messages originating from the "RINO."

Individuals can derogate socially undesirable (deviant) ingroup members, because

they give a bad image of the ingroup and jeopardize the ingroup's identity and cohesion

(black sheep effect; Marques et al., 1988). Other research supports this contention

suggesting that individuals might reject deviant members because they threaten group

positivity, group cohesion, group distinctiveness, and self-image (see Jetten & Hornsey,

2014).

Leniency

Although the so-called black sheep effect suggests that all ingroup minority

members face negative repercussions, other research suggests that deviant ingroup

members are afforded leniency. Powerful group members are afforded more leniency

than those with less power (Galinsky et al., 2008) and dissent is tolerated more when the offender is an otherwise prototypical member of the group (Abrams et al., 2018). Group members tend to believe that prototypical leaders act in the best interests of the group and are therefore considered trustworthy (van Knippenberg, & Wilke, 1992). Criticisms originating from an ingroup member can be better received than if originating from an outgroup member, regardless of the quality of arguments, because individuals perceive that ingroups are motivated to criticize with the group's best interest in mind whereas outgroup members criticize the group with intent to harm or weaken (Hornsey, & Imani, 2004; Esposo et al., 2013). Additionally, low identifies are less likely to derogate norm violators than high identifiers (Castano et al., 2002). The perspective that ingroup membership provides for allowances is also reflected in the leniency contract model.

Context/Comparison-Leniency Contract Model

The context/comparison-leniency contract model (Alvaro & Crano, 1997; Crano & Chen, 1998; Crano & Seyranian, 2009) integrates multiple perspectives on minority influence and, like conversion theory, it reserves two distinct processes for minority and majority influence. The model assumes that a "contract" is made between ingroup members that grants dissenters some leniency in exchange for an implicit understanding that the dissenting view will not affect target (focal) attitudes (Alvaro & Crano, 1997; Crano & Chen, 1998; Crano & Seyranian, 2009). When presented with a message, individuals identify whether the source is ingroup or outgroup member. Ingroup members are the only ones considered to be influential (Alvaro & Crano, 1997; Crano & Chen, 1998; Crano & Seyranian, 2009). That is, when individuals encounter messages from an

outgroup majority, unless the outgroup is well liked, individuals are not likely to give the message much thought (Crano & Seyranian, 2009).

When individuals encounter a message from an ingroup majority, they first consider whether the majority is self-relevant (ingroup vs. outgroup) (Crano, 2001). If the majority source is an ingroup member and the target strongly identifies with the majority, there is strong pressure to comply and the target will engage in greater cognitive engagement, given that the source is perceived as a legitimate source for the topic (Crano & Seyranian, 2009). The extent of any persuasion will depend on whether the message is strong or weak such that weak messages will lead to less likelihood of attitude change and strong messages will facilitate greater likelihood of attitude change. Any change in attitude will be immediate and will only impact focal attitudes as the majority stance is adopted for the sake of approval rather than validity.

When individuals encounter a message from an ingroup member which is counternormative, and which renders this ingroup member a minority with their group, they first consider whether the message is a threat to the ingroup's distinctiveness and identity (Crano & Seyranian, 2009). A threat to group distinctiveness poses a risk to the perception that the group is distinct from other relevant groups (Tamir & Nadler, 2007). With especially high identifiers linking their personal identity to their ingroup identity, this is usually experienced as a threat to personal identity (Spears et al., 1997). If the message does constitute such a threat, the minority ingroup message will be dismissed and the minority ingroup member recategorized as an outgroup member (Crano & Seyranian, 2009). If the message does not constitute such a threat, strong messages will

be elaborated on resulting in stronger influence of related (but not focal) attitudes; weak

messages are not elaborated. Essentially, Crano and Seyranian (2009) posit that minority

influence requires greater elaboration of the message to be influential. If attitudes are

weak or nonexistent, a minority message will encounter little resistance and will result in

greater elaboration (because novel stimuli attract attention necessary for evaluation) than

a majority message.

In summary, if the message source is a majority ingroup member, perceived as

legitimate, and the target's social identification is high, the pressure to comply will result

in higher elaboration. If the source is an ingroup minority member and the message is not

overly threatening to the group, elaboration will be high, but any influence of the

message will become manifest not in focal attitudes but in attitudes that are related to, or

in some ways similar to the focal attitudes which were subject to a persuasive attempt. In

other words, the message might be successful in persuading the recipient, though not

necessarily on the attitude that the communicator targeted. The persuasive impact on non-

focal, but related attitudes might even be substantial, though this is more likely to occur

when the attempt at persuasion is allowed to fade into the background. Because of the

link between the focal attitude and related attitude(s), and prompted by the desire to avoid

any dissonance between the recently changed related attitude and the focal attitude, over

time, a person might seek to adjust their views even on the focal attitude. That is, a

substantial change in a related attitude can facilitate a delayed change in the focal attitude

(Crano & Seyranian, 2009).

Minority messages, however, which are perceived as threatening to the group are

likely to be dismissed and the minority ostracized. Otherwise, minority arguments will be granted leniency (tolerance) with the understanding that minority message will not impact the focal (target) attitude. Yet, the elaboration granted the minority, through spreading of activation, can impact related attitudes, resulting in indirect attitude change, particularly if the message arguments are strong (Alvaro & Crano, 1997; Crano & Chen, 1998; Crano & Seyranian, 2009).

Application to Political Attitudes

The context/comparison-leniency contract model (Alvaro & Crano, 1997; Crano & Chen, 1998; Crano & Seyranian, 2009) proposes that only Republicans [Democrats] can influence other Republicans [Democrats]. If the message aligns with a majority perspective in either group, ingroup members will elaborate on the message for the sake of compliance if the source is perceived as legitimate. For example, members of Congress could be perceived as legitimate sources of information concerning policy but less so if the issue concerns medical advice. If the message aligns with a minority perspective, ingroup members will elaborate on the message due to the unexpectedness nature of the message if the message is strong and not considered a threat to group identity (Alvaro & Crano, 1997). For instance, a Republican proposing restricted gun rights might be excommunicated if other Republicans consider unrestricted gun rights part of the group's core identity. In a test of the context/comparison-leniency contract model, Alvaro and Crano (1997) provided participants with an argument against gays in the military (Study 1). The message was attributed to an ingroup minority (a radical group on campus), an outgroup minority (a group from a different campus), and a

majority (a group who held a majority consensus). The researchers found no direct attitude change on the focal topic (gays in the military) but did find that participants who read the message from an ingroup minority changed their attitudes towards gun control (related attitude) such that participants were less supportive of gun control. Moreover, the ingroup minority source was evaluated more positively than either the outgroup minority source or the majority source. In their second study, Alvaro and Crano (1997) presented participants with an argument against gun control and examined attitudes towards abortion, birth control, euthanasia, gays in the military, and a tuition increase at participants' University. Results replicated Study 1 such that only the ingroup minority was influential but only on a closely related attitude (gays in the military).

The context/comparison-leniency contract model makes assumptions aligned with social identity theory. For example, both share the notion that people are motivated to preserve the integrity of their ingroup identity, in part because they assign personal meaning to group membership. Also similar to social identity theory, the context/comparison-leniency contract model assumes that people are motivated to view their ingroup as distinct and worthwhile. Given these shared assumptions, Chapter 3 reviews social identity theory and persuasion.

Chapter 3: The Social Identity Approach to Persuasion

Chapter 3 begins with an overview of self-categorization theory and segues into referent informational influence theory, which proposes social identification, through self-categorization, as the primary vehicle for influence. Next, the chapter reviews research related to strength of social identification and prototypicality and concludes with research pertaining to group membership and trust.

Self-categorization Theory

According to self-categorization theory (Turner, 1985; Turner et al., 1987; Turner & Oakes, 1986), individuals categorize themselves along levels of abstraction ranging from personal identity ("I") to social identity ("we" or "us"). Put simply, individuals sometimes perceive themselves as unique persons and other times, as members of a group (i.e., social identities). When a social identity is salient, individuals undergo a process of self-stereotyping whereby they construe themselves as interchangeable members of the relevant social group or category. Under such conditions, individuals adopt the prototypic group norms of the ingroup. That is, individuals re-define the self to align their goals, needs, and behavior to that which normative to the ingroup, a process referred to as depersonalization (Hogg, 2000).

Additionally, when a particular social identity is salient, individuals engage in group-level social comparison with a tendency to distinguish the ingroup from relevant outgroups, and to view the ingroup and its members positively (i.e., ingroup favoritism) and potentially, a relevant outgroup and its members more negatively (i.e., outgroup derogation) in order to maintain a positive self-concept (Brown, 1984; Turner et al.,

1987). Threats to ingroup distinctiveness facilitate increased intergroup bias (Brown & Abrams, 1986; Tajfel, 1982; van Knippenberg & Ellemers, 1990) and self-stereotyping (Spears et al., 1997).

Moreover, agreement from ingroup members enhances subjective certainty as shared beliefs and attitudes can serve as evidence that an individual's view of the world reflects objective reality (Hogg, 2000). In other words, an individual's certainty about their attitudes and beliefs is validated through ingroup agreement. Conversely, when an individual observes a difference between themselves and a fellow ingroup member, that person will experience subjective uncertainty and is then motivated to reduce this uncertainty (Hogg, 2000). Subjective uncertainty can be resolved by recategorizing others (e.g., categorizing a deviant ingroup member as an outgroup member) or by engaging in a social influence process whereby one person makes changes to become more similar to a prototypical ingroup other (Hogg, 2000).

Referent Informational Influence Theory

The referent informational influence theory proposes that individuals internalize group norms as a consequence of self-categorization (Abrams et al., 1990; Hogg & Turner, 1987). Prototypical group norms are likely to follow the metacontrast principle (Turner et al., 1994). According to this principle, norms are likely to maximize differences between the ingroup and relevant outgroups and minimize differences within the group. Ingroup members internalize group norms through assimilation to a group prototype (depersonalization) – identification-based conformity (Crano & Prislin, 2006; Hogg, 2000; Turner, 1985). The referent informational influence approach suggests that

group membership identification is vital for influence to occur such that there must be perceived similarity between the target and the source. Disagreement with similar others fosters uncertainty, which can be reconciled through recategorization (e.g., categorizing a deviant ingroup member as an outgroup member) and can produce polarization between attitudes towards what is prototypical. In other words, only ingroup members, rather than outgroup members, have the means to be influential.

Social identification facilitates motivation to process information. For example, McGarty et al. (1994) presented participants with a persuasive message from either an ingroup or an outgroup source and assessed cognitive responses to the message (thought-listing; cf. Cacioppo et al., 1997). The results indicated that messages delivered from an ingroup member facilitated systematic processing and ingroup members were considered more persuasive than outgroup members. Mackie et al. (1990) found similar results but in later research concluded that ingroup members systematically process information from other ingroup members only when the position of the group is not previously known. If the advocated position is already known, a persuasive message from an ingroup member may be processed heuristically (Mackie et al., 1992).

Prototypicality

As mentioned previously, subjective uncertainty can be reconciled by adhering more strongly to a prototypical ingroup other (Hogg, 2000). Prototypicality is conceptualized as the degree of ingroup-representativeness (Turner et al., 1987). Hogg and Terry (2000) define prototypes as "fuzzy sets that capture the context-dependent features of group membership, often in the form of presentations of exemplary members

(actual group members who best embody the group)" (p. 123). Prototypes represent attributes that characterize a group and distinguish it from other groups (e.g., beliefs, attitudes) and form according to the metacontrast principle, maximizing differences between the ingroup and relevant outgroups, and minimizing differences within the ingroup (Hogg, 2000). Hence, an ingroup member can be considered prototypical to the extent that he or she is representative of within-category similarities and between-group differences.

In regards to persuasion, prior research on social categorization suggests that prototypicality enhances perceived message validity, which then motivates an individual to process the message (e.g., van Knippenberg & Wilke, 1992). For example, van Knippenberg et al. (1994) manipulated the prototypicality of a message source and found that a message from a prototypical source elicited more information processing than a message from an atypical source. This research suggests that ingroup sources are more likely to facilitate systematic processing to the extent that they are prototypical.

Strength of Social Identification

Henri Tajfel developed the minimal group paradigm (e.g., Tajfel, 1970) based on outcomes from Sherif's Robbers Cave experiment (1967). One important implication from minimal group paradigm research is that individuals must internalize a social identity for it to have predictive value. That is, simply establishing group boundaries is not sufficient to facilitate group behavior (Oakes, 2002). Ingroup processes rely on self-stereotyping (i.e., depersonalization) such that group membership has psychological consequences for individuals to the extent that they perceive themselves as members of a

group (see Oakes, 2002). That is, the strength of individuals' identification with an ingroup can determine the extent to which they are affected by ingroup processes. These processes can include adherence to prototypic ingroup norms or prototypical others (Oakes, 2002). Additionally, to the extent that individuals conceive of themselves as a member of a group, the social identity must be salient (Oakes, 2002). Strength of social identification can therefore be understood as the extent to which a social identity is meaningful once salient.

Research also suggests that strength of social identification moderates the relationship between perceived threat to group distinctiveness and self-stereotyping to prototypical group norms such that high-identifiers are more likely to self-stereotype than low-identifiers (Spears et al., 1997). That is, when faced with threats to group distinctiveness, low-identifiers are more likely to distance themselves from the group and high-identifiers are more likely to perceive themselves in terms of group membership. Finally, ingroup members who more strongly identify with the ingroup are more likely to derogate norm-violators than individuals who less strongly identify with the ingroup (Castano et al., 2002).

In totality, strength of social identification not only facilitates elaborated processing of messages originating from an ingroup member, it also moderates the relationship between perceived threat to an ingroup and the extent to which an ingroup member self-stereotypes, as well as the relationship between ingroup membership and negative evaluation of deviant ingroup members.

Group Membership and Trust

Group membership can also influence perceptions of trust associated with a message source, which moderates the persuasiveness of a message (Hovland et al., 1953). According to Williams (2001), individuals associate positive beliefs and feelings with ingroup members and positive beliefs and feelings associated with ingroup membership influence trust and cooperation (Williams, 2001). Individuals are more likely to cooperate with individuals they categorize as an ingroup member and are more likely to perceive them as trustworthy (Brewer, 1996). Moreover, interdependence with competitive outgroups might lead to negative perceptions of outgroup members' trustworthiness.

Application to Political Attitudes

According to a social identity approach to persuasion, the ingroup *is* the vehicle of persuasion given sufficient social identification. In a political context, this means that self-identifying Republicans and Democrats will adopt the normative attitudes of the group when such identities are salient. Cohen (2003) had student participants read either a stringent or generous welfare policy. When participants were not provided with their respective ingroup's consensus, participants supported the version of the welfare policy aligned with typical liberal or conservative perspectives on welfare. That is, self-identifying liberal participants supported the more generous version of the policy and conservatives supported the more stringent version. However, when participants were informed that a version of the policy was supported by an ingroup member (Republican or Democrat), liberal and conservative participants supported whichever version of the policy was supported by their ingroup member (Studies 1 & 2) (Cohen, 2003).

Concurrently, there is also the case that political parties adopt divergent stances on a variety of issues, enhancing group distinctiveness. An example of this phenomenon is the increasing polarization on a wide array of topics across party lines. Between 1994 and 2014, the ideological divide between Democrats and Republicans has consistently deepened on issues such as government regulation, government spending, immigration, environmentalism, militarization, and gay and lesbian rights (Pew Research Center, 2014). More and more it appears that each group is differentiating itself from the relevant outgroup resulting in a hyperpartisan context. This pattern then leads to increased intergroup bias and more extreme group norms, thereby continuously reinforcing affiliation-based attitudes and decreasing the likelihood that an outgroup or its members can be influential or persuasive.

Despite the prominence of social identity in social psychological research, it has been primarily absent from traditional approaches to persuasion which are discussed in the next chapter.

Chapter 4: Attitudes & Persuasion

This chapter first reviews the definition and dimensions of attitudes. Next, the chapter presents an overview of message source characteristics including those traditionally tied to credibility: expertise and trustworthiness. The chapter then reviews single- and dual-process models of persuasion.

Attitude Definition and Dimensions

Attitudes can be defined as overall positive or negative evaluations representing cognitive and affective responses to an attitude object (Crano & Prislin, 2006). Attitudes can vary in strength (e.g., accessibility, certainty, commitment), importance, resistance, and ambivalence (e.g., Bizer & Krosnick, 2001; Holland et al., 2003). Attitudinal dimensions (e.g., strength), at least partially, stem from social contexts. Attitudes are more resistant when individuals perceive that other members in their ingroup share similar views than when individuals perceive that other members have more heterogeneous viewpoints (Visser & Mirabile, 2004). This increased attitude strength is believed to be a result of decreased attitudinal ambivalence and increased attitude certainty, a consequence of perceived attitudinal similarity with ingroup members (Holtz, 2003, 2004).

Attitude Structure

Traditionally, attitudes are conceptualized with three distinct components: affect, cognition, and behavior (e.g., Rosenberg & Hovland, 1960). The affective component refers to emotions associated with an attitude object, the cognitive component refers to the thoughts and beliefs associated with an attitude object, and the behavioral component

refers to the influence of the attitude on behavior (Rosenberg & Hovland, 1960). Perhaps more important for current purposes is the conceptualization of attitudes as part of an associative network embedded within larger belief structures. In this perspective, attitudes are comprised of links and nodes associated with an attitude object in a self-organized system with related attitude nodes closer in proximity to one another (Judd et al., 1991; McGuire & McGuire, 1991). Conceptualizing attitudes as part of an associative network implies that they are subject to spreading of activation within the network. That is, given that attitudes are structurally related, activation of one attitude by environmental and contextual conditions could activate other related attitudes (Anderson, 1983). Judd and colleagues (1991) found that responding to attitudinal items about a particular political topic increased the accessibility of an attitude associated with a related political topic. Moreover, the extent to which spreading of activation occurred depended on the extremity of the first attitude and the extent to which attitudes were related.

Attitude Change

Persuasion is characterized as an attempt to influence an individual's beliefs, attitudes, or behavior. Since the 1980s, the bulk of research on persuasion has been guided by dual process models. These include the Elaboration Likelihood Model (ELM: Petty & Cacioppo, 1986) and the Heuristic Systematic Model (HSM: Chaiken et al., 1989). Both models build on prior research focused on source credibility, message length and structure, recipient characteristics, (e.g., intelligence, need for cognition), attention (McGuire, 1969, 1985), and effortful information processing (e.g., Hovland et al., 1953; Petty et al., 1981). Though dual process approaches dominated persuasion research in the

1980s and 1990s, a single process model to persuasion challenges the notion of two

qualitatively distinct routes to persuasion (Kruglanski & Thompson, 1999).

Message Source Characteristics

Message source characteristics are oft-considered variables in persuasion

research. Generally, information about the characteristics of a message's source mediates

the persuasiveness of a message (McGuire, 1985). According to source credibility theory,

individuals are more likely to be persuaded when the source is perceived as credible

(Hovland et al., 1953; Pornpitakpan, 2004), which is comprised of trustworthiness and

expertise (Kelman & Hovland, 1953).

Expertise

Expertise refers to the degree to which a message recipient considers someone

qualified to know the truth of a topic (Hovland et al., 1953). The communicator's level of

expertise deals with the level to which the message recipients believe the communicator

is a knowledgeable and experienced source on a specific topic. Generally, expertise tends

to have the greatest effect on persuasion (Wilson & Sherrell, 1993) and this includes

complex topics (e.g., carbon dioxide storage and capture: Koot et al., 2016). In a political

realm, however, some research suggests that there exists a "backfire effect" whereby

presenting individuals with factual information that counters their beliefs or attitudes can

actually strengthen preexisting beliefs or attitudes (Nyhan & Reifler, 2010). In other

words, ideology moderates the relationship between factual information (corrections) to

misperceptions and preexisting beliefs and attitudes. It is worth noting that Nyhan and

Reifler (2010) found significant backfire effects only among staunch conservative

participants (their primary sample) and that more recent works have not been able to replicate these results (e.g., Wood & Porter, 2019). There is also the case of reactive devaluation whereby partisans devalue proposals of compromise when the source of the proposal is attributed to the "other side" (Ross & Ward, 1995). For example, in the context of the Palestinian-Israeli conflict, Maoz et al. (2002) found that Israeli Jews devalued an actual peace plan authored by Israelis when it was attributed to Palestinian authors, compared to when it was attributed to its original source.

Individuals can infer expertise by considering the identity of the information source. That is, when individuals provide information, merely knowing who they are or who they might represent can indicate the source's knowledgeability (Reimer et al., 2004). Additionally, when individuals perceive a source of information to have high expertise, they are more likely to experience cognitive closure (i.e., a closed attitude) (Koot et al., 2016).

Trustworthiness

Source trustworthiness is a dimension of source credibility and is defined as a message source's perceived honesty or motivation to provide accurate information (Hovland et al., 1953). Trustworthiness deals with attributes such as the communicator's perceived honesty, sincerity, and objectivity (McCracken, 1989). Generally, the greater perceived trustworthiness of a message source, the more credible the message source is perceived (Wiener & Mowen, 1986).

Dual Process Models of Persuasion

Both ELM and HSM assume that individuals want to hold correct attitudes,

whether they be accurate or preferred (Bohner & Schwarz, 2001; Chaiken et al., 1986; Petty & Cacioppo, 1986). Both dual process models also posit that persuasion may be accomplished via two qualitatively distinct routes. One route involves more issue-relevant elaboration or cognitive involvement and the other route involves less issue-relevant elaboration or cognitive involvement. Both the ELM and HSM also assume that information processing occurs along a continuum. Individuals engaged in heuristic (peripheral route in ELM) processing (low end of the continuum) rely on simple rules to judge the validity of a message (e.g., source characteristics, consensus, stereotypes, etc.). Individuals engaged in systematic (central route) processing (higher end of the continuum) engage in analytical scrutiny and integration of relevant information (message- and issue-relevant information) to form judgments (Chaiken et al., 1989; Petty & Cacioppo, 1986). Persuasion that results from careful message scrutiny is considered more systematic (elaborative) and persuasion that results from non-message cues is considered heuristic (less elaborative). Engagement in the more elaborative route requires motivation, ability, and opportunity, and results in stronger attitudes than the less elaborative route. According to the ELM, factors that increase motivation and/or ability to scrutinize a message can include need for cognition, self-relevance, involvement, responsibility, repetition, distraction, intelligence, and/or knowledge. Any variable can serve as an argument, a simple cue, impact the extent of information processing, and influence the direction of processing (Petty & Cacioppo, 1986). According to the HSM, individuals tend towards satisficing, striking a balance between minimal effort and maximum judgmental confidence (sufficiency principle) (Chaiken, 1987; Chaiken et al.,

1989; Maheswaran & Chaiken, 1991). The acceptable threshold consists of the desired

amount of confidence (i.e., sufficiency threshold), which is a function of motivation (e.g.,

self-relevance, importance, etc.), and the actual amount of confidence. The larger the gap

between the desired amount of confidence and the actual confidence increases the

likelihood of systematic processing and vice versa. Put succinctly, low levels of

motivation facilitate a lower confidence threshold and higher levels of motivation

facilitate a larger confidence threshold.

Single Route to Persuasion

The ELM (Petty & Cacioppo, 1986) and HSM (Chaiken et al., 1989) inspired

persuasion-related research often focused on characteristics of the message source, which

are treated primarily as peripheral cues, and the quality of the message. Such a tendency

for distinction has resulted in some controversy and the formulation of a single route to

persuasion, a "unimodel."

The unimodel (Kruglanski & Thompson, 1999) proposes that, rather than two

distinct routes to persuasion, a single process underlies attitude change. Kruglanski and

Thompson (1999) take issue with a priori predictions about cues and arguments and the

extent and direction of the elaboration they might inspire. Building on syllogistic

reasoning and prior research (i.e., McGuire, 1960; Wyer, 1970), Kruglanski and

Thompson (1999) propose that persuasion is, "a process during which beliefs are formed

on the basis of appropriate evidence" (p. 89) and that evidence can be conceptualized as

information relevant to a conclusion. Kruglanski and Thompson (1999) further assert that

there is no qualitative difference in persuasion processes as a result of whether persuasion

takes place through processing peripheral cues or message content. Cues and message

content constitute persuasive evidence and are functionally equivalent. According to the

unimodel, research supporting the ELM and HSM has frequently confounded evidence

type (i.e., peripheral cues vs. message arguments) with other factors that affect persuasion

including ordinal position, length, and complexity (Kruglanski & Thompson, 1999). For

example, references to source credibility are often short and easier to process whereas

arguments are often lengthier and more difficult to process, but this does not have to be

the case. Message arguments can be devised succinctly and information extraneous to the

message can be long and painstaking. Hence, if length and complexity are controlled, the

effects of ability and motivation should not differ whether the information is a cue,

heuristic, or message argument. Either way, whether information is extraneous to the

message or part of the message argument, any information that is deemed relevant to the

conclusion by the recipient can influence persuasion and the magnitude of persuasion is

determined by the extent of elaboration (Kruglanski & Thompson, 1999). Also, like the

ELM and HSM, the unimodel credits motivation, capability (availability and accessibility

of mental representations), and capacity (e.g., cognitive load, attention) with fostering or

impeding the extent of elaboration, and also asserts that directional (e.g., self-esteem

concerns, impression management concerns) rather than nondirectional motivations (e.g.,

accuracy concerns, need for cognition) can also bias processing. Also in agreement with

the ELM & HSM, Kruglanski and Thompson (1999) posit that persuasion as a

consequence of higher elaboration results in stronger versus weaker attitude change.

The unimodel (Kruglanski & Thompson, 1999), ELM (Petty & Cacioppo, 1986), and HSM (Chaiken et al., 1989) share many commonalities. Like the ELM and HSM, the unimodel assumes that elaboration exists on a continuum. All three models also propose that persuasion is a function of the extent of elaboration, which is determined by motivation and ability/opportunity. The models also agree that the extent of processing impacts attitude change strength. Additionally, the unimodel also agrees with the ELM and HSM that motivational factors can impact the direction of processing as can factors related to ability. The ELM and unimodel differ in their propositions about the number of routes to persuasion and also appear to differ, at least according to Kruglanski and Thompson (1999), in the functionality of evidence content, namely cues and heuristics versus message argument.

Application to Political Attitudes

Kruglanski and Thompson's (1999) proposition that any piece of information can serve as evidence is key to this proposal as is the issue of self-relevance as a motivating factor for elaboration. Traditional approaches involving the ELM and HSM would typically associate group membership with low elaboration though social identity persuasion research clearly contradicts such a conclusion (e.g. McGarty et al., 1994; van Knippenberg, 1999). Whereas research involving the ELM and HSM would deem persuasion based on a source's political affiliation as weak and superficial, a social identity approach to persuasion would propose that the political affiliation of the message source can facilitate elaboration and result in strong attitude change (given that the target's partisan identity is salient). More specifically, when a partisan identity is salient,

the message source increases the self-relevance for the target thereby facilitating greater

elaboration. See Chapter 3 for research related to social identity and persuasion.

Chapter 5: The Minority/Majority Model of Persuasion

The context/comparison-leniency contract model is a first step in the development of a comprehensive model of minority influence taking both social identity and traditional persuasion perspectives into account while also delineating the conditions that lead to either dismissal of or leniency towards deviant ingroup members. While such an undertaking deserves praise, I assert that the model does not go far enough to integrate research on persuasion and social categorization. More specifically, I contend that the context/comparison-leniency contract model ignores the prototypicality of the message source for minority ingroup messages, thereby limiting its predictive value. Given that prototypical ingroup members are (1) considered more trustworthy than non-prototypical ingroup members (van Knippenberg, & Wilke, 1992), (2) are afforded more leniency for dissention than non-prototypical ingroup members (Abrams et al., 2018), and (3) facilitate greater information processing elaboration when serving as a message source (van Knippenberg et al., 1994), the prototypicality of the message source should be given ample consideration in any model examining minority influence. Moreover, although the context/comparison leniency contract model does not postulate the role of strength of social identification in minority influence, it might be that prototypicality only matters for high identifiers but not low identifiers such that prototypical ingroup minority members facilitate greater elaboration likelihood only if the target strongly identifies with the group. These considerations are found in my proposed minority/majority model of persuasion (3MP).

The Minority/Majority Model of Persuasion

The 3MP builds on the context/comparison-leniency contract model adding message source prototypicality as a moderator between the group status of the message source and the extent of message elaboration. Moreover, the model proposes that strength of social identification moderates the role of prototypicality such that prototypicality of the message source matters for high identifiers but not low identifiers. Following is an overview of the model.

Figure 1

3MP - Minority Message
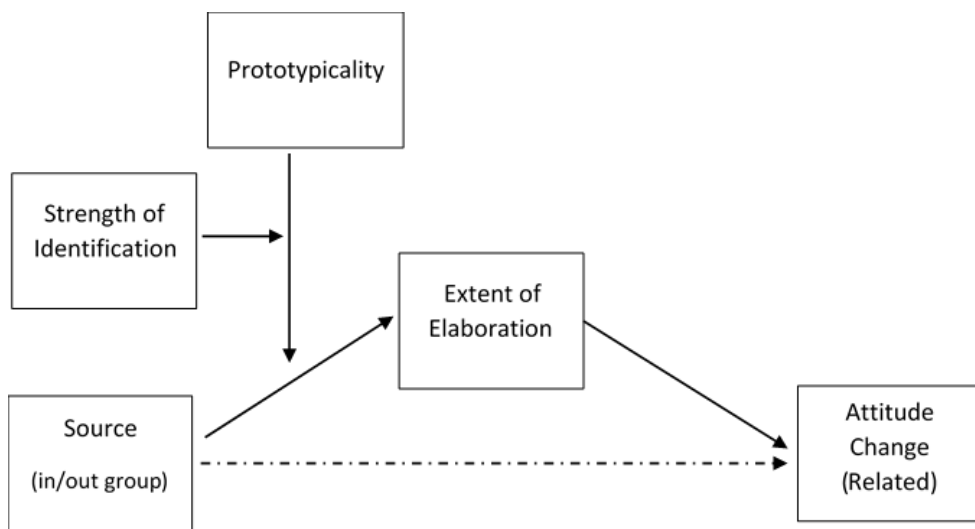
According to the 3MP, change in *related* attitudes is a function of the source of the message through the extent of elaboration. When the source of the message is an outgroup member, message elaboration is low and there is no change attitude change. When the source of the message is an ingroup member, high identifiers consider the prototypicality of the message source. If the ingroup member is otherwise prototypical,

elaboration increases and leads to change in related attitudes (in the direction of the

message). If the ingroup member is at least somewhat atypical, high identifiers dismiss

the message and elaboration will be low (no attitude change). Low identifiers do not

consider the prototypicality of the message source and change in related attitudes results

from the ingroup status of the message source through increased elaboration (Figure 1).

Figure 2

3MP - Majority Message

According the 3MP, change in *focal* attitudes is a function of the source of the

message through the extent of elaboration. When the source of the message is an

outgroup member, message elaboration is low and there is no attitude change. When the

source of the message is an ingroup member, high identifiers elaborate on the message

and attitude change occurs in the direction of the message. Low identifiers will feel less

pressure to comply thus, elaboration will be low and there will be little to no change in

the focal attitude (see Figure 2).

Application to Political Attitudes

As with previous minority/majority influence models, the 3MP differentiates between majority and minority influence processes. Minority ingroup sources can enhance elaboration but this relationship is moderated by the prototypicality of the message source for high but not low identifiers. In a political context, this means that a message considered atypical for a Republican would be more influential among Republicans coming from President Trump (given that Trump is considered a prototypical Republican) by way of enhanced elaboration than it would if it originated from Senator Mitt Romney (given that Romney is considered atypical), if Republican targets strongly identify as such. It is worth noting that, although an argument could be made that Trump is not a prototypical Republican, he does enjoy very high approval ratings from self-identified American Republicans (Gallup, n.d.). Either way, the minority message coming from a prototypical source would likely influence related rather than focal attitudes. In the example above, Democrats would have no influence whatsoever. Similarly, a message with majority consensus among Republicans would also be more influential delivered by President Trump than by Senator Mitt Romney given targets' strong identification as Republican or conservative. In this case, the influence would impact the focal attitude rather than related attitudes. Once again, a Democrat would have no influence. In the case of moderates, elaboration will be greater if the message is delivered by an ingroup rather than outgroup member but likely to be low in either case.

Chapter 6: Global Warming and Climate Change

Although global warming and climate change are often used interchangeably, global warming refers to the gradual increase in the mean temperature of the Earth's surface, atmosphere and oceans as a result of heat trapped by atmospheric gases such as carbon dioxide, methane, water vapor, and nitrous oxide (Zhong & Haigh, 2013). Climate change encompasses global warming and includes observed changes in the earth's climate, including sea level rise, changes in climate extremes (such as the number of warm and cold days), declines in Arctic sea ice, glacier retreat, and greening of the Sahara (Committee on Stabilization Targets for Atmospheric Greenhouse Gas Concentrations, 2011). Global warming has already likely contributed to large-scale changes in natural and social systems including crop production, severe weather patterns, and increased air pollution and wildlife extinction (Stocker et al., 2013). Stabilizing the global average temperature would require large reductions in CO_2 emissions as well as reductions in emissions of other greenhouse gases such as methane and nitrous oxide.

In 2014, the Intergovernmental Panel on Climate Change (IPCC) released a report that concluded that human activity is likely to be a dominant cause of global warming (Stocker et al., 2013). Specifically, emission of greenhouse gases such as carbon dioxide, nitrous oxide, and methane caused primarily by burning fossil fuels and deforestation. This suggests that global warming can be stabilized with relevant and effective policy and oversight. However, U.S. policy has not always addressed or acknowledged human involvement in global warming. Additionally, the extent to which U.S. policy consider global warming and human activity has primarily been dependent on the administration.

For example, the Bush administration opted out of the Kyoto Protocol, an international treaty that would require nations to reduce their greenhouse gas emissions (Kirby, 2001). In fact, the Bush Administration has been accused of propagating global warming and climate change disinformation (Dickinson, 2007) and suppressing vital scientific information (Zabarenko, 2007). Contrarily, the Obama Administration enacted the Clean Air Act, a policy aimed to combat global warming, requiring states to meet specific carbon dioxide emissions standards (Malloy, 2015). In June 2017, U.S. President Donald Trump announced that America would cease all participation in the 2015 Paris Agreement, an international agreement aimed to mitigate global warming (Chakraborty, 2017). In November 2017, the Trump Administration released a Climate Science Special Report, a report mandated by law, that stated that it was very likely that human activity is the dominant cause of global warming (Joyce, 2017; Mooney et al., 2017). However, as of late 2019, it appears that report has been dismissed by the Trump Administration (Oprysko, 2018). In fact, the report came as President Trump worked to promote U.S. fossil-fuel production and repeal several federal regulations aimed at curbing the nation's carbon output (Mooney et al., 2017). President Trump once stated that the concept of global warming was created to benefit Chinese manufacturing (Trump, 2016). These sentiments also reflect divergent political views on global warming among Americans.

Climate Change and Political Social Identity

Although a large majority of people agree that global warming is occurring (Pew Research Center, 2017), the public has been split on whether it should be attributed primarily to human or natural causes. More specifically, research has consistently found

that belief in human involvement in global warming is typically high among Democrats and low among Republicans (Funk & Kennedy, 2016a). Moreover, research on climate change finds that individuals who less strongly identify as either liberal Democrat or conservative Republican are less likely to covet their group's respective position to the same degree as those who strongly identify with either group. For example, whereas 79% of individuals who identify as liberal Democrat believe the Earth is warming mostly due to human activity only 63% of individuals who identify as moderate Democrats do (Funk & Kennedy, 2016a). Similarly, while only 15% of Republicans agreed with this statement, more than twice as many (34%) moderate Republicans indicated agreement. Among Democrats and Democrat-leaning Independents, there is a positive relationship between self-proclaimed scientific knowledge and belief in human activity as the primary contributor to climate change. However, among self-identifying Republicans and GOP-leaning Independents, self-perceived scientific knowledge makes no difference in the belief that human activity is a primary factor in climate change (Funk & Kennedy, 2019).

Currently, more than half of American conservatives believe that climate scientists promote human activity in climate change due to their own political leanings and only 15% trust climate scientists enough to provide accurate information about the causes of climate change. This is contrasted by American liberals who greatly trust climate scientists (Funk & Kennedy, 2016b). It might be the case that conservatives view climate scientists as liberal leaning (i.e., members of an outgroup). Hence, scientists, especially those advocating human involvement in climate change, are likely to be viewed as untrustworthy by American conservatives. Conservatives who view climate

scientists as outgroup members might also be less motivated to process climate change-related messages delivered by scientists and scientific organizations. Additionally, among conservatives, almost half choose Fox News as their main source of news and 88% of polled conservatives report trusting Fox News. This is in opposition to liberals, whose primary news sources include CNN, MSNBC, NPR and The New York Times (Mitchell et al., 2016). A study examining global warming cable coverage spanning from 2007 to 2008 found that Fox News was less accepting and more dismissive of climate change than either CNN or MSNBC (Feldman et al., 2012). These divergent media messages can communicate different perspectives to viewers such that Republicans could infer that the prototypical Republican stance on human-influenced global warming is one of denial or skepticism, and liberals could infer that the liberal stance is one of acceptance. Relatedly, research indicates that climate-change related news has become more politicized with partisan elites taking a more prominent role in U.S. newspaper coverage and scientists taking a less prominent role (Chinn et al., 2020). Additionally, the climate change discourse has grown increasing polarized since 2011 with Democrat and Republican political actors expressing growing divergent views in the ongoing debate surrounding climate change. The continued politicization and polarization of climate change-related news implies that individuals' views on climate change are malleable. Indeed, recent longitudinal evidence suggests that especially partisans on the right hold somewhat malleable climate change beliefs, whereas those on the right tend to be more stable (Jenkins-Smith et al., 2000).

Finally, there is also a partisan split in support for policies designed to curb the

effects of global warming. Two-thirds of Democrats and Democrat-leaning Independents report that policies aimed at reducing the effects of climate change do more good than harm whereas only 27% of Republicans or Republican-leaning Independents report the same (Funk & Kennedy, 2019). Instead, 28% of Republicans and Republican-leaning Independents report that such policies do more harm than good and 44% report that they make no difference. Additionally, 57% of Republicans and Republican-leaning Independents report that policies designed to reduce the effects of climate change hurt the economy, compared to 14% of Democrats (Funk & Kennedy, 2019).

Human-induced global warming and climate change could have a myriad of adverse effects on both human and animal populations (Stocker et al., 2013). Belief in human involvement in global warming and climate change, and support for policies designed to curb greenhouse gases appear to be divided along political party lines, despite widespread scientific consensus on the issue. Hence, it is beneficial to examine principles of persuasion as they might relate to global warming and climate change communications.

Much research in climate science and persuasion focuses on shifting attitudes towards a pro-climate change policy stance (e.g., Luong et al., 2019; Nabi et al., 2018). Though this outcome is of primary interest in the current study, the approach employed in the current research is symmetrical such that investigation focuses on shifting attitudes towards climate change policy in either direction. That is, although the current research aims to identify conditions that lead to more pro-climate change policy attitudes, it might also identify pathways for climate change policy skepticism to spread.

Chapter 7: Research Overview and Hypotheses

The purpose of this study is to examine the roles of prototypicality and social identification strength in minority influence. Prior research has established that persuasion is a function of the extent of elaboration in processing a message (Chaiken et al., 1989; Kruglanski & Thompson, 1999; Petty & Cacioppo, 1986). Additionally, research focused on the social identity approach has found that individuals are more likely to elaborate on messages originating from an ingroup rather than an outgroup member (Mackie et al., 1990; McGarty et al., 1994) thereby making ingroup members more influential (Alvaro & Crano, 1997; Crano & Chen, 1998; Crano & Seyranian, 2009). Finally, given that counternormative messages likely garner attention (Crano & Seyranian, 2009), messages originating from an ingroup minority member are likely to be scrutinized (i.e., elaborated on), though some research suggests that minority ingroup members will face derogation and expulsion (Marques et al., 1988), resulting in message dismissal.

It is also likely that strength of social identification moderates the relationship between group membership and extent of elaboration such that high-identifiers are more likely to elaborate on majority ingroup messages than low-identifiers. This proposition is derived from research suggesting that strength of social identification determines the extent to which an ingroup member is affected by ingroup process (see Oakes, 2002) such as conformity to ingroup norms resulting from self-categorization (Abrams et al., 1990; Hogg & Turner, 1987). For messages originating from a minority ingroup member, the relationship between ingroup status and elaboration is moderated by perceived threat:

individuals receiving an ingroup minority message will process a message only if it is not

perceived as a threat to group distinctiveness or identity (Alvaro & Crano, 1997; see also

Hornsey, Oppes & Svensson, 2004). Moreover, high-identifiers are more likely to

perceive threat than low-identifiers (Spears et al., 1997)

I propose that prototypicality of the message source moderates the relationship

between a message originating from a minority ingroup member and the extent of

elaboration such that messages from a minority ingroup member are processed with

greater elaboration when the source is highly prototypical rather than not prototypical or

atypical (Hypothesis 6). For example, a pro-climate change message delivered to

Republicans by Trump is likely to be more influential than if the same message is

delivered by Jeff Flake, a retired Republican Senator often referred to as a "RINO" by

political commentators (e.g., Wohl, 2017).

Additionally, although the context/comparison leniency contract model does not

elaborate on the role that social identification might play in in minority influence, I

suggest that strength of social identification qualifies the implications of prototypicality.

Specifically, prototypicality moderates the relationship between a minority ingroup

member's message and strength of elaboration only for high identifiers but not low

identifiers (Hypothesis 6). Given that a minority message is counternormative, I propose

that low identifiers will elaborate on a message from an ingroup minority members

regardless of prototypicality.

General Procedure

To test the aforementioned relationships, four online pilot studies and one online

main study hosted by Qualtrics were conducted in which participants read an online interview ("target article") with a Republican or Democrat who advocated for or opposed a carbon tax. The first two pilot studies focused on assessing the strength of the interview content (the message), testing the logistics of measuring participant elaboration online, and identifying attitudes related to carbon tax (the focal attitude). The second set of pilot studies focused on testing prototypicality manipulations to ensure their sufficiency and symmetry across groups.

Participants for the first pilot study were recruited from Amazon Mturk, a crowdsourcing platform wherein "workers" are paid to complete human intelligence tasks. Amazon Mturk was chosen as a sampling pool to enable outreach to members of the U.S. public. MTurk workers are more diverse than undergraduate student populations (Krupnikov & Levine, 2014) but not altogether representative of the U.S. population as a whole (Paolacci et al., 2010). Historically, MTurk workers have been less religious and more educated than the general population (Goodman et al., 2013) but prior research also indicates that MTurk workers approximate the American electorate (Levay et al., 2016). All participants initially completed a brief questionnaire (screener) and were subsequently invited to participate in the main study if they qualified (i.e., identified as Republican or Democrat).

Due to challenges encountered on Amazon Mturk with recruiting a sufficient number of Republicans, participants for all subsequent studies were recruited from the Prolific crowdsourcing platform. Prolific functions similarly to Amazon MTurk with a few differences. First, Prolific is geared towards creating a subject pool for research

purposes specifically whereas Amazon Mturk crowdsources for a much more broad

spectrum of tasks. Second, Prolific allows researchers to use multiple filters at once to

create niche samples without having to use screeners. Amazon Mturk restricts the number

of filters a researcher can use simultaneously. Prolific users have been found to return

data similar in quality to Amazon Mturk (e.g., honesty, attention check pass/fail rates)

and similar to Amazon Mturk workers in sociodemographic composition (Peer et al.,

2017). Due to the emphasis on group membership in the present research, only self-

identified Republicans and Democrats were eligible to participate.

Across all studies, participants reported their political affiliation (i.e., Republican

or Democrat), rated the strength of their identification, and read an online article

comprised of an interview with either a Republican or Democrat who supported or

opposed a carbon tax. In two studies, participants: (1) typed out thoughts related to the

article they read and categorized these thoughts; (2) evaluated the speaker on

trustworthiness, likeability, knowledgeability, and credibility; rated how prototypical or

atypical the interviewee was of their respective political ingroup; and (3) rated their

attitudes towards carbon tax (focal attitude), abortion, gays and lesbians in the military,

off-shore fracking, loosening environmental regulations, encouraging energy

conservation, or restricting gun rights (possible related attitudes). In the first pilot study

only, participants reported the probability that a change in one aforementioned attitude

object would result in a change in a different attitude object.

Operationalization

Regarding group membership, the interviewee (the message source) featured in the online article was defined as an ingroup member when his political affiliation matched the participant's political affiliation and an outgroup member when his political affiliation did not match the participant's affiliation. Message consensus refers to whether a message delivered by the interviewee is considered a majority or minority message. A message was defined as a minority message when a Democrat [Republican] interviewee opposed [supported] a carbon tax and a majority message when the interviewee was a Democrat [Republican] supported [opposed] a carbon tax. Similarly, the interviewee was considered a minority ingroup member when he was a Democrat [Republican] opposed to [supportive of] a carbon tax and a majority ingroup member when he was a Democrat [Republican] supportive of [opposed to] a carbon tax. Following Cacioppo et al. (1997), extent of elaboration was operationalized as the number of self-categorized issue-relevant thoughts listed by participants. Strength of social identification was operationalized as the extent to which Democrat and Republican participants felt the Democrat [Republican] identity was important to them and the extent to which they felt similar to other Democrats [Republicans]. Interviewee (i.e., source) prototypicality was operationalized by the interviewee's advocacy for (1) gun control to be legislated at the stated or federal level, (2) restricted or loose immigration policy, and (3) privatized or public healthcare.

Hypotheses

See Figures 3 and 4 for an illustration of Hypotheses 2-7.

Message Source Evaluation

Hypothesis 1: There will be a two-way interaction between participant strength of social

identification and interviewee prototypicality on message source evaluation. High

identifiers will evaluate prototypical ingroup members more positively than

atypical ingroup members. Low identifiers will exhibit no difference in message

source evaluations regardless of whether the ingroup interviewee is prototypical

or atypical.

Ingroup vs. Outgroup

Hypothesis 2: There will be a main effect of message source group membership (ingroup

vs. outgroup) on the extent of elaboration; participants will elaborate more on a

message from an ingroup member than an outgroup member.

Hypothesis 3: There will be a main effect of extent of elaboration on persuasion such that

greater elaboration will be associated with greater attitude change.

Hypothesis 4: There will be an indirect effect of group membership on persuasion;

messages delivered by an ingroup member will be more persuasive than messages

delivered by an outgroup member through an increase in elaboration.

Majority vs. Minority Messages

Hypothesis 5: For majority messages, the main effect of message source group member-

ship (ingroup vs. outgroup) on extent of elaboration will be qualified by strength

of social identification. When the source is an ingroup member, messages will be

processed more extensively by high identifiers than low identifiers, whereas no

difference is expected for the elaboration of message from outgroup sources.

Hypothesis 6: For minority messages, the main effect of message source group

membership (ingroup vs. outgroup) on extent of elaboration will be qualified by a

three-way interaction involving group membership, prototypicality, and

participant strength of social identification. When high identifiers encounter a

minority message from a highly prototypical ingroup source, they will elaborate

on this message more than when the same message comes from an atypical

ingroup or from an outgroup source. By contrast, among low identifiers,

prototypicality of the ingroup sources is not expected to influence results, even

when low identifiers might elaborate minority messages from ingroup messages

more than from outgroup messages.

Hypothesis 7: There will be an indirect effect of message consensus (majority vs.

minority viewpoint) on type of attitude change. Majority messages will influence

focal attitudes such that greater elaboration will create stronger attitude change.

Minority messages will influence **related** attitudes to the extent that participants

elaborate these messages.

See also Table 1 for an overview of hypotheses.

Figure 3

Minority Message Hypotheses
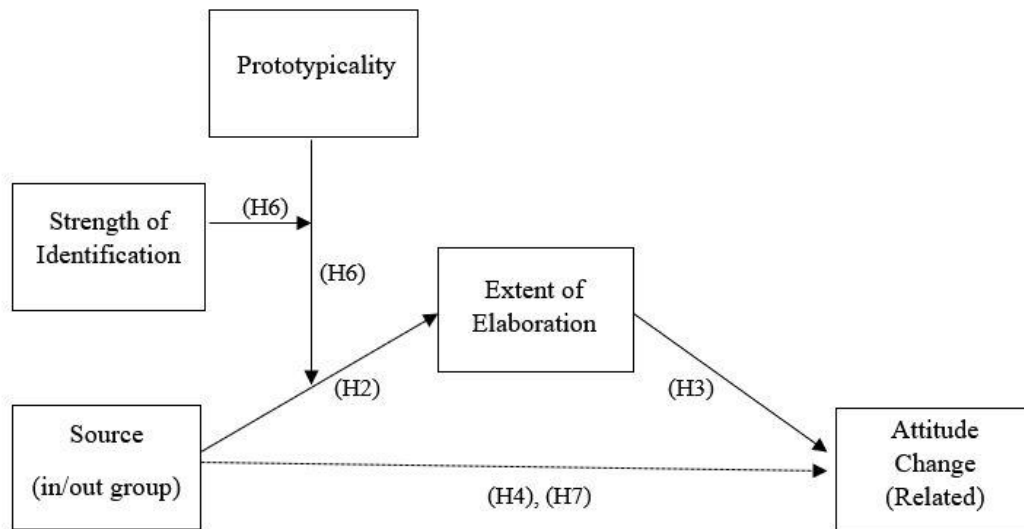
Figure 4

Majority Message Hypotheses
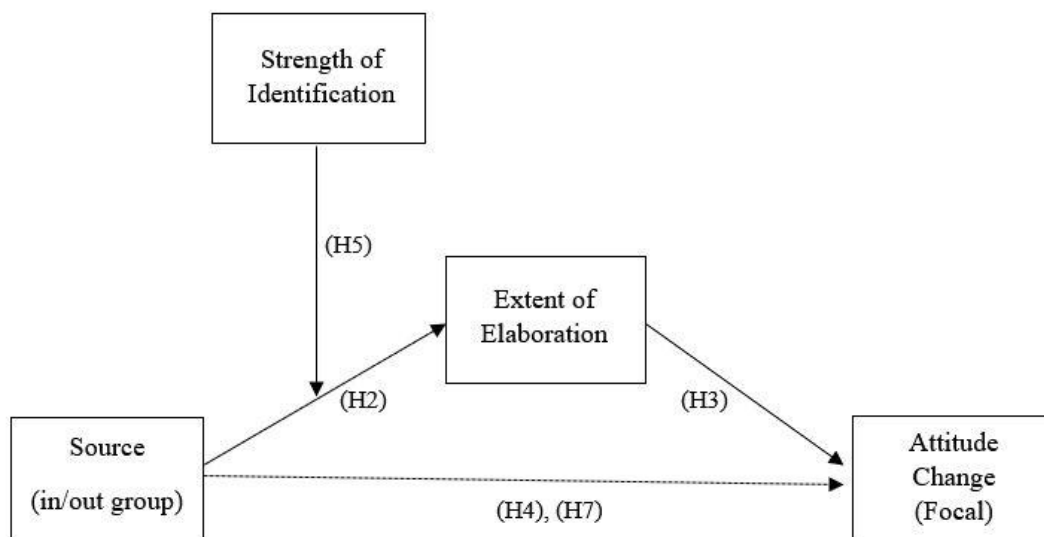
Table 1

Hypotheses Overview

Number	Prediction
1	There will be a two-way interaction between participant strength of social identification and interviewee prototypicality on message source evaluation. High identifiers will evaluate prototypical ingroup members more positively than atypical ingroup members. Low identifiers will exhibit no difference in message source evaluations regardless of whether the ingroup interviewee is prototypical or atypical.
2	There will be a main effect of message source group membership (ingroup vs. outgroup) on the extent of elaboration; participants will elaborate more on a message from an ingroup member than an outgroup member.
3	There will be a main effect of extent of elaboration on persuasion such that greater elaboration will be associated with greater attitude change.
4	There will be an indirect effect of group membership on persuasion; messages delivered by an ingroup member will be more persuasive than messages delivered by an outgroup member through an increase in elaboration.
5	For majority messages, the main effect of message source group membership (ingroup vs. outgroup) on extent of elaboration will be qualified by strength of social identification. When the source is an ingroup member, messages will be processed more extensively by high identifiers than low identifiers, whereas no difference is expected for the elaboration of message from outgroup sources.
6	For minority messages, the main effect of message source group membership (ingroup vs. outgroup) on extent of elaboration will be qualified by a three-way interaction involving group membership, prototypicality, and participant strength of social identification. When high identifiers encounter a minority message from a highly prototypical ingroup source, they will elaborate on this message more than when the same message comes from an atypical ingroup or from an outgroup source. By contrast, among low identifiers, prototypicality of the ingroup sources is not expected to influence results, even when low identifiers might elaborate minority messages from ingroup messages more than from outgroup messages.
7	There will be an indirect effect of message consensus (majority vs. minority viewpoint) on type of attitude change. Majority messages will influence focal attitudes such that greater elaboration will create stronger attitude change. Minority messages will influence related attitudes to the extent that participants elaborate these messages. Prototypicality of the ingroup message source will not matter for low identifiers.

Chapter 8: Pilot Study Summary

A total of four pilot studies were conducted prior to the main study. This chapter summarizes the purpose, methodology, and findings of each study. Pilot Study 1 concerned the development of research materials concerning focal and attitudinal dimensions. In doing this, the study closely followed the approach by Alvaro and Crano (1997). Another goal of this first pilot study was to provide an initial test of the proposed vignette of an interview. Pilot studies 2 through 4 then served as sources of refinement of said vignette. More detailed information about each pilot study (as well as materials and tables) can be found in Appendices A1–D3. To ensure that study materials did not contain any confounds and was biased in a particular ideological direction, the construal of vignette that would yield symmetrical results for Republican and Democrat participants was of primary importance. Unless otherwise stated, data were analyzed using a series of univariate general linear models (GLMs). Although gender was included as a covariate in all models, it was never significant, and is not discussed further.

Pilot Study 1

The first pilot study was designed to (1) identify the strongest message about a carbon tax among 3 versions; (2) identify attitudes related to a carbon tax; (3) determine the appropriateness and efficacy of an online thought-listing task as a measure of extent of elaboration; (4) determine whether the number of thoughts listed by participants differed significantly if participants were prompted to list up to 10 or 20 thoughts; and (5) examine the roles of perceived novelty and threat in the total number of thoughts listed by participants.

Design

Pilot Study 1 used a 3 (target article version) x 2 (target political affiliation: Democrat vs. Republican) x 2 (participant political affiliation: Democrat vs. Republican) x 2 (majority/minority message status: support vs. oppose carbon tax) between-groups factorial design. The design also included strength of social identification as a continuous predictor, which was centered and allowed to interact with all experimentally manipulated variables.

Participants and Procedure

A total of 279 Democrats and 265 Republicans recruited from Amazon Mturk participated in the study, $M_{age} = 42.5$. Participant sociodemographic, political affiliation, and strength of identification (as either a Democrat or a Republican) information was collected beforehand in a screening process. Participants (1) read an online article about an interviewee who either supported or opposed a carbon tax policy; (2) listed up to either 10 or 20 thoughts pertaining to the message contained in the article (depending on the condition to which they were randomly assigned); (3) completed items assessing the perceived threat and novelty of the article interviewee's message; (4) completed a manipulation check item, which asked whether the interviewee was a Republican or a Democrat; (5) completed attitudinal items related to carbon tax, wildlife conservation, abortion, offshore fracking, energy conservation, gays and lesbians in the military, and loosening environmental regulations for businesses (the latter seven attitude objects were not mentioned in the target article); (6) completed an assessment of the likelihood that a change in one of the aforementioned attitudes would result in a change in any of the

attitudes; (7) completed one item assessing strength of message; (8) categorized the thoughts they had listed in the thought-listing task as either "negative," "neutral," or "positive;" and (9) commented on strengths and weaknesses of the article interviewee's message.

Target Article

The party affiliation of the interviewee in the article, as well as his stance on a carbon tax policy, were varied such that participants read about a Republican or Democrat who either supported or opposed carbon tax policy designed to curb carbon outputs. Crossed with these manipulations, three versions of the article were randomly presented to participants to determine whether they varied in strength: version 1 did not include any additional language; version 2 contained a paragraph about carbon tax and job creation impact on low- and middle-class families and indigenous populations; and version 3 included the same language in version as well as a sentence about the carbon tax approach being founded on economic modeling.

Results

A total of 84 participants (15.4%) failed the manipulation check and were removed from subsequent analyses. In the remaining sample ($N = 460$) there was no difference in strength of social identification between Republican and Democrat participants, $p = .13$. Participants took an average of 3 minutes ($SD = 4.40$) to complete the thought-listing task and the average difference in the number of thoughts listed between participants who saw 10 or 20 empty fields to list thoughts was 1.20 thoughts, $p < .001$. It was discovered that offering only "negative," "neutral," and "positive"

categorization options was insufficient to capture the complexity of thoughts, especially for participants who expressed thoughts that were both negative towards the interviewee and simultaneously positive towards a carbon tax (and vice versa). Hence, it was determined that the main study would include additional categorization options specific to a carbon tax *and* specific to the interviewee. Participants would also be able to select "all that apply" rather than having to select only one option per thought.

There was no significant difference between participants who described themselves as Republican and those who described themselves as Democrat in terms of how strong or weak they perceived the messages conveyed by the interviewee. There were also no differences in strength of message across the three versions of the target article, though Version 3 had the highest mean score overall ($M = 4.47$), followed by Version 2 ($M = 4.40$), and Version 3 ($M = 4.09$), all ps > .05. Perceived threat was not a significant predictor in any capacity of the total number of thoughts listed by participants. All participants rated minority messages as being substantially more novel than majority messages, but novelty was a significant factor in the total number of thoughts generated.

Following Alvaro and Crano (1997), after computing attitudinal rating correlations between all attitude objects (see Table 1), data pertaining to the probability of change in attitudes were submitted to parametric (i.e., interval data) multidimensional scaling (MDS) using PROXSAL analysis, which calculated coordinates for every variable across two dimensions on a spatial "map." As seen in Figure 5, energy conservation, loosening environmental regulations, and offshore fracking appeared to be the most closely related attitude objects to a carbon tax.

Table 2

Change Probabilities and Intercorrelations between Attitudinal Objects

Attitude Object	1	2	3	4	5	6	7	8
1. Carbon tax	-	26.59	9.86	32.27	11.21	10.93	35.08	33.16
2. Pro Wildlife Conservation	.39	-	10.91	30.36	12.03	13.50	28.62	30.42
3. Pro Abortion	.46	.30	-	13.40	20.52	16.34	14.62	13.81
4. Pro Fracking	-.52	-.49	-.45	-	11.35	10.91	32.72	36.68
5. Gays/Lesbians in military	.43	.38	.60	-.45	-	14.57	14.14	13.37
6. Restricting Gun Rights	.56	.33	.46	-.40	.43	-	14.49	14.05
7. Pro Energy Conservation	.53	.59	.35	-.48	.35	.44	-	31.71
8. Loosen Env Regs	-.37	-.35	-.32	.49	-.34	-.34	-.33	-

Note. $N = 459$. Change probabilities appear in the upper triangle, and Pearson's correlations in the lower. Change probabilities represent the mean percentage (across participants) of likelihood of change in one attitude given a change in the other. All correlational relationships were significant at $p < .01$ (two-tailed).

Figure 5

Attitude Object Similarity across Two Dimensions
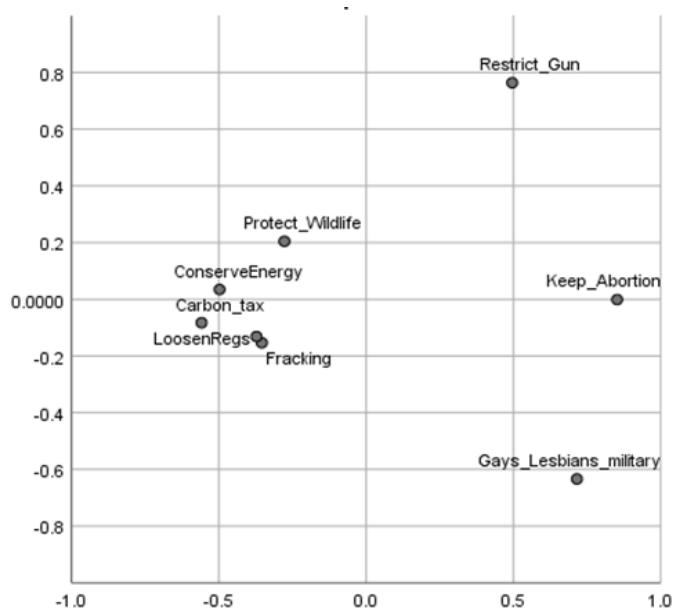
Finally, open-ended comments from Pilot Study 1 suggested that the target article could be improved by offering an alternative solution to combating climate change (besides a carbon tax), by including information about how a carbon tax impacts the environment, families, and jobs, and by including as much as detail on the proposed policies as possible. There were also a substantial number of comments dedicated to climate change rather than to a carbon tax.

Discussion

The initial pilot study provided valuable insights. Based on the results, version 3 of the target article was selected moving forward as its message was rated strongest overall and because it contained the most policy detail. To improve on the target article, an alternative solution to combat climate was introduced in Pilot Study 2 based on legislation recently drafted by Republican legislators (Harder, 2020; Roberts, 2020). This newest iteration also omitted references to the wider climate change debate to keep participants focused on a carbon tax (i.e., the focal attitude). Perceived threat was not included in any subsequent studies, but perceived novelty was retained for use in the main study. Attitudes towards fracking, energy conservation, and energy regulation were retained for use in the main study as attitudes closely related to a carbon tax (the focal attitude). It was decided that the main study would afford participants 5 minutes to complete the thought listing task to accommodate slower-than-average typing speed and because of the minute difference in the number of total thoughts listed by participants who saw 10 empty fields vs. 20 empty fields, 10 empty fields were selected for use in the main study.

Pilot 2

The purpose of Pilot Study 2 was to test for asymmetrical results in strength of message between Democrat and Republican participants for a revised version of the target article. The revised version introduced an alternative to a carbon tax for combating climate change, namely a policy of committing to planting 1 million trees, reducing the use of plastics, and investing in clean energy innovation. This policy was inspired by a recent Republican policy proposal (Harder, 2020; Roberts, 2020). A nonpartisan version of this newest iteration did not indicate which approach (i.e., the carbon tax or planting trees plan) was favored by Republican and Democrat legislators and the partisan version attributed the tree-planting plan to Republicans and a carbon tax to Democrats. The newest iteration also omitted references to the climate change debate to keep participants focused on a carbon tax (i.e., the focal attitude).

Design

Pilot Study 2 used a 2 (article partisanship: partisan vs. nonpartisan) x 2 (target affiliation: Democrat vs. Republican) x 2 (participant affiliation: Democrat vs. Republican) x 2 (majority/minority message status: support vs. oppose carbon tax) between-subjects factorial design. The design also included strength of social identification as a continuous independent variable.

Participants and Procedure

A total of 199 Democrats and 198 Republicans recruited from Prolific partici-pated in the study, $M_{age} = 43.0$. Prolific offers researchers the opportunity to recruit selectively from participants who previously identified themselves as Republican or

Democrat; hence, a screener as employed in Pilot Study 1 was no longer necessary.

Participants completed sociodemographic items, one political affiliation item, strength of social identification items, a Big-5 personality trait scale (as a filler) prior to reading the target article, one item assessing the strength of the message, and a manipulation check, which asked whether the interviewee was a Republican or a Democrat.

Results and Discussion

A total of 70 participants (17.6%) failed the manipulation check and had to be excluded from primary analyses ($N = 327$). There was no difference in strength of social identification between Republicans and Democrats, $p = .10$. The nonpartisan version did not yield symmetrical results for strength of message ratings. Although there were no significant differences in strength of message ratings between Democrats and Republicans for a Democrat interviewee, there was a significant difference in message strength ratings between Democrats ($M = 3.81$) and Republicans ($M = 4.62$) when the interviewee was a Republican espousing an anti-carbon tax message, $p = .049$. The partisan version of the vignette did yield symmetrical results for strength of message ratings. Both Democrats and Republicans reported similar cross-group differences. There was some concern that the magnitude of ingroup differences for Republicans was smaller than for Democrats. Specifically, Democrats rated a message significantly weaker when it originated from an ingroup member supporting a minority (anti-carbon tax) position rather than a majority (pro-carbon tax) position, a difference less pronounced for Republicans (see Figures 6a and 6b). Open-ended comments suggested that the target article could be improved by bolstering the Republican plan (addressed in Pilot Study 4).

Figure 6a

Mean Differences and Standard Errors for Strength of Message – Nonpartisan Condition
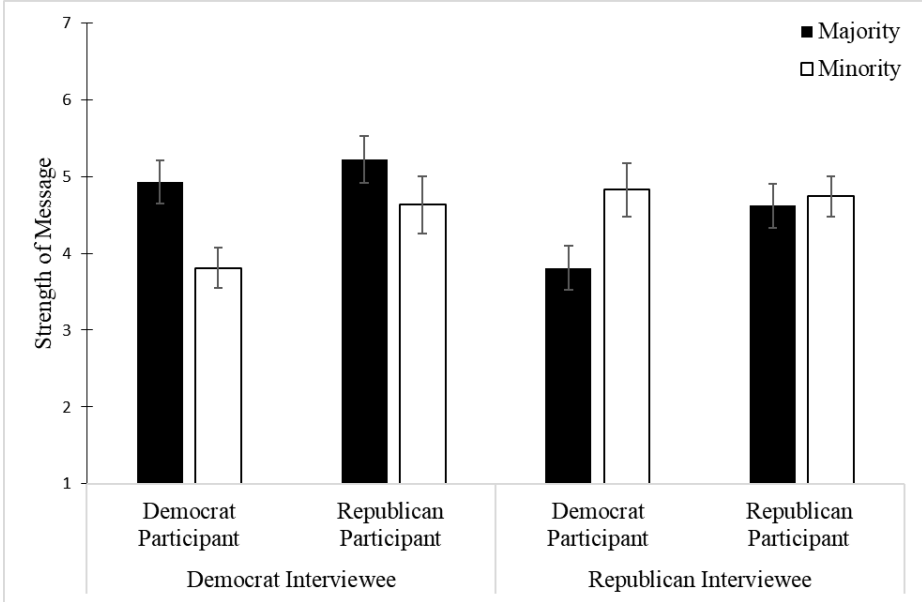
Figure 6b

Mean Differences and Standard Errors for Strength of Message – Partisan Condition
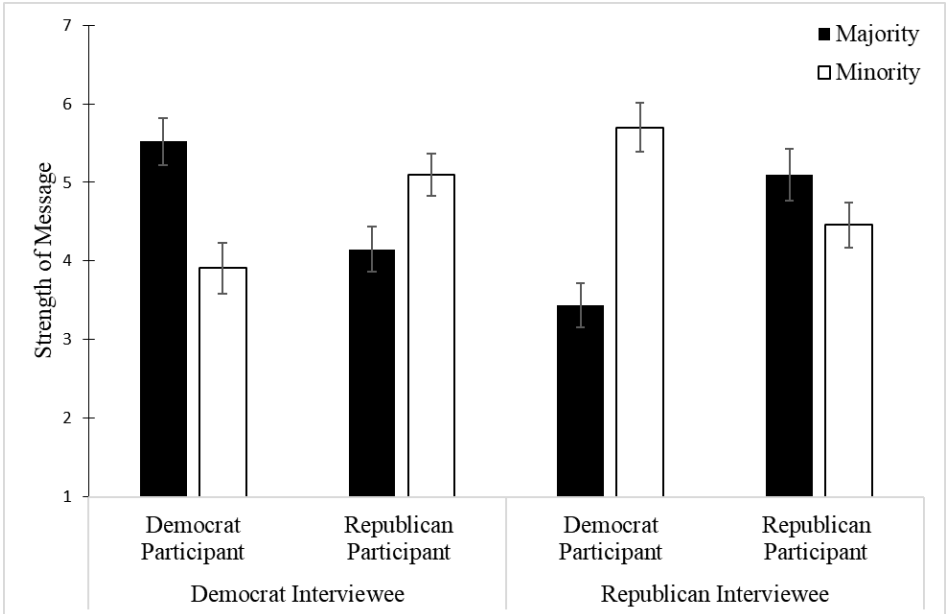
In either case, the partisan version was selected for use in subsequent studies because it had a higher overall message strength mean score than the nonpartisan version and the use of a partisan version could help participants recognize which carbon tax stance (i.e., oppose or support) would be considered a majority or minority message within respective political parties. Without this information, it would be difficult to ascertain whether the distinction between a minority and majority message was reliable. Finally, wherein Pilot Study 1 many comments had addressed the issue of climate change in general, such comments were greatly reduced in Pilot Study 2. Instead, comments addressed specifically the policies mentioned in the vignette, suggesting that participants were more focused on the policy messages conveyed in the materials.

Pilot Study 3

Hypotheses 1 and 6 predict that the persuasiveness of an ingroup message and the evaluation of an interviewee are contingent on the prototypicality of the message source. In order to adequately test these hypotheses, the present pilot study was conducted to pre-test this experimental manipulation. That is, to assess whether or not prototypical ingroup members were evaluated more positively than atypical ingroup members or outgroup members.

Design

Pilot Study 3 used a 2 (interviewee prototypicality: prototypical vs. atypical) x 2 (target affiliation: Democrat vs. Republican) x 2 (participant affiliation: Democrat vs. Republican) x 2 (majority/minority message status: support vs. oppose carbon tax)

between-subjects factorial design with strength of social identification included as an independent variable.

Participants and Procedure

Via Prolific, 206 Democrats and 194 Republicans participated in the study, M_{age} = 43. Participants completed sociodemographic, political affiliation, and strength of social identification items followed by the Big-5 personality scale filler. Participants then read the target article and completed interviewee evaluation items pertaining to likeability, knowledgeability, trustworthiness, and credibility. After evaluative items, participants completed two manipulation check items. One manipulation check item asked if the interviewee was a Republican or Democrat and the other whether the interviewee supported or opposed a carbon tax. Participants then rated the extent to which the interviewee was prototypical of a Democrat legislator and a Republican legislator.

Target Article

Participants read the partisan version of the target article from Pilot Study 2. In this study, the interviewee was portrayed as either a prototypical or atypical member of his party. In conditions featuring a prototypical Democrat or atypical Republican, the bottom of the article read, "When not supporting carbon tax policy, Shore has a number of other policy goals. Shore wants to make gun control a federal issue; he wants less restricted immigration policy; and he supports publicly funded healthcare." In conditions featuring a prototypical Republican or atypical Democrat, the bottom of the article read, "When not challenging carbon tax policy, Shore has a number of other policy goals. Shore wants to make gun control exclusively a state issue; he wants more restricted

immigration policy; and he supports privately funded healthcare."

Results

A total of 61 participants were eliminated because they failed one of the

manipulation checks, leaving 339 cases for analysis. Democrats and Republicans did not

vary in their strength of social (party) identification, $p = .86$. All evaluative items (e.g.,

credibility, trustworthiness) were collapsed into a single mean evaluation score. Although

both Republican and Democrat participants rated a prototypical ingroup member more

positively than an atypical ingroup member, low-identifying Democrats evaluated an

outgroup minority member more positively than an ingroup minority member. See

Figures 7a and 7b for interviewee evaluation means and standard deviation for low- and

high-identifying Republican and Democrat participants.

Figure 7a

Mean Differences and Standard Errors for Interviewee Evaluation by Target Affiliation,
Participant Affiliation, and Message Status (Majority vs. Minority) - High Identifiers
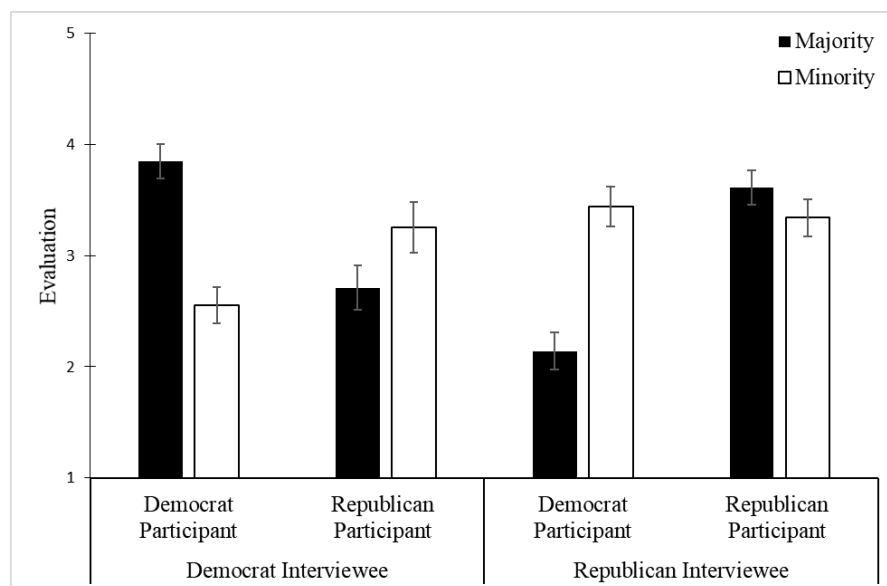
Figure 7b

Mean Differences and Standard Errors for Interviewee Evaluation by Target Affiliation, Participant Affiliation, and Message Status (Majority vs. Minority) - Low Identifiers
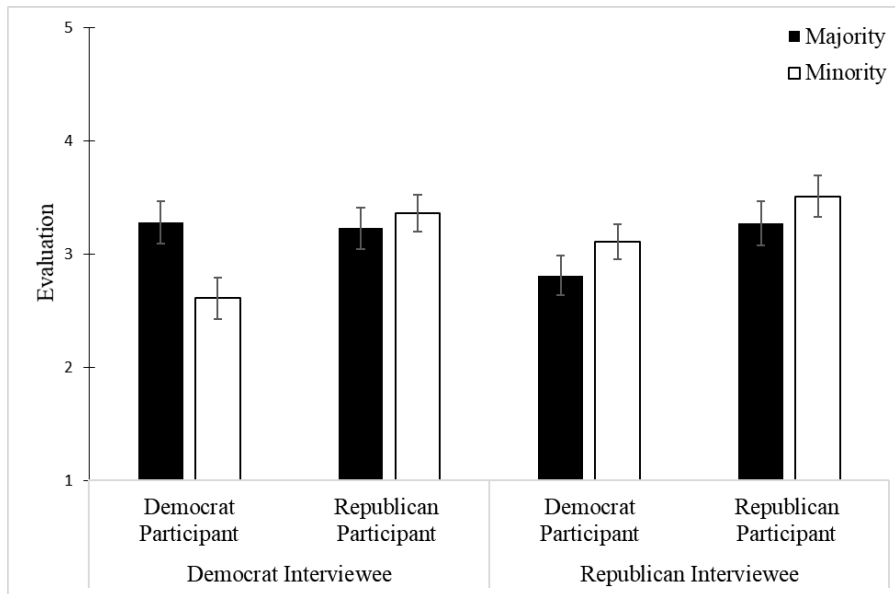
As anticipated, both Republican and Democratic participants rated prototypical ingroup members as more prototypical of their respective parties than atypical ingroup members. Similarly, ingroup members who espoused a majority position (relative to their party) were rated as more prototypical of their respective parties than ingroup members who took a minority position.

Discussion

Results confirmed that prototypical ingroup members were rated as being more prototypical than atypical ingroup members. Ingroup members supporting a majority position were also rated as being more prototypical of the respective political party than ingroup members supporting a minority position. As in Pilot Study 2, Republicans

demonstrated less reliable differences than Democrat participants in derogating ingroup members who deviated from their party's majority position as much as did Democrats.

Pilot Study 4

As demonstrated in Pilot Study 2, Republican participants were less likely than Democrats to rate a minority message originating from an ingroup member to be weaker than a message from an ingroup member that reflected a majority message. The purpose of Pilot Study 4 was to examine strength of message ratings between Democrats and Republicans using a revised version of the target article, designed to make the alternative plan to a carbon tax more appealing to participants.

Design

Pilot Study 4 used a 2 (target affiliation: Democrat vs. Republican) x 2 (participant affiliation: Democrat vs. Republican) x 2 (majority/minority message status: support vs. oppose carbon tax) between-subjects factorial design with strength of social identification included as an independent variable.

Participants and Procedure

A total of 101 Democrats and 99 Republicans recruited from Prolific participated in the study, $M_{age} = 42.0$. Participants completed sociodemographic, political affiliation, and strength of social identification items followed by the Big-5 personality scale filler. Participants then completed one item assessing the strength of the message and two manipulation check items.

Target Article

Participants read an enhanced version of the article from Pilot Study 3.

Enhancements to the article focused on making the Republican carbon tax approach ("The Republican Plan") more appealing to participants by (1) adding a sentence about Republicans aiming to create jobs with their plan, (2) adding the word "significant" to the carbon tax proposed by Democrats, and (3) removing any mention of a rebate from the Democrat carbon tax proposal.

Results

A total of 156 participants (78%) passed both manipulation checks. Democrats and Republicans did not differ in strength of social identification, $p = .20$. Both Republican and Democrat participants rated a minority message originating from an ingroup member to be marginally weaker than a majority message originating from an ingroup member, $p = .07$ and $p = .05$, respectively. Cross-group differences were also symmetrical, $ps < .05$ (see Figure 8).

Figure 8

Means and Standard Errors for Strength of Message by Target Affiliation, Participant Affiliation, and Message Status
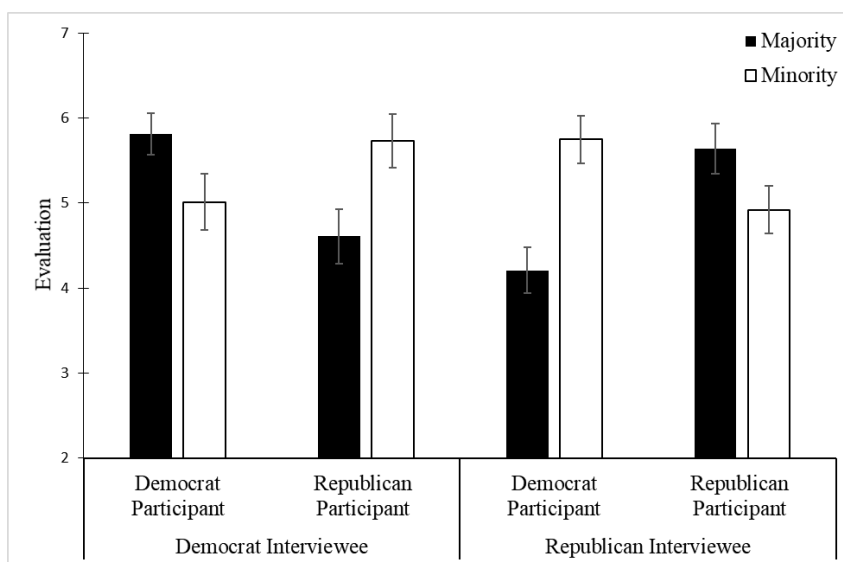
Discussion

     This version of the target article resulted in overall symmetrical results for message strength ratings among both Democrat and Republican participants. As such, the target article used in Pilot Study 4 was also utilized in the main study.

Chapter 9: Main Study

The purpose of this study was to examine the roles of strength of social identification and prototypicality in majority and minority influence, and to test moderated mediational models proposed by the 3MP (see Chapter 5), as well as hypotheses introduced in Chapter 7.

Prior research has found a positive relationship between extent of elaboration and need for cognition (NFC; e.g., Tormala & Clarkson, 2008), which describes the extent to which an individual engages in and/or enjoys thinking (Cacioppo & Petty, 1982). Given that extent of elaboration is a variable of interest in this study, NFC was also assessed in relation to extent of elaboration.

Additionally, prior research has indicated that minority (deviant and counter-normative) messages garner attention and prompt elaboration (Crano & Seyranian, 2009; McGuire, 1969, 1985; Moscovici, 1980; Petty & Cacioppo, 1986). Hence, novelty was explored as a both a dependent variable and a covariate when examining elaboration.

Design

The main study used a 2 (target affiliation: Democrat vs. Republican) x 2 (participant affiliation: Democrat vs. Republican) x 2 (majority/minority message status: support vs. oppose carbon tax) x 2 (interviewee prototypicality: prototypical vs. atypical) between-subjects factorial design. The design also included strength of social identification and NFC as continuous independent variables, which were allowed to interact with all experimentally manipulated variables and each other.

Participants

A total of 347 Democrats and 338 Republicans participated in this study via Prolific. Each was paid $2.00 to complete a 15-minute online questionnaire, $N = 685$. Three-hundred and forty-six participants (50.5%) identified as male. Participant age ranged from 18 to 80, $M_{age} = 42$.

A power analysis using G*Power (Faul et al., 2007) indicated that a minimum sample size of 418 was required to detect a small-moderate effect ($f^2 = .17$), assuming power of .80 and an alpha of .05. To detect a moderate effect size ($f^2 = .25$), a minimum sample size of 197 was required. Concerning the predicted mediational analysis, a power analysis using the Schoemann et al.'s (2017) multiple mediator sample size calculator for R indicated that a minimum sample size of 150 was required to achieve .80 power for 95% confidence in mediation analyses as required for testing Hypothesis 4. Sample size estimates for other mediation models could not be estimated.

Procedure

After providing consent, participants completed sociodemographic, political affiliation, and strength of identification items. Participants then completed the Big-5 personality questionnaire as a filler prior to reading an interview with a Republican or Democrat interviewee who supported or opposed a carbon tax policy designed to curb carbon emissions. Immediately after, participants completed a thought-listing task, attitudinal ratings, and interviewee evaluation and prototypicality items. Next, participants completed one perceived novelty item, a thought-listing categorization task, one need for cognition item, and two manipulation check items.

Materials

Sociodemographic Variables

All participants responded to five multiple-choice items inquiring about gender, race-ethnicity, education level, household income, and employment status. One additional multiple-choice items asked participants how they identified politically with "Democrat," "Republican," and "Other" offered as response options. One open-ended item asked participants to type in their age. See Appendix F1 for main study materials.

Strength of Social Identification

Participants completed a three-item Likert-type scale assessing strength of social identification with their chosen self-description as Democrat or Republican. Items were adapted from Luhtanen and Crocker (1992) with response options ranging from 1 (*Not very much*) to 5 (*Very much*). Sample items include "How important is it for you to identify as a Democrat [Republican]?" The scale had excellent reliability for both Democrats and Republicans (both Cronbach's α = .90).

Target Article

All participants read an online article in which a Democrat or Republican supported or opposed carbon tax policy designed to curb carbon outputs. Crossed with these manipulations, the Republican or Democrat interviewee was also portrayed as either a prototypical or atypical member of his respective party. In conditions featuring a prototypical Democrat or atypical Republican, the bottom of the article read, "When not challenging carbon tax policy, Shore has a number of other policy goals. Shore wants to make gun control a federal issue; he wants less restricted immigration policy; and he

supports publicly funded healthcare." In conditions featuring a prototypical Republican or atypical Democrat, the bottom of the article read, "When not challenging carbon tax policy, Shore has a number of other policy goals. Shore wants to make gun control exclusively a state issue; he wants more restricted immigration policy; and he supports privately funded healthcare." See Appendix B3 for materials (previously developed as part of Pilot Study 1).

Filler

A five-item Likert-type scale assessing Big-5 personality traits (adapted from Gosling et al., 2003) was used to extend the time between strength of social identification items and participants' exposure to the target article.

Thought-listing Task

To measure extent of elaboration (Cacioppo et al., 1997), participants were provided with 10 empty fields and were asked to list any and all thoughts they had while reading the online target article. Participants had five minutes to complete this task.

Attitudes

Participants rated eight attitude objects on a seven-point semantic differential scale including: carbon tax, restricted gun rights, offshore fracking, abortion, animal rights/conservation, gay and/or lesbian soldiers in the military, encouraging energy conservation, and loosening energy regulations on businesses. Each attitude object was rated on the following dimensions: good-bad, kind-unkind, moral-immoral, positive-negative, right-wrong (adapted from Alvaro & Crano, 1997). The order of attitude objects was varied randomly for each participant.

Interviewee Evaluation

Using a scale of 1 (*not at all*) to 5 (*extremely*) participants indicated to what extent the interviewee was credible, trustworthy, knowledgeable, and likeable. All four items were collapsed into a single evaluation index (Cronbach's α = .93).

Novelty

Participants rated on a scale from 1 (*not at all*) to 5 (*extremely*) the extent to which they were surprised by the interviewee's stance on a carbon tax policy to reduce the effects of climate change.

Thought-listing Categorization

Participants were provided with a list of all of the thoughts they had generated in the thought-listing task and asked to categorize their thoughts as: (1) negative towards carbon tax, (2) negative towards Darren Shore, (3) neutral, (4) positive towards Darren Shore, and (5) positive towards carbon tax. Participants were told to select as many categories per thought as they deemed appropriate. Participants' self-categorization of their thoughts was used to compute extent of elaboration for each participant as follows: the total number of negative thoughts towards Darren Shore (the message interviewee) was subtracted from the total number of positive thoughts towards Darren Shore, the results of which equated to the extent of elaboration (strength and direction) dedicated to Darren Shore. A similar process was utilized to compute the extent of elaboration towards a carbon tax. Thoughts categorized as "neutral" were not counted. The range of responses for extent of elaboration for both Darren Shore and carbon tax was +/- 10.

Need for Cognition

NFC was measured with a six-item scale (de Holanda Coelho et al., 2018). Response options ranged from 1 (*extremely uncharacteristic of me*) to 5 (*extremely characteristic of me*). Sample items include, "I would prefer complex to simple problems" and "Thinking is not my idea of fun." The scale had excellent reliability (Cronbach's α = .86).

Results

Prior to analysis, data were inspected for normality and outliers using scatter and Q-Q plots, and skewness and kurtosis values. Data were considered to approximate a normal distribution when residual skewness and/or kurtosis values fell between –1.5 and +1.5 (Tabachnick & Fidell, 2007). When modeling the data using general linear models (GLM), cases whose standardized residuals were above or below 3 standard deviations from the mean were considered outliers and removed from primary analyses. Strength of social identification and NFC were centered at their respective means when included in the main analyses. Where appropriate, pairwise comparisons are reported using least significant difference (LSD) adjustment.

Strength of Social Identification

An independent samples t-test examined whether or not there was a significant difference between Democrats and Republicans in strength of social identification. There was no significant difference between Republicans ($n = 338$, $M = 4.38$, $SD = 1.52$) and Democrats ($n = 338$, $M = 4.55$, $SD = 1.57$), $t(683) = 1.42$, $p = .16$, 95% CI [-.064, .400].

Manipulation Check

With "I'm not sure" responses coded as incorrect, 108 participants (15.8%) were unable to correctly identify the policy position of the interviewee in the online article. Similarly, 43 participants (6.3%) did not correctly identify the political affiliation of the interviewee. In total, 23 participants (3.4%) failed both manipulation checks. All 128 participants who failed at least one manipulation check (18.7%) were excluded from further analyses leaving an analysis sample of $N = 551$.

Novelty

To determine whether perceived novelty (of the message) differed by the target affiliation, participant affiliation, message status (minority or majority message), interviewee prototypicality, and/or strength of social identification and NFC, a univariate GLM was conducted with interviewee novelty as the dependent variable. Because there was no plausible hypothesis concerning any interaction between strength of identification and NFC, these two continuous variables were not allowed to interact in any of the terms included in the models reported in the dissertation.

Main effects of message status (minority vs. majority), $F(1, 546) = 406.41$, $p < .001$, $\eta_p^2 = .457$, and strength of social identification, $F(1, 546) = 11.52$, $p = .001$, $\eta_p^2 = .023$ on novelty were qualified by a two-way interaction involving these predictors, $F(1, 546) = 5.09$, $p = .024$, $\eta_p^2 = .010$. Additionally, there was an interaction between target affiliation and participant affiliation, $F(1, 546) = 13.98$, $p < .001$, $\eta_p^2 = .028$. Both two-way interactions were further moderated by a four-way interaction between target affiliation, message status, participant affiliation, and strength of social identification,

$F(1, 546) = 7.34$, $p = .007$, $\eta_p^2 = .015$. Regardless of their level of identification,

Democrats and Republicans rated messages from their own ingroup member supporting a

minority position as more surprising than when the message supported a majority

position, all ps < .001. However, as demonstrated in Figures 9a and 9b, high-identifying

Democrats appeared to be much more surprised by minority messages originating from

an ingroup member ($M = 3.80$) than low-identifying Democrats ($M = 2.60$). The same

pattern appeared for Republicans though to a lesser extent ($M = 3.38$ vs. $M = 2.89$). In

short, minority positions were considered much more novel with high identifiers apt to

consider variability among their party to be more novel than low identifiers.

Figure 9a

Mean Differences and Standard Errors for Perceived Novelty by Target Affiliation,
Message Status, and Participant Affiliation for High Identifiers
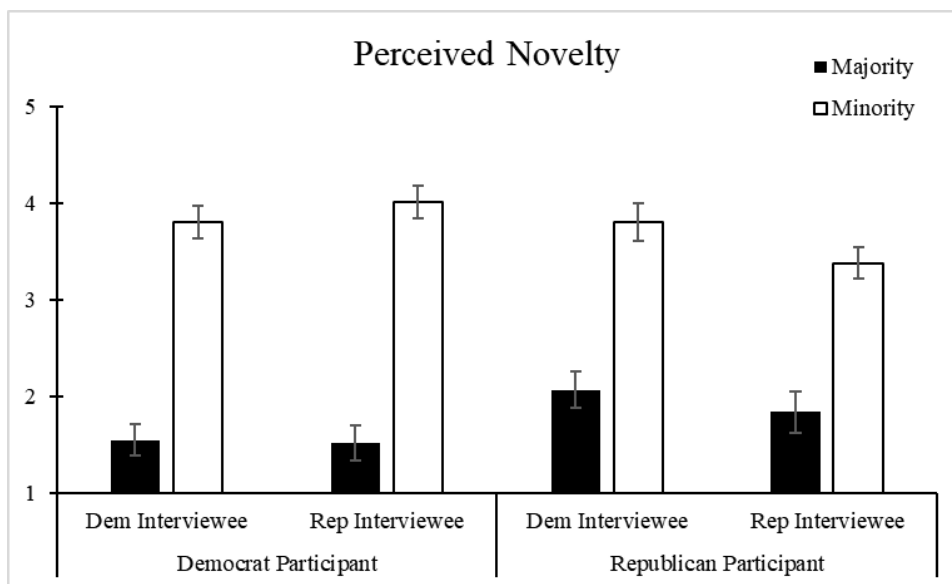
Figure 9b

Mean Differences and Standard Errors for Perceived Novelty by Target Affiliation, Message Status, and Participant Affiliation for Low Identifiers
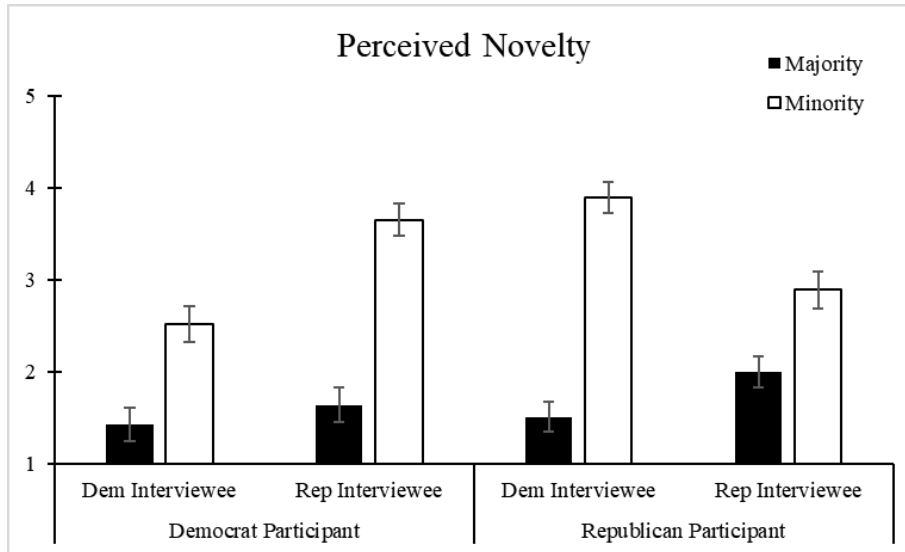
There was also a main effect of interviewee prototypicality on perceived novelty, $F(1, 546) = 5.86$, $p = .016$, $\eta_p^2 = .012$, which was qualified by a three-way interaction with interviewee prototypicality, message status, and NFC, $F(1, 546) = 8.09$, $p = .005$, $\eta_p^2 = .017$. As summarized in Figure 10, prototypicality did not affect the novelty ratings of high NFC participants when they were exposed to an interviewee who conveyed a majority viewpoint. This was also the case for low-NFC participants who read about an interviewee expressing a minority viewpoint. However, for participants high in NFC, a minority message was rated as more surprising when the interviewee was atypical ($M = 3.86$) rather than typical ($M = 3.33$), $p = .005$. Similarly, among low-NFC individuals, a majority message was rated to be more novel and surprising when it was expressed by an atypical ($M = 1.94$) interviewee than a prototypical interviewee ($M = 1.47$), $p = .021$.

Figure 10

Mean Differences and Standard Errors for Perceived Novelty by Interviewee Prototypicality, Message Status, and NFC
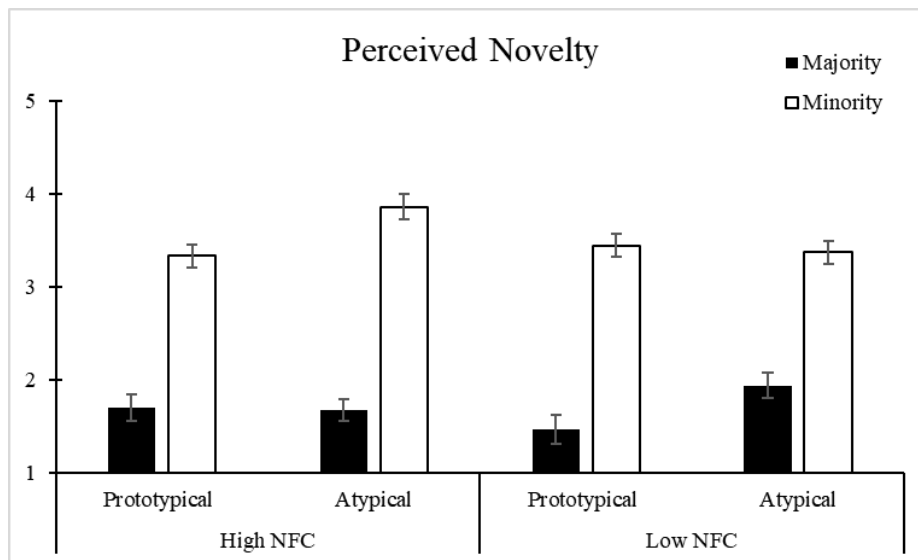
Main Analyses

Dependent variables were submitted to a 2 (interviewee prototypicality: prototypical vs. atypical) x 2 (target political affiliation: Democrat vs. Republican) x 2 (participant political affiliation: Democrat vs. Republican) x 2 (majority/minority message status: support vs. oppose carbon tax) factorial design with strength of social identification and NFC as continuous independent variables. When examining group differences in extent of elaboration, perceived novelty was also included as a covariate. All models were first tested with gender as a covariate; however, because this variable was never significant, all models presented here omit this covariate. With the exception of moderated mediation, all analyses discussed below were conducted using the univariate general linear model (GLM) function in SPSS.

Evaluation of the Source

According to Hypothesis 1, high identifiers will evaluate prototypical ingroup members more positively than atypical ingroup members and there will be no difference in interviewee evaluations for prototypical versus atypical ingroup message sources (interviewee) for low identifiers. Levene's test indicated that the homogeneity of variances assumption was violated, $p = .006$; however, GLMs are fairly are robust to violations of homogeneity of variance as long as the cell sizes are roughly equal (Boneau, 1960; Glass et al., 1972), which was the case. Moreover, a review of standard deviations indicated that in no instance was the largest standard deviation in a cell more than double the value of the smallest standard deviation (Box, 1954).

There was a main effect of participant affiliation on interviewee evaluation, $F(1, 551) = 9.69$, $p = .002$, $\eta_p^2 = .020$, which was qualified by a two-way interaction with target affiliation, $F(1, 551) = 8.58$, $p = .004$, $\eta_p^2 = .017$. On average, Democratic participants evaluated a Democrat interviewee more favorably ($M = 3.22$) than a Republican interviewee ($M = 2.98$), $p = .031$. Conversely, Republicans rated a Republican interviewee more favorably ($M = 3.45$) than a Democrat interviewee ($M = 3.23$), $p = .048$. There was also a two-way interaction between target affiliation and message status (majority vs. minority), $F(1, 551) = 6.78$, $p = .010$, $\eta_p^2 = .014$. A Republican interviewee promoting a majority position was evaluated less favorably ($M = 3.10$) than a Republican interviewee promoting a minority position ($M = 3.33$), $p = .034$. There was no difference in evaluation of a Democrat interviewee promoting a majority ($M = 3.31$) or minority ($M = 3.14$) position, $p = .12$. Both of the aforementioned two-way

interactions were qualified by a three-way interaction involving target affiliation, message status, and participant affiliation, $F(1, 551) = 74.44$, $p < .001$, $\eta_p^2 = .13$, which was moderated in the context of a four-way interaction including target affiliation, message status, participant affiliation, and strength of social identification, $F(1, 551) = 5.47$, $p = .020$, $\eta_p^2 = .011$.

High-identifying Democrat participants evaluated a Democrat interviewee more positively when he espoused a majority (pro-carbon tax) message ($M = 3.85$) than when he espoused a minority (anti-carbon tax) message ($M = 2.71$), $p < .001$ and also evaluated a Republican promoting a minority (pro-carbon tax) message ($M = 3.47$) more positively than a Republican promoting a majority (anti-carbon tax) message ($M = 2.54$), $p < .001$. High-identifying Republican participants evaluated a Republican interviewee champion-ing a majority (anti-carbon tax) message ($M = 3.94$) more positively than when he championed a minority (pro-carbon tax) message ($M = 3.34$), $p = .012$. High-identifying Republicans also evaluated a Democrat participant championing a minority (anti-carbon tax) message ($M = 3.59$) significantly more positively than when he championed a majority (pro-carbon tax) message ($M = 2.82$), $p = .001$. That is, participants who strongly identified with their own party showed a clear preference for interviewees expressing a position consistent with their respective party majority. Notably, mean differences were greater for high-identifying Democrats.

Moreover, as demonstrated in Figure 11a, high-identifying Democrat participants appeared to evaluate a Republican interviewee endorsing a pro-carbon tax (minority) message more favorably than an ingroup member endorsing an anti-carbon tax (majority)

message ($\Delta M = 0.75$). High-identifying Republicans appeared to trend in this same manner but to a much lesser degree ($\Delta M = 0.25$).

Low-identifying Democrat participants evaluated a fellow Democrat interviewee more positively when he supported a majority (pro-carbon tax) message ($M = 3.54$) than when he espoused a minority (anti-carbon tax) message ($M = 2.76$), $p = .001$; likewise, they evaluated a Republican interviewee promoting a minority (pro-carbon tax) message ($M = 3.29$) more positively than a Republican promoting a majority (anti-carbon tax) message ($M = 2.63$), $p = .003$. Though this finding was identical in kind to their high-identifying counterparts, the average difference in the evaluation was smaller among low-identifying Democrats.

Interestingly, low-identifying Republicans did not differ in their evaluations of a Republican interviewee championing a majority (anti-carbon tax) message ($M = 3.29$) and a Republican interviewee championing a minority (anti-carbon tax) message ($M = 3.23$), $p = .80$. In other words, low-identify Republicans seemed to be somewhat equanimous concerning different substantive positions intended to combat climate change. However, they did provide more favorable ratings of a Democrat interviewee championing a minority (anti-carbon tax) message ($M = 3.48$) than a Democrat interviewee championing a majority (pro-carbon tax) message ($M = 3.03$), $p = .031$. In summary, this analysis suggests that, whereas party identification moderated findings among both Democrats and Republicans, it appears to matter less for Republicans with low identifiers making no marked distinction between fellow Republicans who express a majority or a minority view within their own party.

Finally, as demonstrated in Figure 11b, low-identifying Democrat participants also evaluated a Republican interviewee endorsing a pro-carbon tax (minority) message more favorably than an ingroup member endorsing an anti-carbon tax (majority) message ($\Delta M = 0.53$). Low-identifying Republicans once again also trended in this same manner but also to a lesser extent than their Democrat counterparts ($\Delta M = 0.25$).

Figure 11a

Mean Differences and Standard Errors for Interviewee Evaluation by Target Affiliation, Message Status, and Participant Affiliation for High-Identifiers
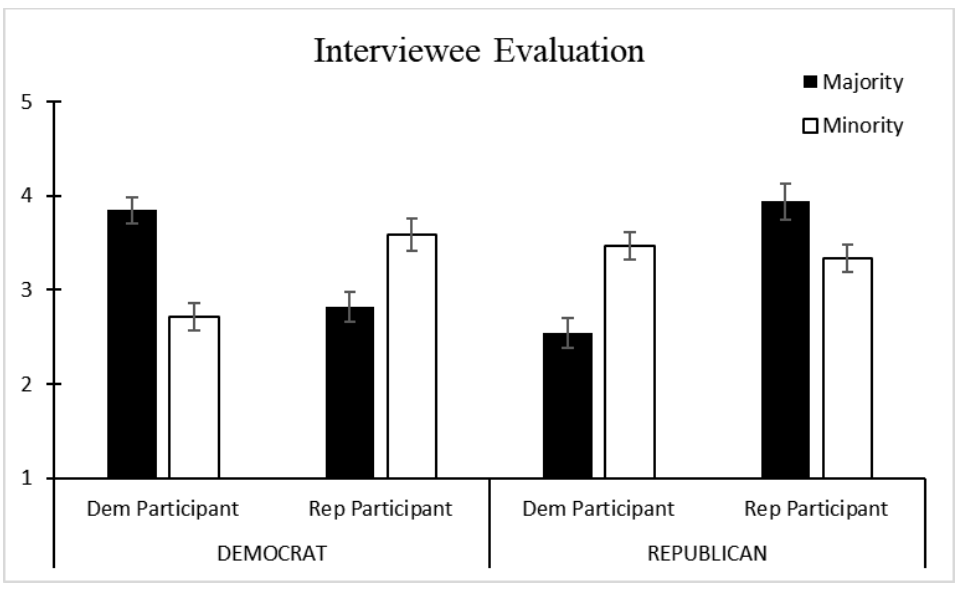
Figure 11b

Mean Differences and Standard Errors for Interviewee Evaluation by Target Affiliation, Message Status, and Participant Affiliation for Low-Identifiers
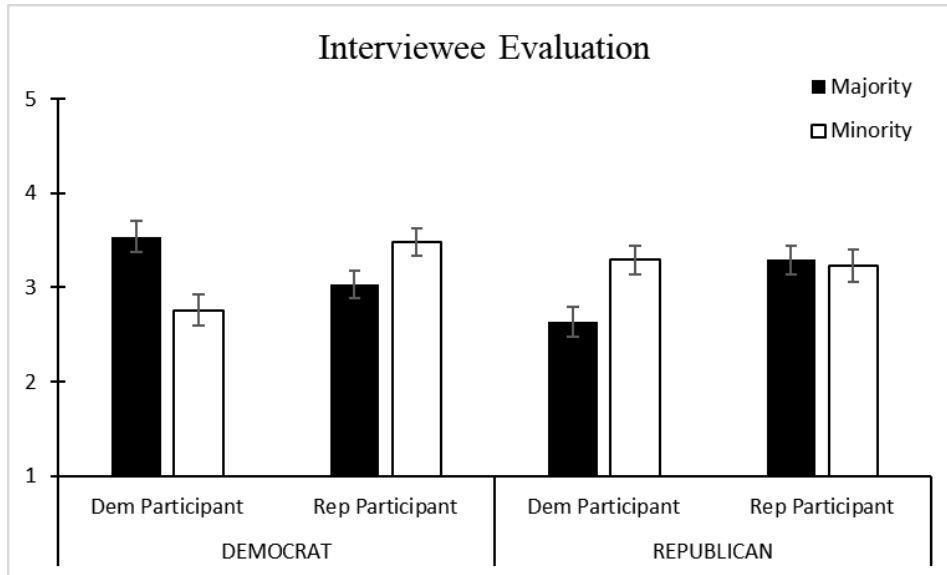
In addition to the effects reported above, there was a two-way interaction between target affiliation and interviewee prototypicality, $F(1, 551) = 4.70$, $p = .031$, $\eta_p^2 = .010$, which was qualified by a three-way interaction involving participant affiliation, $F(1, 551) = 26.22$, $p < .001$, $\eta_p^2 = .051$. Democrat participants evaluated a prototypical Democrat interviewee ($M = 3.50$) more positively than an atypical Democrat interviewee ($M = 2.94$), $p < .001$; conversely, they rated an atypical Republican interviewee ($M = 3.27$) more positively than a prototypical Republican interviewee ($M = 2.70$), $p < .001$. Republican participants judged a Republican interviewee ($M = 3.60$) slightly more positively than an atypical Republican interviewee ($M = 3.30$), $p = .061$, but did not differentiate between a prototypical Democrat ($M = 3.15$) and an atypical Democrat interviewee ($M = 3.31$), $p = .31$ (see Figure 12).

Figure 12

*Mean Differences and Standard Errors for Interviewee Evaluation by Target Affiliation,
Interviewee Prototypicality, and Participant Affiliation*
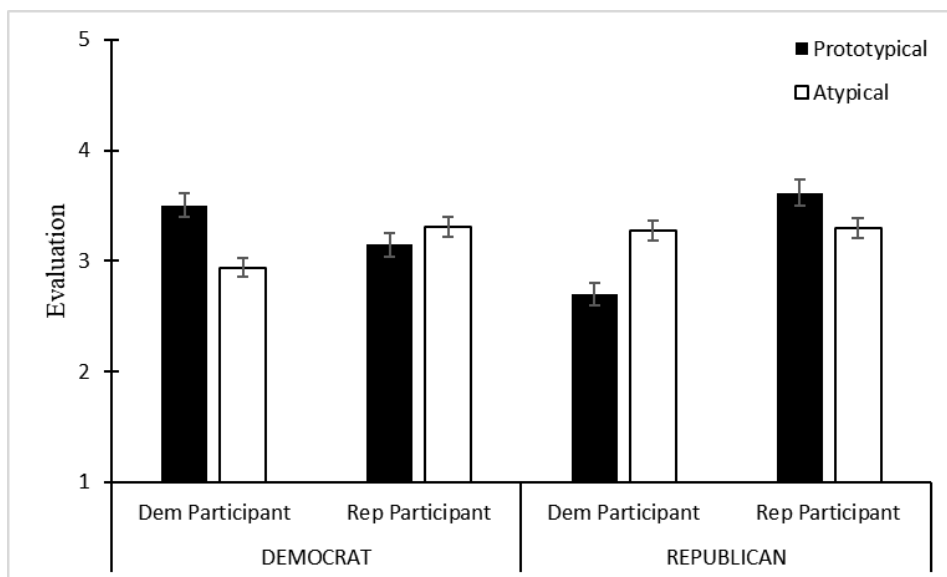
Extent of Elaboration

The mean number of total thoughts listed by participants was 5.29 ($SD = 2.31$).

On average, participants generated 1.80 positive thoughts towards the interviewee

(Darren Shore), with responses ranging from 0 to 9 thoughts. The mean number of

negative thoughts towards the interviewee was 1.34, with a range from 0 to 10. The mean

number of positive thoughts towards carbon tax was 1.65 (ranging from 0 to 9) and the

mean number of negative thoughts towards carbon tax was 1.66 (ranging from 0 to 9).

Extent of elaboration towards a carbon tax and towards the interviewee Darren

Shore were kept as two separate variables in analyses for several reasons. First, extent of

elaboration was operationalized as the number and direction of *issue- or message-*

relevant thoughts (Chaiken et al., 1989; Petty & Cacioppo, 1986). Thoughts related to carbon tax could be considered more issue- or message-relevant than thoughts related to the interviewee. Second, it would be difficult to properly capture extent of elaboration in those cases whereby a participant could have positive thoughts towards the interviewee yet negative thoughts about carbon tax (and vice versa). Parsing out thoughts related to the interviewee from thoughts related to carbon tax helped to determine how thoughts about either topic related to other variables of interest.

Carbon Tax. Five outliers were removed whose standardized residuals were above or below 3 standard deviations from the mean. There was a main effect of participant political affiliation, $F(1, 546) = 92.40$, $p < .001$, $\eta_p^2 = .161$, a main effect of NFC, $F(1, 546) = 92.40$, $p < .001$, $\eta_p^2 = .161$, and a two-way interaction between target affiliation and whether the message was a minority or majority message, $F(1, 546) = 20.73$, $p < .001$, $\eta_p^2 = .041$. Regarding participant affiliation, Democrats reported a significantly larger balance of positive to negative thoughts about carbon tax ($M = 0.96$) than Republicans ($M = -1.05$), $p < .001$, consistent with the overall more favorable carbon tax attitudes of Democrats compared to Republicans. Participants also reported more positive vs. negative thoughts about a carbon tax when the interviewee was a Democrat supporting a carbon tax ($M = 0.20$) compared to when the interviewee was a Democrat opposing a carbon tax ($M = -0.57$), $p = .030$. Additionally, participants reported an increased balance of positive to negative thoughts about a carbon tax when the interviewee was a Republican supporting a carbon tax ($M = 0.66$) compared to when the interviewee was a Republican opposing a carbon tax ($M = -0.46$), $p = .001$. Note that in

the present investigation, and consistent with prior literature, the balance of positive of negative thoughts serves as a measure of message elaboration. Naturally, it can be expected that if the message is positive (supporting a carbon tax) a more positive score indicates are greater presence of positive relative to negative thoughts, and a greater elaboration of the message's positive content. Conversely, for a negative message it must be expected that the greater elaboration of the message's negative content will produce more negative relative to positive thoughts; hence, for negative messages a more negative score serves as an indicator of greater elaboration.

In addition to the above, there was also a three-way interaction between target affiliation, interviewee prototypicality, and strength of identification, $F(1, 546) = 4.94$, $p = .027$, $\eta_p^2 = .010$. High-identifying participants reported marginally significant more positive vs. negative thoughts about carbon tax when the interviewee was a prototypical Democrat ($M = 0.32$) rather than an atypical Democrat ($M = -0.49$), $p = .052$. High-identifying participants also reported significantly more positive vs. negative thoughts about carbon tax when the interviewee was an atypical Republican ($M = 0.64$) rather than an atypical Republican ($M = -0.98$), $p = .024$. There were no differences in positive vs. negative thoughts towards a carbon tax by target affiliation and interviewee prototypicality for low identifiers.

Interviewee. Three main effects materialized: Democratic participants were more favorable in their thoughts reported about the interviewee than Republicans, $F(1, 546) = 4.67$, $p = .031$, $\eta_p^2 = .110$; high identifiers also generated a more favorable balance of positive to negative thoughts, $F(1, 546) = 4.57$, $p = .033$, $\eta_p^2 = .009$, as did participants

who rated the novelty of the message high, $F(1, 546) = 5.62$, $p = .018$, $\eta_p^2 = .012$.

A two-way interaction involving target affiliation and participant affiliation, $F(1, 546) = 4.12$, $p = .043$, $\eta_p^2 = .008$, was qualified by two three-way interactions. The first three-way interaction included target affiliation, version, and participant affiliation, $F(1, 546) = 15.63$, $p < .001$, $\eta_p^2 = .031$. Democrat participants reported significantly less positive thoughts about the interviewee when he was a prototypical Republican ($M = -0.64$) than Republican participants ($M = 1.56$), $p < .001$. There were no other significant differences in positive thoughts between Democrat and Republican participants.

The second three-way interaction included target affiliation, whether the message was a minority or majority message, and participant affiliation, $F(1, 546) = 55.45$, $p < .001$, $\eta_p^2 = .103$. Democrat participants reported significantly more positive thoughts about the interviewee when the interviewee was a Democrat in support of a carbon tax ($M = 1.44$) than Republican participants ($M = -0.65$), $p < .001$. Republican participants reported significantly more positive thoughts about the interviewee when he was a Democrat opposed to a carbon tax ($M = 1.24$) than did Democrats ($M = -0.90$), $p < .001$. Republican participants also reported significantly more positive thoughts about the interviewee when he was a Republican opposed to a carbon tax ($M = 1.82$) than Democrat participants ($M = -0.58$), $p < .001$. The two groups of participants did not vary in the number of positive thoughts reported about the interviewee when he was a Republican in support of a carbon tax.

Attitudes towards Carbon Tax

Two outliers were removed whose standardized residuals were above or below 3

standard deviations from the mean. The was a main effect of participant affiliation, $F(1, 549) = 295.59$, $p < .001$, $\eta_p^2 = .379$. As expected, Democrats had much more positive attitudes towards a carbon tax ($M = 5.62$) than Republicans ($M = 3.52$). There was also a main effect of target affiliation on attitudes towards carbon tax, $F(1, 549) = 9.88$, $p = .002$, $\eta_p^2 = .020$. As suspected, a message from a Democrat interviewee produced a more favorable evaluation of a carbon tax compared to message from a Republican interviewee, although this difference was qualified by a two-way interaction with whether or not the message was a minority or majority message, $F(1, 549) = 31.64$, $p < .001$, $\eta_p^2 = .061$. Participants who read about a Democrat who supported a carbon tax had significantly more favorable attitudes towards a carbon tax ($M = 4.74$) than those who read about a Democrat who opposed a carbon tax message ($M = 4.01$), $p < .001$. Conversely, those who read about a Republican opposing a carbon tax had less favorable attitudes towards carbon tax ($M = 4.44$) than participants who read about a Republican supporting a carbon tax ($M = 5.08$), $p < .001$.

There were also two three-way interactions. The first three-way interaction included target affiliation, interviewee prototypicality, and participant political affiliation, $F(1, 549) = 4.10$, $p = .044$, $\eta_p^2 = .008$. Across the board, Democratic participants overwhelmingly endorsed carbon tax to a greater extent than Republicans, all ps < .001. However, Republicans also reported a significant difference in attitudes towards carbon tax when the interviewee was an atypical Republican ($M = 3.99$) versus an atypical Democrat ($M = 3.18$), $p = .001$. For Democrats, interviewee prototypicality remained without consequence for how much they endorsed a carbon tax.

The second three-way interaction included target affiliation, prototypicality, and strength of social identification, $F(1, 549) = 8.12$, $p = .005$, $\eta_p^2 = .016$. Low identifiers did not differ in their endorsement of a carbon tax when the interviewee was prototypical or atypical, all ps $> .05$, but high-identifiers did endorse a carbon tax to a greater extent when the interviewee was an atypical Republican ($M = 5.01$) rather than a prototypical Republican ($M = 4.45$), $p = .035$. These results suggest that low identifiers were less mindful of prototypicality cues than high identifiers.

Both three-way interactions were qualified by a complex five-way interaction which included target affiliation, interviewee prototypicality, whether or not the message was a majority or minority message, participant affiliation, and strength of social identification, $F(1, 549) = 4.33$, $p < .001$, $\eta_p^2 = .064$. For ease of understanding, patterns for high-identifiers and low-identifiers are explained separately.

High Identifiers. High-identifying Republicans reported more favorable attitudes towards carbon tax when they read about a prototypical Democrat supporting a carbon tax ($M = 3.70$) than when they read about a prototypical Republican opposing a carbon tax ($M = 2.37$), $p = .017$, and also reported less favorable attitudes towards carbon tax when they read about an atypical Democrat opposing a carbon tax ($M = 2.05$) than when they read about an atypical Democrat supporting a carbon tax ($M = 3.45$, $p = .006$), and an atypical Republican supporting a carbon tax ($M = 4.22$), $p < .001$. High-identifying Republicans also reported less favorable attitudes towards carbon tax when they read about a prototypical Republican opposing a carbon tax ($M = 2.37$) than when they read about a prototypical Republican supporting a carbon tax ($M = 3.47$), $p = .035$. Overall,

this pattern indicates that highly identified Republican participants were indeed responsive to attitudinal cues provided by the interviewee in the vignette, with an *a*typical, rather than a prototypical, Republican being able to sway them the most in favor of a carbon tax. This suggests, above all, that highly identified Republicans might change their mind about a carbon tax on the basis of respective cues from within their own party. By contrast, there were no significant differences found among high-identifying Democrats, indicating that this group of individuals was not influenced at all by the vignette.

Low Identifiers. Democrats who did not strongly identify with being a Democrat reported less favorable attitudes towards carbon tax when they read about an atypical Democrat opposing a carbon tax ($M = 4.62$) than when they read about an atypical Democrat supporting a carbon tax ($M = 5.65$), $p = .025$. Low-identifying Democrats also reported less favorable attitudes towards carbon tax when they read about an atypical Republican opposing a carbon tax ($M = 3.83$) than when they read about an atypical Republican supporting a carbon tax ($M = 5.61$), $p = .029$, and an atypical Democrat supporting a carbon tax ($M = 5.65$), $p = .006$. Finally, low-identifying Democrats also reported less favorable attitudes towards a carbon tax when they were exposed to an atypical Republican opposing a carbon tax ($M = 4.55$) than when they read about a prototypical Republican opposing a carbon tax ($M = 5.76$), $p = .014$. That is, whereas highly-identified Democrats seemed to be impervious to contextual cues from the interviewee, low identifiers among Democrats were receptive to them. Interestingly, this latter group was most likely to adopt a lukewarm, if not anti-carbon tax position when exposed to an atypical Republican.

Republicans who did not strongly identify with being a Republican reported less favorable attitudes towards carbon tax when they read about an atypical Democrat opposing a carbon tax ($M = 3.31$) than when they read about an atypical Republican supporting a carbon tax ($M = 4.28$), $p = .048$. They also reported significantly less favorable attitudes towards carbon tax when they read about a prototypical Democrat opposing a carbon tax ($M = 2.75$) than when they read about a prototypical Democrat supporting a carbon tax ($M = 3.77$, $p = .026$), and a prototypical Republican supporting a carbon tax ($M = 4.70$), $p < .001$. Notably, in contrast to their high-identify counterparts, low-identifying Republicans were moved the farthest in favor of a carbon tax by a prototypical Republican, not by an atypical one, as was the case for the former group.

See Figures 13a-18b for a summary of all mean differences and standard errors. Table 19 in Appendix E2 displays means and standard deviations for attitudes towards carbon tax by target affiliation, participant affiliation, message status, and interviewee prototypicality.

Figure 13a

Mean Differences and Standard Errors for Attitudes towards Carbon Tax by Message Status, Interviewee Prototypicality, and Group Membership for High-Identifying Democrats
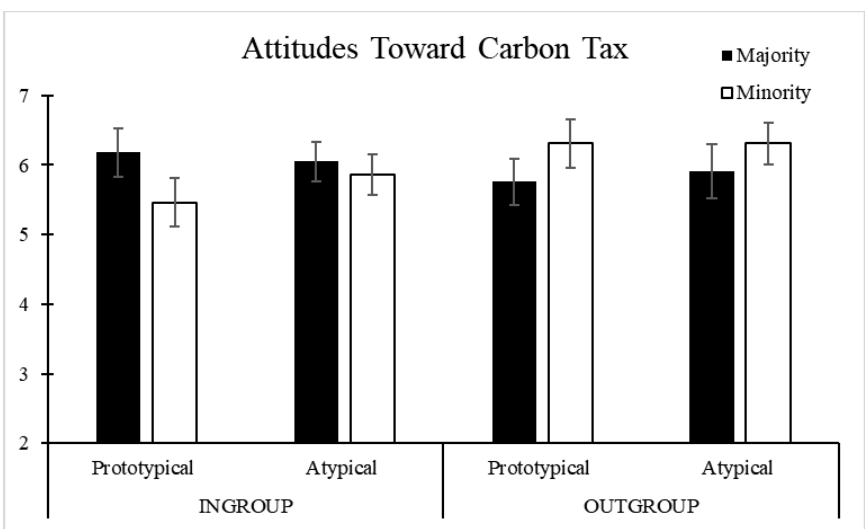
Figure 13b

Mean Differences and Standard Errors for Attitudes towards Carbon Tax by Message Status, Interviewee Prototypicality, and Group Membership for Low-Identifying Democrats
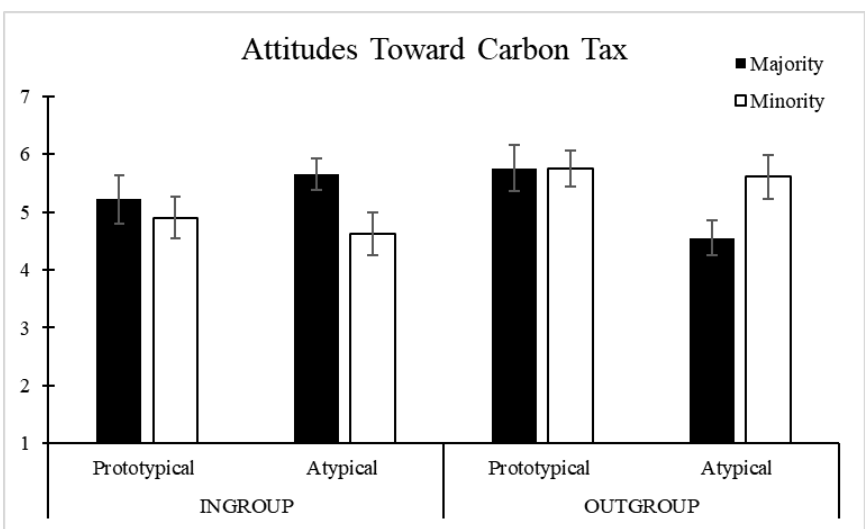
Figure 14a

Mean Differences and Standard Errors for Attitudes towards Carbon Tax by Message Status, Interviewee Prototypicality, and Group Membership for High-Identifying Republicans
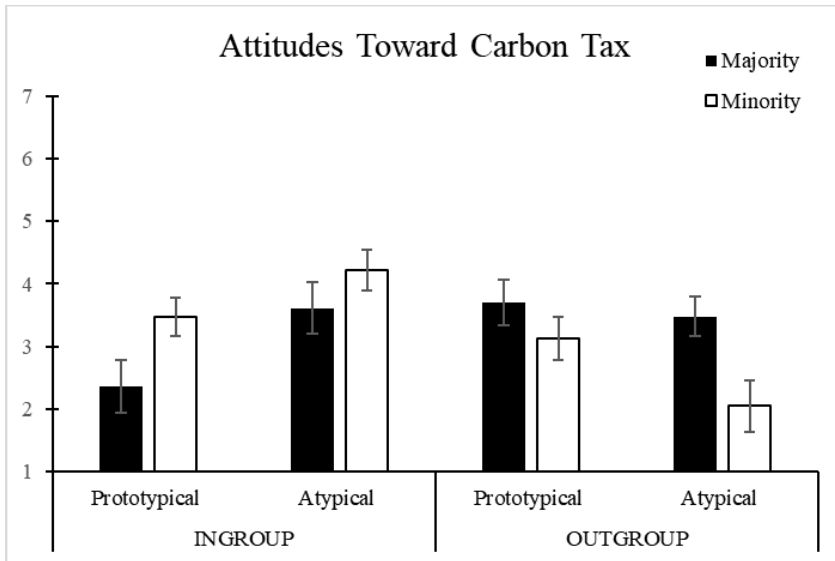
Figure 14b

Mean Differences and Standard Errors for Attitudes towards Carbon Tax by Message Status, Interviewee Prototypicality, and Group Membership for Low-Identifying Republicans
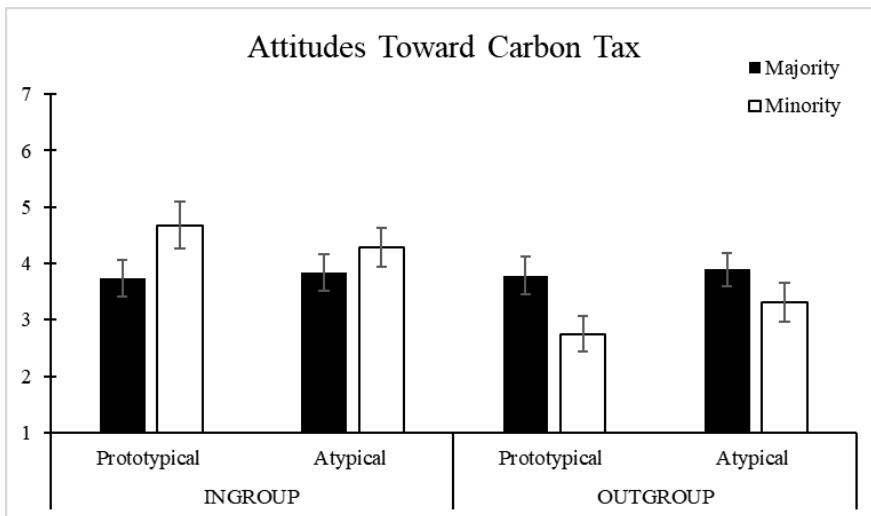
Figure 15a

Mean Differences and Standard Errors for Attitudes towards Carbon Tax by Interviewee
Prototypicality, Message Status, and Group Membership for High-Identifying Democrats
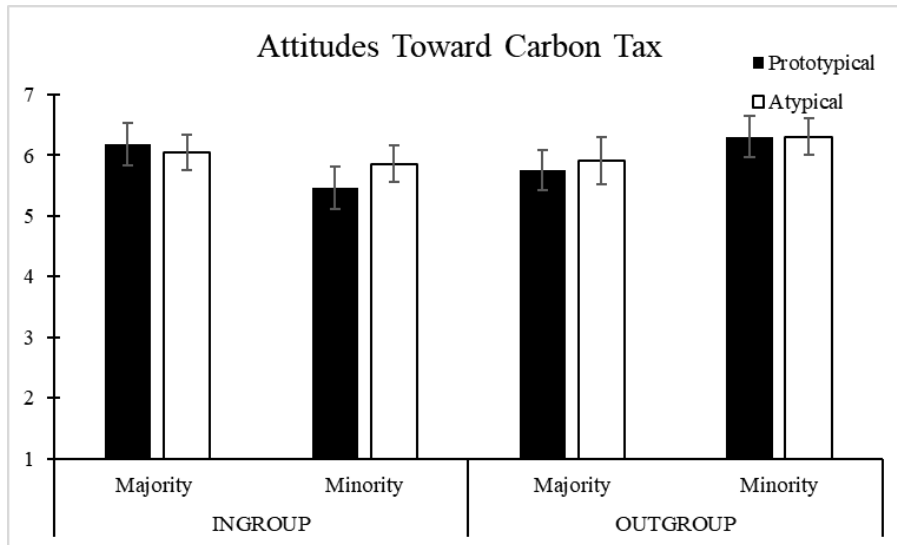
Figure 15b

Mean Differences and Standard Errors for Attitudes towards Carbon Tax by Interviewee
Prototypicality, Message Status, and Group Membership for Low-Identifying Democrats
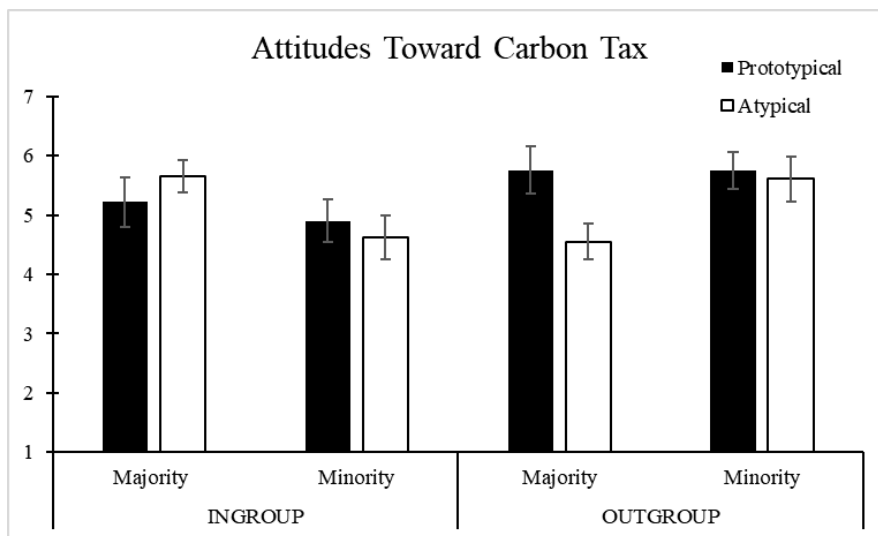
Figure 16a

Mean Differences and Standard Errors for Attitudes towards Carbon Tax by Interviewee Prototypicality, Message Status, and Group Membership for High-Identifying Republicans
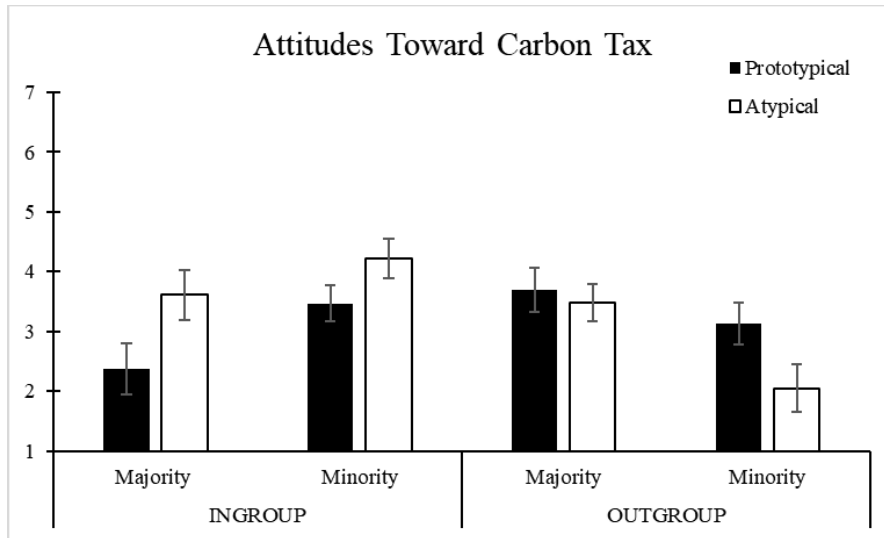
Figure 16b

Mean Differences and Standard Errors for Attitudes towards Carbon Tax by Interviewee Prototypicality, Message Status, and Group Membership for Low-Identifying Republicans
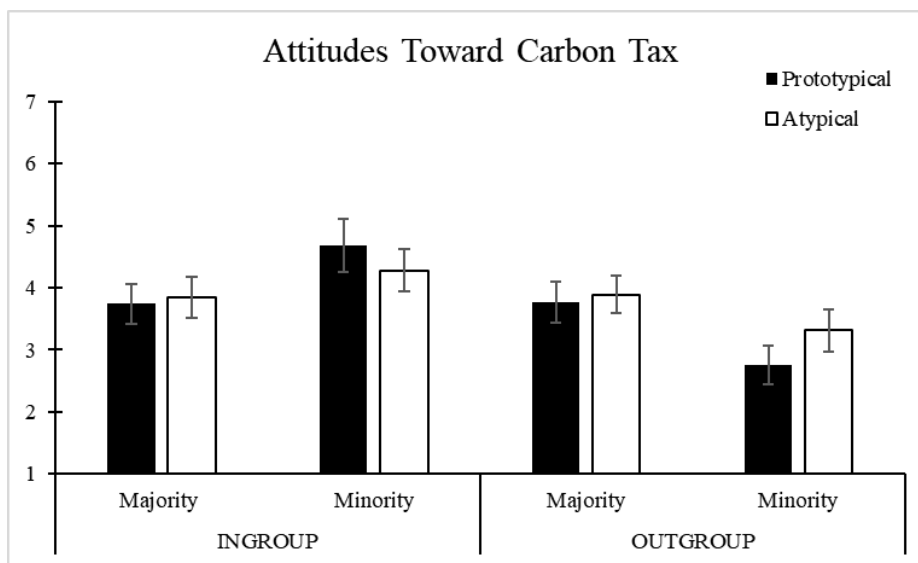
Figure 17a

Mean Differences and Standard Errors for Attitudes towards Carbon Tax by Target Affiliation, Interviewee Prototypicality, and Message Status for High-Identifying Democrats
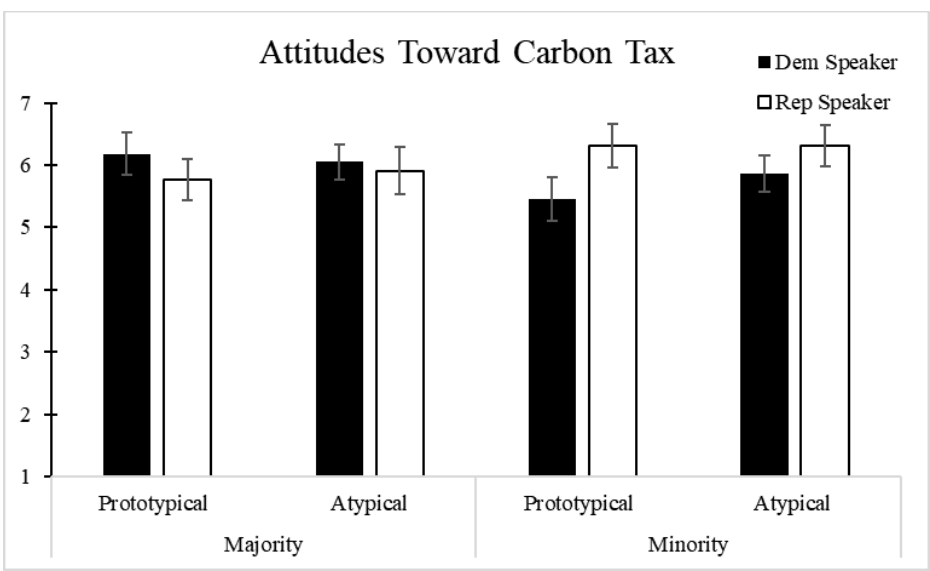
Figure 17b

Mean Differences and Standard Errors for Attitudes towards Carbon Tax by Target Affiliation, Interviewee Prototypicality, and Message Status for Low-Identifying Democrats
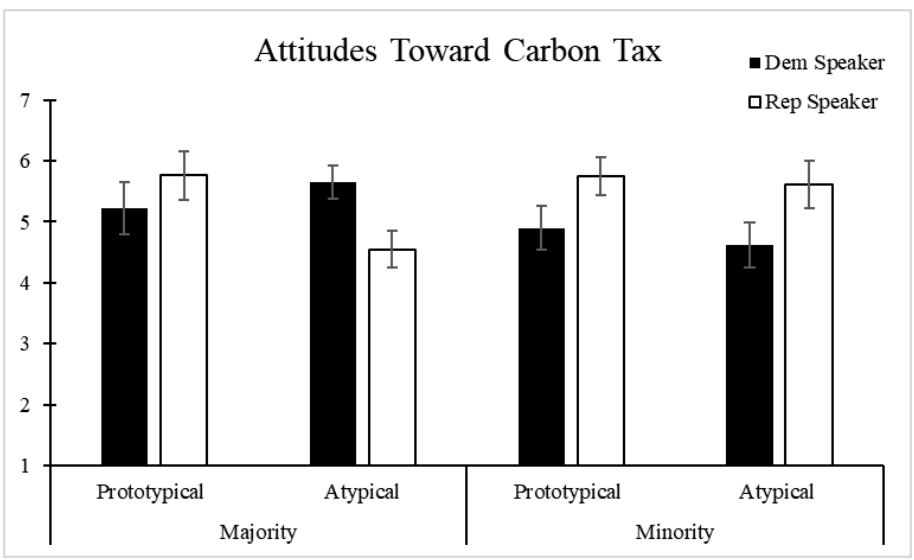
Figure 18a

Mean Differences and Standard Errors for Attitudes towards Carbon Tax by Target Affiliation, Interviewee Prototypicality, and Message Status for High-Identifying Republicans
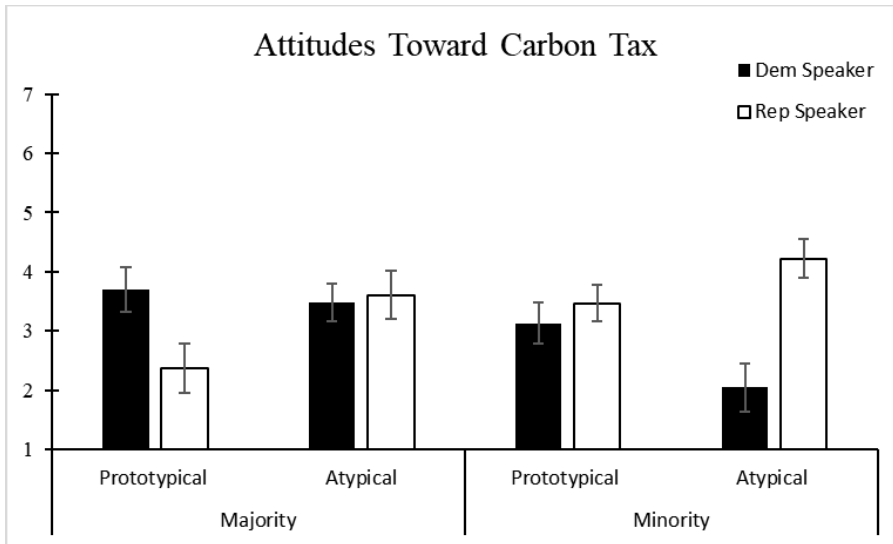
Figure 18b

Mean Differences and Standard Errors for Attitudes towards Carbon Tax by Target Affiliation, Interviewee Prototypicality, and Message Status for Low-Identifying Republicans
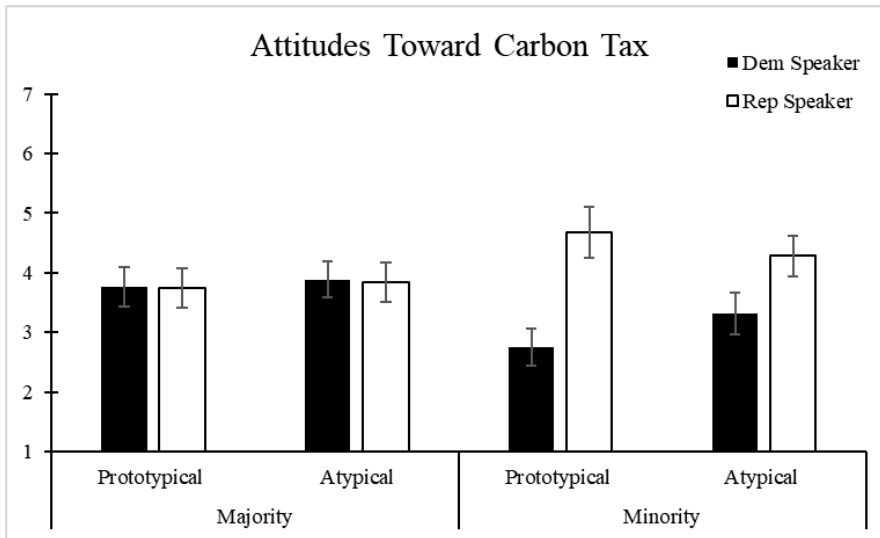
Non-focal Attitudes Related to Carbon Tax

Dimensional ratings (e.g., good-bad moral-immoral, etc.) for each attitude object were collapsed into an overall attitude object mean score. Attitudes towards encouraging energy conservation had the highest overall mean score ($M = 5.96$), followed by attitudes towards carbon tax ($M = 4.65$), fracking ($M = 2.80$), and loosening environmental regulations for businesses ($M = 2.60$).

As summarized in Table 2, attitudes towards loosening environmental regulations for businesses, opening up coastal waters for off-shore fracking, and providing government incentives to encourage energy conservation were highly correlated with each other and with carbon tax. Given these strong associations, attitudes towards fracking, energy conservation, and environmental regulations were collapsed into one variable, "environmental attitudes" (scores for fracking and loosening environmental regulations were reverse-coded), which had excellent reliability ($\alpha = .95$).

Table 3

Attitudinal Intercorrelations

Attitude Object	1	2	3
1. Carbon tax			
2. Pro Fracking	-.44*		
3. Pro Energy Conservation	.41*	.41*	
8. Loosen Environmental Regs	-.54*	-.66*	-.48*

Note. $N = 551$. *$p < .01$ (two-tailed).

A main effect of participant political affiliation, $F(1, 546) = 228.71$, $p < .001$, $\eta_p^2 = .32$, was moderated by a two-way interaction with strength of social identification, $F(1, 546) = 27.55$, $p < .001$, $\eta_p^2 = .054$. High-identifying Democrats endorsed pro-environmental attitudes ($M = 6.40$) to a greater extent than high-identifying Republicans ($M = 4.89$), $p < .001$ as did low-identifying Democrats ($M = 6.14$) vs. low-identifying Republicans ($M = 5.43$), $p < .001$. However, as demonstrated in Figure 19, high-identifying Democrats endorsed environmental attitudes to a greater extent than low-identifying but the reverse was true for Republicans. Refer to Table 18 (Appendix E2) for means and standard deviation for pro-environmental attitudes by target affiliation, participant affiliation, message status, and interviewee prototypicality.

Figure 19

Mean Differences and Standard Errors for Pro Environment Attitude Endorsement by Participant Affiliation and Strength of Social Identification
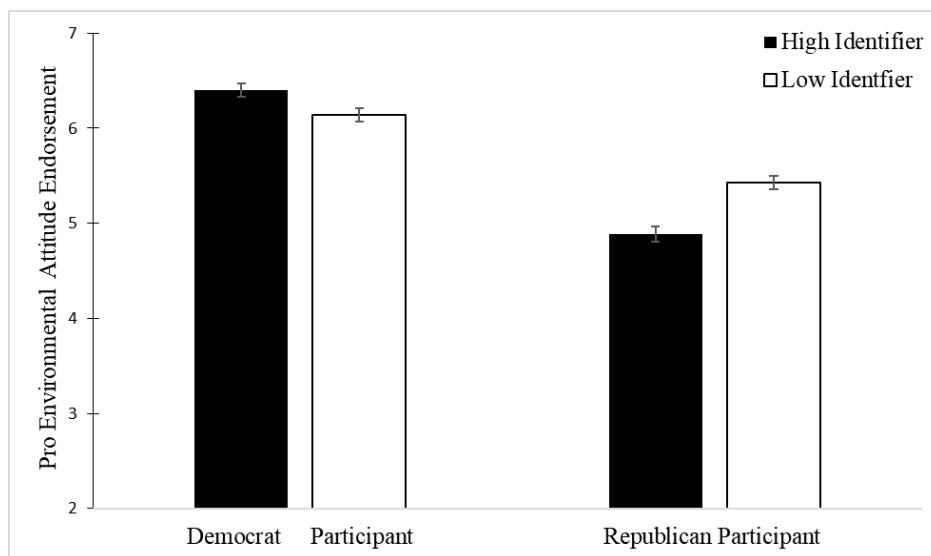
Mediational Analyses

Hypotheses 2–7 were tested with mediational analyses using PROCESS for IBM SPSS (Hayes, 2018). Several competing models were examined including simple mediation (PROCESS Model 4), moderated mediation (PROCESS Model 7), and double moderated mediation (PROCESS Model 11). See Appendix F for PROCESS models 4, 7, and 11 templates.

Model testing was conducted for Democrat and Republican participants separately focused on group membership of the interviewee/message source (ingroup vs. outgroup) as the predictor (X) while parsing out minority and majority influence. Note that the direction of the message (i.e., pro- or anti-carbon tax) was confounded with the majority/minority status of this message such that the pro-carbon tax message was a majority message for Democrats, but a minority message for Republicans. Hence, a comparison of, for instance, majority messages for Democrat participants would pit a majority Democrat message against a majority Republican message against each other, with the party identity of the interviewer/message and the message content being confounded. To avoid this issue, separate models were tested for the anti-carbon tax message and the pro-carbon tax message. This line of testing allowed the researcher to verify similarities or differences in majority and minority influence among Democrats and among Republicans.

All initial model testing included two mediators: extent of elaboration related to carbon tax (M_1) and extent of elaboration related to the interviewee Darren Shore (M_2). However, as extent of elaboration about the interviewee was never a significant predictor

of attitudes towards carbon tax nor of environmental attitudes (though significantly positively related to group membership and message status), models presented here exclude this mediator. Finally, all models were run with 5000 bootstrap samples, 95% confidence for confidence intervals, and adjusted to ensure analyses were robust against violations of the assumption of the homoscedasticity of residuals (given prior signs of heteroskedasticity in GLM analysis).

3MP Hypotheses. Hypotheses 2–4 predict a simple mediation such that reading a message from an ingroup source leads to attitude change through a greater number of issue-relevant thoughts in the direction of the message (i.e. extent of elaboration) (PROCESS model 4). Hypothesis 5 predicts that, for majority messages, there will be a two-way interaction between group membership (ingroup vs. outgroup) and participant strength of social identification on extent of elaboration such that extent of elaboration will be higher when the source is an ingroup member for high-identifiers and lower for low-identifiers (PROCESS model 7). Hypothesis 6 predicts a three-way interaction between group membership, prototypicality, and strength of social identification for minority influence: extent of elaboration will be high when the ingroup source is highly prototypical rather than atypical, though this effect will materialize only for high identifiers but not low identifiers (PROCESS model 11). Prototypicality of the ingroup message source will not matter for low identifiers. Hypothesis 7 predicts that minority influence results in a change in related (environmental) attitudes only and majority influence would result in a change in the focal (carbon tax) attitude only.

Democrat Participants – Majority Message. The first mediation tested included

Democrat participants who read a majority (pro-carbon tax) message (from either a Democrat or Republican) ($n = 150$), with attitudes towards carbon tax as the outcome (Y) variable, message source group membership (ingroup vs. outgroup) as the predictor (X), and extent of elaboration about carbon tax as the mediator (M) (PROCESS model 4). NFC and strength of social identification served as covariates. In testing the model, the ingroup was coded as 1 and the outgroup as 0.

Not supporting Hypothesis 2, the path from ingroup vs. outgroup and extent of elaboration (path a) for Democrat participants assigned to a read a pro-carbon tax message was not significant, $p = .33$. Democrat participants did not elaborate more as a function of whether or not the interviewee promoting a pro-carbon tax message was a Republican or a Democrat (path a), $b = -.35$ $p = .33$. Note that, although not significant, under Hypothesis 2 one would expect a positive coefficient, such that for Democrat participants a Democrat interviewee expressing a pro-carbon tax message would have generated more elaboration than a Republican expressing the same message, but this was not the case. It is possible that Republican supporting a carbon tax reaffirmed Democrats' endorsement of a pro-carbon tax stance.

However, consistent with Hypothesis 3, the path from extent of elaboration of a pro-carbon tax message to attitudes towards carbon tax (path b) was positive and significant, $b = .20$, $p < .001$. Contradicting Hypothesis 4, the path from ingroup vs. outgroup to attitudes towards carbon tax was not significant, $b = -.28$, $p = .17$. Critically, the indirect effect was small, $ab = -.07$, and its confidence interval did include zero, 95% CI [-.062, .235]. Strength of social identification did predict Democrats' attitudes towards

a carbon tax, $b = .15$, $p = .022$, though NFC did not, $b = .05$, $p = .70$.

A moderated mediation model was employed to test Hypothesis 5 among Democrat participants. This hypothesis, derived from the 3MP (see Chapter 5, Figure 2), attributes a critical role to social identification in the processing of a majority message. PROCESS Model 7 is identical to Model 4 except that the path from the ingroup vs. outgroup status of the message source is qualified by strength of social identification (W). Specifically, this model aimed to test whether Democratic participants high or low in social identification would respond differently to the same message from either a Democratic or Republican source, such that the effect of group membership of the message source on the elaboration of the message is qualified by strength of identification. Yet, the critical interaction was not significant, $b = -.23$, $p = .33$. Consistent with this finding, the confidence interval of the index of moderated mediation (-.05) did not differ from zero, 95% CI [-.150, .043]. Regardless of their level of identification, Democrats generated the same level of positive (vs. negative) thoughts about carbon tax when a pro-carbon tax message originated from an ingroup or outgroup member.

The final model tested pertaining to Democrat participants exposed to a pro-carbon tax (majority) message included interviewee prototypicality as an additional moderator (W_2), resulting in a double-moderated mediation model (PROCESS Model 11; also see Chapter 5, Figure 1). Note that this model reflects a test of Hypothesis 6, which was hypothesized to apply to minority messages, not majority messages. However, to ensure the discriminant validity of the model prediction, this model was also applied to the case of majority messages. Process Model 11 tests a three-way interaction between

strength of social identification, interviewee prototypicality, and interviewee group membership on extent of carbon tax elaboration. The three-way interaction was not significant, $b = -.58$, $p = .25$, nor was the index of moderated mediation reliably greater than zero, $ab = .12$, 95% CI [-.325, .097]. There was no evidence of any mediation effect, nor that this mediational effect was moderated by prototypicality, $b = .56$, $p = .16$, or social identification, $b = .13$, $p = .41$.

All models (PROCESS models 4, 7, and 11) were repeated with environmental attitudes as the outcome (Y) variable for a test of Hypothesis 7. Results were virtually identical to those reported above, with one exception. Whereas Model 4 had suggested that attitudes towards carbon tax were favored by high-identifying Democrats, this was not the case when analyzing environmental attitudes. Rather, a small and nonsignificant coefficient revealed that strength of identification was negligible as a predictor of environmental attitudes among Democrats, $b = .02$, $p = .68$. By contrast, higher levels of NFC were associated weakly with favorable environmental attitudes, $b = .17$, $p = .07$. The same association surpassed conventional levels of significant in Model 7, $b = .18$, $p = .020$, which also controlled for NFC, but in which strength of social identification served as a moderator variable.

Democrat Participants – Minority Message. The next set of mediation model testing included Democrat participants who read an anti-carbon tax (minority) message from a Democrat or a Republican ($n = 134$). Overall, results were comparable to Democrats who read a pro-carbon tax (majority) message. Unlike predicted by Hypothesis 2, extent of elaboration about carbon tax did not change as a function of the

group membership of the message source, $b = .41$, $p = .33$. Note that, though not significant, this coefficient is positive. The direction of this coefficient is not consistent with the notion that the same message coming from an ingroup source engenders greater message elaboration. Because in the present context the message was negative (anti-carbon tax), yet the elaboration measure assess the balance of positive to negative thoughts about a carbon tax, higher elaboration of the negative message should have predicted to produce a shift toward negative relative to positive thoughts. That is, one would have expected a negative coefficient, which did not emerge.

Once again, and as predicted by Hypothesis 3, higher elaboration (i.e., higher levels of positive toward negative thoughts about a carbon tax) were positively and significantly related to attitudes towards a carbon tax, $b = .15$, $p = .002$. As already demonstrated for Democrats exposed to a majority (pro-carbon tax) message, also for Democrats exposed to a minority (anti-carbon tax) message, strength of social identification was positively related to attitudes towards carbon tax, $b = .20$, $p = .005$. Notably, the size of this coefficient was larger than had been observed for Democrats exposed to a majority (pro-carbon tax) message, suggesting that exposure to an anti-carbon tax message rendered attitudes toward carbon tax a matter of Democratic identity more so than was the case otherwise. This conclusion was corroborated by the observation that strength of social identification as a Democrat was also strongly linked to extent of elaboration, $b = .42$, $p = .006$. That is, highly identified Democrats generated a more favorable balance of positive to negative thoughts about a carbon tax than was the case for low identifiers.

Hypothesis 5 predicts that strength of social identification will moderate the relationship between group membership and extent of elaboration (PROCESS Model 7). Although this was hypothesized to apply only to majority messages, it was also tested in the context of minority messages. The interaction between strength of social identification and group membership was not significant, $b = .18$, $p = .65$ and unsurprisingly, the index of moderated mediation (.02) was also not significant, 95% CI [-.085, .147].

Hypothesis 6 did apply to minority messages and predicted a three-way interaction between interviewee prototypicality, group membership, and participant strength of social identification on extent of elaboration. Interviewee prototypicality was hypothesized to moderate the relationship between group membership and extent of elaboration, with strength of social identification further qualifying this relationship (PROCESS Model 11). The three-way interaction was not significant, $b = .46$, $p = .49$, nor was the index of moderated mediation reliably greater than zero, $ab = .12$, 95% CI [-.289, .167].

Recall that, in the case of minority message, Hypothesis 7 predicted that such messages might affect greater attitude change in related rather focal attitudes. Results for environmental attitudes mirrored those for attitudes towards carbon tax. With the path from message source group membership being always identical as in the models reported above, the indirect effects or indices of moderated mediation for all three models were small and no different from zero, Model 4 $ab = .01$, 95% CI [-.038, .047]; Model 7 $ab = .001$, 95% CI [-.021, .050], and Model 11 $ab = -.02$, 95% CI [-.083, .061]. This implied that, at least among Democrats, there was no empirical corroboration of Hypothesis 7.

The latter analyses also revealed that strength of social identification, as a covariate, was positively related to environmental attitudes across all three models (e.g., Model 4 $b = .14$, $p = .013$). At the same time, across all three models there was also a trend for higher levels of NFC to predict more favorable environmental attitudes, $b = .22$, $p = .07$.

Republican Participants – Majority Message. The third set of mediation models tested included Republican participants who read an anti-carbon tax (majority) message from either a Democrat or Republican ($n = 124$). Again employing PROCESS Model 4, message source group membership (coded as ingroup = 1 and outgroup = 0) did not predict carbon tax elaboration, $b = .44$, $p = .26$, thus not confirming Hypothesis 2; however, as explained above the positive direction of the coefficient was not expected. As was previously found among Democrats, in support of Hypothesis 3, higher levels of elaboration (i.e. more positive relative to negative thoughts about a carbon tax) resulted in more favorable carbon tax attitudes, $b = .31$, $p < 001$. Similarly, and again contravening Hypothesis 4, there was no evidence for a reliably indirect effect among Republicans exposed to a majority (anti-carbon tax) message, $ab = .14$, 95% CI [-.102, .401].

However, a test of Hypothesis 5 using PROCESS Model 7 was suggestive. First, the interaction between group membership and strength of social identification was significant, $b = -.50$, $p = .048$, indicating that the effects of message source group membership on elaboration was qualified by social identification as a Republican. Although the index of moderated mediation analysis appeared to generate a substantial indirect effect, $ab = -.16$, its confidence interval did overlap zero, 95% CI [-.343, .002].

Still, an examination of the indirect effects at different levels of strength of social

identification demonstrated that at low levels (1 *SD* below the mean of the distribution),

there was a significant indirect effect, $ab = .39$, 95% CI [.065, .739], whereas the effect

was negative, though not reliably different from zero at higher levels of strength of

identification, $ab = -.11$, 95% CI [-.493, .266]. This suggests that the anti-carbon tax

message of an ingroup member swayed low-identifying Republican participants to think

more favorably of this policy idea. This pattern is not consistent with the Hypothesis 5,

which predicted that an indirect effect would more likely materialize at high levels social

identification. In other words, the results from this analysis squarely contradict

Hypothesis 5.

Again, although Hypothesis 6 was only predicted for minority message, the

corresponding mediation analysis using PROCESS Model 11 was also carried out for a

majority message. A three-way interaction involving group membership, strength of

social identification, and prototypicality in predicting elaboration of the majority (anti-

carbon tax) message did not approach significance, $b = .15$, $p = .78$, and neither was the

index of moderated mediation of .05 reliable, 95% CI [-.285, .401]. Hence, as anticipated,

Hypothesis 6 did not apply to majority message.

Inspection of the covariates revealed that, among Republicans exposed to a

majority viewpoint, there was no relationship between strength of social identification

and attitudes toward a carbon tax, $b = -.12$, $p = .13$, nor were attitudes consistently

predicted by NFC, $b = .23$, $p = .17$ (both coefficients from Model 4). Whereas previously

for Democrats, carbon tax attitudes were correlated with strength of party identification,

this was not apparent for Republicans. However, among Republicans, higher levels of NFC consistently (i.e. across all three mediation models tested) predicted a higher level of elaboration of an anti-carbon tax message, $b = -.72$, $p = .003$ (Model 4).

In regards to environmental attitudes, group membership of the interviewee/ message source was not related to extent of elaboration, $p = .26$, nor was the relationship between group membership and extent of elaboration moderated by strength of social identification as a Republican, $b = .50$, $p = .06$. Extent of elaboration about a carbon tax did have a positive and significant relationship with environmental attitudes, $b = .39$, $p = .046$, as did NFC, $b = .39$, $p < .001$. The confidence intervals for the index of moderated mediation (e.g., Model 7) included zero, 95% CI [-.008, .113].

Republican Participants – Minority Message. The final set of mediation models tested included Republican participants who read a pro-carbon tax (minority) message from either a Democrat or Republican ($n = 143$). In support of Hypothesis 2, group membership predicted lower elaboration of the carbon tax message when the interviewee was a Republican rather than a Democrat, $b = 1.19$, $p = .007$ (Model 4). NFC was also a significant predictor of carbon tax elaboration, $b = -.70$, $p = .007$. In keeping with Hypothesis 3, elaboration predicted more favorable attitudes toward a carbon tax, $b = .38$, $p < .001$. The indirect effect of interviewee group membership on attitudes towards a carbon tax through extent of elaboration was significant, $ab = .45$, 95% CI [.131, .768], confirming Hypothesis 4 (see Figure 20).

In Model 7, the relationship between ingroup membership and extent of elaboration was not moderated by strength of social identification as a Republican, $b = -$

.15, p = .61 (though Model 7 was hypothesized to apply to majority messages) nor did strength of identification on its own predict elaboration about carbon tax, b = -.18, p = .38. The confidence intervals for the index of moderated mediation did not reliably differ from zero, 95% CI [-.180, .303].

A three-way interaction between strength of social identification, prototypicality, and group membership did not predict extent of elaboration (Model 11), b = .90, p = .16, thus not confirming Hypothesis 6. The confidence intervals for the index of double moderated mediation included zero, .35, 95% CI [-.147, .802].

Regarding environmental attitudes, group membership was related to extent of elaboration, b = 1.19, p = .007, but extent of elaboration was not related to environmental attitudes, p = .071 (Model 4). Strength of social identification as Republican was negatively related to environmental attitudes, b = -.20, p = .001. The indirect effect of group membership on environmental attitudes included zero, ab = .08, 95% CI [-.003, .184]. The indices for moderated mediation for models 7 and 11 also included zero, 95% CI [-.064, .042] and 95% CI [-.178, .033], respectively. Across all 3 models, NFC predicted elaboration about carbon tax, b = -.70, p = .020 (Model 7). Finally, Hypothesis 7 predicted that that minority messages would affect attitude change in environmental attitudes rather than attitudes towards a carbon tax. Given that there was empirical evidence in support of minority influence in attitudes towards a carbon tax among Republicans, but not for environmental attitudes, Hypothesis 7 was not supported.

Figure 20

Simple Mediation Model Predicting Attitudes towards Carbon Tax– Republican Participants – Minority Message
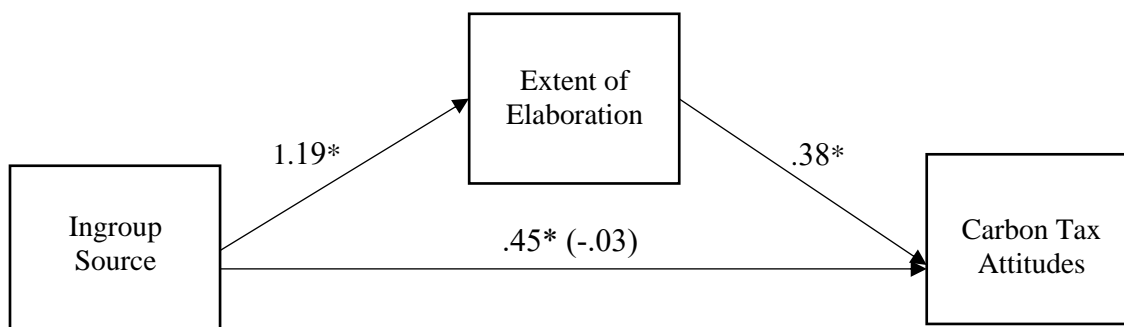
Note. * = significant at the .05 level. *n* = 145.

Alternate analyses

Recall that, in keeping with long-established research practice (Cacioppo et al., 1997), the present analyze operationalized elaboration as the arithmetic difference between positive thoughts and negative thoughts in response to the message. However, it is possible to conceive of elaboration as the extent to which a message generates any thoughts in response to the substance of the message, regardless of these thoughts are positive or negative. To account for this possibility, all aforementioned mediation models were repeated with extent of elaboration operationalized as the sum of positive and negative thoughts related to carbon tax. Across all models, the path from message source group membership to this alternate elaboration variable was not significant (path a). The path from extent of elaboration (i.e. total number of thoughts) to attitudes towards carbon tax was significant in most models. However, in no instance was there evidence of any significant indirect effects nor of moderated mediation.

Chapter 10: General Discussion

The purpose of this research was to examine the roles of prototypicality and strength of social identification in minority influence. This process involved an integration of social identity and social categorization theories (Hogg & Turner, 1987; Turner, 1985; Turner et al., 1987; Turner et al., 1994;Turner & Oakes, 1986) with insights from traditional approaches to persuasion (Chaiken et al., 1989; Petty & Cacioppo, 1986). New models for minority and majority influence (Minority/Majority Model of Persuasion "3MP") were proposed, from which several hypotheses were derived and tested.

Hypothesis 1 predicted that high identifiers would evaluate prototypical ingroup members more positively than atypical ingroup members. This portion of the hypothesis was not supported in that evaluations of the interviewee did not vary at different levels interviewee prototypicality and strength of social identification concurrently. Strength of social identification did play a role in conjunction with whether or not the interviewee delivered an ingroup majority or minority message. High identifiers among both Republicans and Democrats evaluated ingroup members who were toeing the party line (i.e. who represented their own party's majority opinion) more favorably than those who took on a minority opinion within their own party. Whereas high levels of social identification tend to orient group members to the modal viewpoints of the group, this was not limited to the high identifiers. Low-identifying Democrats distinguished between ingroup members committed to their groups' majority views from those who adopted a minority opinion within the ranks of their own party. That is, regardless of their level of

identification, Democrats favored a fellow ingroup member who supported a carbon tax compared to a fellow Democrat who opposed a carbon tax. Notably, this was not the case for Republicans: Low-identifying Republicans did not discriminate between majority and minority ingroup members to the same degree as low-identifying Democrats. Low-identifying Democrats also discriminated between ingroup majority and minority members evaluating an ingroup member who supported a carbon tax more favorably than an ingroup member who opposed a carbon tax. Low-identifying Republicans did not discriminate between majority and minority ingroup members to the same degree as low-identifying Democrats.

However, the central concern of Hypothesis 1 was a focus on prototypicality. Prior research has found that prototypical ingroup members are considered more trustworthy than non-prototypical ingroup members (van Knippenberg, & Wilke, 1992), and are afforded more leniency for dissention than non-prototypical ingroup members (Abrams et al., 2018). Findings pertaining to prototypicality in this dissertation revealed that both Democrat and Republican participants evaluated a prototypical ingroup member more favorably than atypical ingroup member, though this effect was more pronounced among the former. This supports Abrams et al.'s (2018) contention that dissent is tolerated more when the individual expressing the dissenting viewpoint is an otherwise prototypical ingroup member.

Hypotheses 2 and 3 proposed that a message by ingroup members would receive greater elaboration, and that greater elaboration would give rise to greater attitude change. Based on these relationships, Hypotheses 4 articulated that there would be an

indirect effect of group membership on attitude change to the extent that message elaboration occurred. These hypotheses were supported only in the case of Republicans who read a pro-carbon tax message. For Republicans, reading a pro-carbon tax message from an ingroup source led to attitude change through the number of positive vs. negative issue-relevant thoughts in the direction of the message (i.e., extent of elaboration). For Democrats, messages from a fellow ingroup member did not produce a greater extent of elaboration. In all instances, extent of elaboration was significantly related to attitudes towards carbon tax, in support of Hypotheses 3.

Hypothesis 5 predicted that, in the case of majority messages, strength of social identification would moderate the relationship between message source group membership (ingroup vs. outgroup) and extent of elaboration such that the extent of elaboration would be higher when the source was an ingroup member for high identifiers and lower for low identifiers. Consistent with the failure to find support for Hypotheses 2 and 4, there was no support for Hypotheses 5 among Democrats. Among low-identifying Republicans, there was evidence for a dynamic akin to what was outlined by Hypothesis 5 though low-identifying Republicans elaborated an anti-carbon tax message more when it was expressed by a Democrat rather than a Republican. However, this pattern ran counter to what was predicted by Hypothesis 5, which specified that greater elaboration of a majority message should occur primarily among high identifiers, not low identifiers. Hence, Hypothesis 5 was not supported for this group.

Notably, the analyses carried out pertaining to Hypothesis 5 revealed consistently that, even though it was not involved in moderating the implications of the message,

strength of social identification played an important role for Democrats.

For Democrat participants who read about a Democrat supporting a carbon tax (majority influence), strength of social identification did not moderate the relationship between ingroup status and extent of elaboration. Instead, for this combination of participants and target, there was a main effect of interviewee group membership on extent of elaboration and on attitudes towards carbon tax, with both increasing as strength of identification increased. In other words, social identification contributed independently to the balance of positive vs. negative thoughts Democrats reported towards a carbon tax, as well as to their attitudes towards carbon tax. Strength of social identification moderated the relationship between group membership and extent of elaboration for low-identifying Republicans only.

Hypothesis 6 pertained specifically to minority messages and predicted that prototypicality of the message source would qualify the relationship between group membership and elaboration (a similar dynamic to the one outlined in Hypothesis 5). Hypothesis 6 also predicted that the interaction between interviewee prototypicality and group membership on elaboration would be further qualified by strength of social identification. Specifically, elaboration of the message among high identifiers would be high if the source of the message was highly prototypical for the ingroup, though elaboration of the message would be low if the source of the message was low in prototypicality. In other words, high identifiers were thought to be sensitive to the prototypicality of the messenger, where this was not expected for low identifiers. However, Hypothesis 6 did not receive empirical confirmation. This was not altogether

surprising for Democrat participants and Democrat message sources given that

Hypotheses 2 and 4 had not received any support either. However, this was also the case

for Republican participants. Prototypical ingroup members were rated significantly more

positively than atypical ingroup members, including in terms of credibility. By all

accounts, heightened credibility should have facilitated greater elaboration, which in turn

should have effected greater attitude change (Petty & Cacioppo, 1986; Pornpitakpan,

2004). Yet, there was no evidence for such a relationship. For Republican participants,

minority influence was best captured with a simple mediation model without the

inclusion of strength of social identification and interviewee prototypicality.

Hypothesis 7 predicted that extent of elaboration would be associated with a

change in related (environmental) attitudes for minority influence and the focal (carbon

tax) attitude for majority influence. This hypothesis did not receive any empirical

support. As mentioned above, in terms of the minority influence model among

Republican participants, a simple mediation best explained attitudes towards a carbon tax

but not environmental attitudes. Interestingly, for minority influence among Democrats,

strength of social identification was positively related to both attitudes towards carbon tax

and environmental attitudes. For Republicans who read a pro-carbon tax message,

strength of social identification was negatively related to environmental attitudes, but not

attitudes towards a carbon tax.

Minority Influence and Attitudes Towards Carbon Tax

A primary focus of this research was the examination of minority influence. Were

participants influenced by ingroup members who advocated for a counternormative

position? There are two possible ways to make that determination. The first is to consider significant differences in attitudes towards a carbon tax when making ingroup comparisons, and the second is to examine significant differences in ingroup vs. outgroup comparisons.

Ingroup Comparisons

For high-identifying Republicans, attitudes towards a carbon tax were significantly more positive when a fellow prototypical Republican supported a carbon tax vs. when a fellow prototypical Republican opposed a carbon tax. By the same token, among low-identifying Republicans, there were no significant differences in attitudes towards a carbon tax when comparing messages originating only from ingroup members. This implies that those to whom their Republican identity was of greater importance responded to the suggestion of a minority within their own party, but only if this minority was otherwise a bona fide Republican. Arguably, being otherwise prototypical may have allayed concerns that the Republican advocating for a carbon tax was a "RINO."

For Democrats, high identifiers did not budge in either direction. There were no significant differences in attitudes towards a carbon tax among high-identifying Democrats regardless of condition (i.e., ingroup/outgroup, majority/minority, etc.). This is not altogether surprising given that being pro-environment is likely an essential part of the Democrat identity. In fact, during pilot testing, being pro-carbon tax had a large effect on the extent to which a Democrat interviewee was considered to be prototypical of a Democrat. Additionally, as was demonstrated in model testing, the more strongly someone identified as a Democrat, the more positive his or her attitudes were towards a

carbon tax. Given these relationships, pro-environmental attitudes, including attitudes towards a carbon tax, are likely central to Democrats who strongly identify as such, making attitudes towards a carbon tax more resistant to change (Eagly & Chaiken, 1995).

There were significant differences in attitudes towards a carbon tax among Democrats who did not strongly identify as Democrat. These Democrats reported significantly less favorable attitudes towards a carbon tax when they read about an atypical Democrat opposing a carbon tax than when they read about an atypical Democrat supporting a carbon tax. There are two possible explanations here. First, it might be that Democrats who do not strongly identify as such might consider themselves to be atypical Democrats, thereby relating to statements made by someone with which they identify (perceived similarity; Hogg & Turner, 1987). Second, it could also be that both the combination of a minority position and the atypicality of the interviewee garnered extra attention, and facilitated more extensive elaboration in the direction of the message.

Ingroup vs. Outgroup Comparisons

For Republicans, outgroup members were influential in shaping attitudes towards carbon tax but only when the outgroup member supported a carbon tax position that aligned with a predominant view within the party. For example, low-identifying Republicans reported the least favorable attitudes towards a carbon tax after reading about a prototypical Democrat opposing a carbon tax and the most favorable attitudes towards a carbon tax when they read about a prototypical Republican supporting a carbon tax. High-identifying Republicans reported the least favorable attitudes towards a carbon tax after reading about an atypical Democrat opposing a carbon tax and the most

favorable after reading about an atypical Republican supporting a carbon tax. In both cases, an outgroup member appeared to both affirm and further polarize Republican participants' attitudes towards a carbon tax. Hence, when comparing mean scores for attitudes towards a carbon tax after reading a message originating from anti-carbon tax outgroup members against mean scores for attitudes towards a carbon tax originating from pro-carbon tax ingroup members, there were significant differences. Given that the most favorable attitudes towards a carbon tax among Republicans in general came after reading about an ingroup member in favor of a carbon tax, these differences can be considered indicative of minority influence.

For low-identifying Democrats, messages originating from an outgroup member resulted in both the least and the most favorable carbon tax attitude scores. Specifically, low-identifying Democrats reported the least favorable attitudes towards a carbon tax after reading about an atypical Republican opposing a carbon tax. By the same token, they reported the most favorable evaluations of a carbon tax after reading about a prototypical Republican opposed a carbon tax, and an atypical Democrat supporting a carbon tax. It appears that low-identifying Democrats wanted to distance themselves from prototypical Republicans by digging in further in supporting a carbon tax but were also swayed by Republicans who otherwise "looked" more like them (Hogg & Turner, 1987).

When a politicized attitude can be considered central to a party affiliation or identity, minority influence appears less likely to occur. But minority influence appeared to be successful among Republicans. It might be that Republicans were generally more open to persuasion because pro-environment attitudes are not considered central to a

Republican identity, especially if the attitude objects are perceived as an impediment to business. Moreover, Republican attitudes might be less resistant to change if Republicans aren't sure whether or not other ingroup members share similar views (Visser & Mirabile, 2004). Additionally, in 2020, the Republican party developed at least some legislation to address climate change (Harder, 2020; Roberts, 2020) and there is a scientific consensus regarding human involvement in climate change (Oreskes, 2004; Powell, 2015), which could be difficult to dismiss outright. Given these possible mixed signals, it is unsurprising that recent research found that Republicans' beliefs about climate change (both high and low identifiers) were generally unstable (i.e., demonstrated a high degree of variability over time) compared to Democrats' beliefs about climate change, which were generally stable, especially for high-identifiers. This instability is theorized to be a result of less crystalized attitudes (Jenkins-Smith et al., 2020). Attitude crystallization has been theorized to be comparable to attitude consistency (Olsen, 1962) or attitude strength, which comprises attitudes that are impervious to change, more extreme, important, accessible and central to identity (Howe & Krosnick, 2017).

The Roles of Social Identification Strength and Prototypicality

In terms of model testing, strength of social identification played a direct and straightforward role for Democrats in the kind of thoughts messages about a carbon tax generated, as well as attitudes towards carbon tax. For Democrats, stronger identification was positively associated with reporting more positive thoughts about carbon tax and/or having more positive attitudes towards carbon tax. For Republicans, strength of social identification was only negatively related to environmental attitudes.

The 3MP predicted that prototypicality would moderate the relationship between ingroup status and extent of elaboration in minority influence (only) such that ingroup members would facilitate more elaboration if they were prototypical. This was not the case in the current research. Abrams et al. (2018) found that prototypical ingroup members were afforded more leniency for dissent than atypical ingroup members. van Knippenberg and Wilke (1992) found that prototypical ingroup members were considered more trustworthy than atypical ingroup members. In the current research both Republicans and Democrats rated prototypical ingroup members more favorably than atypical ingroup members. In a separate study, van Knippenberg et al. (1994) also found that prototypical ingroup members facilitated greater information processing when serving as a message source. In auxiliary analyses, participants reported a marginally greater number of thoughts in overall when the interviewee was prototypical ($M = 5.43$) rather than atypical ($M = 5.03$), $p = .057$, though NFC had the greatest impact on number of thoughts listed overall.

The 3MP

Overall, the results of this dissertation did not support the majority and minority mediation models proposed by the 3MP. Although extent of elaboration was primarily a successful predictor of attitudes towards carbon tax, group membership of a message source appeared to play a more important role for Republican participants (reading a pro-carbon tax message) than Democratic participants in attitudes towards a carbon tax. Moreover, strength of social identification played a much more straightforward role in attitudes towards a carbon tax among Democrats than as proposed by the 3MP. Given the

lack of reliable evidence of persuasion for Democrats, it is likely that the model could benefit from closer examination of attitude centrality and stability in persuasion, especially when the attitude is tied to identity. It might be that minority influence, in terms of carbon tax endorsement, is much less likely to occur for those who hold very stable/crystalized identity-related attitudes.

Relatedly, although the 3MP was developed based on extant literature on persuasion and minority influence, especially following closely the methodology of Alvaro & Crano (1997), the scope of research was limited. Specifically, the 3MP did not assess whether or not carbon tax, as an attitude object, could be considered objective or subjective, as discussed in Crano and Seyranian (2009). According to Crano and Seyranian (200) attitudes, beliefs, and preferences are normally considered subjective topics of research, however, there are topics that groups might consider to be objective, in that there is a clear right or wrong position (e.g., abortion). It might be the case that Democrats consider the issue of a carbon tax as objective, making their preexisting attitude about carbon tax difficult to change (Crano & Seyranian, 2009). On the other hand, Republicans might consider the issue more to be more subjective, thereby limiting the amount of resistance they put up when faced with a persuasive message. In short, the 3MP might have benefited substantially from the inclusion of pre-existing attitudinal measures.

Implications

This research sought to integrate traditional dual process models of persuasion with the social identity approach (i.e., social influence). Persuasion research focused on

the ELM or HSM often relegates attitude change based on message source characteristics as indicative of less effortful information processing or less issue-relevant elaboration. The referent informational influence theory suggests that only ingroup members can be influential (Abrams et al., 1990; Hogg & Turner, 1987). In the current study, ingroup membership only facilitated issue-relevant information processing (in the direct of the message) for Republicans who read a pro-carbon tax message, partially supporting prior research on group membership and elaboration (Mackie, Worth, & Asuncion, 1990; McGarty et al., 1994). The current study findings partially support referent informational influence in that ingroup members could be considered influential however, this was only the case for Republicans who read a pro-carbon tax message. Ingroup vs. outgroup membership did not appear to be influential overall in other instances.

Another implication of the current study involves the context/comparison-leniency contract model (Alvaro & Crano, 1997; Crano & Chen, 1998; Crano & Seyranian, 2009) and related attitudes. According to the model, ingroup members give other ingroup members advocating a minority stance a pass on their deviancy with the understanding that any influence that might occur would do so for related attitudes only, not the focal attitude. In the current study, there was no indication that messages endorsing or opposing a carbon tax impacted related attitudes only. In fact, no mediation model tested among Democrats who read a minority ingroup message received empirical support in regards to related attitudes (nor attitudes towards carbon tax), and the only group comparison differences found in related attitudes were associated with participant affiliation and strength of social identification. That is, high- and low-identifying

Democrats held more pro-environment attitudes than high-and low-identifying

Republicans. For Republicans who read a minority message, strength of social

identification was the only predictor of environmental attitudes. Overall, in terms of

group comparisons, there was no indication that environmental attitudes were impacted

by minority influence. The divergent results in indirect influence between the current

research and Alvaro and Crano (1997) could perhaps be partially explained by the sample

used in both studies and the context in which a majority and minority was established.

The current research utilized a sample of U.S. adults varying in age who disclosed their

political party affiliation, which was used to determine majority/minority ingroup and

outgroup categorization. Alvaro and Crano (1997) sampled undergraduate students from

one state and used student enrollment (primary University vs. community college

students) as the basis for majority/minority ingroup and outgroup categorization. The use

of very different samples could result in divergent findings. Additionally, Alvaro and

Crano published their study in 1997, over two decades prior to the current study, and at a

time when the political landscape was much less polarized (Pew Research Center, 2014).

Increased attitude polarization might produce greater intransigence in attitudes more

generally thereby potentially leading to more crystalized attitudes in the present day.

However, this dissertation did find support for leniency rather than punishment

for deviant ingroup members. Or to put it differently, there was no evidence of a so-

called black sheep effect (Marques et al., 1988). Neither Democrats nor Republicans

evaluated an ingroup member less favorably than a comparable outgroup member. It

might be that in the current study, ingroup membership carried enough clout to overcome

a possibly misguided fellow ingroup member's viewpoint. That's not to say that deviant ingroup members faced no repercussions. Atypical ingroup members, who deviated from more than just an ingroup's stance on carbon tax, were rated less favorably than prototypical ingroup members. However, simply being atypical and supporting a minority viewpoint was not enough to derogate fellow ingroup members in the current study.

The results of this dissertation also have implications for the replicability crisis. To the researcher's knowledge, this research is the first (or one of the first) attempted replications of Alvaro and Crano (1997). Given some methodological differences (as outlined above), the lack of parallel results in this research compared to Alvaro and Crano (1997) point to the necessity and importance of replicating research outside of an academic setting, which is often the context in which theory is founded or furthered. Though it is the case that data for this dissertation was collected online (vs. in person), successful online replications are not generally uncommon.

More broadly, much of persuasion and minority/majority research is often tested outside of the realm of larger societal discourse (e.g., consumer decisions, university policies) in which a particular attitude is likely to be an identity-defining characteristic. When also taking increasing political polarization into consideration, present findings might mean that previous insights from persuasion – minority/majority influence research might have to fundamentally be recast. For example, as polarization continues to increase, a Democratic identity might become more meaningful for Democrats, and attitudes related to that identity, such as attitudes towards carbon tax, strengthen and/or crystallize. On the other hand, a more meaningful Republican identity might involve

more developed attitudes towards second amendment rights or perhaps limited immigration, but not necessarily climate change or a carbon tax as these topics are not likely to be as much of an integral part of a Republican identity. In short, it might be that some prior findings might not be replicated when the social and political meaning of a subject or topic might have changed, and/or when conceptual replications and extensions are being attempted with issues or topics that engage potentially other processes.

Finally, the results of this research have implications for climate change policy communication. Based on findings in this dissertation, pro-carbon tax promotions targeting Democrats appears to be somewhat of a moot endeavor, along the lines of "preaching to the choir." There was overall support among Democrats for a carbon tax, regardless of the message source or content. On the other hand, the results from this research also suggest that pro-carbon tax message targeting Republicans can be successful. Republicans appeared to be less resistant to persuasive attempts and there was evidence for minority influence. Importantly, a persuasive carbon tax message would have more likelihood of success if the source of the message were a credible or trustworthy fellow Republican. Interestingly, the idea for this dissertation was sparked by a story of Republicans, conservatives, and Libertarians involved in attempts to change ingroup members' conventional thinking about approaches to climate change (i.e., Gunther, 2017). At least based on the results from this dissertation, it appears their endeavor has the opportunity to be successful.

Limitations

As is often the case with research, there were several limitations associated with

this project worth noting. First, this project assessed attitude change by examining significant differences in mean scores among participants who completed attitudinal ratings only after they were randomly assigned to experimental conditions (i.e., posttest only design). An optional approach to assessing attitude change is with the use of a pretest-posttest design. In this type of design, the metric of interest would be a possible shift or difference in attitudinal ratings completed before and after participants are exposed to experimental stimuli (e.g., Alvaro & Crano, 1997). An obvious advantage to a pretest-posttest design is the ability of the researcher to determine a shift in attitudes for each participant, rather than comparing attitudinal mean scores across groups, and the ability to determine whether or not preexisting attitudes might be counterattitudinal. It might be that minority influence looks different when preexisting attitudes are counterattitudinal, an observation made in Alvaro and Crano (1997). A potential disadvantage of a pretest-posttest design is that a pretest has the potential to sensitize participants to the objective of the research study, which could potentially impact participant responses in the posttest (Dimitrov et al., 2003). In this way, a pretest could introduce a potential confound into the study. In either case, future studies examining minority influence in politicized topics would benefit from incorporating alternative means of measuring attitude change.

A second limitation of the study is a sole focus on climate change and a carbon tax. There are several topics which could be considered partisan and for which attitude change and minority influence might look different. The results from the current study indicate that attitudes that might be fundamental to an identity, might be the most

resistant to change. Hence, especially interesting would be a study examining minority influence in the context of a topic for which Republicans might hold attitudes toward that are central to the Republican identity. For example, self-identifying Republicans might consider being anti-gun control to be an attitude that is fundamental to the Republican identity. At the same time, Democrats might feel that being pro-gun control is not an essential attitude to hold if one identifies as a Democrat (e.g., Connor Lamb; Nilsen, 2018). It could be equally beneficial to conduct a study examining attitude crystallization and instability in relation to partisanship and minority influence.

Another limitation of the study worth mentioning is a lack of delay in assessing attitude change. Crano and Seyranian (2009) posited that minority influence would result in delayed attitude change, though there was no delay in attitude assessment in early work (Alvaro & Crano, 1997). Participants in this study completed attitudinal measures shortly after (approximately 5 minutes) exposure to the experimental stimulus. Attitudinal ratings could have differed if there had been a delay in attitude assessment though its unclear how much delay is appropriate for minority influence. Future research examining partisanship and minority influence should consider assessing attitudes after some delay, as well as establishing a concrete understanding of the necessary conditions (e.g., duration) of that delay. Relatedly, this research did not follow up with participants to assess the potential persistence of attitude change. According to research related to the context/comparison-leniency contract model (Alvaro & Crano, 1997; Crano & Chen, 1998; Crano & Seyranian, 2009), attitude change is more likely to persist when an argument is compelling, and the matter considered objective. Although this research did

not assess whether or not participants considered the topic of carbon tax to be objective or subjective, the main study did utilize a vignette that received the highest overall rating in terms of strength. Additionally, elaboration-based attitude change tends to be persistent (Petty & Cacioppo, 1986 & HSM: Chaiken et al., 1989). However, a follow up study assessing attitudes towards a carbon would have provided empirical evidence on the persistence of attitude change, especially among Republican participants, and might have provided insight as to whether or not one intervention is sufficient.

A final attitude-related limitation of the current study is a lack of a behavioral measure. The attitude-behavior relationship is often tenuous at best but some behaviors, such as voting, tend to be strong predictors of attitudes and vice versa (Friese et al., 2012). Hence, behavioral measures could be reliable indicators of attitude strength or crystallization. Future studies examining partisanship and minority influence could benefit from including behavioral measures in addition to attitudinal measures such as signing up to receive additional information (e.g., carbon tax legislation), expressing interest in donating to an organization that furthers a related cause, or asking participants if they would vote for a measure if it appeared on a ballot (behavioral intent).

Finally, it is worth a mention that data for this project were collected over a span of approximately 4 months. During that time, a presidential Democratic primary was held, and COVID-19 surfaced in the U.S. It is not clear how these historical artifacts might have impacted the results of this study and whether or not minority influence might have looked different under different circumstances.

Conclusion

At the time of this writing, it appears that a Democrat will be the 46th President of the United States. It is currently unclear whether Joe Biden will attempt to adopt a carbon tax as part of his climate change policy, however, one important question is whether or not Republicans can be persuaded to support a carbon tax. According to the results of this dissertation, there is potential for persuasion among the U.S. Republican citizenry, and hope for climate change legislation. Partisanship appears to be a critical component of approaches to carbon tax-related attitude change as results clearly point to asymmetries based on individuals' political affiliation.

Just prior to the presidential election, Joe Biden communicated a need for bipartisanship (Cadelago, 2020). Although it is far from certain that he will succeed, this bipartisan tone might create an opening of voices within the Republican party to emerge in favor of a carbon tax and other effective climate change legislation. As evidenced by the *Yale Environment 360* article (Gunther, 2017) that started this dissertation journey, such voices do exist, and they might get their opportunity to shine.

References

Abrams, D., Travaglino, G. A., Marques, J. M., Pinto, I., & Levine, J. M. (2018). Deviance credit: Tolerance of deviant ingroup leaders is mediated by their accrual of prototypicality and conferral of their right to be supported. *Journal of Social Issues*, *74*(1), 36-55. https://doi.org/10.1111/josi.12255

Abrams, D., Wetherell, M., Cochrane, S., Hogg, M. A., & Turner, J. C. (1990). Knowing what to think by knowing who you are: Self-categorization and the nature of norm formation, conformity, and group polarization. *British Journal of Social Psychology, 29*, 97–119. https://doi.org/10.1111/j.2044-8309.1990.tb00892.x

Alvaro, E. M., & Crano, W. D. (1997). Indirect minority influence: Evidence for leniency in source evaluation and counterargumentation. *Journal of Personality and Social Psychology*, *72*(5), 949-964. https://doi.org/10.1037/0022-3514.72.5.949

Anderson, J. R. (1983). *The architecture of cognition*. Harvard University Press.

Asch, S. E. (1951). Effects of group pressure upon the modification and distortion of judgments. In H. Guetzkow (Ed.), *Groups, leadership and men: Research in human relations* (pp. 177-190). Carnegie Press.

Bizer, G. Y., & Krosnick, J. A. (2001). Exploring the structure of strength-related attitude features: The relation between attitude importance and attitude accessibility. *Journal of Personality and Social Psychology, 81*(4), 566-586. https://doi.org/10.1037/0022-3514.81.4.566

Bohner, G., & Schwarz, N. (2001). Attitudes, persuasion, and behavior. In A. Tesser, & N. Schwarz (Eds.), *Blackwell handbook of social psychology: Intraindividual processes* (pp. 413-435). Blackwell. https://doi.org/10.1002/9780470998519.ch19

Boneau, C. A. (1960). The effects of violations of assumptions underlying the t test. *Psychological Bulletin*, *57*(1), 49-64. https://doi.org/10.1037/h0041412

Box, G. E. (1954). Some theorems on quadratic forms applied in the study of analysis of variance problems, I. Effect of inequality of variance in the one-way classification. *The Annals of Mathematical Statistics*, *25*(2), 290-302. https://doi.org/10.1214/aoms/1177728786

Brewer, M. B. (1993). The social self: On being the same and different at the same time. *Personality and Social Psychology Bulletin*, *17*(5), 475-482. https://doi.org/10.1177/0146167291175001

Brewer, M. B. (1996). When contact is not enough: Social identity and intergroup cooperation. *International Journal of Intercultural Relations*, *20*(3-4), 291-303.

Brown, R. J. (1984). The role of similarity in intergroup relations. In H. Tajfel (Ed.). *The social dimension: European developments in social psychology* (pp. 603-623). Cambridge University Press.

Brown, R., & Abrams, D. (1986). The effects of intergroup similarity and goal interdependence on intergroup attitudes and task performance. *Journal of Experimental Social Psychology*, *22*(1), 78-92. https://doi.org/10.1016/0022-1031(86)90041-7

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

Cacioppo, J. T., Von Hippel, W., & Ernst, J. M. (1997). Mapping cognitive structures and processes through verbal content: The thought-listing technique. *Journal of Consulting and Clinical Psychology*, *65*(6), 928-940. https://doi.org/10.1037/0022-006X.65.6.928

Cadelago, C. (2020, September 20) Liberals want blood. Joe Biden is sticking with bipartisanship. *Politico*. https://www.politico.com/news/2020/09/20/joe-biden-liberals-bipartisanship-419127

Castano, E., Paladino, M. P., Coull, A., & Yzerbyt, V. Y. (2002). Protecting the ingroup stereotype: Ingroup identification and the management of deviant ingroup members. *British Journal of Social Psychology*, *41*(3), 365-385. https://doi.org/10.1348/014466602760344269

Chaiken, S. (1987). The heuristic model of persuasion. In M. P. Zanna, J. M. Olson, & C. P. Herman (Eds.), *Social influence: The Ontario symposium* (*Vol. 5*, pp. 3–39). Erlbaum.

Chaiken, S., Liberman, A., & Eagly, A. H. (1989). Heuristic and systematic information processing within and beyond the persuasion context. In J. S. Uleman & J. A. Bargh (Eds.), *Unintended thought* (pp. 212-252). Guilford.

Chakraborty, B. (2017). Paris Agreement on climate change: US withdraws as Trump calls it 'unfair'. *Fox News*. Retrieved from http://www.foxnews.com/politics/2017/06/01/trump-u-s-to-withdraw-from-paris-climate-pact-calls-it-unfair-for-america.html

Chinn, S., Hart, P. S., & Soroka, S. (2020). Politicization and polarization in climate change news content, 1985-2017. *Science Communication*, *42*(1), 107554701990029-129. https://doi.org/10.1177/1075547019900290

Chozick, A. (2016, September). Hillary Clinton calls many Trump backers "deplorables," and G.O.P. pounces. *The New York Times*. Retrieved from

http://www.nytimes.com/2016/09/11/us/politics/hillary-clinton-basket-of-deplorables.html

Cohen, G. L. (2003). Party over policy: The dominating impact of group influence on political beliefs. *Journal of Personality and Social Psychology*, *85*(5), 808-822. https://doi.org/10.1037/0022-3514.85.5.808

Committee on Stabilization Targets for Atmospheric Greenhouse Gas Concentrations, Council, N. R., Division on Earth and Life Studies, & Council, N. R. (2011). *Climate stabilization targets: Emissions, concentrations, and impacts over decades to millennia*. Washington: National Academies Press. Retrieved from https://www.nap.edu/read/12877/chapter/4

Crano, W. D. (2001). Social influence, social identity and ingroup leniency. In C. K. W. De Dreu & N. K. DeVries (Eds.), *Group consensus and minority influence: Implications for innovation* (pp. 122–143). Blackwell.

Crano, W. D., & Chen, X. (1998). The leniency contract and persistence of majority and minority influence. *Journal of Personality and Social Psychology*, *74*(6), 1437-1450. https://doi.org/ 10.1037/0022-3514.74.6.1437

Crano, W. D., & Prislin, R. (2006). Attitudes and persuasion. *Annual Review of Psychology*, *57*, 345-374. https://doi.org/10.1146/annurev.psych.57.102904.190034

Crano, W. D., & Seyranian, V. (2009). How minorities prevail: The Context/Comparison-leniency contract model. *Journal of Social Issues*, *65*(2), 335-363. https://doi.org/10.1111/j.1540-4560.2009.01603.x

David, B., & Turner, J. C. (1999). Studies in self-categorization and minority conversion: The ingroup minority in intragroup and intergroup contexts. *British Journal of Social Psychology, 38*, 115-134. https://doi.org/10.1348/014466699164086

de Holanda Coelho, G. L., Hanel, P. H., & Wolf, L. J. (2018). The very efficient assessment of need for cognition: Developing a six-item version. *Assessment*, *27*(8), 1870-1885. https://doi.org/10.1177/1073191118793208

Deutsch, M., & Gerard, H. B. (1955). A study of normative and informational social influences upon individual judgment. *Journal of Abnormal and Social Psychology*, *51*(3), 629-636. https://doi.org/10.1037/h0046408

Dickinson, T. (2007). The secret campaign of President Bush's Administration to deny global warming. *Rolling Stone*. https://www.desmogblog.com/sites/beta.desmogblog.com/files/The%20Secret%20Campaign%20of%20President%20Bush%20rolling%20stone.pdf

Dimitrov, D. M., & Rumrill, J., Phillip D. (2003). Pretest-posttest designs and measurement of change. *Work*, *20*(2), 159-165.

Dvir-Gvirsman, S. (2014). It's not that we don't know, it's that we don't care: Explaining why selective exposure polarizes attitudes. *Mass Communication and Society*, *17*, 74–97. https://doi.org/10.1080/15205436.2013.816738

Eagly, A. H., & Chaiken, S. (1995). Attitude strength, attitude structure, and resistance to change. In R. Fazio & J. Krosnick (Eds.), *Attitude strength: Antecedents and consequences* (pp. 413-432). Erlbaum.

Ensari, N., & Miller, N. (2001). Decategorization and the reduction of bias in the crossed categorization paradigm. *European Journal of Social Psychology, 31(2),* 193-216. https://doi.org/10.1002/ejsp.42

Esposo, S. R., Hornsey, M. J., & Spoor, J. R. (2013). Shooting the messenger: Outsiders critical of your group are rejected regardless of argument quality. *British Journal of Social Psychology*, *52*(2), 386-395. https://doi.org/10.1111/bjso.12024

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*, 175-191.

Feldman, L., Maibach, E. W., Roser-Renouf, C., & Leiserowitz, A. (2012). Climate on cable: The nature and impact of global warming coverage on Fox News, CNN, and MSNBC. *The International Journal of Press/Politics*, *17*(1), 3-31.

Friese, M., Smith, C. T., Plischke, T., Bluemke, M., & Nosek, B. A. (2012). Do implicit attitudes predict actual voting behavior particularly for undecided voters?. *PloS One*, *7*(8), e44130. https://doi.org/10.1371/journal.pone.0044130

Funk, C., & Kennedy, B. (2016a). The politics of climate. *Pew Research Center*. http://www.pewinternet.org/2016/10/04/the-politics-of-climate/

Funk, C., & Kennedy, B. (2016b). Public views on climate change and climate scientists. *Pew Research Center*. http://www.pewinternet.org/2016/10/04/public-views-on-climate-change-and-climate-scientists/

Funk, C., & Kennedy, B. (2019). How Americans see climate change in 5 charts. *Pew Research Center*. https://www.pewresearch.org/fact-tank/2019/04/19/how-americans-see-climate-change-in-5-charts/

Galinsky, A. D., Magee, J. C., Gruenfeld, D. H., Whitson, J. A., & Liljenquist, K. A. (2008). Power reduces the press of the situation: Implications for creativity,

conformity, and dissonance. *Journal of Personality and Social Psychology*, *95*(6), 1450-1466. https://doi.org/10.1037/a0012633

Gallup. (n.d.). Presidential approval ratings -- Donald Trump. https://news.gallup.com/poll/203198/presidential-approval-ratings-donald-trump.aspx

Ghasemi, A., & Zahediasl, S. (2012). Normality tests for statistical analysis: A guide for non-statisticians. *International Journal of Endocrinology and Metabolism*, *10*(2), 486-489. https://doi.org/10.5812/ijem.3505

Glass, G. V., Peckham, P. D., & Sanders, J. R. (1972). Consequences of failure to meet assumptions underlying the fixed effects analyses of variance and covariance. *Review of Educational Research*, *42*(3), 237-288. https://doi.org/10.3102/00346543042003237

Goodman, J. K., Cryder, C. E., & Cheema, A. (2013). Data collection in a flat world: The strengths and weaknesses of Mechanical Turk samples. *Journal of Behavioral Decision Making*, *26*, 213–224. https://doi.org/10.1002/bdm.1753

Gosling, S. D., Rentfrow, P. J., & Swann, W. B. (2003). A very brief measure of the big-five personality domains. *Journal of Research in Personality, 37*(6), 504-528. https://doi.org/10.1016/S0092-6566(03)00046-1

Gunther, M. (2017). Climate converts: The conservatives who are switching sides on global warming. *Yale Environment 360*. https://e360.yale.edu/features/climate-converts-the-conservatives-who-are-switching-sides-on-climate-change

Haslam, S. A., & Reicher, S. D. (2012). When prisoners take over the prison: A social psychology of resistance. *Personality and Social Psychology Review*, *16*(2), 154-179. https://doi.org/10.1177/1088868311419864

Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis* (2nd ed.). Guilford.

Hogg, M. A. (2000). Subjective uncertainty reduction through self-categorization: A motivational theory of social identity processes. *European Review of Social Psychology*, *11*(1), 223-255. https://doi.org/10.1080/14792772043000040

Hogg, M. A., & Terry, D. I. (2000). Social identity and self-categorization processes in organizational contexts. *Academy of Management Review*, *25*(1), 121-140. https://doi.org/10.2307/259266

Hogg, M. A., & Turner, J. C. (1987). Social identity and conformity: A theory of referent informational influence. In W. Doise & S. Moscovici (Eds.), *Current issues in European social psychology* (Vol. 2, pp. 139–182). Cambridge University Press.

Holland, R. W., Verplanken, B., & van Knippenberg, A. (2003). From repetition to conviction: Attitude accessibility as a determinant of attitude certainty. *Journal of Experimental Social Psychology, 39*(6), 594-601. https://doi.org/10.1016/S0022-1031(03)00038-6

Holtz, R. (2003). Intragroup or intergroup attitude projection can increase opinion certainty: Is there classism at college? *Journal of Applied Social Psychology, 33*(9), 1922-1944.

Holtz, R. (2004). Group cohesion, attitude projection, and opinion certainty: Beyond interaction. *Group Dynamics: Theory, Research, and Practice, 8*(2), 112-125. https://doi.org/10.1037/1089-2699.8.2.112

Hornsey, M. J., & Imani, A. (2004). Criticizing groups from the inside and the outside: An identity perspective on the intergroup sensitivity effect. *Personality and Social Psychology Bulletin*, *30*(3), 365-383. https://doi.org/10.1177/0146167203261295

Hornsey, M. J., Oppes, T., & Svensson, A. (2002). "It's OK if we say it, but you can't": Responses to intergroup and intragroup criticism. *European Journal of Social Psychology*, *32*(3), 293-307. https://doi.org/10.1002/ejsp.90

Hout, M. C., Papesh, M. H., & Goldinger, S. D. (2013). Multidimensional scaling. *Wiley Interdisciplinary Reviews. Cognitive Science*, *4*(1), 93-103. https://10.1002/wcs.1203

Hovland, C. I., Janis, I. L., & Kelley, J. J. (1953). *Communication and persuasion*. Yale University Press.

Howe, L. C., & Krosnick, J. A. (2017). Attitude strength. *Annual Review of Psychology*, *68*(1), 327-351. https://doi.org/10.1146/annurev-psych-122414-033600

Imhoff, R., & Erb, H. P. (2009). What motivates nonconformity? Uniqueness seeking blocks majority influence. *Personality and Social Psychology Bulletin*, *35*(3), 309-320. https://doi.org/10.1177/0146167208328166

Jenkins-Smith, H. C., Ripberger, J. T., Silva, C. L., Carlson, D. E., Gupta, K., Carlson, N., ... & Dunlap, R. E. (2020). Partisan asymmetry in temporal stability of climate change beliefs. *Nature Climate Change*, *10*(4), 322-328.

Jetten, J., & Hornsey, M. J. (2014). Deviance and dissent in groups. *Annual Review of Psychology*, *65*, 461-485. https://doi.org/10.1146/annurev-psych-010213-115151

Judd, C. M., Drake, R. A., Downing, J. W., & Krosnick, J. A. (1991). Some dynamic properties of attitude structures: Context-induced response facilitation and polarization. *Journal of Personality and Social Psychology, 60*(2), 193-202. https://doi.org/10.1037/0022-3514.60.2.193

Kelman, H. C., & Hovland, C. I. (1953). "Reinstatement" of the communicator in delayed measurement of opinion change. *Journal of Abnormal and Social Psychology*, *48*(3), 327-335.

Kirby, A. (2001). US blow to Kyoto hopes. *BBC News*, *28*. http://news.bbc.co.uk/2/hi/science/nature/1247518.stm

Koot, C., Mors, E. T., Ellemers, N., & Daamen, D. D. (2016). Facilitation of attitude formation through communication: how perceived source expertise enhances the ability to achieve cognitive closure about complex environmental topics. *Journal of Applied Social Psychology*, *46*(11), 627-640. https://doi.org/10.1111/jasp.12391

Kruglanski, A. W., & Thompson, E. P. (1999). Persuasion by a single route: A view from the unimodel. *Psychological Inquiry*, *10*(2), 83-109. https://doi.org/10.1207/s15327965pl100201

Krupnikov, Y., & Levine, A. S. (2014). Cross-sample comparisons and external validity. *Journal of Experimental Political Science, 1*, 59-80. https:doi.org/10.1017/xps.2014.7

Levay, K. E., Freese, J., & Druckman, J. N. (2016). The demographic and political composition of Mechanical Turk samples. *Sage Open*, *6*(1), 2158244016636433. https://doi.org/10.1177/2158244016636433

Luhtanen, R., & Crocker, J. (1992). A collective self-esteem scale: Self-evaluation of one's social identity. *Personality and Social Psychology Bulletin*, *18*(3), 302-318. https://doi.org/10.1177/0146167292183006

Luong, K. T., Garrett, R. K., & Slater, M. D. (2019). Promoting persuasion with ideologically tailored science messages: A novel approach to research on emphasis framing. *Science Communication*, *41*(4), 488-515. https://doi.org/10.1177/1075547019862559

Mackie, D. M. (1986). Social identification effects in group polarization. *Journal of Personality and Social Psychology, 50*(4), 720-728. https://doi.org/10.1037//0022-3514.50.4.720

Mackie, D. M., Gastardo-Conaco, M. C., & Skelly, J. J. (1992). Knowledge of the advocated position and the processing of in-group and out-group persuasive

messages. *Personality and Social Psychology Bulletin*, *18*, 145–151. https://doi.org/10.1177/0146167292182005

Mackie, D. M., Worth, L. T., & Asuncion, A. G. (1990). Processing of persuasive in-group messages. *Journal of Personality and Social Psychology*, *58*, 812–822. https://doi.org/10.1037/0022-3514.58.5.812

Maheswaran, D., & Chaiken, S. (1991). Promoting systematic processing in low-motivation settings: Effect of incongruent information on processing and judgment. *Journal of Personality and Social Psychology*, *61*(1), 13-25. https://doi.org/10.1037/0022-3514.61.1.13

Malloy, A. (2015). Obama unveils major climate change proposal. *CNN*. http://www.cnn.com/2015/08/02/politics/obama-climate-change-plan/index.html

Maoz, I., Ward, A., Katz, M., & Ross, L. (2002). Reactive devaluation of an "Israeli" vs. "Palestinian" peace proposal. *Journal of Conflict Resolution*, *46*(4), 515-546. https://doi.org/10.1177/0022002702046004003

Marques, J. M., Abrams, D., Paez, D., & Hogg, M. A. (2001). Social categorization, social identification, and rejection of deviant group members. In M. A. Hogg & S. Tindale (Eds.), *Blackwell handbook of social psychology: Group processes* (pp. 400-424). Blackwell.

Marques, J. M., Yzerbyt, V. Y., & Leyens, J. P. (1988). The "black sheep effect": Extremity of judgments towards ingroup members as a function of group identification. *European Journal of Social Psychology*, *18*(1), 1-16. https://doi.org/10.1002/ejsp.2420180102

McCracken, G. (1989). Who is the celebrity endorser? Cultural foundations of the endorsement process. *Journal of Consumer Research*, *16*(3), 310-321. https://doi.org/10.1086/209217

McGarty, C., Haslam, S. A., Hutchinson, K. J., & Turner, J. C. (1994). The effects of salient group memberships on persuasion. *Small Group Research*, *25*(2), 267-293. https://doi.org/10.1177/1046496494252007

McGuire, W. J. (1969). The nature of attitude and attitude change. In G. Lindzey & E. Aronson (Eds.), *The handbook of social psychology* (2nd ed., Vol. 3, pp. 136-314). Addison-Wesley.

McGuire, W. J. (1985). Attitude and attitude change. In G. Lindzey & E. Aronson (Eds.), *The handbook of social psychology* (3rd ed., Vol. 2, pp. 233-346). Random House.

McGuire, W. J., & McGuire, C. V. (1991). The content, structure, and operation of thought systems. In R. S. Wyer, Jr. & T. K. Srull (Eds.), *The content, structure, and operation of thought systems* (pp. 1-78). Hillsdale, NJ: Erlbaum.

Mitchell, A., Gottfried, J., Kiley, J, & Matsa, K.E. (2016). Political polarization & media habits. *Pew Research Center*. http://www.journalism.org/2014/10/21/political-polarization-media-habits/

Monin, B., Sawyer, P. J., & Marquez, M. J. (2008). The rejection of moral rebels: Resenting those who do the right thing. *Journal of Personality and Social Psychology, 95*(1), 76-93. https://doi.org/10.1037/0022-3514.95.1.76

Mooney, C., Eilperin, J., & Dennis, B. (2017). Trump administration releases report finding 'no convincing alternative explanation' for climate change. *The Washington Post*. https://www.washingtonpost.com/news/energy-environment/wp/2017/11/03/trump-administration-releases-report-finds-no-convincing-alternative-explanation-for-climate-change/?utm_term=.fe3d1a49f71

Moscovici, S. (1980). Toward a theory of conversion behavior. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (pp. 209–239). Academic Press.

Moscovici, S., Lage, E., & Naffrechoux, M. (1969). Influence of a consistent minority on the responses of a majority in a color perception task. *Sociometry*, *32*(4), 365-380. https://doi.org/10.2307/2786541

Moscovici, S., & Zavalloni, M. (1969). The group as a polarizer of attitudes. *Journal of Personality and Social Psychology*, *12*, 125-135. https://doi.org/10.1037/h0027568

Nabi, R. L., Gustafson, A., & Jensen, R. (2018). Framing climate change: Exploring the role of emotion in generating advocacy behavior. *Science Communication*, *40*(4), 442-468. https://doi.org/10.1177/1075547018776019

Nemeth, C. J. (1986). The differential contributions of majority and minority influence. *Psychological Review*, *93*, 23-32. https://doi.org/10.1037/0033-295X.93.1.23

Nilsen, E. (2018, March 12). A pro-gun Democrat could win in Trump country. Where does that leave gun control activism? *Vox*. https://www.vox.com/policy-and-politics/2018/3/12/17061712/gun-control-democrat-trump-activism-midterms-2018

Nyhan, B., & Reifler, J. (2010). When corrections fail: The persistence of political misperceptions. *Political Behavior*, 32(2), 303-330. https://doi.org/10.1007/s11109-010-9112-2

Oakes, P. (2002). Psychological groups and political psychology: A response to Huddy's "critical examination of social identity theory". *Political Psychology*, *23*(4), 809-824. https://doi.org/10.1111/0162-895X.00308

Olsen, M. E. (1962). Liberal-Conservative Attitude Crystallization. *The Sociological Quarterly*, *3*(1), 17-26. https://doi.org/10.1111/j.1533-8525.1962.tb01543.x

Oreskes, N. (2004). The scientific consensus on climate change. *Science*, *306*(5702), 1686-1686.

Packer, D. J. (2008). On being both with us and against us: A normative conflict model of dissent in social groups. *Personality and Social Psychology Review*, *12*(1), 50-72. https://doi.org/10.1177/1088868307309606

Paolacci, G., Chandler, J., & Ipeirotis, P. G. (2010). Running experiments on Amazon Mechanical Turk. *Judgment and Decision Making*, *5*(5), 411-419.

Peer, E., Brandimarte, L., Samat, S., & Acquisti, A. (2017). Beyond the turk: Alternative platforms for crowdsourcing behavioral research. *Journal of Experimental Social Psychology, 70*, 153-163. https://doi.org/10.1016/j.jesp.2017.01.006

Pettigrew, T. F., & Tropp, L. R. (2006). A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology*, *90*(5), 751-783. https://doi.org/10.1037/0022-3514.90.5.751

Petty, R. E., & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion. *Advances in Experimental Social Psychology*, *19*, 123-205.

Petty, R. E., Ostrom, T. M., & Brock, T. (Eds.) (1981). *Cognitive responses in persuasion*. Erlbaum.

Pew Research Center (2014, June). *Political polarization in the American public*. https://www.people-press.org/2014/06/12/political-polarization-in-the-american-public/

Pew Research Center (2017, October). The partisan divide on political values grows values grows even wider. https://www.people-press.org/2017/10/05/the-partisan-divide-on-political-values-grows-even-wider/

Platow, M. J., & van Knippenberg, D. (2001). A social identity analysis of leadership endorsement: The effects of leader ingroup prototypicality and distributive intergroup fairness. *Personality and Social Psychology Bulletin*, *27*(11), 1508-1519. https://doi.org/10.1177/01461672012711011

Pornpitakpan, C. (2004). The persuasiveness of source credibility: A critical review of five decades' evidence. *Journal of Applied Social Psychology*, *34*, 243–281. https://doi.org/10.1111/j.1559-1816.2004.tb02547.x

Powell, J. L. (2015). Climate scientists virtually unanimous: Anthropogenic global warming is true. *Bulletin of Science, Technology & Society*, *35*(5-6), 121-124. https://doi.org/10.1177/0270467616634958

Reimer, T., Mata, R., & Stoecklin, M. (2004). The use of heuristics in persuasion: Deriving cues on source expertise from argument quality. *Current Research in Social Psychology*, *10*(6), 69-84. https://doi.org/10.1145/1520340.1520645

Rosenberg, M. J., & Hovland, C. I. (1960). Cognitive, affective, and behavioral components of attitudes. In M. J. Rosenberg & C. I. Hovland, W. McGuire, R. Abelson, & J. Brehm (Eds.), *Attitude organization and change* (pp. 1-14). Yale University Press.

Ross, L., & Ward, A. (1995). Psychological barriers to dispute resolution. In M. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 27, pp. 255-304). Academic Press.

Schoemann, A. M., Boulton, A. J., & Short, S. D. (2017). Determining power and sample size for simple and complex mediation models. *Social Psychological and Personality Science*, *8*(4), 379-386. https://doi.org/10.1177/1948550617715068

Sherif, M. (1967). *Social interaction: process and products*. Aldine.

Spears, R., Doosje, B., & Ellemers, N. (1997). Self-stereotyping in the face of threats to group status and distinctiveness: The role of group identification. *Personality and Social Psychology Bulletin*, *23*(5), 538-553. https://doi.org/10.1177/0146167297235009

Steyvers, M. (2002). Multidimensional Scaling. In *Encyclopedia of Cognitive Science* (pp. 1-7). Nature Publishing Group, London, UK. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.196.7813&rep=rep1&type=pdf

Stocker, T. F., Qin, D., Plattner, G. K., Tignor, M., Allen, S. K., Boschung, J., ... & Midgley, B. M. (2013). *Climate change 2013: The physical science basis*. Intergovernmental Panel on Climate Change 2013. http://www.climatechange2013.org/images/report/WG1AR5_Frontmatter_FINAL.pdf

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics*. Pearson/Allyn & Bacon.

Tajfel, H. (1970). Experiments in intergroup discrimination. *Scientific American*, *223*(5), 96–102. https://doi.org/10.1038/scientificamerican1170-96

Tajfel, H. (1982). Social psychology of intergroup relations. *Annual Review of Psychology*, *33*, 1-39. https://doi.org/10.1177/0959354301115001

Tamir, Y., & Nadler, A. (2007). The role of personality in social identity: Effects of field-dependence and context on reaction to threat to group distinctiveness. *Journal of Personality, 75*, 927–954. https://doi.org/10.1111/j.1467-6494.2007.00461.x

Tesser, A. (1978). Self-generated attitude change. *Advances in Experimental Social Psychology*, *11*, 289–338.

Tormala, Z. L., & Clarkson, J. J. (2008). Source trustworthiness and information processing in multiple message situations: A contextual analysis. *Social Cognition*, *26*(3), 357-367. https://10.1521/soco.2008.26.3.357

Trump, D. J. (2016, November). The concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive [Twitter].

Turner, J. C. (1985). Social categorization and the self-concept: A social cognitive theory of group behavior. In E. J. Lawler (Ed.), *Advances in group processes*, vol. 2 (pp. 77-122). JAI Press.

Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. S. (1987). *Rediscovering the social group: A self-categorization theory*. Blackwell.

Turner, J. C., & Oakes, P. J. (1986). The significance of the social identity concept for social psychology with reference to individualism, interactionism and social influence. *British Journal of Social Psychology*, *25*(3), 237-252. https://doi.org/10.1111/j.2044-8309.1986.tb00732.x

Turner, J. C., Oakes, P. J., Haslam, S. A., & McGarty, C. (1994). Self and collective: Cognition and social context. *Personality and Social Psychology Bulletin*, *20*(5), 454-463. https://doi.org/10.1177/0146167294205002

van Knippenberg, D. (1999). Social identity and persuasion: Reconsidering the role of group membership. In D. Abrams & M. A. Hogg (Eds.), *Social identity and social cognition* (pp. 315-331). Blackwell.

van Knippenberg, A., & Ellemers, N. (1990). Social identity and intergroup differentiation process. In W. Stroebe & M. Hewstone (Eds.), *European review of social psychology* (pp. 137-169). Wiley.

van Knippenberg, D., Lossie, N., & Wilke, H. (1994). Ingroup prototypicality and persuasion: Determinants of heuristic and systematic message processing. *British Journal of Social Psychology*, *33*, 289-300.

van Knippenberg, D., & Wilke, H. (1992). Prototypicality of arguments and conformity to ingroup norms. *European Journal of Social Psychology*, *22*(2), 141-155.

Viser, M., & Jan, T. (2016, October). Warnings of conspiracy stroke anger among Trump faithful. *The Boston Globe*. https://bostonglobe.com/news/politics/2016/10/15/donald-trump-warnings-conspiracy-rig-election-are-stoking-anger-among-his-followers/LcCY6e0QOcfH8VdeK9UdsM/story.html

Visser, P. S., & Mirabile, R. R. (2004). Attitudes in the social context: The impact of social network composition on individual-level attitude strength. *Journal of Personality and Social Psychology, 87*(6), 779-795. https://doi.org/10.1037/0022-3514.87.6.779

Wiener, J. L., & Mowen, J. C. (1986). Source credibility: On the independent effects of trust and expertise. In R. J. Lutz (Ed.), *Advances in consumer research* (Vol. 13, pp. 306-310). Association for Consumer Research.

Williams, M. (2001). In whom we trust: Group membership as an affective context for trust development. *The Academy of Management Review, 26*(3), 377-396. doi:10.5465/AMR.2001.4845794

Wilson, E. J., & Sherrell, D. L. (1993). Source effects in communication and persuasion research: A meta-analysis of effect size. *Journal of the Academy of Marketing Science*, *21*(2), 101-112. https://doi.org/10.1007/bf02894421

Wohl, P. (2019). Dissent is democratic: Stop calling McCain, Corker, Flake RINOs. *The Hill*. https://thehill.com/opinion/campaign/358812-stop-calling-mccain-corker-flake-rinos

Wood, T., & Porter, E. (2019). The elusive backfire effect: Mass attitudes' steadfast factual adherence. *Political Behavior*, *41*(1), 135-163. https://10.1007/s11109-018-9443-y

Zabarenko, D. (2007). Scientists charge White House pressure on warming. *Reuters*. https://web.archive.org/web/20170413044902/http://www.washingtonpost.com/wp-dyn/content/article/2007/01/30/AR2007013000985.html

Zhong, W., & Haigh, J. D. (2013). The greenhouse effect and carbon dioxide. *Weather, 68*(4), 100-105. doi:10.1002/wea.2

Appendix A1: Pilot Study 1

The primary purpose of the first pilot study was to (1) identify strong messages about a carbon tax, (2) identify attitudes related to a carbon tax (related attitudes), and (3) determine the efficacy of a thought-listing task as a measure of extent of elaboration among Democrats and Republicans. Participants who were asked to list out their thoughts about a carbon tax saw either 10 or 20 thoughts pertaining to a message about a carbon tax policy to determine whether or not making differential thought listing requests results in a significantly lower or greater number of thoughts listed by participants.

According to the leniency contract model, individuals dismiss a minority ingroup message if they perceive the message as a threat to group distinctiveness (Crano & Seyranian, 2009). Thus, aside from contributing to the development of the present experimental material and paradigm, a secondary purpose of this study was to explore the role of perceived threat in extent of elaboration and attitude change. Additionally, prior research has indicated that minority (i.e. deviant and counternormative) messages are likely to be considered novel, thus, garner attention and facilitate elaboration (Crano & Seyranian, 2009; McGuire, 1969, 1985; Moscovici, 1980; Petty & Cacioppo, 1986). As such, factors related to novelty were explored and novelty was examined in the context of elaboration.

Method

Design

Pilot Study 1 used a 3 (target article version) x 2 (target political affiliation: Democrat vs. Republican) x 2 (participant political affiliation: Democrat vs. Republican)

x 2 (majority/minority message status: support vs. oppose carbon tax) between-subjects

factorial design. The design also included strength of social identification as a continuous

predictor, which was allowed to interact with all experimentally manipulated variables.

Participants

A total of 279 Democrats and 265 Republicans participated in this study.

Participants included 59% women ($n = 321$) and age ranged from 19 to 78 ($M_{age} = 42.5$).

Participants were paid $2.75 for completing a 25-minute online questionnaire. In an

initial screening procedure, 1,146 Amazon Mturk workers were paid $0.05 to complete a

3-minute online questionnaire administered via Qualtrics, which inquired about age,

gender, race-ethnicity, education level, household income, and employment status. One

multiple-choice item asked participants whether they considered themselves "Democrat,"

"Republican," or "Other," and how strongly they identified with this group. This yielded

568 self-identified Democrats and 394 Republicans, who were invited to participate in

the pilot study one to two days later. A total of 162 Amazon Mturk workers who self-

identified as Independent were removed from the list of eligible participants as were 10

Mturk workers whose IP address suggested a location outside of the U.S. and 17 Mturk

workers with duplicate IP addresses.

A power analysis (G*Power; Faul, Erdfelder, Lang, & Buchner, 2007) indicated

that a minimum sample size of 430 was required to detect a small-moderate effect ($f^2 =$

.15) if one exists given .80 power and .05 alpha. To detect a moderate effect size ($f^2 =$

.25), a minimum sample size of 158 was required.

Procedure

After providing consent, participants read an article on an interview with a Republican or Democrat interviewee who supported or opposed a carbon tax policy designed to curb emissions and offset climate change. Participants were then asked to list up to either 10 or 20 thoughts pertaining to the interview and the message conveyed therein. Subsequently, they rated the perceived threat and novelty of the interviewee's message, and responded to a manipulation check. Next, participants evaluated a range of controversial social issues, which included attitudes pertaining to a carbon tax, as well as attitudes on issues which were potentially related to the carbon tax, but which were not mentioned by the interviewee. Participants also indicated to what extent they considered different attitudes to be related to one another, and rated the strength of the interviewee's message. Participants were then provided with a list of all thoughts they generated during the earlier thought-listing task, and asked to categorize each of them. Finally, participants commented on the perceived strengths and weaknesses of the interviewee's message.

Materials

Strength of Social Identification

As part of the screening questionnaire, participants completed a three-item Likert-type scale assessing strength of social identification with their chosen self-description as Democrat or Republican. Items were adapted from Luhtanen and Crocker (1992) with response options ranging from 1 (*Strongly disagree*) to 5 (*Strongly agree*). Sample items include "How important is it for you to identify as a Democrat [Republican]?" The scale had excellent reliability for both Democrats and Republicans (Cronbach's α = .93 and α =

.92, respectively).

Target Article

All participants read an online article that was based on an abridged and edited version of a real article reporting the growth of Republican think tanks promoting human-influenced global warming (see Gunther, 2017). The original article featured a Republican interviewee expressing a favorable view toward a carbon tax. This article was adapted for present purposes: both the party affiliation of the interviewee as well as his stance on a carbon tax policy were varied such that participants read about a Republican or Democrat who either supported or opposed carbon tax policy designed to curb carbon outputs. Crossed with these manipulations, three versions of the article were randomly presented to participants to determine whether they varied in strength: version 1 did not include any additional language; version 2 contained a paragraph about carbon tax and job creation impact on low- and middle-class families and indigenous populations; and version 3 included the same language in version as well as a sentence about the carbon tax approach being founded on economic modeling, and the amount of evidence in support of the model. See Appendix A3 for all Pilot Study 1 materials.

Strength of Message

One item asked participants to rate on a scale of -3 (*very weak*) to 3 (*very strong*) the extent to which the interviewee's message in the online target article was weak or strong.

Thought-listing Task

To measure extent of elaboration (Cacioppo et al., 1997), participants were asked

to list any and all thoughts they had while reading the online article. In order to determine whether the number of empty fields for thought listing would impact the number of thoughts generated, participants were randomly provided with either 10 or 20 empty fields to type in their thoughts. Unbeknownst to participants, the time they took on this task was recorded.

Thought-listing Categorization

Following the attitude rating task (see below), participants were provided with a list of all the thoughts they had generated in the thought-listing task and asked to categorize their thoughts as: (1) negative (in disagreement with the message or the interviewee), (2) neutral (neither in agreement or disagreement with the message or the interviewee, or (3) in agreement with the message or interviewee. This coding scheme was adapted from Cacioppo et al. (1997).

Attitudes

Participants rated eight attitude objects on a seven-point semantic differential scale including: carbon tax, restricted gun rights, offshore fracking, abortion, animal rights/conservation, gay and/or lesbian soldiers in the military, encouraging energy conservation, and loosening energy regulations on businesses. Each attitude object was rating on the following dimensions: good-bad, kind-unkind, moral-immoral, positive-negative, right-wrong (adapted from Alvaro & Crano, 1997). The order of attitude objects was varied randomly for each participant.

Probability of Change in Attitude

Following Alvaro and Crano (1997), participants estimated the likelihood that a

change in one of the attitude objects would facilitate a change in another attitude object. Specifically, participants were presented with one an attitude object (e.g., abortion) and asked to indicate on a scale from 0 to 100, the likelihood that a change in the attitude object would lead to a change in the other seven attitude objects (e.g., offshore fracking, carbon tax, etc.). In total, participants rendered 28 judgements. The order in which attitude objects were presented was varied randomly between participants.

Perceived Threat

To assess the extent to which participants experienced a threat to the distinctiveness of their ingroup identity, one item asked participants to rate on a scale from 1 (*not at all*) to 5 (*extremely*) whether the interviewee's message threatens to blur the line between the Republican and Democrat parties.

Novelty

One item asked participants to rate on a scale from 1 (*not at all*) to 5 (*extremely*) the extent to which they were surprised by the interviewee's stance on a carbon tax policy to reduce the effects of climate change.

Manipulation Check

One multiple-choice item asked, "In the online article you read, did the interviewee support a carbon tax policy or oppose a carbon tax policy?" Responses options included, "support carbon tax policy," "oppose carbon tax policy," and "I'm not sure."

Open-ended Comments

One open-ended item asked participants which aspect(s) of the interviewee's message (if any) were the weakest, and another open-ended item asked participants

which aspects(s) of the interviewee's message (if any) were the strongest. A third open-ended item encouraged participants to comment on how the interviewee's message could be improved to be more convincing.

Results

Prior to analysis, data were inspected for normality and outliers using scatter and Q-Q plots, and skewness and kurtosis values. Data were considered to approximate a normal distribution when residual skewness and/or kurtosis values fell between −1.5 and +1.5 (Tabachnick & Fidell, 2007). When appropriate, normality was also evaluated using the Kolmogorov-Smirnov or Shapiro-Wilk tests, though both must be interpreted with caution as they are sensitive to large sample sizes (Ghasemi & Zahediasl, 2012). When modeling the data using general linear models (GLM), cases whose standardized residuals were above or below 3 standard deviations from the mean were considered outliers and removed from primary analyses.

Manipulation Check

A majority of participants ($n = 460$, 85%) was able to correctly identify the policy position of the interviewee in the online article. With "I'm not sure" responses coded as incorrect, 84 participants (15%) failed this manipulation check. Of these, 29 participants (16.3%) were randomly assigned to version 1, 24 (13.5%) to version 2, and 31 (16.6%) to version 3. Participants who failed this manipulation check were excluded from the main analyses.

Strength of Social Identification

An independent samples t-test examined whether or not there was a significant

difference between Democrats and Republicans in strength of social identification. Once it was established that assumptions of the test were met, results indicated that there was no significant difference between Republicans ($n = 279$, $M = 4.64$, $SD = 1.61$) and Democrats ($n = 265$, $M = 4.83$, $SD = 1.60$) in strength of social identification, $t(542) = 1.34$, $p = .18$, 95% CI [-.086, .456].

Thought-listing

The average time to complete the entire thought-listing task across all participants was 3 minutes ($SD = 4.40$). When comparing the average number of thoughts listed between participants who saw 10 thought-listing boxes and participants who saw 20 thought-listing boxes, the assumption of homogeneity of variance was not met, $p < .001$. According to Welch's t-test, there was a significant difference in the number of thoughts listed between participants who saw 10 empty fields ($M = 5.66$, $SD = 2.82$) and 20 empty fields ($M = 6.86$, $SD = 4.71$), $t(436.52) = -3.61$, $p < .001$, 95% CI [-1.85, -.54]. Because the number of thoughts variable was not normally distributed, this difference was confirmed using a non-parametric Mann-Whitney test, $p = .049$.

Thought-listing Categorization

Inspection revealed that participants' self-categorizations of their own thoughts were not interpretable. All participants were asked to categorize the thoughts they had generated in the thought-listing task as "negative," "neutral," or "positive." Yet, inspection of the thoughts listed revealed that several participants had positive thoughts towards the interviewee but negative thoughts towards the carbon tax (or vice versa). Since there was no apparent regularity in these categorizations, statistical analyses are not

reported. Rather, this indicated a need for the categorization options to capture the valence of thoughts separately for toward the interviewee and for the carbon tax policy.

Main Analyses

The main analyses used a 3 (interview version) x 2 (target political affiliation: Democrat vs. Republican) x 2 (participant political affiliation: Democrat vs. Republican) x 2 (majority/minority message status) factorial design with strength of social identification as a continuous independent variable. All models were tested with the inclusion of gender as a covariate; however, because gender was never significant, all models presented here omit this covariate.

Strength of Message

To determine whether strength of message differed by the target affiliation, participant affiliation, whether the message was a minority or majority message, version, and/or strength of social identification, a univariate GLM was conducted with strength of message as the dependent variable. Levene's test indicated that the homogeneity of variances assumption was violated, $p < .001$.

There was a main effect of strength of social identification on ratings of strength of message, $F(1, 458) = 12.93$, $p = .005$, $\eta_p^2 = .029$. For every unit of increase in strength of social identity, strength of message increased by .160, $p = .001$. There was also a two-way interaction between target affiliation and whether the message was a majority/ minority message , $F(1, 458) = 35.62$, $p < .001$, $\eta_p^2 = .076$, which was qualified by a three-way interaction between target affiliation, whether the message was a majority/ minority message, and participant political affiliation, $F(1, 458) = 40.45$, $p < .001$, $\eta_p^2 =$

.086. Here and elsewhere in this dissertation, pairwise comparisons are reported using least significant difference (LSD) adjustment.

Democrat participants who read about a Democrat espousing a pro-carbon tax (Democrat majority) message rated the message significantly stronger ($M = 5.23$) than Republicans who read about a Democrat espousing a pro-carbon tax message ($M = 4.42$), $p = .005$. Similarly, Democrat participants who read about a Republican championing a carbon tax (Republican minority) rated the message significantly stronger ($M = 5.21$) than Republicans who read about a Republican championing carbon tax policy ($M = 4.30$), $p = .003$. Republicans who read about a Republican promoting an anti-carbon tax message (Republican majority) rated the message significantly stronger ($M = 4.30$) than Democrats who read about a Republican promoting an anti-carbon tax message ($M = 3.08$), $p < .001$. Likewise, Republicans who read an anti-carbon tax message from a Democrat (Democrat minority message) rated the message significantly stronger ($M = 4.54$) than Democrats who read an anti-carbon tax message from a Democrat ($M = 3.48$), $p = .001$. See Table 4 (Appendix A4) for strength of message means and standard deviation by target affiliation, participant affiliation, message status (majority/minority), and version.

Although there was no main effect of version (nor did version interact with any other experimental variables) on ratings of strength of message, version 3 had the highest mean score overall ($M = 4.47$), followed by version 2 ($M = 4.40$), and version 3 ($M = 4.09$), all ps $> .05$. As such, version 3 was deemed the most appropriate for use in subsequent studies.

Perceived Threat

The first goal of the analysis was to determine which factors contributed to high and low levels of perceived threat. To determine whether perceived threat differed by the target affiliation, participant affiliation, whether the message was a minority or majority message, interviewee prototypicality, and/or strength of social identification, a univariate GLM was conducted with perceived threat as the dependent variable.

There was a main effect of whether the message was a minority or majority message, $F(1, 459) = 46.29$, $p < .001$, $\eta_p^2 = .101$, which was qualified by a three-way interaction with target affiliation and version, $F(1, 459) = 6.36$, $p = .002$, $\eta_p^2 = .030$, as well as a three-way interaction with participant affiliation and version, $F(1, 459) = 3.57$, $p = .029$, $\eta_p^2 = .017$. Perceived threat was higher when the interviewee was a Republican opposed to a carbon tax (majority) in version 1 of the target article ($M = 2.63$) compared when the interviewee was a Republican opposed to a carbon tax in version 2 of the target article ($M = 1.96$), $p = .023$. Perceived threat was significantly higher when the interviewee was a Republican supporting a carbon tax in version 2 of the target article ($M = 2.96$) rather than version 1 of the target article ($M = 2.45$), $p = .048$. Perceived threat was also higher when Republican participants read about a majority position in target article version 1 ($M = 2.66$) rather than target article version 2 ($M = 2.09$), $p = .045$. Perceived threat was also examined in the context of extent of total elaboration (i.e., the total number of thoughts listed) but was not a significant factor in any capacity.

Novelty

The objective in examining novelty was to determine whether or not minority

ingroup message were considered novel by examining factors considered the most surprising to participants. Therefore, a univariate GLM was conducted with target affiliation, participant affiliation, message status (minority or majority message), and interviewee prototypicality as between-groups factors, and/or strength of social identification and NFC as continuous predictors (which were allowed to interact with the experimental manipulations).

There was a main effect of message status (minority vs. majority), $F(1, 546) = 144.93$, $p < .001$, $\eta_p^2 = .457$, which was qualified by a two-way interaction with participant affiliation, $F(1, 543) = 5.18$, $p = .023$, $\eta_p^2 = .010$. Democrat participants rated a minority message significantly more surprising ($M = 3.68$) than a majority message (M $= 2.10$), $p < .001$ as did Republicans ($M = 3.31$ vs. 2.24), $p < .001$; however, the magnitude of difference for Democrats ($\Delta M = 1.58$) was larger than for Republicans ($\Delta M = 1.07$).

There was also a three-way interaction between target affiliation, version, and participant affiliation, $F(1, 546) = 4.03$, $p = .018$, $\eta_p^2 = .016$. For version 1 only, Democrat participants rated a Democrat interviewee less surprising ($M = 2.43$) than Republican participants ($M = 3.01$), $p = .037$.

The second objective was to examine perceived novelty in the context of total number of thoughts listed by participants (i.e., extent of total elaboration). Perceived novelty was not a significant factor in any capacity in the total number of thoughts listed by participants.

Attitude Relatedness

To assess whether and which attitude objects were related to a carbon tax, two strategies were implemented following Alvaro and Crano (1997). First, attitudinal rating correlations were assessed and second, probability of change in attitudes values were examined using multidimensional scaling (MDS). As seen in Table 2 (see Chapter 8 of main text, *Pilot Study Summary*), all attitude objects were significantly related to each other, all ps < .010 (two-tailed). Attitudes with the strongest associations to carbon tax attitudes included attitudes towards restricting gun rights, $r(457) = .56, p < .01$, attitudes toward encouraging energy conservation $r(457) = .53, p < .01$, and attitudes toward opening up coastal shores to fracking $r(457) = -.52, p < .01$.

Next, data pertaining to the probability of change in attitudes were submitted to parametric MDS using PROXSAL analysis. This type of analysis allowed for the extraction of proximities between attitudes towards carbon tax and all other attitude objects (Hout, Papesh, & Goldinger, 2013). Probability of change mean scores were calculated for all possible pairs of attitude objects and used to create a similarity matrix whereby every paired value represented the extent to which a change in one attitude would facilitate a change in the other (i.e., similarity). Based on the values in the matrix, MDS analysis calculated coordinates for every variable across two dimensions on a spatial "map." Attitudes with the closest coordinates to each other represent the most similar relationships. The stress of the model, an indicator of model fit in MDS, was 0.11 and fell within the acceptable range of stress values (Hout et al., 2013). As seen in Figure 5 (see Chapter 8 of main text, *Pilot Study Summary*), a cluster of attitudes emerged

surrounding carbon tax including energy conservation, loosening environmental regulations, and offshore fracking. Attitudes towards protecting wildlife fell close to this cluster but among environmentally-related attitude objects, was located furthest from carbon tax. All other attitude objects were fairly distant in proximity from the carbon tax cluster and from each other.

Strengths and Weaknesses

Open-ended responses to items inquiring about stimulus strength and weakness were coded using an inductive approach. All open-ended comments were reviewed twice to identify emerging topics and commonality among responses. Using Qualtrics' text analysis, all comments were subsequently "tagged" with key words/phrases comprised of sub-topics. An open-ended response could be tagged with several keywords, depending on the content. This process was conducted three times for every open-ended item. Comments that were off-topic, indiscernible, or unique were coded as "other."

Weakness

The most frequently mentioned aspect of the article regarded as a weakness was a lack of concrete information (e.g., lack of citations, data, examples, or details). The second most frequently mentioned topic was the interviewee's lack of support for or endorsement of climate change. Similarly, several participants identified the interviewee's stance on carbon tax as a weakness, and several referenced political affiliation as source of weakness (e.g., interviewee was a Republican, interviewee was a Democrat, interviewee was going against the party). These topics were inherent to the materials and did not vary by the version of the article. Another aspect of the stimulus

that was considered weak was that the interviewee did not offer an alternative solution to combat climate change. See Table 5 (Appendix A4) for overview of topics regarded as article weaknesses.

Strengths

The most frequently mentioned aspects of the article regarded as strengths were the interviewee's lack of support for or endorsement of climate change and lack of support for or endorsement of a carbon tax, though almost as many participants indicated that they could not identify a strength in the stimulus material. Other areas of strength identified by participants included impact to jobs, working class families, and environment, which were all covered in version 3 of the article. See Table 6 (Appendix A4) for an overview of topics regarded as article strengths.

Message strength improvement

Open-ended responses to an item inquiring about ways to improve the target article were coded in identical fashion as to message strength and weakness. The most common suggestion for improvement was additional (non-specific) information (e.g., data, facts, evidence, citations, etc.). The second and the third most common suggestions revolved around additional information specifically about climate change and carbon tax. Another common suggestion included offering up an alternative solution to carbon tax. Several comments indicated that the article was "good enough" or that participants had no suggestions for improvement. Most of the remaining suggestions revolved around delineating carbon tax evidence or the impact of a carbon tax on environment, families, and jobs. See Table 7 (Appendix A4) for an overview of topics for target article

improvement.

Discussion

The primary purpose of this pilot study was to identify the strongest message about a carbon tax. Although there was not a significant difference for strength of message among the three versions tested, version 3 had the highest mean score overall. Lack of detail was commonly identified as a weakness among participants and version 3 also contained the most detail overall.

One issue that emerged from open-ended comments was that of the frequency of climate change mentions. Specifically, many of the open-ended comments focused on climate change rather than a carbon tax, which is the focal attitude of interest in this study. Moreover, several open-ended comments indicated that an alternative solution to carbon tax would bolster the strength of the message contained in the target article. As such, a revised target article was drafted for use in the next pilot study that moved away from the climate change debate and offered an alternative approach to curbing carbon outputs based on recent legislation developed by the U.S. Republican party (Harder, 2020). The interviewee changing his mind on climate change appeared as both a strength and a weakness in open-ended comments and was thus removed from the new iteration of the article. Based on several other open-ended comments, references to carbon tax impact (e.g., jobs, economy, etc.) and changing within-party minds were retained.

A secondary purpose of this pilot study was to determine the efficacy of conducting a thought-listing task online. Logistically, the thought-listing and categorization tasks were both successful in that participants were able to list their thoughts using an online

format and were able view the thoughts they had listed (in order to categorize them) later in the study. However, the range of responses offered to participants in the thought categorization task was insufficient indicating that future iterations of the thought-listing rating task should have additional rating options. Moreover, there was little difference in the mean number of thoughts listed by participants who saw 10 or 20 empty fields. As such, it was determined that the thought-listing task for the main study should include only 10 empty fields. Finally, given that the average time to complete the thought listing task was 3 minutes, it was decided that participants would be afforded 5 minutes to complete the task in the main study for those participants that might take longer to type and complete the task.

This pilot study also examined whether or not minority messages were considered more novel (i.e., surprising) than majority messages, which was in fact the case. Though perceived novelty was not a predictor of the total number of thoughts listed by participants, a decision was made to retain perceived novelty for the main study as a potential control variable when examining extent of elaboration about a carbon and carbon tax attitudes. Additionally, in contrast to Crano and Seyranian (2009), perceived threat was not related to the total number of thoughts listed. Given this lack of a relationship, perceived threat was not retained in subsequent pilot studies nor the main study. A final purpose of this study was to identify attitudes related to carbon tax. Based on results, it was clear that attitudes towards fracking, energy conservation, and energy regulation were closely related to carbon tax and should be assessed as such moving forward.

Appendix B2: Pilot 1 Screener

DESCRIPTION: We are researchers at the University of Nevada in Reno looking for American participants who are at least 18 years of age. All data collected in this study are for research purposes only and to qualify potential participants for a future study.

If you volunteer to participate in this study, you will receive $0.05 in your MTurk account. You must complete all questions to qualify for compensation and you may complete this questionnaire only once. If you complete the screener more than once or you fail to complete all questions, your HIT will be rejected and you will not qualify for the future study.

This study is considered to be minimal risk of harm. This means the risks of your participation in the research are similar in type or intensity to what you encounter during your daily activities. The risks to your participation in this online study may be those associated with basic computer tasks, including boredom, fatigue, mild stress, or breach of confidentiality. You may discontinue your participation at any point during the study if you feel a personally unacceptable amount of distress or discomfort. The only benefit to you is the learning experience from participating in a research study. The benefit to society is the contribution to scientific knowledge.

The researchers and the University of Nevada, Reno will treat your identity and the information collected about you with professional standards of confidentiality and protect it to the extent allowed by law. You will not be personally identified in any reports or publications that may result from this study. Any reports and presentations about the findings from this study will not include your name or any other information that could identify you. We may share the data we collect in this study with other researchers doing future studies. If we share your data, we will not include any information that could identify you. The U.S. Department of Health and Human Services; the University of Nevada; Reno Research Integrity Office; and the Institutional Review Board may look at your study records.

PARTICIPANT RIGHTS: Your participation is voluntary. You may stop participating at any time by closing the browser window or the program to withdraw from the study. Partial data will not be analyzed.

You may ask about your rights as a research participant. If you have questions, concerns, or complaints about this research, you may report them (anonymously if you so choose)

by calling the University of Nevada, Reno Research Integrity Office at 775.327.2368.

You may ask questions of the researcher at any time by calling Markus Kemmelmeier, PhD, at (775) 784-1287 or by sending an email to markusk@unr.edu.

Please indicate, in the items below, that you are at least 18 years old, have read and understand this consent form, and that you agree to participate in this online research study.

○ I am 18 years of age or older

○ I am younger than 18 years of age

Please confirm your agreement to participate:

○ I have read and understand the consent form and I agree to participate in the study

○ I have read and understand the consent form and I do not agree to participate in the study

Q1. In the text box below, please enter your Amazon Worker ID. You can find your Worker ID in the upper left-hand corner of your dashboard.

Please be sure to enter the ID exactly as it appears in Amazon Mechanical Turk as this information will be used to grant you access to the future study if you qualify.

_____

Q2. What is your current employment status?

○ Employed full time

○ Employed part time

○ Unemployed looking for work

○ Unemployed not looking for work

○ Retired

○ Student

○ Disabled

Q3. What is your annual household income?

○ Less than $10,000

○ $10,000 - $19,999

○ $20,000 - $29,999

○ $30,000 - $39,999

○ $40,000 - $49,999

○ $50,000 - $59,999

○ $60,000 - $69,999

○ $70,000 - $79,999

○ $80,000 - $89,999

○ $90,000 - $99,999

○ $100,000 - $149,999

○ More than $150,000

○ Prefer not to answer

Q4. How do you politically identify?

○ Democrat

○ Republican

○ Other (please specify)

_____

Q5. Please read the following questions about the Democrat Party and indicate how you feel by selecting a number between 1 (not very much) to 7 (very much).

	Not very much 1	2	3	4	5	6	Very Much 7
How important is it for you to identify as a Democrat?	○	○	○	○	○	○	○
How essential do you feel being a Democrat is to who you are?	○	○	○	○	○	○	○
How similar do you feel to other Democrats?	○	○	○	○	○	○	○

Q6. Please read the following questions about the Republican Party and indicate how you feel by selecting a number between 1 (not very much) to 7 (very much).

	Not very much 1	2	3	4	5	6	Very Much 7
How important is it for you to identify as a Republican?	○	○	○	○	○	○	○
How essential do you feel being a Republican is to who you are?	○	○	○	○	○	○	○
How similar do you feel to other Republicans?	○	○	○	○	○	○	○

Q7. What is the highest level of education you've completed?

◯ Less than high school

◯ High school graduate

◯ Some college

◯ 2 year degree

◯ 4 year degree

◯ Professional degree

◯ Doctorate

◯ Prefer not to answer

Q8. What is your age? Please enter a numerical value like "24" or "42."

_____

Q9. Which race-ethnicity do you identify with?

◯ White or European American

◯ Black or African American

◯ American Indian or Alaska Native

◯ Asian or Asian American

◯ Native Hawaiian or Pacific Islander

◯ LatinX/Hispanic

◯ Other (please specify)

_____

◯ Prefer not to answer

Q10. How do you identify?

◯ Man

◯ Woman

◯ Non-binary

◯ Prefer not to answer

Appendix B3: Pilot 1 Materials

DESCRIPTION: We are researchers at the University of Nevada in Reno looking for American participants who are at least 18 years of age. All data collected in this study are for research purposes only.

If you volunteer to participate in this study, you will be asked to read about and respond to questions pertaining to hypothetical persons, and asked to report your thoughts and attitudes. Your participation in the study will take approximately 30 minutes.

COMPENSATION: For your participation, you will receive $2.75 in your MTurk account. This study may contain a number of checks to make sure that participants are finishing the tasks honestly and completely. As long as you read the instructions and complete the tasks, your HIT will be approved. If you fail these checks or speed through the survey, your HIT will be rejected.

RISKS and BENEFITS: This study is considered to be minimal risk of harm. This means the risks of your participation in the research are similar in type or intensity to what you encounter during your daily activities. The risks to your participation in this online study may be those associated with basic computer tasks, including boredom, fatigue, mild stress, or breach of confidentiality. You may discontinue your participation at any point during the study if you feel a personally unacceptable amount of distress or discomfort. The only benefit to you is the learning experience from participating in a research study. The benefit to society is the contribution to scientific knowledge.

The researchers and the University of Nevada, Reno will treat your identity and the information collected about you with professional standards of confidentiality and protect it to the extent allowed by law. You will not be personally identified in any reports or publications that may result from this study. Any reports and presentations about the findings from this study will not include your name or any other information that could identify you. We may share the data we collect in this study with other researchers doing future studies. If we share your data, we will not include any information that could identify you. The U.S. Department of Health and Human Services; the University of Nevada; Reno Research Integrity Office; and the Institutional Review Board may look at your study records.

PARTICIPANT RIGHTS: Your participation is voluntary. You may stop participating at any time by closing the browser window or the program to withdraw from the study. Partial data will not be analyzed.

You may ask about your rights as a research participant. If you have questions, concerns, or complaints about this research, you may report them (anonymously if you so choose) by calling the University of Nevada, Reno Research Integrity Office at 775.327.2368.

You may ask questions of the researcher at any time by calling Markus Kemmelmeier, PhD, at (775) 784-1287 or by sending an email to markusk@unr.edu.

Please indicate, in the items below, that you are at least 18 years old, have read and understand this consent form, and that you agree to participate in this online research study.

○ I am 18 years of age or older

○ I am younger than 18 years of age

Please confirm your agreement to participate:

○ I have read and understand the consent form and I agree to participate in the study

○ I have read and understand the consent form and I do not agree to participate in the study

Q1. In the text box below, please enter your Amazon Worker ID. You can find your Worker ID in the upper left hand corner of your dashboard.

Please be sure to enter the ID exactly as it appears in Amazon Mechanical Turk.

_____

Q2. On the next screen, you will see an online article.

Please be sure to read through the entire article before continuing.

Conservatives and Liberals on Climate Change [Republican Minority – Short Version]

 Democrats and Republicans have pulled farther apart in the increasingly polarized debate over climate change. Democrats have publicly supported climate change initiatives, whereas Republicans have remained skeptical.

Darren Shore, conservative Republican working on climate change action

Shore, a Republican, spoke with us about endorsement within the Republican Party for climate change policy and his efforts to motivate other party members to support policies that curb carbon outputs.

Shore stated that for two decades, he challenged the idea of a scientific consensus that human activity was a major cause of climate change, and he once believed this claim was overblown. However, Shore said that today, people can no longer ignore evidence that suggests that climate change is primarily caused by human factors. Because Shore now supports the idea of a scientific consensus, he believes that a carbon tax is "the most efficient and least costly means of dodging climate risk."

According to Shore, "there are members of the House and Senate who are uncomfortable with their colleagues' accepted view on climate and carbon tax policy." Shore indicated that he has moved people from blind opposition to a carbon tax to open-mindedness, and a new perspective.

Shore hopes to continue to motivate others to support policies designed to curb carbon outputs.

Conservatives and Liberals on Climate Change [Republican Minority – Version 2]
 Democrats and Republicans have pulled farther apart in the increasingly polarized debate over climate change. Democrats have publicly supported climate change initiatives, whereas Republicans have remained skeptical.

Darren Shore, conservative Republican working on climate change action

Shore, a Republican, spoke with us about endorsement within the Republican Party for climate change policy and his efforts to motivate other party members to support policies that curb carbon outputs.

Shore stated that for two decades, he challenged the idea of a scientific consensus that human activity was a major cause of climate change, and he once believed this claim was overblown. However, Shore said that today, people can no longer ignore evidence that suggests that climate change is primarily caused by human factors. Because Shore now supports the idea of a scientific consensus, he believes that a carbon tax is "the most efficient and least costly means of dodging climate risk."

Shore also stated that he has personally met with climate scientists and economists. According to Shore, the potential creation of new jobs to combat emissions can offset the cost of a carbon tax, including the burden on working-class families.
According to Shore, "there are members of the House and Senate who are uncomfortable with their colleagues' accepted view on climate and carbon tax policy." Shore indicated that he has moved people from blind opposition to a carbon tax to open-mindedness, and a new perspective.

Shore hopes to continue to motivate others to support policies designed to curb carbon outputs.

Conservatives and Liberals on Climate Change [Republican Minority – Version 3]
Democrats and Republicans have pulled farther apart in the increasingly polarized debate over climate change. Democrats have publicly supported climate change initiatives, whereas Republicans have remained skeptical.

Darren Shore, conservative Republican working on climate change action

Shore, a Republican, spoke with us about endorsement within the Republican Party for climate change policy and his efforts to motivate other party members to support policies that curb carbon outputs.

Shore stated that for two decades, he challenged the idea of a scientific consensus that human activity was a major cause of climate change, and he once believed this claim was overblown. However, Shore said that today, people can no longer ignore evidence that suggests that climate change is primarily caused by human factors. Because Shore now supports the idea of a scientific consensus, he believes that a carbon tax is "the most efficient and least costly means of dodging climate risk."

Shore also stated that he has personally met with climate scientists and economists. According to Shore, the potential creation of new jobs to combat emissions can offset the cost of a carbon tax, including the potential burden on working-class families.

Additionally, Shore wanted to remind readers that a carbon tax approach is based on economic models. At this point, the evidence is clear that this approach will reduce greenhouse gas emissions enough to make a real difference.

According to Shore, "there are members of the House and Senate who are uncomfortable with their colleagues' accepted view on climate and carbon tax policy." Shore indicated that he has moved people from blind opposition to a carbon tax to open-mindedness, and a new perspective.

Shore hopes to continue to motivate others to support policies designed to curb carbon outputs.

Conservatives and Liberals on Climate Change [Democrat Majority – Short]
Democrats and Republicans have pulled farther apart in the increasingly polarized debate over climate change. Democrats have publicly supported climate change initiatives, whereas Republicans have remained skeptical.

Darren Shore, liberal Democrat working on climate change action

Shore, a Democrat, spoke with us about endorsement within the Democrat Party for climate change policy and his efforts to motivate other party members to support policies that curb carbon outputs.

Shore stated that for two decades, he challenged the idea of a scientific consensus that human activity was a major cause of climate change, and he once believed this claim was overblown. However, Shore said that today, people can no longer ignore evidence that suggests that climate change is primarily caused by human factors. Because Shore now supports the idea of a scientific consensus, he believes that a carbon tax is "the most efficient and least costly means of dodging climate risk."

According to Shore, "there are members of the House and Senate who are uncomfortable with their colleagues' accepted view on climate and carbon tax policy." Shore indicated that he has moved people from blind opposition to a carbon tax to open-mindedness, and a new perspective.

Shore hopes to continue to motivate others to support policies designed to curb carbon outputs.

Conservatives and Liberals on Climate Change [Democrat Majority – Version 2]
Democrats and Republicans have pulled farther apart in the increasingly polarized debate over climate change. Democrats have publicly supported climate change initiatives, whereas Republicans have remained skeptical.

Darren Shore, liberal Democrat working on climate change action

Shore, a Democrat, spoke with us about endorsement within the Democrat Party for climate change policy and his efforts to motivate other party members to support policies that curb carbon outputs.

Shore stated that for two decades, he challenged the idea of a scientific consensus that human activity was a major cause of climate change, and he once believed this claim was overblown. However, Shore said that today, people can no longer ignore evidence that suggests that climate change is primarily caused by human factors. Because Shore now supports the idea of a scientific consensus, he believes that a carbon tax is "the most efficient and least costly means of dodging climate risk."

 Shore also stated that he has personally met with climate scientists and economists. According to Shore, the potential creation of new jobs to combat emissions can offset the cost of a carbon tax, including the burden on working-class families.

According to Shore, "there are members of the House and Senate who are uncomfortable with their colleagues' accepted view on climate and carbon tax policy." Shore indicated that he has moved people from blind opposition to a carbon tax to open-mindedness, and a new perspective.

Shore hopes to continue to motivate others to support policies designed to curb carbon outputs.

Conservatives and Liberals on Climate Change [Democrat Majority – Version 3]
Democrats and Republicans have pulled farther apart in the increasingly polarized debate over climate change. Democrats have publicly supported climate change initiatives, whereas Republicans have remained skeptical.

Shore, a Democrat, spoke with us about endorsement within the Democrat Party for climate change policy and his efforts to motivate other party members to support policies that curb carbon outputs.

Shore stated that for two decades, he challenged the idea of a scientific consensus that human activity was a major cause of climate change, and he once believed this claim was overblown. However, Shore said that today, people can no longer ignore evidence that suggests that climate change is primarily caused by human factors. Because Shore now supports the idea of a scientific consensus, he believes that a carbon tax is "the most efficient and least costly means of dodging climate risk."

Darren Shore, liberal Democrat working on climate change action

Shore also stated that he has personally met with climate scientists and economists. According to Shore, the potential creation of new jobs to combat emissions can offset the cost of a carbon tax, including the burden on working-class families.

Additionally, Shore wanted to remind readers that a carbon tax approach is based on economic models. At this point, the evidence is clear that this approach will reduce greenhouse gas emissions enough to make a real difference.

According to Shore, "there are members of the House and Senate who are uncomfortable with their colleagues' accepted view on climate and carbon tax policy." Shore indicated that he has moved people from blind opposition to a carbon tax to open-mindedness, and a new perspective.

Shore hopes to continue to motivate others to support policies designed to curb carbon outputs.

Conservatives and Liberals on Climate Change [Republican Majority – Short]
Democrats and Republicans have pulled farther apart in the increasingly polarized debate over climate change. Democrats have publicly supported climate change initiatives, whereas Republicans have remained skeptical.

Darren Shore, conservative Republican working on climate change action

Shore, a Republican, spoke with us about endorsement within the Republican Party for climate change policy and his efforts to motivate other party members to oppose policies that curb carbon outputs.

Shore stated that for two decades, he has challenged the idea of a scientific consensus that human activity was a major cause of climate change, and he believes this claim is overblown. Shore said that today, people can no longer ignore evidence that suggests that climate change is not primarily caused by human factors. Because Shore rejects the idea of a scientific consensus, he believes that a carbon tax is "the least efficient and most costly means of dodging climate risk."

According to Shore, "there are members of the House and Senate who are uncomfortable with their colleagues' accepted view on climate and carbon tax policy." Shore indicated that he has moved people from blind support of a carbon tax to open-mindedness, and a new perspective.

Shore hopes to continue to motivate others to challenge policies designed to curb carbon outputs.

Conservatives and Liberals on Climate Change [Republican Majority – Version 2]
Democrats and Republicans have pulled farther apart in the increasingly polarized debate over climate change. Democrats have publicly supported climate change initiatives, whereas Republicans have remained skeptical.

Darren Shore, conservative Republican working on climate change action

Shore, a Republican, spoke with us about endorsement within the Republican Party for climate change policy and his efforts to motivate other party members to oppose policies that curb carbon outputs.

Shore stated that for two decades, he has challenged the idea of a scientific consensus that human activity was a major cause of climate change, and he believes this claim is overblown. Shore said that today, people can no longer ignore evidence that suggests that climate change is not primarily caused by human factors. Because Shore rejects the idea of a scientific consensus, he believes that a carbon tax is "the least efficient and most costly means of dodging climate risk."

Shore also stated that he has personally met with climate scientists and economists. According to Shore, the potential creation of new jobs to combat emissions cannot offset the cost of a carbon tax, including the burden on working-class families.

According to Shore, "there are members of the House and Senate who are uncomfortable with their colleagues' accepted view on climate and carbon tax policy." Shore indicated that he has moved people from blind support of a carbon tax to open-mindedness, and a new perspective.

Shore hopes to continue to motivate others to challenge policies designed to curb carbon outputs.

Conservatives and Liberals on Climate Change [Republican Majority – Version 3]
Democrats and Republicans have pulled farther apart in the increasingly polarized debate over climate change. Democrats have publicly supported climate change initiatives, whereas Republicans have remained skeptical.

Darren Shore, conservative Republican working on climate change action

Shore, a Republican, spoke with us about endorsement within the Republican Party for climate change policy and his efforts to motivate other party members to oppose policies that curb carbon outputs.

Shore stated that for two decades, he has challenged the idea of a scientific consensus that human activity was a major cause of climate change, and he believes this claim is overblown. Shore said that today, people can no longer ignore evidence that suggests that climate change is not primarily caused by human factors. Because Shore rejects the idea of a scientific consensus, he believes that a carbon tax is "the least efficient and most costly means of dodging climate risk."

Shore also stated that he has personally met with climate scientists and economists. According to Shore, the potential creation of new jobs to combat emissions cannot offset the cost of a carbon tax, including the potential burden on working-class families.

Additionally, Shore wanted to remind readers that a carbon tax approach is based on economic models. At this point, the evidence is unclear if this approach will reduce greenhouse gas emissions enough to make a difference.

According to Shore, "there are members of the House and Senate who are uncomfortable with their colleagues' accepted view on climate and carbon tax policy." Shore indicated that he has moved people from blind support of a carbon tax to open-mindedness, and a new perspective.

Shore hopes to continue to motivate others to challenge policies designed to curb carbon outputs.

Conservatives and Liberals on Climate Change [Democrat Minority – Short]
Democrats and Republicans have pulled farther apart in the increasingly polarized debate over climate change. Democrats have publicly supported climate change initiatives, whereas Republicans have remained skeptical.

Darren Shore, liberal Democrat working on climate change action

Shore, a Democrat, spoke with us about endorsement within the Democrat Party for climate change policy and his efforts to motivate other party members to oppose policies that curb carbon outputs.

Shore stated that for two decades, he has challenged the idea of a scientific consensus that human activity was a major cause of climate change, and he believes this claim is overblown. Shore said that today, people can no longer ignore evidence that suggests that climate change is not primarily caused by human factors. Because Shore rejects the idea of a scientific consensus, he believes that a carbon tax is "the least efficient and most costly means of dodging climate risk."

According to Shore, "there are members of the House and Senate who are uncomfortable with their colleagues' accepted view on climate and carbon tax policy." Shore indicated that he has moved people from blind support of a carbon tax to open-mindedness, and a new perspective.

Shore hopes to continue to motivate others to challenge policies designed to curb carbon outputs.

Conservatives and Liberals on Climate Change [Democrat Minority – Version 2]
Democrats and Republicans have pulled farther apart in the increasingly polarized debate over climate change. Democrats have publicly supported climate change initiatives, whereas Republicans have remained skeptical.

Darren Shore, liberal Democrat working on climate change action

Shore, a Democrat, spoke with us about endorsement within the Democrat Party for climate change policy and his efforts to motivate other party members to oppose policies that curb carbon outputs.

Shore stated that for two decades, he has challenged the idea of a scientific consensus that human activity was a major cause of climate change, and he believes this claim is overblown. Shore said that today, people can no longer ignore evidence that suggests that climate change is not primarily caused by human factors. Because Shore rejects the idea of a scientific consensus, he believes that a carbon tax is "the least efficient and most costly means of dodging climate risk."

Shore also stated that he has personally met with climate scientists and economists. According to Shore, the potential creation of new jobs to combat emissions cannot offset the cost of a carbon tax, including the potential burden on working-class families.

According to Shore, "there are members of the House and Senate who are uncomfortable with their colleagues' accepted view on climate and carbon tax policy." Shore indicated that he has moved people from blind support of a carbon tax to open-mindedness, and a new perspective.

Shore hopes to continue to motivate others to challenge policies designed to curb carbon outputs.

Conservatives and Liberals on Climate Change [Democrat Minority – Version 3]
Democrats and Republicans have pulled farther apart in the increasingly polarized debate over climate change. Democrats have publicly supported climate change initiatives, whereas Republicans have remained skeptical.

Shore, a Democrat, spoke with us about endorsement within the Democrat Party for climate change policy and his efforts to motivate other party members to oppose policies that curb carbon outputs.

Darren Shore, liberal Democrat working on climate change action

Shore stated that for two decades, he has challenged the idea of a scientific consensus that human activity was a major cause of climate change, and he believes this claim is overblown. Shore said that today, people can no longer ignore evidence that suggests that climate change is not primarily caused by human factors. Because Shore rejects the idea of a scientific consensus, he believes that a carbon tax is "the least efficient and most costly means of dodging climate risk."

Shore also stated that he has personally met with climate scientists and economists. According to Shore, the potential creation of new jobs to combat emissions cannot offset the cost of a carbon tax, including the potential burden on working-class families.

Additionally, Shore wanted to remind readers that a carbon tax approach is based on economic models. At this point, the evidence is unclear if this approach will reduce greenhouse gas emissions enough to make a difference.

According to Shore, "there are members of the House and Senate who are uncomfortable with their colleagues' accepted view on climate and carbon tax policy." Shore indicated that he has moved people from blind support of a carbon tax to open-mindedness, and a new perspective.

Shore hopes to continue to motivate others to challenge policies designed to curb carbon outputs.

In the text boxes below, please write out all of the thoughts you had while reading the online article. Jot down anything and everything that came to mind.

Please use a separate text box for each thought and keep in mind that each text box can fit any amount of text.

○ Thought 1 _____

○ Thought 2 _____

○ Thought 3 _____

○ Thought 4 _____

○ Thought 5 _____

○ Thought 6 _____

○ Thought 7 _____

○ Thought 8 _____

○ Thought 9 _____

○ Thought 10 _____

In the text boxes below, please write out all of the thoughts you had while reading the online article. Jot down anything and everything that came to mind.
Please use a separate text box for each thought and keep in mind that each text box can fit any amount of text.

○ Thought 1 _____

○ Thought 2 _____

○ Thought 3 _____

○ Thought 4 _____

○ Thought 5 _____

○ Thought 6 _____

○ Thought 7 _____

○ Thought 8 _____

○ Thought 9 _____

○ Thought 10 _____

○ Thought 11 _____

○ Thought 12 _____

○ Thought 13 _____

○ Thought 14 _____

○ Thought 15 _____

○ Thought 16 _____

○ Thought 17 _____

○ Thought 18 _____

○ Thought 19 _____

○ Thought 20 _____

In the next set of questions, you will see a statement and a list of opposing pairs of adjectives such as bad, good, negative, positive, wrong, and right.

In between each pair of adjectives are bubbles that correspond to a number ranging from -3 to 3. After you read each statement, you will be asked to select a bubble that corresponds to the most appropriate response. Bubbles under positive numbers (1, 2, 3) indicate more agreement with the adjective on the right. Bubbles under negative numbers (-1, -2, -3) indicate more agreement with the adjective on the left.

For example, if the statement is, "Spending time outdoors," I would select the bubble under the number 3 if I thought that spending time outdoors was very good or the bubble under the number -1 if I thought that spending time outdoors was slightly bad. If I felt neutral towards spending time outdoors, I would select the bubble underneath "0."

For each statement, please be sure to <u>respond to every pair of adjectives</u> (bad vs. good, moral vs. immoral, unkind vs. kind, etc.).

Please read the following statement and select the number that corresponds to all of the most appropriate responses regarding the statement.

As a reminder, bubbles under positive numbers (1, 2, 3) indicate more agreement with the adjective on the right. Bubbles under negative numbers (-1, -2, -3) indicate more agreement with the adjective on the left. 0 represents neutral.

Statement: Passing a **carbon tax** to offset emissions is...

	-3	-2	-1	0	1	2	3	
Bad	○	○	○	○	○	○	○	Good
Unkind	○	○	○	○	○	○	○	Kind
Immoral	○	○	○	○	○	○	○	Moral
Negative	○	○	○	○	○	○	○	Positive
Wrong	○	○	○	○	○	○	○	Right

Please read the following statement and select the number that corresponds to all of the most appropriate responses regarding the statement.

As a reminder, bubbles under positive numbers (1, 2, 3) indicate more agreement with the adjective on the right. Bubbles under negative numbers (-1, -2, -3) indicate more agreement with the adjective on the left. 0 represents neutral.

Statement: Passing policy that **conserves wildlife**...

	-3	-2	-1	0	1	2	3	
Bad	○	○	○	○	○	○	○	Good
Unkind	○	○	○	○	○	○	○	Kind
Immoral	○	○	○	○	○	○	○	Moral
Negative	○	○	○	○	○	○	○	Positive
Wrong	○	○	○	○	○	○	○	Right

Please read the following statement and select the number that corresponds to all of the most appropriate responses regarding the statement.

As a reminder, bubbles under positive numbers (1, 2, 3) indicate more agreement with the adjective on the right. Bubbles under negative numbers (-1, -2, -3) indicate more agreement with the adjective on the left. 0 represents neutral.

Statement: Maintaining a **woman's right to choose (abortion)** is…

	-3	-2	-1	0	1	2	3	
Bad	○	○	○	○	○	○	○	Good
Unkind	○	○	○	○	○	○	○	Kind
Immoral	○	○	○	○	○	○	○	Moral
Negative	○	○	○	○	○	○	○	Positive
Wrong	○	○	○	○	○	○	○	Right

Please read the following statement and select the number that corresponds to all of the most appropriate responses regarding the statement.

As a reminder, bubbles under positive numbers (1, 2, 3) indicate more agreement with the adjective on the right. Bubbles under negative numbers (-1, -2, -3) indicate more agreement with the adjective on the left. 0 represents neutral.

Statement: Opening up coastal waters to **offshore fracking** is...

	-3	-2	-1	0	1	2	3	
Bad	○	○	○	○	○	○	○	Good
Unkind	○	○	○	○	○	○	○	Kind
Immoral	○	○	○	○	○	○	○	Moral
Negative	○	○	○	○	○	○	○	Positive
Wrong	○	○	○	○	○	○	○	Right

Please read the following statement and select the number that corresponds to all of the most appropriate responses regarding the statement.

As a reminder, bubbles under positive numbers (1, 2, 3) indicate more agreement with the adjective on the right. Bubbles under negative numbers (-1, -2, -3) indicate more agreement with the adjective on the left. 0 represents neutral.

Statement: Allowing **gays and lesbians in the military** is…

	-3	-2	-1	0	1		2	3	
Bad	○	○	○	○	○	○	○	○	Good
Unkind	○	○	○	○	○	○	○	○	Kind
Immoral	○	○	○	○	○	○	○	○	Moral
Negative	○	○	○	○	○	○	○	○	Positive
Wrong	○	○	○	○	○	○	○	○	Right

Please read the following statement and select the number that corresponds to all of the most appropriate responses regarding the statement.

As a reminder, bubbles under positive numbers (1, 2, 3) indicate more agreement with the adjective on the right. Bubbles under negative numbers (-1, -2, -3) indicate more agreement with the adjective on the left. 0 represents neutral.

Statement: Passing policy to **restrict gun ownership** in the U.S. is...

	-3	-2	-1	0	1	2	3	
Bad	○	○	○	○	○	○	○	Good
Unkind	○	○	○	○	○	○	○	Kind
Immoral	○	○	○	○	○	○	○	Moral
Negative	○	○	○	○	○	○	○	Positive
Wrong	○	○	○	○	○	○	○	Right

Please read the following statement and select the number that corresponds to all of the most appropriate responses regarding the statement.

As a reminder, bubbles under positive numbers (1, 2, 3) indicate more agreement with the adjective on the right. Bubbles under negative numbers (-1, -2, -3) indicate more agreement with the adjective on the left. 0 represents neutral.

Statement: Providing government incentives to **encourage energy conservation** is...

	-3	-2	-1	0	1	2	3	
Bad	○	○	○	○	○	○	○	Good
Unwise	○	○	○	○	○	○	○	Wise
Immoral	○	○	○	○	○	○	○	Moral
Negative	○	○	○	○	○	○	○	Positive
Wrong	○	○	○	○	○	○	○	Right

Please read the following statement and select the number that corresponds to all of the most appropriate responses regarding the statement.

As a reminder, bubbles under positive numbers (1, 2, 3) indicate more agreement with the adjective on the right. Bubbles under negative numbers (-1, -2, -3) indicate more agreement with the adjective on the left. 0 represents neutral.

Statement: Loosening **environmental regulations** on businesses is...

	-3	-2	-1	0	1	2	3	
Bad	○	○	○	○	○	○	○	Good
Unwise	○	○	○	○	○	○	○	Wise
Immoral	○	○	○	○	○	○	○	Moral
Negative	○	○	○	○	○	○	○	Positive
Wrong	○	○	○	○	○	○	○	Right

Thinking back to the online article you read, to what extent do you believe the interviewee's message about carbon tax policy threatens to blur the line between the Republican and Democrat parties?

○ Not at all 1

○ Slightly 2

○ Moderately 3

○ Very much 4

○ Extremely 5

On a scale ranging from 1 (*not at all*) to 5 (*extremely*), please tell us the extent to which you were surprised by the interviewee's stance on a carbon tax to reduce the effects of climate change?

○ Not at all 1

○ Slightly 2

○ Moderately 3

○ Very   4

○ Extremely 5

In the online article you read, did Darren Shore, the interviewee, support a carbon tax policy or oppose a carbon tax policy?

○ Support carbon tax policy

○ Oppose carbon tax policy

○ I'm not sure

Q26 Below are the thoughts you listed earlier regarding the article you read about carbon tax policy. We would like to know how you would evaluate your thoughts. Next to your thoughts, please rate each thought as follows:

Negative = in disagreement with the message or the interviewee (Darren Shore)

Neutral = neither in agreement nor disagreement with the message or the interviewee (Darren Shore)

Positive = in agreement with the message or interviewee (Darren Shore).

	Negative	Neutral	Positive
{Text from Thought1}	○	○	○
{Text from Thought2}	○	○	○
{Text from Thought3}	○	○	○
{Text from Thought4}	○	○	○
{Text from Thought5}	○	○	○
{Text from Thought6}	○	○	○
{Text from Thought7}	○	○	○
{Text from Thought8}	○	○	○
{Text from Thought9}	○	○	○
{Text from Thought10}	○	○	○
{Text from Thought11}	○	○	○
{Text from Thought12}	○	○	○
{Text from Thought13}	○	○	○
{Text from Thought14}	○	○	○
{Text from Thought15}	○	○	○

{Text from Thought16} ○ ○ ○

{Text from Thought17} ○ ○ ○

{Text from Thought18} ○ ○ ○

{Text from Thought19} ○ ○ ○

{Text from Thought20} ○ ○ ○

The next set of questions will ask you about the probability that changing your attitude toward one topic will also change your attitude toward another topic.

For example, if I changed my attitude towards wearing red shoes, I would say that the probability of me also changing my attitude towards wearing red blouses is 80% so I would enter "80" in the box provided. However, if I changed my attitude towards shrimp, I would say that the probability of me also changing my attitude towards driving a Honda is 1% so I would enter a "1" in the box provided.

Please take the time to think through responses before you respond and thank you for your honesty.

If you changed your mind regarding your position on **carbon tax policy**, what is the probability that you would also change your mind about the following topics?

Probabilities can range from 0 to 100%.

	Please enter a number between 0 to 100
Carbon tax policy	
Restricting gun ownership	
Policy to protect wildlife	
Incentivizing energy conservation	
Allowing gays and lesbians in the military	
Offshore fracking	
Loosening environmental regulations on businesses	

If you changed your mind regarding your position on **women's right to choose (abortion)**, what is the probability that you would also change your mind about the following topics?

Probabilities can range from 0 to 100%.

	Please enter a number between 0 to 100
Carbon tax policy	
Restricting gun ownership	
Policy to protect wildlife	
Incentivizing energy conservation	
Allowing gays and lesbians in the military	
Offshore fracking	
Loosening environmental regulations on businesses	

If you changed your mind regarding your position on **restricting gun ownership**, what is the probability that you would also change your mind about the following topics?

Probabilities can range from 0 to 100%.

	Please enter a number between 0 to 100
Carbon tax policy	
Women's right to choose	
Policy to protect wildlife	
Incentivizing energy conservation	
Allowing gays and lesbians in the military	
Offshore fracking	
Loosening environmental regulations on businesses	

If you changed your mind regarding your position on **policy to protect wildlife**, what is the probability that you would also change your mind about the following topics?

Probabilities can range from 0 to 100%.

	Please enter a number between 0 to 100
Carbon tax policy	
Women's right to choose	
Policy to protect wildlife	
Incentivizing energy conservation	
Allowing gays and lesbians in the military	
Offshore fracking	
Loosening environmental regulations on businesses	

If you changed your mind regarding your position on **incentivizing energy conservation**, what is the probability that you would also change your mind about the following topics?

Probabilities can range from 0 to 100%.

	Please enter a number between 0 to 100
Carbon tax policy	
Women's right to choose	
Policy to protect wildlife	
Incentivizing energy conservation	
Allowing gays and lesbians in the military	
Offshore fracking	
Loosening environmental regulations on businesses	

If you changed your mind regarding your position on **allowing gays and lesbians in the military**, what is the probability that you would also change your mind about the following topics?

Probabilities can range from 0 to 100%.

	Please enter a number between 0 to 100
Carbon tax policy	
Women's right to choose	
Policy to protect wildlife	
Incentivizing energy conservation	
Allowing gays and lesbians in the military	
Offshore fracking	
Loosening environmental regulations on businesses	

If you changed your mind regarding your position on **opening up oceans to offshore fracking**, what is the probability that you would also change your mind about the following topics?

Probabilities can range from 0 to 100%.

	Please enter a number between 0 to 100
Carbon tax policy	
Women's right to choose	
Restricting gun ownership	
Policy to protect wildlife	
Incentivizing energy conservation	
Allowing gays and lesbians in the military	
Loosening environmental regulations businesses	

If you changed your mind regarding your position on **loosening environmental regulations on businesses**, what is the probability that you would also change your mind about the following topics

Probabilities can range from 0 to 100%.

	Please enter a number between 0 to 100
Carbon tax policy	
Women's right to choose	
Restricting gun ownership	
Policy to protect wildlife	
Incentivizing energy conservation	
Allowing gays and lesbians in the military	
Offshore fracking	

The next and final set of questions pertain to the article you read about Darren Shore and carbon tax policy.

To what extent was the interviewee's message about climate change policy weak or strong on a scale ranging from -3 (*very weak*) to 3 (*very strong*)?

○ Very Weak -3

○ -2

○ -1

○ 0

○ 1

○ 2

○ Very Strong 3

In the text box below, please tell us which aspects of the online article's message, if any, were the <u>weakest</u>?

_____

Q23 In the text box below, please tell us which aspects of the online article's message, if any, were the <u>strongest</u>?

_____

Q24 In the text box below, please tell us how the interviewee's message about carbon tax policy could be improved to be more convincing?

_____

Appendix B4: Pilot 1 Additional Tables

Table 4

Means and Standard Deviation for Strength of Message by Target Affiliation, Participant Affiliation, Message Status, and Version

Target affiliation	Participant Affiliation								
	Democrat			Republican			Total		
	M	(SD)	n	M	(SD)	n	M	(SD)	n
Democrat									
Short version									
Majority	5.17	(1.05)	24	4.53	(2.07)	19	4.88	(1.59)	43
Minority	3.40	(1.64)	15	4.50	(1.72)	18	4.00	(1.75)	33
Version 2									
Majority	5.26	(1.43)	27	4.26	(1.82)	19	4.85	(1.66)	46
Minority	3.10	(1.73)	21	4.86	(1.56)	14	3.80	(1.86)	35
Version 3									
Majority	4.96	(1.55)	24	4.09	(1.88)	22	4.54	(1.75)	46
Minority	4.17	(2.01)	18	4.53	(1.55)	17	4.34	(1.78)	35
Republican									
Short version									
Majority	2.50	(1.82)	18	3.69	(3.00)	13	3.00	(1.86)	31
Minority	4.96	(1.37)	24	3.94	(1.77)	18	4.52	(1.61)	42
Version 2									
Majority	3.38	(1.90)	13	4.59	(1.46)	17	4.07	(1.74)	30
Minority	5.40	(1.31)	20	4.39	(1.78)	23	4.86	(1.64)	43
Version 3									
Majority	3.12	(2.06)	17	4.50	(2.09)	18	3.83	(2.16)	35
Minority	5.71	(1.40)	24	4.67	(1.35)	15	5.31	(1.45)	39

Note. N = 458

Table 5

Overview of open-ended responses identifying stimulus weaknesses

Topic	Frequency
Needs more concrete information (e.g., citations, data, examples, details)	170
Lack of support for or endorsement of climate change	95
Nothing weak	77
Other	55
Support for or opposition to carbon tax	52
Political affiliation mentions (e.g., going against party, Dem/Rep are bad, emphasis on polarization, etc.).	30
Changed his mind	25
Need information about why he changed his mind	18
No alternative solution offered	15
Not likely capable of changing minds/will face opposition	27
Lacked conviction, confidence, effort	11
Impact on jobs	10
Confusing	6
Not sure	6

Note. $N = 541$. Comments coded as "other" include those that were off-topic, unique, or indiscernible.

Table 6

Overview of open-ended responses identifying stimulus strengths

Topic	Frequency
Lack of support for or endorsement of climate change	116
Lack of support for or endorsement of carbon tax	99
Other	98
No strengths	89
Changed his mind	71
Political affiliation mentions	45
Can change minds/Bipartisanship	45
Talked to experts	25
Jobs/economy/working class families	42
Environment	12
Use of economic models	7
Everything	7

Note. $N = 541$. Comments coded as "other" include those that were off-topic, unique, or indiscernible.

Table 7

Overview of open-ended responses improving stimulus material

Topic	Frequency
Data, Facts, Evidence, Citations (non-specific)	276
Climate change scientific input/evidence/more data	132
Carbon tax specifics	96
Other	76
Be more specific (generally)	75
Carbon tax impact on economy	18
Alternative Solution	18
Discuss other causes of climate change	18
Why he changed his mind	17
Good enough	17
Not sure	15
Nothing	14
Carbon tax efficacy evidence	13
Carbon tax impact on environment	13
Carbon tax impact on jobs	13
Emphasize environment or climate change	12
Data on why carbon tax is negative	12
Don't propose a carbon tax	9
Changing minds/passing legislation	7
Carbon tax impact on working families	6
Bipartisanship	4

Note. $N = 541$. Comments coded as "other" include those that were off-topic, unique, or indiscernible.

Appendix B1: Pilot Study 2

The purpose of Pilot Study 2 was to determine whether revisions made to the target article based on results from the first pilot study would yield differential effects on perceived message strength among Democrat and Republican participants. In the newest iteration of the online article, two versions were developed: a neutral version and non-neutral version. The neutral version did not indicate which approach to addressing climate change was favored by Democrats or Republicans and the non-neutral version specified that the first approach to curb carbon outputs was proposed by Republicans and the carbon tax approach was favored by Democrats. Two versions were developed due to concerns about asymmetrical results in ratings of strength of message between Democrat participants and Republicans if participants were aware of which policy was supported by which party.

Method

Design

Pilot Study 2 used a 2 (article partisanship: nonpartisan vs. partisan) x 2 (target affiliation: Democrat vs. Republican) x 2 (participant affiliation: Democrat vs. Republican) x 2 (majority/minority message status: support vs. oppose carbon tax) between-subjects factorial design. The design also included strength of social identification as a continuous independent variable.

Participants

A total of 199 Democrats and 198 Republicans recruited from Prolific participated and paid $1.00 to complete an 8-minute online questionnaire. Two hundred

and twelve participants (53.4%) self-identified as women, 178 (44.8%) as men, and seven participants (1.8%) as non-binary. The mean age for all participants was 43, with ages ranging from 18 to 78. IP addresses for Prolific users were checked for duplication against IP addresses for Amazon Mturk workers from pilot study 1A and no duplicates were found.

A power analysis (G*Power; Faul, Erdfelder, Lang, & Buchner, 2007) indicated that a minimum sample size of 350 was required to detect a small-moderate effect ($f^2 =$ .17) if one exists given .80 power and .05 alpha. To detect a moderate effect size ($f^2 =$ .25), a minimum sample size of 128 was required.

Procedure

After providing consent, participants completed sociodemographic items, including items pertaining to political affiliation and strength of identification. To attenuate potential priming effects resulting from political social identification items (no screener used in this pilot study as in the first pilot study), participants completed a Big-5 personality trait scale (a filler) prior to reading the interview with a Republican or Democrat interviewee who supported or opposed a carbon tax (target article). The remaining procedure was identical to Pilot Study 1.

Materials

Sociodemographic Information

The same item as used in Pilot Study 1 (screener). See Appendix B2 for a copy of all Pilot Study 2 materials.

Strength of Social Identification

The same scale as used in Pilot Study 1. The scale had excellent reliability for

both Democrats and Republicans (Cronbach's α = .89 and α = .93, respectively).

Filler

A five-item Likert-type scale assessing Big-5 personality traits (adapted from Gosling, Rentfrow, & Swann, 2003) was used to extend the time between strength of social identification items and participants' exposure to the target article.

Target article

Several changes were made to version 3 (Pilot Study 1) of the target article based on results from the first pilot study. First, as several participants in Pilot Study 1 mentioned the need for an alternate approach to a carbon tax, recent legislative efforts by U.S. Republican legislators to commit to planting 1 million trees, invest in clean energy innovation, and reduce the use of plastics was added as an alternate policy to a carbon tax (see Harder, 2020; Roberts, 2020). Second, carbon tax was now introduced as a necessary addition to climate change legislation based on the assertion that the Republican plan was not enough to make a real difference towards combating climate change. Third, participants were randomly assigned to one of only two versions of the article: nonpartisan or partisan. In the nonpartisan version, the proposed plans were not identified as being Republican or Democrat. In the partisan approach, the carbon tax was attributed to Democrats and the alternate plan was attributed to Republicans. Fourth, because many of the open-ended comments in Pilot Study 1 focused on climate change rather than a carbon tax, a concerted effort was made to keep participants on topic (i.e, a carbon tax) by removing references to the climate change debate.

Other Measures

All remaining measures used in Pilot Study 1 were identical to measures used in

Pilot Study 2, including the assessment of strength of message.

Results

All data cleaning and assumption checking protocols utilized in the first pilot study were utilized in this pilot study.

Manipulation Check

A majority of participants ($n = 70$, 82.4%) was able to correctly identify the policy position of the interviewee in the online article. A total of 70 participants (17.6%) failed this manipulation check (including "I'm not sure" responses). Of these, 28 participants (14.1%) were randomly assigned to the nonpartisan condition and 42 (21%) were randomly assigned to the partisan condition. Participants who failed this manipulation check were excluded from the main analyses.

Strength of Social Identification

A Welch's t-test results indicated that there was no significant difference between Republicans ($n = 198$, $M = 4.46$, $SD = 1.66$) and Democrats ($n = 199$, $M = 4.72$, $SD = 1.51$) in terms of strength of social identification, $t(391.11) = 1.67$, $p = .10$, 95% CI [-.047, .578].

Strength of Message

To determine whether strength of message differed by the target affiliation, participant affiliation, whether the message was a minority or majority message, article neutrality, and/or strength of social identification, a univariate GLM was conducted with strength of message as the dependent variable. As in Pilot Study 1, Levene's test indicated that the homogeneity of variances assumption was violated, $p < .001$.

In addition replicating a main effect of strength of social identification on strength

of message, $F(1, 327) = 4.99$, $p = .026$, $\eta_p^2 = .016$, a two-way interaction emerged

involving target affiliation and whether the message was a majority/minority message ,

$F(1, 327) = 20.32$, $p < .001$, $\eta_p^2 = .062$, which was qualified by a three-way interaction,

which also included participant political affiliation, $F(1, 327) = 22.30$, $p < .001$, $\eta_p^2 =$

.067. This three-way interaction was moderated in the context of a four-way interaction

between target affiliation, version, whether the message was a minority or majority, and

participant political affiliation, $F(1, 327) = 29.92$, $p < .001$, $\eta_p^2 = .041$.

The pattern of findings is illustrated in Figure 6 (see Chapter 8 of main text, *Pilot*

Study Summary; panel a and b). Note that asymmetrical results between Democrats and

Republicans were a central consideration in the present analysis. As is apparent in Figure

6a, in the nonpartisan condition, there was a significant difference in ratings of strength

of message between Democrat and Republican participants. Specifically, there was a

significant difference in message strength ratings between Democrats ($M = 3.81$) and

Republicans ($M = 4.62$) when the interviewee was a Republican espousing an anti-carbon

tax message, $p = .049$. There were no significant differences in strength of message

ratings between Democrats and Republicans for a Democrat interviewee.

However, there were significant differences between Democrats and Republicans

in the partisan condition (see Figure 6b Chapter 8 of main text, *Pilot Study Summary*).

Democrat participants who read about a pro-carbon tax message from a Democrat

(Democrat majority) rated the message significantly stronger ($M = 5.49$) than

Republicans who read a pro-carbon tax message from a Democrat ($M = 4.15$), $p = .005$.

Similarly, Democrat participants who read a pro-carbon tax message from a Republican

(Republican minority) rated the message significantly stronger ($M = 5.87$) than

Republicans who read a pro-carbon tax message from a Republican ($M = 4.63$), $p = .012$.

Republicans who read an anti-carbon tax message from a Republican (Republican

majority) rated the message significantly stronger ($M = 4.98$) than Democrats who read

an anti-carbon tax message from a Republican ($M = 3.27$), $p < .001$. Likewise,

Republicans who read an anti-carbon tax message from a Democrat (Democrat minority

message) rated the message significantly stronger ($M = 5.33$) than Democrats who read

an anti-carbon tax message from a Democrat ($M = 3.87$), $p = .004$.

Perceived Threat

To determine whether perceived threat differed by the target affiliation,

participant affiliation, whether the message was a minority or majority message,

interviewee prototypicality, and/or strength of social identification, a MANOVA was

conducted. There was a main effect of whether the message was a minority or majority

message on perceived threat, $F(1, 327) = 46.29$, $p < .001$, $\eta_p^2 = .101$, which was qualified

by a three-way interaction with target affiliation and version, $F(1, 327) = 6.36$, $p = .002$,

$\eta_p^2 = .030$ as well as a three-way interaction with participant affiliation and version, $F(1,$

$327) = 3.57$, $p = .029$, $\eta_p^2 = .017$.

Perceived threat was significantly higher when the interviewee was a Republican

opposed to a carbon tax (majority) in nonpartisan version of the target article ($M = 2.63$)

compared when the interviewee was a Republican opposed to a carbon tax in partisan

version of the target article ($M = 1.96$), $p = .023$. Perceived threat was significantly higher

when the interviewee was a Republican supporting a carbon tax in partisan version of the

target article ($M = 2.96$) rather than nonpartisan version of the target article ($M = 2.45$), p

$= .048$. Perceived threat was also significantly higher when Republican participants read

about a majority position in target article nonpartisan version ($M = 2.66$) rather than partisan version ($M = 2.09$), $p = .045$.

Perceived threat was also examined in the context of extent of elaboration and attitude endorsement with the total number of thoughts listed by participants as one dependent variable and attitudes towards carbon tax as a second dependent variable. Perceived threat was not a significant factor in any capacity in either dependent variable.

Strengths and Weaknesses

Open-ended responses were coded in a similar fashion to Pilot Study 1. The most frequently mentioned aspect of the stimulus regarded as a weakness (besides "other" or "none/nothing") was the Republican approach to curb carbon output. The second most frequently mentioned topic was a lack of concrete information (e.g., citations, data, examples, or details) not specific to a particular plan. Many participant comments focused on jobs (i.e., the interviewee believing that jobs couldn't be replaced or wanting more information about job impact). Several comments identified support of a carbon tax or dismissal of the Republican plan as weaknesses and several comments identified a lack of support for a carbon tax as a weakness. All in all, remarks referencing climate change dropped dramatically in comparison to Pilot Study 1. Table 9 (Appendix B3) provides an overview of topics that emerged from the data regarding article weakness.

The most frequently mentioned aspect of the stimulus regarded as a strength was a support for a carbon tax though several participants also identified the Republican plan as a strength. Another frequently mentioned aspect of the message identified as a strength was taking the time to review the impact that a carbon tax would have on jobs. A willingness to change minds and/or facilitate a bipartisanship was identified a strength

relatively frequently. Overall, mentions of a carbon tax (e.g., impact on economy, opposing a carbon tax) were frequent and mentions of climate change were relatively infrequent. See Table 10 (Appendix B3) for an overview of responses to article strengths.

Message Strength Improvement

The most frequently mentioned suggestion for improvement was the addition of more information (e.g., data, specifics, evidence, examples, etc.) not specific to a particular climate change approach. Another common suggestion for improvement was adding detail pertaining to the interviewee's ability to obtain bipartisan support or cross-party cooperation. Many of the comments suggested adding more information on a variety of aspects of carbon tax (e.g., impact on environment, jobs, economy, rebate, etc.) or providing examples of how efficacious carbon tax is in other countries that utilize a carbon tax. Several comments indicated that the article was good enough as it was, but some comments indicated that the article could not be improved. Other comments suggested that the article could be improved by bolstering the Republican plan and several suggested that the article could be improved by comprising or meeting in the middle. See Table 11 (Appendix B3) for an overview of responses to article strengths.

Discussion

The purpose of Pilot Study 2 was to determine whether revisions made to the target article would yield differential effects on perceived message strength among Democrat and Republican participants. In fact, only the partisan version of the target article produced symmetrical results for Republican and Democrat participants. In either case, the partisan version was chosen for use in subsequent studies for several reasons. First, establishing a carbon tax as a Democrat plan and the non-carbon tax approach as a

Republican plan helps solidify participants' understanding of what would be construed as a minority or majority perspective within their respective parties without relying on participants' political acumen. Second, although there was no significant difference in strength of message mean scores between the nonpartisan and partisan versions, the partisan version yielded the highest overall mean score across both pilot studies.

It is worth noting that Republican participants did not appear to discriminate between an ingroup interviewee who opposed or supported a carbon tax nearly to the same extent as Democrat participant participants. Based on open-ended comments suggesting that the online article could be improved by bolstering the Republican plan, revisions were made to the target article and tested in Pilot Study 4.

Appendix B2: Pilot Study 2 Materials

DESCRIPTION: We are researchers at the University of Nevada in Reno looking for American participants who are at least 18 years of age. All data collected in this study are for research purposes only.

If you volunteer to participate in this study, you will be asked to read about and respond to questions pertaining to hypothetical persons, and asked to report your thoughts and attitudes. Your participation in the study will take approximately 8 minutes. For your participation, you will be compensated $1.00.

RISKS and BENEFITS: This study is considered to be minimal risk of harm. This means the risks of your participation in the research are similar in type or intensity to what you encounter during your daily activities. The risks to your participation in this online study may be those associated with basic computer tasks, including boredom, fatigue, mild stress, or breach of confidentiality. You may discontinue your participation at any point during the study if you feel a personally unacceptable amount of distress or discomfort. The only benefit to you is the learning experience from participating in a research study. The benefit to society is the contribution to scientific knowledge.

The researchers and the University of Nevada, Reno will treat your identity and the information collected about you with professional standards of confidentiality and protect it to the extent allowed by law. You will not be personally identified in any reports or publications that may result from this study. Any reports and presentations about the findings from this study will not include your name or any other information that could identify you. We may share the data we collect in this study with other researchers doing future studies. If we share your data, we will not include any information that could identify you. The U.S. Department of Health and Human Services; the University of Nevada; Reno Research Integrity Office; and the Institutional Review Board may look at your study records.

PARTICIPANT RIGHTS: Your participation is voluntary. You may stop participating at any time by closing the browser window or the program to withdraw from the study. Partial data will not be analyzed.

You may ask about your rights as a research participant. If you have questions, concerns, or complaints about this research, you may report them (anonymously if you so choose) by calling the University of Nevada, Reno Research Integrity Office at 775.327.2368.

You may ask questions of the researcher at any time by calling Markus Kemmelmeier, PhD, at (775) 784-1287 or by sending an email to markusk@unr.edu.

Please indicate, in the items below, that you are at least 18 years old, have read and understand this consent form, and that you agree to participate in this online research study.

○ I am 18 years of age or older

○ I am younger than 18 years of age

Please confirm your agreement to participate:

○ I have read and understand the consent form and <u>I agree</u> to participate in the study

○ I have read and understand the consent form and <u>I do not agree</u> to participate in the study

In the text box below, please enter your Prolific ID.

_____

What is your current employment status?

○ Employed full time

○ Employed part time

○ Unemployed looking for work

○ Unemployed not looking for work

○ Retired

○ Student

○ Disabled

How do you politically identify?

○ Democrat

○ Republican

○ Other (please specify)

_____

Please read the following questions about the Democrat Party and indicate how you feel by selecting a number between 1 (not very much) to 7 (very much).

	Not very much 1	2	3	4	5	6	Very Much 7
How important is it for you to identify as a Democrat?	○	○	○	○	○	○	○
How essential do you feel being a Democrat is to who you are?	○	○	○	○	○	○	○
How similar do you feel to other Democrats?	○	○	○	○	○	○	○

Please read the following questions about the Republican Party and indicate how you feel by selecting a number between 1 (not very much) to 7 (very much).

	Not very much 1	2	3	4	5	6	Very Much 7
How important is it for you to identify as a Republican?	○	○	○	○	○	○	○
How essential do you feel being a Republican is to who you are?	○	○	○	○	○	○	○
How similar do you feel to other Republicans?	○	○	○	○	○	○	○

Which race-ethnicity do you most identify with?

○ White

○ Black or African American

○ American Indian or Alaska Native

○ Asian or Asian American

○ Native Hawaiian or Pacific Islander

○ LatinX/Hispanic

○ Two or more race-ethnicities

○ Other _____

○ Prefer not to answer

How do you identify?

○ Man

○ Woman

○ Non-binary

○ Prefer not to answer

What is your annual household income?

○ Less than $10,000

○ $10,000 - $19,999

○ $20,000 - $29,999

○ $30,000 - $39,999

○ $40,000 - $49,999

○ $50,000 - $59,999

○ $60,000 - $69,999

○ $70,000 - $79,999

○ $80,000 - $89,999

○ $90,000 - $99,999

○ $100,000 - $149,999

○ More than $150,000

○ Prefer not to answer

What is the highest level of education you've completed?

○ Less than high school

○ High school graduate

○ Some college

○ 2 year degree

○ 4 year degree

○ Professional degree

○ Doctorate

○ Prefer not to answer

What is your age? Please enter a number like "24" or "42."

_____

To what extent do you agree or disagree with the following statements on a scale ranging from 1 (strongly disagree) to 5 (strongly agree)?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I see myself as extraverted	○	○	○	○	○
I see myself as emotionally stable	○	○	○	○	○
I see myself as conventional	○	○	○	○	○
I see myself as complex	○	○	○	○	○
I see myself as anxious	○	○	○	○	○

On the next screen, you will see an online article.

Please be sure to read through the entire article carefully before continuing.

Republicans and Democrats on Climate Change [Republican Minority – Nonpartisan]
Historically, Democrats and Republicans have rarely agreed on approaches to climate change. Although Democrats have publicly supported climate change policies involving a carbon tax, Republicans have remained skeptical.

Darren Shore, conservative Republican working on climate change action

Shore, a Republican, spoke with us about current approaches to climate change policy and his support of policies that include a carbon tax.

A climate change plan recently proposed by some members of Congress includes investing in clean energy, planting 1 million trees that capture and store carbon, and reducing the use of plastics.

Although this plan aims to address climate change, it has been met with criticism. According to other members of Congress, this approach would not be enough to make a real difference in reducing carbon emissions. Any approach to climate change legislation must also include a carbon tax on fossil fuels.

These legislators argue that a carbon tax can encourage utility companies, individuals, and businesses to consume less fossil fuels. A carbon tax can also make clean energy more cost-competitive with cheaper, polluting fuels like coal, natural gas and oil. And, a carbon tax can help support environmental programs or be issued as a rebate.

Shore stated that he agrees that a carbon tax must be included in plans to address climate concerns. Shore believes that investing in clean energy technology and planting 1 million trees will not be enough to reduce carbon dioxide in the atmosphere.

Additionally, Shore stated that he was certain that jobs lost in the fossil fuel industry due to a carbon tax could be replaced with clean energy jobs. Moreover, concerns some Americans might have with increased taxes would be offset with a rebate.

Shore argued that a plan involving a carbon tax aligns with modern American values to protect both the environment and American jobs. In basic terms, Shore stated that a carbon tax was a moderate approach that could help the American economy.

Using these arguments, Shore told us that he's had some success in changing Congressional minds. According to Shore, "there are members of the House and Senate

who are uncomfortable with their colleagues' accepted view on climate and carbon tax policy." Shore indicated that he has moved people from blind opposition to a carbon tax to open-mindedness, and a new perspective.

Shore hopes to continue to motivate others to support policies designed to curb carbon outputs.

Republicans and Democrats on Climate Change [Republican Minority – Partisan] Historically, Democrats and Republicans have rarely agreed on approaches to climate change. Although Democrats have publicly supported climate change policies involving a carbon tax, Republicans have remained skeptical.

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Shore hopes to continue to motivate others to support policies designed to curb carbon outputs.

Republicans and Democrats on Climate Change [Democrat Majority – Nonpartisan] Historically, Democrats and Republicans have rarely agreed on approaches to climate change. Although Democrats have publicly supported climate change policies involving a carbon tax, Republicans have remained skeptical.

Darren Shore, liberal Democrat working on climate change action

Shore, a Democrat, spoke with us about current approaches to climate change policy and his support of policies that include a carbon tax.

A climate change plan recently proposed by some members of Congress includes investing in clean energy, planting 1 million trees that capture and store carbon, and reducing the use of plastics.

Although this plan aims to address climate change, it has been met with criticism. According to other members of Congress, this approach would not be enough to make a real difference in reducing carbon emissions. Any approach to climate change legislation must also include a carbon tax on fossil fuels.

These legislators argue that a carbon tax can encourage utility companies, individuals, and businesses to consume less fossil fuels. A carbon tax can also make clean energy more cost-competitive with cheaper, polluting fuels like coal, natural gas and oil. And, a carbon tax can help support environmental programs or be issued as a rebate.

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Shore stated that he agrees that a carbon tax must be included in plans to address climate concerns. Shore believes that investing in clean energy technology and planting 1 million trees will not be enough to reduce carbon dioxide in the atmosphere.

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Shore hopes to continue to motivate others to support policies designed to curb carbon outputs.

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Although Democrats have publicly supported climate change policies involving a carbon tax, Republicans have remained skeptical.

Darren Shore, conservative Republican working on climate change action

Shore, a Republican, spoke with us about current approaches to climate change policy and his opposition to policies that include a carbon tax.

A climate change plan recently proposed by some members of Congress includes investing in clean energy, planting 1 million trees that capture and store carbon, and reducing the use of plastics.

Although this plan aims to address climate change, it has been met with criticism. According to other members of Congress, this approach would not be enough to make a real difference in reducing carbon emissions. Any approach to climate change legislation must also include a carbon tax on fossil fuels.

These legislators argue that a carbon tax can encourage utility companies, individuals, and businesses to consume less fossil fuels. A carbon tax can also make clean energy more cost-competitive with cheaper, polluting fuels like coal, natural gas and oil. And, a carbon tax can help support environmental programs or be issued as a rebate.
 Shore stated that he disagrees that a carbon tax must be included in plans to address climate concerns. Shore believes that investing in clean energy technology and planting 1 million trees will be enough to reduce carbon dioxide in the atmosphere.

Additionally, Shore stated that he was uncertain that jobs lost in the fossil fuel industry due to a carbon tax could be replaced with clean energy jobs. Moreover, concerns some Americans might have with increased taxes would not be offset with a rebate.

Shore argued that a plan involving a carbon tax does not align with modern American values to protect both the environment and American jobs. In basic terms, Shore stated that a carbon tax was a radical approach that could hurt the American economy.

Using these arguments, Shore told us that he's had some success in changing

Congressional minds. According to Shore, "there are members of the House and Senate who are uncomfortable with their colleagues' accepted view on climate and carbon tax policy." Shore indicated that he has moved people from blind support of a carbon tax to open-mindedness, and a new perspective.

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Shore hopes to continue to motivate others to oppose policies designed to curb carbon outputs.

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Darren Shore, liberal Democrat working on climate change action

Shore, a Democrat, spoke with us about current approaches to climate change policy and his opposition to policies that include a carbon tax.

A climate change plan recently proposed by some members of Congress includes investing in clean energy, planting 1 million trees that capture and store carbon, and reducing the use of plastics.

Although this plan aims to address climate change, it has been met with criticism. According to other members of Congress, this approach would not be enough to make a real difference in reducing carbon emissions. Any approach to climate change legislation must also include a carbon tax on fossil fuels.

These legislators argue that a carbon tax can encourage utility companies, individuals, and businesses to consume less fossil fuels. A carbon tax can also make clean energy more cost-competitive with cheaper, polluting fuels like coal, natural gas and oil. And, a

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Shore hopes to continue to motivate others to oppose policies designed to curb carbon outputs.

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Although this plan aims to address climate change, it has been met with criticism. According to Democrats, this approach would not be enough to make a real difference in reducing

carbon emissions. Any approach to climate change legislation must also include a carbon tax on fossil fuels.

Democrats argue that a carbon tax can encourage utility companies, individuals, and businesses to consume less fossil fuels. A carbon tax can also make clean energy more cost-competitive with cheaper, polluting fuels like coal, natural gas and oil. And, a carbon tax can help support environmental programs or be issued as a rebate.

Shore stated that he disagrees that a carbon tax must be included in plans to address climate concerns. Shore believes that investing in clean energy technology and planting 1 million trees will be enough to reduce carbon dioxide in the atmosphere.

Additionally, Shore stated that he was uncertain that jobs lost in the fossil fuel industry due to a carbon tax could be replaced with clean energy jobs. Moreover, concerns some Americans might have with increased taxes would not be offset with a rebate.

Shore argued that a plan involving a carbon tax does not align with modern American values to protect both the environment and American jobs. In basic terms, Shore stated that a carbon tax was a radical approach that could hurt the American economy.

Using these arguments, Shore told us that he's had some success in changing Congressional minds. According to Shore, "there are members of the House and Senate who are uncomfortable with their colleagues' accepted view on climate and carbon tax policy." Shore indicated that he has moved people from blind support of a carbon tax to open-mindedness, and a new perspective.

Shore hopes to continue to motivate others to oppose policies designed to curb carbon outputs.

On a scale from 1 (not at all) to 5 (extremely), please tell us the extent to which the interviewee's message threatens to blur the line between the Republican and Democrat parties?

○ Not at all 1

○ Slightly 2

○ Moderately 3

○ Very much 4

○ Extremely 5

On a scale ranging from 1 (*not at all*) to 5 (*extremely*), please tell us the extent to which you were surprised by the interviewee's stance on a carbon tax to reduce the effects of climate change?

○ Not at all 1

○ Slightly 2

○ Moderately 3

○ Very   4

○ Extremely 5

In the online article you read, did Darren Shore, the interviewee, support a carbon tax policy or oppose a carbon tax policy?

○ Support carbon tax policy

○ Oppose carbon tax policy

○ I'm not sure

To what extent was the interviewee's message about climate change policy weak or strong on a scale ranging from -3 (*very weak*) to 3 (*very strong*)?

- ○ Very Weak -3
- ○ -2
- ○ -1
- ○ 0
- ○ 1
- ○ 2
- ○ Very Strong 3

In the text box below, please tell us which aspects of the online article's message, if any, were the <u>weakest</u>?

_____

In the text box below, please tell us which aspects of the online article's message, if any, were the <u>strongest</u>?

_____

In the text box below, please tell us how the interviewee's message about carbon tax policy could be improved to be more convincing?

_____

Appendix B3: Pilot 2 Tables

Table 8

Means and Standard Deviation for Strength of Message by Target Affiliation, Participant Affiliation, Message Status, and Version

Target affiliation	Participant Affiliation								
	Democrat			Republican			Total		
	M	*(SD)*	*n*	*M*	*(SD)*	*n*	*M*	*(SD)*	*n*
Democrat									
Neutral									
Majority	4.96	(1.08)	26	5.33	(1.43)	21	5.13	(1.24)	47
Minority	3.67	(1.66)	24	4.40	(1.58)	10	3.88	(1.65)	34
Non-Neutral									
Majority	5.52	(1.12)	23	4.11	(2.05)	19	4.88	(1.74)	42
Minority	3.88	(1.90)	17	5.37	(1.01)	19	4.67	(1.66)	36
Republican									
Neutral									
Majority	3.75	(1.57)	24	4.45	(1.79)	22	4.09	(1.70)	46
Minority	4.70	(1.49	16	4.86	(1.63)	28	4.80	(1.56)	44
Non-neutral									
Majority	3.33	(1.69)	24	5.00	(1.32)	16	5.86	(1.01)	21
Minority	5.86	(1.01)	21	4.53	(1.55)	17	5.26	(1.42)	38

Note. N = 327

Table 9

Overview of Open-ended Responses Identifying Stimulus Weaknesses

Topic	Frequency
Other	78
Nothing/none	58
The Republican plan	54
More information non-specific (e.g., citations, data, examples, details)	29
Believing jobs can't be replaced w/carbon tax plan	24
Supporting a carbon tax	21
More info about carbon tax impact on jobs	18
Will face opposition/uphill battle to pass legislation	15
Dismissing the Republican plan	14
Not supporting a carbon tax	12
Info on carbon tax efficacy (i.e., impact on environment & fossil fuel consumption)	10
Difficult to comprehend and/or grammar/style	10
More information about Republican plan details/evidence	10
More details about the carbon tax	9
Dismissing the rebate or believing it to be worthwhile	7
Details about the minds he changed	7
Get alternative perspective (e.g., interview Dem/Rep)	5
Belief in man-made climate change	5
More info about carbon tax impact on economy	4
Lacking evidence of carbon tax negatives (e.g., hurt jobs, not help environment)	4
Not implementing both plans	3
Not sure	3
All weak	3

Note. *N* = 397. Comments coded as "other" include those that were off-topic, unique, or indiscernible.

Table 10

Overview of Open-ended Responses Identifying Stimulus Strengths

Topic	Frequency
Other	75
Carbon tax	47
Nothing/none	39
Pointing out carbon tax impact on jobs	35
The Republican plan	33
Changing minds/moving to bipartisanship	30
Carbon tax promotes/facilitates clean energy	17
Pointing out carbon tax impact on economy	17
Willingness/need to address climate change	16
Carbon tax impact on environment	16
Will face opposition/uphill battle to pass legislation	15
Dismissing the Republican plan	14
Considering pros and cons of a carbon tax	14
Opposing a carbon tax	14
Taking some action rather than none	11
Believing in climate change	8
Carbon tax rebate	7
Stating both sides/plans	6
Not sure	5
Not supporting a carbon tax	4
Mentioning values	3
Appears unbiased	3
All strong	3

Note. $N = 391$. Comments unsuitable for coding include those that were off-topic, unique, or indiscernible.

Table 11

Overview of Open-ended Responses Improving Stimulus Material

Topic	Frequency
More information (data, science, specifics, facts, evidence, examples, etc.)	84
Other	58
Clear details or path to bipartisan / cooperation	32
Carbon tax details/specifics, data, evidence (broad)	28
Good as is	26
More information about carbon tax impact on jobs	21
Focus on climate change/global warming/timeliness	20
Not sure	20
Nothing/Can't be improved	16
Discuss carbon tax use in other countries (as example)	9
More information about carbon tax impact on environment	7
More information on why carbon tax is not a good idea	7
More information about carbon tax impact on economy	6
Combine both plans or compromise/meet in the middle	6
More information about rebate	6
Bolster/improve the Republican plan	5
Oppose a carbon tax	5
Support a carbon tax	5
Provide a meaningful alternative to carbon tax	4
Don't use the word "tax"	4
Take a stronger stance/be firm	4
Include opposing viewpoint/dual perspectives	3
Climate change is a hoax	2

Note. $N = 385$. Comments unsuitable for coding include those that were off-topic, unique, or indiscernible.

Appendix C1: Pilot Study 3

Hypotheses 1 and 6 predict that the persuasive impact of an ingroup message and the evaluation of an interviewee are contingent on the prototypicality of the message source. In order to adequately test these hypotheses, the third pilot study was conducted to pre-test this experimental manipulation.

The purpose of Pilot Study 3 was to ensure the efficacy of message source prototypicality manipulations through evaluation of the message source. That is, to assess whether or not prototypical ingroup members are evaluated more positively than atypical ingroup members or outgroup members.

Method

Pilot Study 3 used a 2 (interviewee prototypicality: prototypical vs. atypical) x 2 (target affiliation: Democrat vs. Republican) x 2 (participant affiliation: Democrat vs. Republican) x 2 (majority/minority message status: support vs. oppose carbon tax) between-subjects factorial design with strength of social identification included as continuous predictor.

Participants

As with Pilot Study 2, participants were recruited from Prolific and paid $1.00 for completing an 8-minute Qualtrics online questionnaire. A total of 206 Democrats and 194 Republicans who did not participate in Pilot Study 2 completed the study, total $N = 400$. One hundred and ninety-nine participants identified as male (49.8%), 193 (48.3%) as female, and eight participants (2.0%) as non-binary. The mean age for all participants was 43, with ages ranging from 18 to 77.

Procedure

Identical to Pilot Study 2, after completing sociodemographic, political affiliation, and strength of identification items, participants completed a Big-5 personality trait scale prior to reading an interview with a Republican or Democrat interviewee who supported or opposed a carbon tax policy designed to curb carbon emissions. Participants then completed interviewee evaluation items (i.e., likeability, knowledgeability, trustworthiness, and credibility), two manipulation check items, and two prototypicality items.

Materials

Sociodemographic Information

The same item as in Pilot Study 2 was used.

Strength of Social Identification

The same scale as used in Pilot Study 2. The scale had excellent reliability for both Democrats and Republicans (Cronbach's $\alpha = .90$ and $\alpha = .91$, respectively). See Appendix C2 for Pilot Study 3 materials.

Filler

The same scale as used in Pilot Study 2.

Target Article

Participants read the partisan version of the target article (see Pilot Study 2) about a Republican or Democrat who either supported or opposed carbon tax policy designed to curb carbon outputs. The interviewee was portrayed as either a prototypical or atypical member of his respective party. In conditions featuring a prototypical Democrat or atypical Republican, the bottom of the article read, "When not supporting carbon tax policy, Shore has a number of other policy goals. Shore wants to make gun control a

federal issue; he wants less restricted immigration policy; and he supports publicly

funded healthcare." In conditions featuring a prototypical Republican or atypical Demo-

crat, the bottom of the article read, "When not challenging carbon tax policy, Shore has a

number of other policy goals. Shore wants to make gun control exclusively a state issue;

he wants more restricted immigration policy; and he supports privately funded

healthcare."

Interviewee Evaluation

Four items asked participants to rate on a scale of 1 (*not at all*) to 5 (*extremely*)

the extent to which the interviewee was credible, trustworthy, knowledgeable, and

likeable. Ratings for all four constructs were averaged across all participants.

Manipulation Check

One multiple-choice item asked, "In the online article you read, did Darren Shore,

the interviewee, support a carbon tax policy or oppose a carbon tax policy?" Responses

options included, "support carbon tax policy," "oppose carbon tax policy," and "I'm not

sure." A second multiple-choice item asked, "In the online article you read, was the

interviewee, Darren Shore, a Republican or a Democrat?" Responses options included,

"Democrat," "Republican," and "I'm not sure."

Perceived Prototypicality

Participants indicated to what extent the interviewee was typical of a Democrat

legislator and a Republican legislator using a scale of -3 (*very atypical*) to 3 (*very

typical*).

Results

All data cleaning and assumption checking protocols utilized in the previous pilot

studies were utilized in Pilot Study 3.

Manipulation checks

A majority of participants (n = 339, 84.7%) was able to correctly identify the policy position of the interviewee in the online article (including "I'm not sure" responses). Similarly, a majority of participants (n = 346, 86.5%) was able to correctly identify the political affiliation of the interviewee. In total, 24 participants (6.0%) failed both manipulation checks, though all 91 participants who failed at least one manipulation check (23%), were excluded from the main analyses.

Strength of social identification

There was no difference between Republicans (n = 194, M = 4.48, SD = 1.64) and Democrats (n = 205, M = 4.45, SD = 1.56) in strength of social identification, $t(397)$ = -.17, p = .86, 95% CI [-.342, .287].

Main Analysis

Dependent variables were submitted to a 2 (interviewee prototypicality: prototypical vs. atypical) x 2 (target political affiliation: Democrat vs. Republican) x 2 (participant political affiliation: Democrat vs. Republican) x 2 (majority/minority message status: support vs. oppose carbon tax) factorial design with strength of social identification as a continuous independent variable (mean centered).

Evaluation

A Pearson's product-moment correlation test indicated that all evaluative ratings were strongly positively related to each other, all ps < .010 (two-tailed). Given these strong relationships, a new variable was created by collapsing all four evaluative items into a single rating score ("evaluation") (See Table 12).

Table 12

Evaluative Intercorrelations

Evaluation	1	2	3
1. Likeability			
2. Knowledgeability	.60*		
3. Trustworthiness	.71*	.70*	
4. Credibility	.70*	.73*	.80*

Note. $N = 309$. * = significant at the $p < .01$ level (two-tailed).

To determine whether interviewee evaluation differed by the target affiliation, participant affiliation, message status (minority or majority message), interviewee prototypicality, and/or strength of social identification, a univariate GLM was conducted with interviewee evaluation as the dependent variable. As before, variances were not homogenous across the cells of the design, Levene's test $p = .021$.

A main effect of participant affiliation, $F(1, 308) = 12.55$, $p < .001$, $\eta_p^2 = .043$, was qualified by a two-way interaction between target affiliation and participant affiliation, $F(1, 308) = 7.75$, $p = .006$, $\eta_p^2 = .027$, as well as a three-way interaction involving target affiliation, interviewee prototypicality, and participant affiliation, $F(1, 308) = 26.65$, $p < .001$, $\eta_p^2 = .088$. Figure 21 summarizes the pattern of results.

Democrat participants rated a prototypical Democrat interviewee significantly more positive ($M = 3.40$) than an atypical Democrat interviewee ($M = 2.74$), $p < .001$, and Republican participants rated a prototypical Democrat interviewee significantly less positive ($M = 2.94$) than an atypical Democrat interviewee ($M = 3.34$), $p = .034$. Conversely, Republican participants rated a prototypical Republican interviewee significantly more positive ($M = 3.61$) than an atypical Republican interviewee ($M = 3.25$), $p = .048$, and Democrat participants rated a prototypical Republican interviewee

Figure 21

Mean Differences and Standard Errors for Evaluation by Target Affiliation, Participant Affiliation, and Interviewee Prototypicality
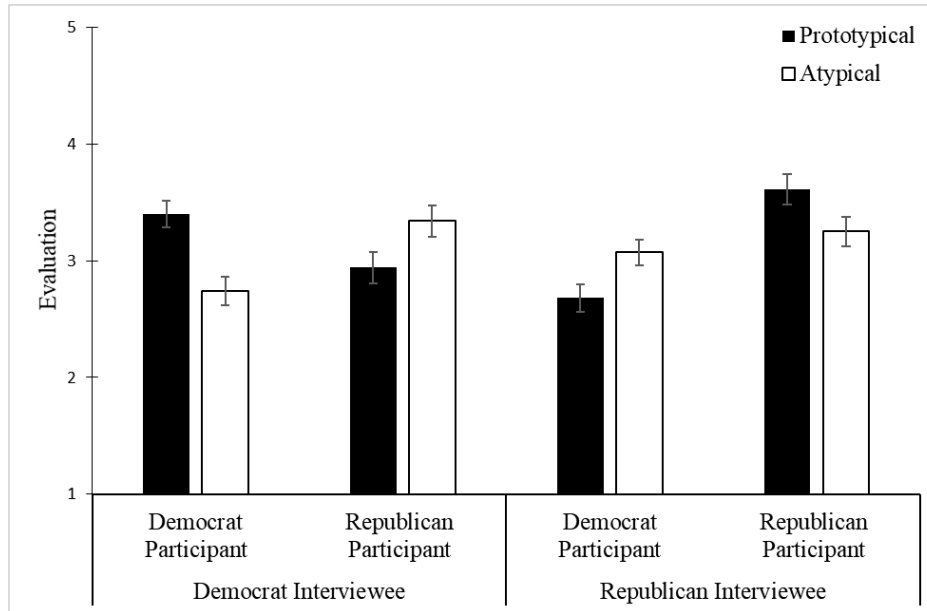
less positive ($M = 2.68$) than an atypical Republican interviewee ($M = 3.07$), $p = .019$.

See Table 13 (Appendix C3) for interviewee evaluation means and standard deviation by target affiliation, participant affiliation, message status, and version.

There was also a two-way interaction between target affiliation and whether the message was a minority or majority message, $F(1, 308) = 16.75$, $p < .001$, $\eta_p^2 = .057$, as well as a three-way interaction between target affiliation, participant affiliation, and strength of social identification on interviewee evaluation, $F(1, 308) = 5.18$, $p = .024$, $\eta_p^2 = .018$, and a three-way interaction between target affiliation, majority/minority message, and participant affiliation, $F(1, 308) = 37.52$, $p < .001$, $\eta_p^2 = .120$. These interactions were qualified by a four-way interaction between target affiliation, participant affiliation, whether the message was a majority or minority message, and strength of social

identification, $F(1, 308) = 12.23$, $p = .001$, $\eta_p^2 = .042$.

High-identifying Democrat participants (participants whose strength of social identification was 1 *SD* above the mean) rated a Democrat interviewee more positive when he espoused a pro-carbon tax (Democrat majority) message ($M = 3.85$) than an anti-carbon tax (Democrat minority) message ($M = 2.55$), $p < .001$. Similarly, high-identifying Democrat participants rated a Republican interviewee less positive when he espoused an anti-carbon tax (Republican majority) message ($M = 2.14$) than when he espoused a pro-carbon tax (Republican minority) message ($M = 3.44$), $p < .001$. Among high-identifying Republican participants, there was no reliable difference between evaluative ratings for a Democrat interviewee espousing a pro-carbon tax (Democrat majority) message ($M = 2.71$) and Democrat interviewee espousing an anti-carbon tax (Democrat minority) message ($M = 3.25$), $p = .07$. Likewise, for highly identified Republican participants there was no difference in the evaluation of a Republican interviewee promoting a pro-carbon tax (Republican majority) message ($M = 3.61$) and a Republican interviewee promoting an anti-carbon tax (Republican minority) message ($M = 3.34$), $p = .24$ (see Figure 7a, Chapter 8 of main text, *Pilot Study Summary*).

For low identifiers (1 *SD* below the mean for strength of social identification), Democrat participants rated a Democrat interviewee significantly more positive when he espoused a pro-carbon tax (Democrat majority) message ($M = 3.28$) than an anti-carbon tax (Democrat minority) message ($M = 2.61$), $p = .010$. There was no significant difference among low-identifying Democrats between a Republican interviewee espousing an anti-carbon tax (Republican majority) message ($M = 2.81$) and a pro-carbon tax (Republican minority) message ($M = 3.11$), $p = .20$. There was no significant

difference for evaluative ratings among low-identifying Republicans between a Democrat interviewee espousing a pro-carbon tax (Democrat majority) message ($M = 3.23$) and Democrat interviewee espousing an anti-carbon tax (Democrat minority) message ($M = 3.36$), $p = .57$. There was also no difference among low-identifying Republican partici-pants when rating a Republican interviewee promoting a pro-carbon tax (Republican majority) message ($M = 3.27$) and a Republican interviewee promoting an anti-carbon tax (Republican minority) message ($M = 3.51$), $p = .39$ (see Figure 7b, Chapter 8 of main text, *Pilot Study Summary*).

Perceived Prototypicality

Both prototypicality ratings, as a Democrat lawmaker and a Republican lawmaker, were submitted to the same analytical design as above. For both dependent variables, the assumption of variance homogeneity was violated, both $p < .001$.

Perceived Republican Prototypicality. There was first a two-way interaction between target affiliation and interviewee prototypicality, $F(1, 308) = 62.34$, $p < .001$, $\eta_p^2 = .184$. An atypical Democrat interviewee was rated more prototypical of a Repub-lican ($M = 4.18$) than a prototypical Democrat ($M = 2.85$), $p < .001$. Conversely, a prototypical Republican interviewee was rated more prototypical of a Republican ($M = 4.53$) than an atypical Republican interviewee ($M = 3.10$), $p < .001$ (see Figure 22).

Figure 22

Mean Differences and Standard Errors for Republican Prototypicality by Target Affiliation and Version (Prototypical vs. Atypical)
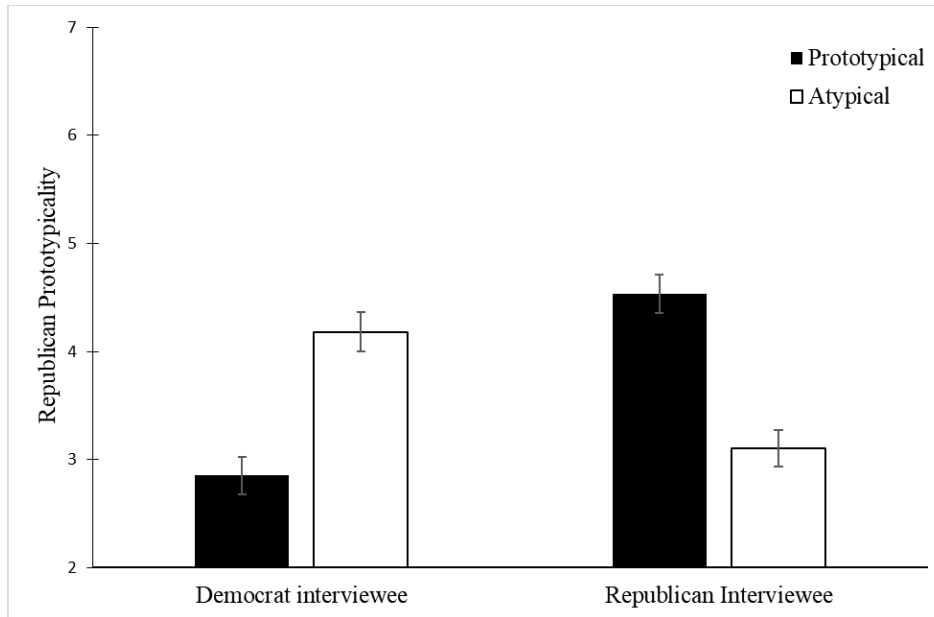
A second two-way interaction between target affiliation and whether the message was a minority or majority message, $F(1, 308) = 158.93$, $p < .001$, $\eta_p^2 = .365$, showed that a Democrat espousing a minority (anti-carbon tax) message was rated as more prototypical of a Republican ($M = 4.65$) than a Democrat espousing a majority (pro-carbon tax message), $p < .001$. Likewise, a Republican interviewee espousing a majority (anti-carbon tax) message was rated significantly more prototypical ($M = 4.89$) than a Republican interviewee espousing a minority (pro-carbon tax message), $p < .001$. See Figure 23 for a summary and Appendix C3 for Republican prototypicality means and standard deviation by target affiliation, participant affiliation, message status (minority/majority), and version (prototypical/atypical).

Figure 23

Mean Differences and Standard Errors for Republican Prototypicality by Target Affiliation and Message Status (Majority vs. Minority)
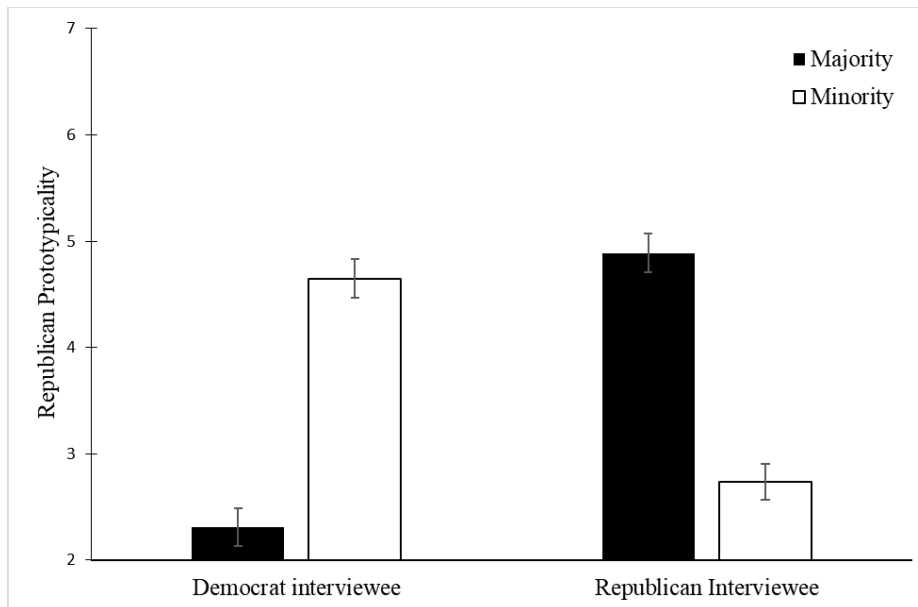
Perceived Democrat Prototypicality. A two-way interaction between target affiliation and interviewee prototypicality, $F(1, 308) = 26.25$, $p < .001$, $\eta_p^2 = .087$ (see Figure 24), indicated that a prototypical Democrat interviewee was rated significantly more prototypical of a Democrat ($M = 4.68$) than an atypical Democrat ($M = 3.71$), $p < .001$. Conversely, an atypical Republican interviewee was rated significantly more prototypical of a Democrat ($M = 4.28$) than a prototypical Republican interviewee ($M = 3.37$), $p < .001$.

Figure 24

Mean Differences and Standard Errors for Democrat Prototypicality by Target Affiliation and Message Status (Majority vs. Minority)
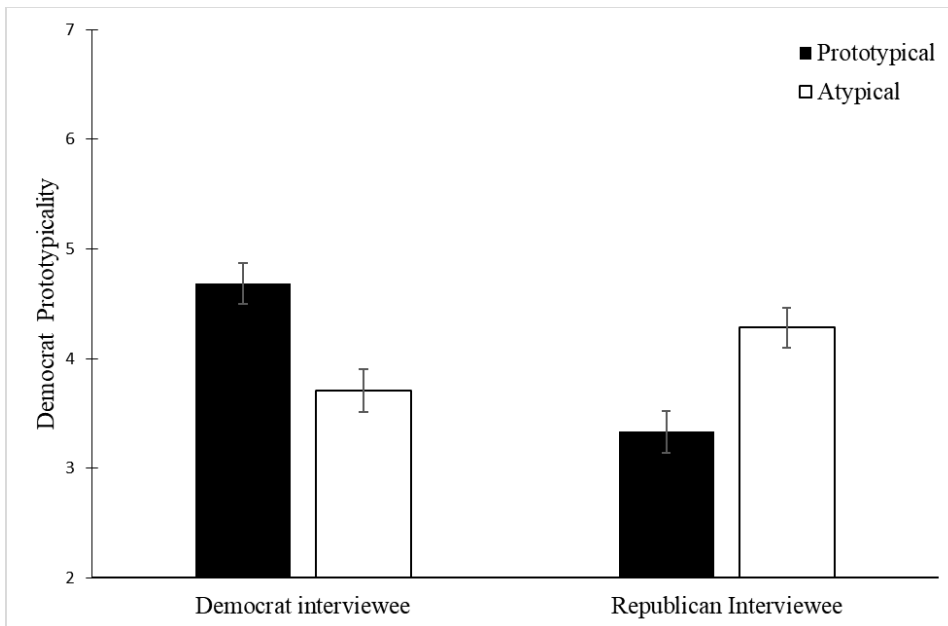
Similarly, a two-way interaction emerged involving target affiliation and whether the message was a minority or majority message, $F(1, 308) = 136.99$, $p < .001$, $\eta_p^2 = .332$. A Democrat espousing a majority (pro-carbon tax) message was rated more prototypical of a Democrat ($M = 5.46$) than a Democrat espousing a minority (anti-carbon tax) message ($M = 2.93$), $p < .001$. A Republican interviewee espousing a minority (pro-carbon tax) message was rated more prototypical ($M = 4.74$) than a Republican interviewee espousing a majority (anti-carbon tax) message ($M = 2.91$), $p = < .001$. See Figure 25 for a summary and Appendix C3 for Democrat prototypicality means and standard deviation by target affiliation, participant affiliation, message status (minority/majority), and interviewee prototypicality.

Figure 25

Mean Differences and Standard Errors for Democrat Prototypicality by Target Affiliation and Message Status (Majority vs. Minority)
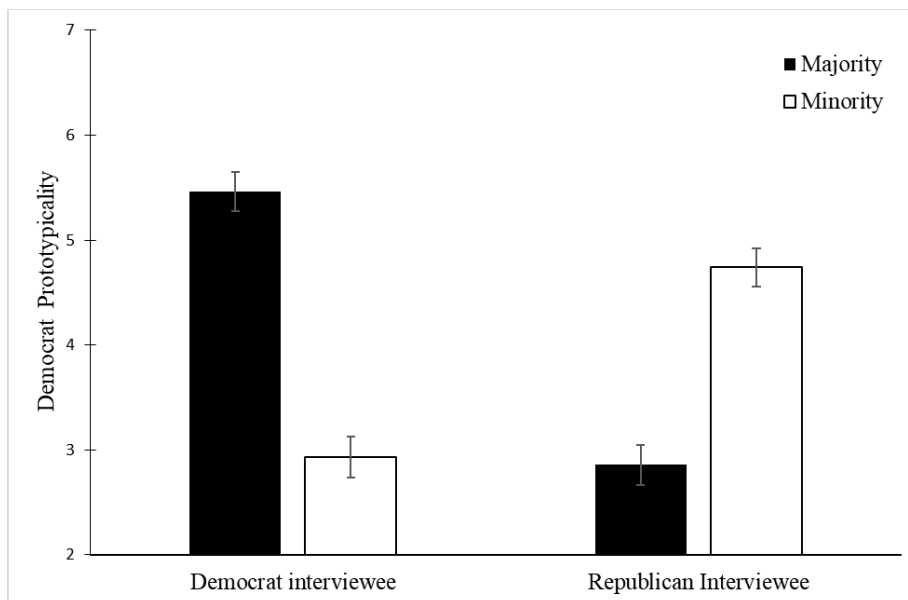
Discussion

As expected, both Democrat and Republican participants evaluated the interviewee more positively when he was a prototypical ingroup member rather than an atypical ingroup member. Democrats appeared to evaluate an atypical Democrat interviewee slightly more harshly than an atypical Republican but about the same as a prototypical Republican. Republican participants evaluated an atypical Republican interviewee about the same as an atypical Democrat interviewee and slightly more positively than a prototypical Democrat interviewee. Though both Republican and Democrat participants evaluated the prototypical ingroup member more favorably than an atypical ingroup member, the difference was more pronounced for Democrat participants.

The results were similar for Democrat participants when the interviewee

promoted a majority message rather than a minority message. That is, both high- and low-identifying Democrats evaluated a Democrat interviewee more positively when he supported rather than opposed a carbon tax. However, neither high- nor low-identifying Republicans appeared to have discriminated between a Republican interviewee who supported a carbon tax or opposed a carbon tax. In short, only Democrat participants appeared to punish their own for not toeing the party line.

Perhaps more importantly, this pilot study confirmed that a prototypical Republican interviewee was rated more prototypical of a Republican than an atypical Republican interviewee as was a Republican interviewee who opposed a carbon tax. A prototypical Democrat interviewee was rated as being more prototypical of a Democrat than an atypical Democrat interviewee. A Democrat interviewee who supported a carbon tax was rated as being more prototypical of a Democrat than a Democrat interviewee who opposed a carbon tax.

Although the prototypicality manipulations appeared to work as intended, there was some concern regarding the asymmetrical results between Republicans and Democrats when evaluating ingroup members who did not toe the party line. Pilot Study 4 examines a revised version of the target article designed to balance out the appeal between the Democrat carbon tax approach to climate change and the Republican approach to climate change.

Appendix C2: Pilot Study 3 Materials

DESCRIPTION: We are researchers at the University of Nevada in Reno looking for American participants who are at least 18 years of age. All data collected in this study are for research purposes only.

If you volunteer to participate in this study, you will be asked to read about and respond to questions pertaining to hypothetical persons, and asked to report your thoughts and attitudes. Your participation in the study will take approximately 8 minutes. For your participation, you will be compensated $1.00.

RISKS and BENEFITS: This study is considered to be minimal risk of harm. This means the risks of your participation in the research are similar in type or intensity to what you encounter during your daily activities. The risks to your participation in this online study may be those associated with basic computer tasks, including boredom, fatigue, mild stress, or breach of confidentiality. You may discontinue your participation at any point during the study if you feel a personally unacceptable amount of distress or discomfort. The only benefit to you is the learning experience from participating in a research study. The benefit to society is the contribution to scientific knowledge.

The researchers and the University of Nevada, Reno will treat your identity and the information collected about you with professional standards of confidentiality and protect it to the extent allowed by law. You will not be personally identified in any reports or publications that may result from this study. Any reports and presentations about the findings from this study will not include your name or any other information that could identify you. We may share the data we collect in this study with other researchers doing future studies. If we share your data, we will not include any information that could identify you. The U.S. Department of Health and Human Services; the University of Nevada; Reno Research Integrity Office; and the Institutional Review Board may look at your study records.

PARTICIPANT RIGHTS: Your participation is voluntary. You may stop participating at any time by closing the browser window or the program to withdraw from the study. Partial data will not be analyzed.

You may ask about your rights as a research participant. If you have questions, concerns, or complaints about this research, you may report them (anonymously if you so choose) by calling the University of Nevada, Reno Research Integrity Office at 775.327.2368.

You may ask questions of the researcher at any time by calling Markus Kemmelmeier, PhD, at (775) 784-1287 or by sending an email to markusk@unr.edu.

Please indicate, in the items below, that you are at least 18 years old, have read and understand this consent form, and that you agree to participate in this online research study.

◯ I am 18 years of age or older

◯ I am younger than 18 years of age

Q3. Please confirm your agreement to participate:

◯ I have read and understand the consent form and **<u>I agree</u>** to participate in the study

◯ I have read and understand the consent form and **<u>I do not agree</u>** to participate in the study

Q5. In the text box below, please enter your Prolific ID.

_____

Q6. What is your current employment status?

◯ Employed full time

◯ Employed part time

◯ Unemployed looking for work

◯ Unemployed not looking for work

◯ Retired

◯ Student

◯ Disabled

Q7. In general, what is your political affiliation?

◯ Democrat

◯ Republican

◯ Other (please specify)

_____

Q9. Please read the following questions about the Democrat Party and indicate how you feel by selecting a number between 1 (not very much) to 7 (very much).

	Not very much 1	2	3	4	5	6	Very Much 7
How important is it for you identify as a Democrat?	○	○	○	○	○	○	○
How essential do you feel being a Democrat is to who you are?	○	○	○	○	○	○	○
How similar do you feel to other Democrats?	○	○	○	○	○	○	○

Q10. Please read the following questions about the Republican Party and indicate how you feel by selecting a number between 1 (not very much) to 7 (very much).

	Not very much 1	2	3	4	5	6	Very Much 7
How important is it for you identify as a Republican?	○	○	○	○	○	○	○
How essential do you feel being a Republican is to who you are?	○	○	○	○	○	○	○
How similar do you feel to other Republicans?	○	○	○	○	○	○	○

Q11. Which race-ethnicity do you most identify with?

○ White

○ Black or African American

○ American Indian or Alaska Native

○ Asian or Asian American

○ Native Hawaiian or Pacific Islander

○ Latina/o or Hispanic

○ Two or more race-ethnicities

○ Other _____

○ Prefer not to answer

Q12. How do you identify?

○ Man

○ Woman

○ Non-binary

○ Prefer not to answer

Q13. What is your annual household income?

○ Less than $10,000

○ $10,000 - $19,999

○ $20,000 - $29,999

○ $30,000 - $39,999

○ $40,000 - $49,999

○ $50,000 - $59,999

○ $60,000 - $69,999

○ $70,000 - $79,999

○ $80,000 - $89,999

○ $90,000 - $99,999

○ $100,000 - $149,999

○ More than $150,000

○ Prefer not to answer

Q14. What is the highest level of education you've completed?

○ Less than high school

○ High school graduate

○ Some college

○ 2 year degree

○ 4 year degree

○ Professional degree

○ Doctorate

○ Prefer not to answer

Q15. What is your age? Please enter a number like "24" or "42."

_____

Q16. To what extent do you agree or disagree with the following statements on a scale ranging from 1 (strongly disagree) to 5 (strongly agree)?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I see myself as extraverted	○	○	○	○	○
I see myself as emotionally stable	○	○	○	○	○

I see myself as conventional	○	○	○	○	○
I see myself as complex	○	○	○	○	○
I see myself as anxious	○	○	○	○	○

On the next screen, you will see an online article.

Please be sure to read through the entire article <u>carefully</u> before continuing.

Republicans and Democrats on Climate Change [Republican Minority – Prototypical]
Historically, Democrats and Republicans have rarely agreed on approaches to climate change. Although Democrats have publicly supported climate change policies involving a carbon tax, Republicans have remained skeptical.

Darren Shore, conservative Republican working on climate change action

Darren Shore, a Republican, spoke with us about current approaches to climate change policy and his support of policies that include a carbon tax.

A climate change plan recently proposed by Republicans includes investing in clean energy, planting 1 million trees (because trees capture and store carbon), and reducing the use of plastics.

Although this plan aims to address climate change, it has been met with criticism. According to Democrats, this approach would not be enough to make a real difference in reducing carbon emissions. Any approach to climate change legislation must also include a carbon tax on fossil fuels.

Democrats argue that a carbon tax can encourage utility companies, individuals, and businesses to consume less fossil fuels. A carbon tax can also make clean energy more cost-competitive with cheaper, polluting fuels like coal, natural gas and oil. And, a carbon tax can help support environmental programs or be issued as a rebate.

Shore stated that he agrees that a carbon tax must be included in plans to address climate concerns. Shore believes that investing in clean energy technology and planting 1 million trees will not be enough to reduce carbon dioxide in the atmosphere.

Additionally, Shore stated that he was certain that jobs lost in the fossil fuel industry due to a carbon tax could be replaced with clean energy jobs. Moreover, concerns some Americans might have with increased taxes would be offset with a rebate.

Shore argued that a plan involving a carbon tax aligns with modern American values to protect both the environment and American jobs. In basic terms, Shore stated that a carbon tax was a moderate approach that could help the American economy.

Using these arguments, Shore told us that he's had some success in changing Congressional minds. According to Shore, "there are members of the House and Senate who are uncomfortable with their colleagues' accepted view on climate and carbon tax policy." Shore indicated that he has moved people from blind opposition to a carbon tax to open-mindedness, and a new perspective.

Shore hopes to continue to motivate others to support policies designed to curb carbon outputs.

When not advocating for carbon tax policy, Shore has a number of other policy goals. Shore wants to make gun control exclusively a state issue; he wants more restricted immigration policy; and he supports privately funded healthcare.

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Shore stated that he agrees that a carbon tax must be included in plans to address climate concerns. Shore believes that investing in clean energy technology and planting 1 million trees will not be enough to reduce carbon dioxide in the atmosphere.

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Republicans and Democrats on Climate Change [Democrat Majority – Prototypical]
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Darren Shore, liberal Democrat working on climate change action

Darren Shore, a Democrat, spoke with us about current approaches to climate change policy and his support of policies that include a carbon tax.

A climate change plan recently proposed by Republicans includes investing in clean energy, planting 1 million trees (because trees capture and store carbon), and reducing the use of plastics.

Although this plan aims to address climate change, it has been met with criticism. According to Democrats, this approach would not be enough to make a real difference in reducing carbon emissions. Any approach to climate change legislation must also include a carbon tax on fossil fuels.

Democrats argue that a carbon tax can encourage utility companies, individuals, and businesses to consume less fossil fuels. A carbon tax can also make clean energy more cost-competitive with cheaper, polluting fuels like coal, natural gas and oil. And, a carbon tax can help support environmental programs or be issued as a rebate.

Shore stated that he agrees that a carbon tax must be included in plans to address climate concerns. Shore believes that investing in clean energy technology and planting 1 million trees will not be enough to reduce carbon dioxide in the atmosphere.

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Shore stated that he disagrees that a carbon tax must be included in plans to address climate concerns. Shore believes that investing in clean energy technology and planting 1 million trees will be enough to reduce carbon dioxide in the atmosphere.

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Shore argued that a plan involving a carbon tax does not align with modern American values to protect both the environment and American jobs. In basic terms, Shore stated that a carbon tax was a radical approach that could hurt the American economy.

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Republicans and Democrats on Climate Change [Democrat Minority – Prototypical]
Historically, Democrats and Republicans have rarely agreed on approaches to climate change. Although Democrats have publicly supported climate change policies involving a carbon tax, Republicans have remained skeptical.

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A climate change plan recently proposed by Republicans includes investing in clean energy, planting 1 million trees (because trees capture and store carbon), and reducing the use of plastics.

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When not challenging carbon tax policy, Shore has a number of other policy goals. Shore wants to make gun control exclusively a state issue; he wants more restricted immigration policy; and he supports privately funded healthcare.

Q26. To what extent was the interviewee's message about climate change policy weak or strong on a scale ranging from -3 (*very weak*) to 3 (*very strong*)?

○ Very Weak -3

○ -2

○ -1

○ 0

○ 1

○ 2

○ Very Strong 3

Q27. On a scale from 1 (not at all) to 5 (extremely), please tell us the extent to which the interviewee, Darren Shore, is <u>likeable</u>.

○ Not at all 1

○ Slightly 2

○ Moderately 3

○ Very 4

○ Extremely 5

Q28 On a scale from 1 (not at all) to 5 (extremely), please tell us the extent to which the interviewee, Darren Shore, is <u>knowledgeable</u>.

○ Not at all 1

○ Slightly 2

○ Moderately 3

○ Very 4

○ Extremely 5

Q29. On a scale from 1 (not at all) to 5 (extremely), please tell us the extent to which the interviewee, Darren Shore, is <u>trustworthy</u>.

○ Not at all 1

○ Slightly 2

○ Moderately 3

○ Very 4

○ Extremely 5

Q30. On a scale from 1 (not at all) to 5 (extremely), please tell us the extent to which the interviewee, Darren Shore, is <u>credible</u>.

○ Not at all 1

○ Slightly 2

○ Moderately 3

○ Very 4

○ Extremely 5

Q31 In the online article you read, did Darren Shore, the interviewee, support a carbon tax policy or oppose a carbon tax policy?

○ Support carbon tax policy

○ Oppose carbon tax policy

○ I'm not sure

Q32. In the online article you read, was the interviewee, Darren Shore, a Republican or a Democrat?

○ Republican

○ Democrat

○ I'm not sure

Q33. On a scale from -3 (very atypical) to 3 (very typical), to what extent was the interviewee, Darren Shore, typical of a <u>Republican</u> legislator.

○ Very atypical -3

○ Moderately atypical -2

○ Slightly atypical -1

○ Neither typical nor atypical 0

○ Slightly typical 1

○ Moderately typical 2

○ Very typical 3

Q34 On a scale from -3 (very atypical) to 3 (very typical), to what extent was the interviewee, Darren Shore, typical of a <u>Democrat</u> legislator.

○ Very atypical -3

○ Moderately atypical -2

○ Slightly atypical -1

○ Neither typical nor atypical 0

○ Slightly typical 1

○ Moderately typical 2

○ Very typical 3

Appendix C3: Additional Pilot Study 3 Tables

Table 13

Means and Standard Deviation for Interviewee Evaluation by Target Affiliation,
Participant Affiliation, Message Status, and Version

Target affiliation	Participant Affiliation								
	Democrat			Republican			Total		
	M	*(SD)*	*n*	*M*	*(SD)*	*n*	*M*	*(SD)*	*n*
Democrat									
Prototypical									
Majority	3.98	(.57)	24	2.69	(.97)	16	3.46	(.98)	40
Minority	2.93	(.66)	22	3.20	(.90)	16	3.04	(.77)	38
Atypical									
Majority	3.25	(.66)	18	3.29	(.85)	20	3.27	(.76)	38
Minority	2.23	(.71)	20	3.44	(.55)	17	2.78	(.88)	37
Republican									
Prototypical									
Majority	2.28	(.80)	17	3.88	(.72)	18	3.10	(1.10)	35
Minority	3.09	(.56)	24	3.35	(.65)	15	3.19	(.60)	39
Atypical									
Majority	2.65	(.77)	23	3.07	(.98)	18	2.83	(.88)	41
Minority	3.43	(.55)	21	3.47	(1.00)	19	3.45	(.78)	40

Note. N = 308

Table 14

Means and Standard Deviation for Interviewee Republican Prototypicality by Target Affiliation, Participant Affiliation, Message Status, and Version

Target affiliation	Participant Affiliation								
	Democrat			Republican			Total		
	M	*SD*	*n*	*M*	*SD*	*n*	*M*	*(SD)*	*n*
Democrat									
Prototypical									
Majority	1.62	(.88)	24	1.69	(.95)	16	1.65	(.89)	40
Minority	4.18	(1.59)	22	3.75	(1.18)	16	4.00	(1.43)	38
Atypical									
Majority	3.06	(1.92)	18	3.20	(1.40)	20	3.13	(1.65)	38
Minority	5.65	(1.76)	20	5.12	(1.17)	17	5.41	(1.52)	37
Republican									
Prototypical									
Majority	5.71	(1.40)	17	6.17	(.79)	18	5.94	(1.14)	35
Minority	3.04	(1.88)	24	3.20	(1.47)	15	3.10	(1.71)	39
Atypical									
Majority	4.22	(1.62)	23	3.39	(1.88)	18	3.85	(1.77)	41
Minority	1.86	(1.01)	21	2.84	(1.83)	19	2.33	(1.52)	40

Note. *N* = 308

Table 15

Means and Standard Deviation for Interviewee Democrat Prototypicality by Target Affiliation, Participant Affiliation, Message Status, and Version

Target affiliation	Participant Affiliation								
	Democrat			Republican			Total		
	M	SD	n	M	SD	n	M	SD	n
Democrat									
Prototypical									
Majority	6.00	1.10	24	6.38	1.09	16	6.15	1.10	40
Minority	3.23	1.67	22	3.25	1.34	16	3.24	1.52	38
Atypical									
Majority	4.44	1.72	18	5.15	1.57	20	4.82	1.66	38
Minority	2.50	1.61	20	2.65	1.77	17	2.57	1.66	37
Republican									
Prototypical									
Majority	2.59	1.77	17	1.83	1.25	18	2.20	1.55	35
Minority	4.46	1.29	24	4.40	1.68	15	4.44	1.43	39
Atypical									
Majority	3.17	1.67	23	4.06	2.29	18	3.56	1.99	41
Minority	5.14	1.56	21	4.89	1.85	19	5.03	1.69	40

Appendix D1: Pilot Study 4

The purpose of Pilot Study 4 was to examine strength of message ratings between Democrats and Republicans using a revised version of the target article.

Method

Pilot Study 4 used a 2 (target affiliation: Democrat vs. Republican) x 2 (participant affiliation: Democrat vs. Republican) x 2 (majority/minority message status: support vs. oppose carbon tax) between-subjects factorial design with strength of social identification included as a continuous predictor.

Participants

Participants who had not participated in any previous studies were recruited from Prolific and paid $1.00 for completing an 8-minute online questionnaire. A total of 99 Republicans and 101 Democrats participated, $N = 200$. One hundred participants identified as female (50%), 97 as male (48.5%), two as non-binary (1.0%), and one preferred not to respond (0.5%). The mean age for all participants was 42, with ages ranging from 18 to 77.

A power analysis (G*Power; Faul et al., 2007) indicated that a minimum sample size of 350 was required to detect a small-moderate effect ($f^2 = .17$) if one exists given .80 power and .05 alpha. To detect a moderate effect size ($f^2 = .25$), a minimum sample size of 128 was required.

Procedure

After providing consent, participants completed the same sociodemographic items, political affiliation, strength of identification items as Pilot Study 2 and 3. Also identical to pilot studies 2 and 3, participants completed a Big-5 personality trait scale

prior to reading an interview with a Republican or Democrat interviewee who supported or opposed a carbon tax policy designed to curb carbon emissions. Participants then completed one item assessing the strength of the message item and two manipulation check items.

Materials

Sociodemographic Information

The same item as used in Pilot Studies 2 and 3. See Appendix D2 for Pilot Study 4 materials.

Strength of Social Identification

The same scale as used in Pilot Studies 2 and 3. The scale had excellent reliability for both Democrats and Republicans (Cronbach's $\alpha = .89$ and $\alpha = .94$, respectively).

Filler

The same scale as used in Pilot Studies 2 and 3.

Target Article

Participants read an enhanced version of the article from Pilot Study 3. Enhancements to the article focused on making the Republican carbon tax approach ("The Republican Plan") more appealing to participants by (1) adding a sentence about Republicans aiming to create jobs with their plan, (2) adding the word "significant" to the carbon tax proposed by Democrats, and (3) removing any mention of a rebate from the Democrat carbon tax proposal.

Strength of Message

The same item was used as in all previous pilot studies.

Manipulation check

The same manipulation check was deployed as in Pilot Study 3.

Results

All data cleaning and assumption checking protocols utilized in previous pilot studies were utilized in Pilot Study 4.

Manipulation Checks

A majority of participants ($n = 175$, 87.5%) was able to correctly identify the policy position of the interviewee in the online article (including "I'm not sure" responses). Similarly, a majority of participants ($n = 180$, 90%) was able to correctly identify the political affiliation of the interviewee. In total, 1 participant (0.5%) failed both manipulation checks and 44 participants (22%) failed at least one. Participants who failed at least one manipulation check were excluded from the main analyses, $N = 156$.

Strength of Social Identification

No significant difference between Republicans ($n = 99$, $M = 4.36$, $SD = 1.77$) and Democrats ($n = 101$, $M = 4.66$, $SD = 1.51$) emerged, $t(397) = 1.29$, $p = .20$, 95% CI [-.158, .758].

Strength of Message

Prior to conducting statistical analyses, strength of social identification was centered at its mean. After removing one outlier, Levene's test indicated that the homogeneity of variances assumption was violated, $p < .001$. As expected based on Pilot Study 2 results, a three-way interaction materialized involving target affiliation, whether the message was a minority or majority message, and participant affiliation, $F(1, 156) = 22.18$, $p < .001$, $\eta_p^2 = .137$ (see Figure 8, Chapter 8 of main text, *Pilot Study Summary*).

There was a significant difference in perceived message strength between a Democrat interviewee advocating for a carbon tax ($M = 5.81$) and a Democrat interviewee advocating against a carbon tax ($M = 5.01$), $p = .05$ among Democrat participants. Republican participants also perceived a slight difference in message strength between a Republican advocating against a carbon tax ($M = 5.64$) and a Republican interviewee advocating for a carbon tax ($M = 4.92$), $p = .07$ as well as a difference between a Democrat interviewee advocating for a carbon tax ($M = 4.61$) and a Democrat interviewee advocating against a carbon tax ($M = 5.73$), $p = .014$. There was also a significant difference in message strength between a Republican advocating against a carbon tax ($M = 4.21$) and a Republican interviewee advocating for a carbon tax ($M = 5.75$), $p = .001$ among Democrat participants. See Table 14 (Appendix D3) for means and standard deviation for strength of message by target affiliation, participant affiliation, and message status (majority vs. minority).

Discussion

The purpose of this pilot study was to examine strength of message ratings between Democrats and Republicans using a revised version of the target article. Both Republican and Democrat participants rated a majority message originating from an ingroup member as marginally stronger than minority messages originating from an ingroup member. Both Democrat and Republican participants also rated minority messages originating from an outgroup member significantly stronger than majority messages originating from an outgroup member. A lack of significant difference between a Republican interviewee promoting a carbon tax and a Republican interviewee opposing a carbon tax on ratings of message strength among Republican participants was a concern

in pilot study 2. The magnitude of difference in message strength between a Republican promoting a majority versus minority message among Republican participants was improved in this pilot study. Hence, it was decided that the version of the target article utilized in pilot study 4 would be utilized in the main study.

Appendix D2: Pilot Study 4 Materials

DESCRIPTION: We are researchers at the University of Nevada in Reno looking for American participants who are at least 18 years of age. All data collected in this study are for research purposes only.

If you volunteer to participate in this study, you will be asked to read about and respond to questions pertaining to hypothetical persons, and asked to report your thoughts and attitudes. Your participation in the study will take approximately 8 minutes. For your participation, you will be compensated $1.00. <u>Please note that there may be attention checks in this study. If you fail 2 attention checks and/or speed through the survey, your submission may be rejected.</u>

RISKS and BENEFITS: This study is considered to be minimal risk of harm. This means the risks of your participation in the research are similar in type or intensity to what you encounter during your daily activities. The risks to your participation in this online study may be those associated with basic computer tasks, including boredom, fatigue, mild stress, or breach of confidentiality. You may discontinue your participation at any point during the study if you feel a personally unacceptable amount of distress or discomfort. The only benefit to you is the learning experience from participating in a research study. The benefit to society is the contribution to scientific knowledge.

The researchers and the University of Nevada, Reno will treat your identity and the information collected about you with professional standards of confidentiality and protect it to the extent allowed by law. You will not be personally identified in any reports or publications that may result from this study. Any reports and presentations about the findings from this study will not include your name or any other information that could identify you. We may share the data we collect in this study with other researchers doing future studies. If we share your data, we will not include any information that could identify you. The U.S. Department of Health and Human Services; the University of Nevada; Reno Research Integrity Office; and the Institutional Review Board may look at your study records.

PARTICIPANT RIGHTS: Your participation is voluntary. You may stop participating at any time by closing the browser window or the program to withdraw from the study. Partial data will not be analyzed.

You may ask about your rights as a research participant. If you have questions, concerns, or complaints about this research, you may report them (anonymously if you so choose)

by calling the University of Nevada, Reno Research Integrity Office at 775.327.2368.

You may ask questions of the researcher at any time by calling Markus Kemmelmeier, PhD, at (775) 784-1287 or by sending an email to markusk@unr.edu.

Please indicate, in the items below, that you are at least 18 years old, have read and understand this consent form, and that you agree to participate in this online research study.

○ I am 18 years of age or older

○ I am younger than 18 years of age

Q3. Please confirm your agreement to participate:

○ I have read and understand the consent form and **I agree** to participate in the study

○ I have read and understand the consent form and **I do not agree** to participate in the study

Q5. In the text box below, please enter your Prolific ID.

_____

Q6. What is your current employment status?

○ Employed full time

○ Employed part time

○ Unemployed looking for work

○ Unemployed not looking for work

○ Retired

○ Student

○ Disabled

Q7 In general, what is your political affiliation?

○ Democrat

○ Republican

○ Other (please specify)

_____

Q9. Please read the following questions about the Democrat Party and indicate how you feel by selecting a number between 1 (not very much) to 7 (very much).

	Not very much 1	2	3	4	5	6	Very Much 7
How important is it for you identify as a Democrat?	○	○	○	○	○	○	○
How essential do you feel being a Democrat is to who you are?	○	○	○	○	○	○	○
How similar do you feel to other Democrats?	○	○	○	○	○	○	○

Q10. Please read the following questions about the Republican Party and indicate how you feel by selecting a number between 1 (not very much) to 7 (very much).

	Not very much 1	2	3	4	5	6	Very Much 7
How important is it for you identify as a Republican?	○	○	○	○	○	○	○
How essential do you feel being a Republican is to who you are?	○	○	○	○	○	○	○
How similar do you feel to other Republicans?	○	○	○	○	○	○	○

Q11 Which race-ethnicity do you most identify with?

○ White

○ Black or African American

○ American Indian or Alaska Native

○ Asian or Asian American

○ Native Hawaiian or Pacific Islander

○ Latina/o or Hispanic

○ Two or more race-ethnicities

○ Other _____

○ Prefer not to answer

Q12. How do you identify?

○ Man

○ Woman

○ Non-binary

○ Prefer not to answer

Q13. What is your annual household income?

○ Less than $10,000

○ $10,000 - $19,999

○ $20,000 - $29,999

○ $30,000 - $39,999

○ $40,000 - $49,999

○ $50,000 - $59,999

○ $60,000 - $69,999

○ $70,000 - $79,999

○ $80,000 - $89,999

○ $90,000 - $99,999

○ $100,000 - $149,999

○ More than $150,000

○ Prefer not to answer

Q14. What is the highest level of education you've completed?

○ Less than high school

○ High school graduate

○ Some college

○ 2 year degree

○ 4 year degree

○ Professional degree

○ Doctorate

○ Prefer not to answer

Q15 What is your age? Please enter a number like "24" or "42."

_____

Q16. To what extent do you agree or disagree with the following statements on a scale ranging from 1 (strongly disagree) to 5 (strongly agree)?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I see myself as extraverted	○	○	○	○	○
I see myself as emotionally stable	○	○	○	○	○
I see myself as conventional	○	○	○	○	○
I see myself as complex	○	○	○	○	○
I see myself as anxious	○	○	○	○	○

On the next screen, you will see an online article.

 Please be sure to read through the entire article <u>carefully</u> before continuing.

Republicans and Democrats on Climate Change [Republican Minority]
Historically, Democrats and Republicans have rarely agreed on approaches to climate change. Although Democrats have publicly supported climate change policies involving a carbon tax, Republicans have remained skeptical.

A climate change plan recently proposed by Republicans includes reducing the use of plastics, planting 1 million trees (because trees capture and store carbon), and investing in clean energy. Republicans aim to create jobs by positioning U.S. companies to be world

leaders in carbon-storage technology.

Although this plan aims to address climate change, it has been met with criticism. According to Democrats, any approach to climate change legislation must also include a carbon tax on fossil fuels.

Democrats argue that a significant carbon tax can encourage utility companies, individuals, and businesses to consume less fossil fuels. A carbon tax can also make clean energy more cost-competitive with cheaper, polluting fuels like coal, natural gas and oil. And, a carbon tax can help support environmental programs.

Darren Shore, a Republican, spoke with us about current approaches to climate change policy and his support of policies that include a carbon tax. Shore stated that he agrees that a carbon tax must be included in plans to address climate concerns. Shore believes that investing in clean energy technology and planting 1 million trees will not be enough to reduce carbon dioxide in the atmosphere.

Additionally, Shore stated he was certain that jobs lost in the fossil fuel industry due to a carbon tax would be replaced with clean energy jobs. Shore argued that a plan involving a carbon tax aligns with modern American values to protect both the environment and American jobs. In basic terms, Shore stated that a carbon tax was a sensible approach that could help the American economy.

Using these arguments, Shore told us that he's had some success in changing Congressional minds. According to Shore, "there are members of the House and Senate who are uncomfortable with their colleagues' accepted view on climate and carbon tax policy." Shore indicated that he has moved people from blind opposition to a carbon tax to open-mindedness, and a new perspective.

Shore hopes to continue to motivate others to support a carbon tax in climate change policy approaches.

Republicans and Democrats on Climate Change [Democrat Majority]
Historically, Democrats and Republicans have rarely agreed on approaches to climate change. Although Democrats have publicly supported climate change policies involving a carbon tax, Republicans have remained skeptical.

A climate change plan recently proposed by Republicans includes investing in clean energy, planting 1 million trees (because trees capture and store carbon), and reducing the

use of plastics. Republicans aim to create jobs by positioning U.S. companies to be world leaders in carbon-storage technology.

Although this plan aims to address climate change, it has been met with criticism. According to Democrats, any approach to climate change legislation must also include a carbon tax on fossil fuels.

Democrats argue that a significant carbon tax can encourage utility companies, individuals, and businesses to consume less fossil fuels. A carbon tax can also make clean energy more cost-competitive with cheaper, polluting fuels like coal, natural gas and oil. And, a carbon tax can help support environmental programs.

Darren Shore, a Democrat, spoke with us about current approaches to climate change policy and his support of policies that include a carbon tax. Shore stated that he agrees that a carbon tax must be included in plans to address climate concerns. Shore believes that investing in clean energy technology and planting 1 million trees will not be enough to reduce carbon dioxide in the atmosphere.

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Additionally, Shore stated that he was certain that jobs lost in the fossil fuel industry due to a carbon tax would not be replaced with clean energy jobs. Shore argued that a plan involving a carbon tax does not align with modern American values to protect both the environment and American jobs. In basic terms, Shore stated that a carbon tax was a radical approach that would hurt the American economy.

Using these arguments, Shore told us that he's had some success in changing Congressional minds. According to Shore, "there are members of the House and Senate who are uncomfortable with their colleagues' accepted view on climate and carbon tax policy." Shore indicated that he has moved people from blind support of a carbon tax to open-mindedness, and a new perspective.

Shore hopes to continue to motivate others to oppose a carbon tax in climate change policy approaches.

Republicans and Democrats on Climate Change [Democrat Minority]
Historically, Democrats and Republicans have rarely agreed on approaches to climate change. Although Democrats have publicly supported climate change policies involving a carbon tax, Republicans have remained skeptical.

A climate change plan recently proposed by Republicans includes reducing the use of plastics, planting 1 million trees (because trees capture and store carbon), and investing in clean energy. Republicans aim to create jobs by positioning U.S. companies to be world leaders in carbon-storage technology.

Although this plan aims to address climate change, it has been met with criticism. According to Democrats, any approach to climate change legislation must also include a carbon tax on fossil fuels.

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Shore hopes to continue to motivate others to oppose a carbon tax in climate change policy approaches.

Q22. To what extent was the interviewee's message about climate change policy weak or strong on a scale ranging from -3 (*very weak*) to 3 (*very strong*)?

○ Very Weak -3

○ -2

○ -1

○ 0

○ 1

○ 2

○ Very Strong 3

Q23. On a scale from 1 (not at all) to 5 (extremely), please tell us the extent to which the interviewee, Darren Shore, is trustworthy.

○ Not at all 1

○ Slightly 2

○ Moderately 3

○ Very 4

○ Extremely 5

Q24. On a scale from 1 (not at all) to 5 (extremely), please tell us the extent to which the interviewee, Darren Shore, is <u>credible</u>.

○ Not at all 1

○ Slightly 2

○ Moderately 3

○ Very 4

○ Extremely 5

Q25. In the online article you read, did Darren Shore, the interviewee, support a carbon tax policy or oppose a carbon tax policy?

○ Support carbon tax policy

○ Oppose carbon tax policy

○ I'm not sure

Q26. In the online article you read, was the interviewee, Darren Shore, a Republican or a Democrat?

○ Republican

○ Democrat

○ I'm not sure

Appendix D3 : Additional Pilot Study 4 Tables

Table 16

Means and Standard Deviation for Strength of Message by Target Affiliation, Participant Affiliation, and Message Status

Target affiliation	Participant Affiliation								
	Democrat			Republican			Total		
	M	*(SD)*	*n*	*M*	*(SD)*	*n*	*M*	*(SD)*	*n*
Democrat									
Majority	5.81	(1.02)	26	4.60	(1.50)	15	5.37	(1.34)	41
Minority	5.06	(1.44)	17	5.75	(.78)	16	5.39	(1.20)	33
Republican									
Majority	4.23	(1.48)	22	5.63	(.60)	19	4.88	(1.35)	41
Minority	5.75	(0.85)	20	4.90	(1.62)	20	5.32	(1.35)	40

Note. $N = 156$

Appendix E1: Main Study Materials

DESCRIPTION: We are researchers at the University of Nevada in Reno looking for American participants who are at least 18 years of age. All data collected in this study are for research purposes only.

If you volunteer to participate in this study, you will be asked to read about and respond to questions pertaining to hypothetical persons, and asked to report your thoughts and attitudes. Your participation in the study will take approximately 15 minutes. For your participation, you will be compensated $2.00.

Please note that there may be attention checks in this study. If you fail 2 attention checks and/or speed through the survey, your submission may be rejected.

RISKS and BENEFITS: This study is considered to be minimal risk of harm. This means the risks of your participation in the research are similar in type or intensity to what you encounter during your daily activities. The risks to your participation in this online study may be those associated with basic computer tasks, including boredom, fatigue, mild stress, or breach of confidentiality. You may discontinue your participation at any point during the study if you feel a personally unacceptable amount of distress or discomfort. The only benefit to you is the learning experience from participating in a research study. The benefit to society is the contribution to scientific knowledge.

The researchers and the University of Nevada, Reno will treat your identity and the information collected about you with professional standards of confidentiality and protect it to the extent allowed by law. You will not be personally identified in any reports or publications that may result from this study. Any reports and presentations about the findings from this study will not include your name or any other information that could identify you. We may share the data we collect in this study with other researchers doing future studies. If we share your data, we will not include any information that could identify you. The U.S. Department of Health and Human Services; the University of Nevada; Reno Research Integrity Office; and the Institutional Review Board may look at your study records.

PARTICIPANT RIGHTS: Your participation is voluntary. You may stop participating at any time by closing the browser window or the program to withdraw from the study. Partial data will not be analyzed.

You may ask about your rights as a research participant. If you have questions, concerns, or complaints about this research, you may report them (anonymously if you so choose)

by calling the University of Nevada, Reno Research Integrity Office at 775.327.2368.

You may ask questions of the researcher at any time by calling Markus Kemmelmeier, PhD, at (775) 784-1287 or by sending an email to markusk@unr.edu.

Please indicate, in the items below, that you are at least 18 years old, have read and understand this consent form, and that you agree to participate in this online research study.

○ I am 18 years of age or older

○ I am younger than 18 years of age

Q3. Please confirm your agreement to participate:

○ I have read and understand the consent form and **I agree** to participate in the study

○ I have read and understand the consent form and **I do not agree** to participate in the study

Q6. In the text box below, please enter your Prolific ID.

_____

Q7. What is your current employment status?

○ Employed full time

○ Employed part time

○ Unemployed looking for work

○ Unemployed not looking for work

○ Retired

○ Student

○ Disabled

Q8 In general, what is your political affiliation?

○ Democrat

○ Republican

○ Other (please specify)

_____

Q10. Please read the following questions about the Democrat Party and indicate how you feel by selecting a number between 1 (not very much) to 7 (very much).

	Not very much 1	2	3	4	5	6	Very Much 7
How important is it for you identify as a Democrat?	○	○	○	○	○	○	○
How essential do you feel being a Democrat is to who you are?	○	○	○	○	○	○	○
How similar do you feel to other Democrats?	○	○	○	○	○	○	○

Q11. Please read the following questions about the Republican Party and indicate how you feel by selecting a number between 1 (not very much) to 7 (very much).

	Not very much 1	2	3	4	5	6	Very Much 7
How important is it for you identify as a Republican?	○	○	○	○	○	○	○
How essential do you feel being a Republican is to who you are?	○	○	○	○	○	○	○
How similar do you feel to other Republicans?	○	○	○	○	○	○	○

Q12. Which race-ethnicity do you most identify with?

○ White

○ Black or African American

○ American Indian or Alaska Native

○ Asian or Asian American

○ Native Hawaiian or Pacific Islander

○ Latina/o or Hispanic

○ Two or more race-ethnicities

○ Other _____

○ Prefer not to answer

Q13. How do you identify?

○ Man

○ Woman

○ Non-binary

○ Prefer not to answer

Q14. What is your annual household income?

○ Less than $10,000

○ $10,000 - $19,999

○ $20,000 - $29,999

○ $30,000 - $39,999

○ $40,000 - $49,999

○ $50,000 - $59,999

○ $60,000 - $69,999

○ $70,000 - $79,999

○ $80,000 - $89,999

○ $90,000 - $99,999

○ $100,000 - $149,999

○ More than $150,000

○ Prefer not to answer

Q15. What is the highest level of education you've completed?

○ Less than high school

○ High school graduate

○ Some college

○ 2 year degree

○ 4 year degree

○ Professional degree

○ Doctorate

○ Prefer not to answer

Q16. What is your age? Please enter a number like "24" or "42."

_____

Q17. To what extent do you agree or disagree with the following statements on a scale ranging from 1 (strongly disagree) to 5 (strongly agree)?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I see myself as extraverted	○	○	○	○	○
I see myself as emotionally stable	○	○	○	○	○
I see myself as conventional	○	○	○	○	○
I see myself as complex	○	○	○	○	○
I see myself as anxious	○	○	○	○	○

On the next screen, you will see an online article.

Please be sure to read through the entire article **carefully** before continuing.

Republicans and Democrats on Climate Change [Republican Minority – Prototypical]
Historically, Democrats and Republicans have rarely agreed on approaches to climate
change. Although Democrats have publicly supported climate change policies involving a
carbon tax, Republicans have remained skeptical.

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plastics, planting 1 million trees (because trees capture and store carbon), and investing in
clean energy. Republicans aim to create jobs by positioning U.S. companies to be world
leaders in carbon-storage technology.

Darren Shore, conservative
Republican working on
climate change action

Although this plan aims to address climate change, it has been
met with criticism. According to Democrats, any approach to
climate change legislation must also include a carbon tax on
fossil fuels.

Democrats argue that a significant carbon tax can encourage
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to open-mindedness, and a new perspective.

Shore hopes to continue to motivate others to support a carbon tax in climate change policy approaches.

When not advocating for carbon tax policy, Shore has a number of other policy goals. Shore wants to work with his fellow Republicans to make gun control exclusively a state issue; to enact a more restricted immigration policy; and to support privately funded healthcare.

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Darren Shore, conservative Republican working on climate change action

A climate change plan recently proposed by Republicans includes reducing the use of plastics, planting 1 million trees (because trees capture and store carbon), and investing in clean energy. Republicans aim to create jobs by positioning U.S. companies to be world leaders in carbon-storage technology.

Although this plan aims to address climate change, it has been met with criticism. According to Democrats, any approach to climate change legislation must also include a carbon tax on fossil fuels.

Democrats argue that a significant carbon tax can encourage utility companies, individuals, and businesses to consume less fossil fuels. A carbon tax can also make clean energy more cost-competitive with cheaper, polluting fuels like coal, natural gas and oil. And, a carbon tax can help support environmental programs.

Darren Shore, a Republican, spoke with us about current approaches to climate change policy and his opposition to policies that include a carbon tax. Shore stated that he disagrees that a carbon tax must be included in plans to address climate concerns. Shore believes that investing in clean energy technology and planting 1 million trees will be enough to reduce carbon dioxide in the atmosphere.

Additionally, Shore stated that he was certain that jobs lost in the fossil fuel industry due to a carbon tax would not be replaced with clean energy jobs. Shore argued that a plan involving a carbon tax does not align with modern American values to protect both the

environment and American jobs. In basic terms, Shore stated that a carbon tax was a radical approach that would hurt the American economy.

Using these arguments, Shore told us that he's had some success in changing Congressional minds. According to Shore, "there are members of the House and Senate who are uncomfortable with their colleagues' accepted view on climate and carbon tax policy." Shore indicated that he has moved people from blind support of a carbon tax to open-mindedness, and a new perspective.

Shore hopes to continue to motivate others to oppose a carbon tax in climate change policy approaches.

When not advocating against carbon tax policy, Shore has a number of other policy goals. Shore wants to work with his fellow Republicans to make gun control exclusively a state issue; to enact a more restricted immigration policy; and to support privately funded healthcare.

Republicans and Democrats on Climate Change [Republican Majority – Atypical] Historically, Democrats and Republicans have rarely agreed on approaches to climate change. Although Democrats have publicly supported climate change policies involving a carbon tax, Republicans have remained skeptical.

A climate change plan recently proposed by Republicans includes reducing the use of plastics, planting 1 million trees (because trees capture and store carbon), and investing in clean energy. Republicans aim to create jobs by positioning U.S. companies to be world leaders in carbon-storage technology.

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Darren Shore, conservative Republican working on climate change action

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Republicans and Democrats on Climate Change [Democrat Minority – Atypical]
Historically, Democrats and Republicans have rarely agreed on approaches to climate change. Although Democrats have publicly supported climate change policies involving a

carbon tax, Republicans have remained skeptical.

Darren Shore, liberal Democrat working on climate change action

A climate change plan recently proposed by Republicans includes reducing the use of plastics, planting 1 million trees (because trees capture and store carbon), and investing in clean energy. Republicans aim to create jobs by positioning U.S. companies to be world leaders in carbon-storage technology.

Although this plan aims to address climate change, it has been met with criticism. According to Democrats, any approach to climate change legislation must also include a carbon tax on fossil fuels.

Democrats argue that a significant carbon tax can encourage utility companies, individuals, and businesses to consume less fossil fuels. A carbon tax can also make clean energy more cost-competitive with cheaper, polluting fuels like coal, natural gas and oil. And, a carbon tax can help support environmental programs.

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Additionally, Shore stated he was certain that jobs lost in the fossil fuel industry due to a carbon tax would not be replaced with clean energy jobs. Shore argued that a plan involving a carbon tax does not align with modern American values to protect both the environment and American jobs. In basic terms, Shore stated that a carbon tax was a radical approach that could hurt the American economy.

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When not advocating against carbon tax policy, Shore has a number of other policy goals. Shore wants to work with his fellow Democrats to make gun control exclusively a state issue; to enact a more restricted immigration policy; and to support privately funded healthcare.

Republicans and Democrats on Climate Change [Democrat Minority – Prototypical] Historically, Democrats and Republicans have rarely agreed on approaches to climate change. Although Democrats have publicly supported climate change policies involving a carbon tax, Republicans have remained skeptical.

Darren Shore, liberal Democrat working on climate change action

A climate change plan recently proposed by Republicans includes reducing the use of plastics, planting 1 million trees (because trees capture and store carbon), and investing in clean energy. Republicans aim to create jobs by positioning U.S. companies to be world leaders in carbon-storage technology.

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Darren Shore, a Democrat, spoke with us about current approaches to climate change policy and his opposition to policies that include a carbon tax. Shore stated that he disagrees that a carbon tax must be included in plans to address climate concerns. Shore believes that investing in clean energy technology and planting 1 million trees will be

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Shore hopes to continue to motivate others to oppose a carbon tax in climate change policy approaches.

When not advocating against carbon tax policy, Shore has a number of other policy goals. Shore wants to work with his fellow Democrats to make gun control a federal issue; to enact a less restricted immigration policy; and to support publicly funded healthcare.

Q28. In the text boxes below, please write out all of the thoughts you had while reading the online article. Jot down anything and everything that came to mind.

Please use a separate text box for each thought and keep in mind that each text box can fit any amount of text. Please be sure to write in complete sentences.

Note: You will have up to 5 minutes to complete this task and to make sure everyone completes the task as intended, you will not be able to move forward until 1 minute has passed.

○ Thought 1 _____

○ Thought 2 _____

○ Thought 3 _____

○ Thought 4 _____

○ Thought 5 _____

○ Thought 6 _____

○ Thought 7 _____

○ Thought 8 _____

○ Thought 9 _____

○ Thought 10 _____

Q29. In the next set of questions, you will see a statement and a list of opposing pairs of adjectives such as bad, good, negative, positive, wrong, and right.

In between each pair of adjectives are bubbles that correspond to a number ranging from -3 to 3. After you read each statement, you will be asked to select a bubble that corresponds to the most appropriate response.

For example, if the statement is, "Spending time outdoors," I would select the bubble under the number 3 if I thought that spending time outdoors was very good or the bubble

under the number -1 if I thought that spending time outdoors was slightly bad. If I felt neutral towards spending time outdoors, I would select the bubble underneath "0."

For each statement, please be sure to <u>respond to every pair of adjectives</u>.

Q30. Statement: Maintaining a **woman's right to choose (abortion)** is...

Bubbles under positive numbers (1, 2, 3) indicate more agreement with the adjective on the right. Bubbles under negative numbers (-1, -2, -3) indicate more agreement with the adjective on the left.0 represents neutral.

	-3	-2	-1	0	1	2	3	
Bad	○	○	○	○	○	○	○	Good
Unkind	○	○	○	○	○	○	○	Kind
Immoral	○	○	○	○	○	○	○	Moral
Negative	○	○	○	○	○	○	○	Positive
Wrong	○	○	○	○	○	○	○	Right

Q31. Statement: **Passing** a **carbon tax** to offset emissions is...

Bubbles under positive numbers (1, 2, 3) indicate more agreement with the adjective on the right. Bubbles under negative numbers (-1, -2, -3) indicate more agreement with the adjective on the left. 0 represents neutral.

	-3	-2	-1	0	1	2	3	
Bad	○	○	○	○	○	○	○	Good
Unkind	○	○	○	○	○	○	○	Kind
Immoral	○	○	○	○	○	○	○	Moral
Negative	○	○	○	○	○	○	○	Positive
Wrong	○	○	○	○	○	○	○	Right

Q32. Statement: **Opening up coastal waters** to **offshore fracking** is...

Bubbles under positive numbers (1, 2, 3) indicate more agreement with the adjective on the right. Bubbles under negative numbers (-1, -2, -3) indicate more agreement with the adjective on the left. 0 represents neutral.

	-3	-2	-1	0	1	2	3	
Bad	○	○	○	○	○	○	○	Good
Unkind	○	○	○	○	○	○	○	Kind
Immoral	○	○	○	○	○	○	○	Moral
Negative	○	○	○	○	○	○	○	Positive
Wrong	○	○	○	○	○	○	○	Right

Q33. Statement: **Loosening environmental regulations** on businesses is...

Bubbles under positive numbers (1, 2, 3) indicate more agreement with the adjective on the right. Bubbles under negative numbers (-1, -2, -3) indicate more agreement with the adjective on the left. 0 represents neutral.

	-3	-2	-1	0	1	2	3	
Bad	○	○	○	○	○	○	○	Good
Unwise	○	○	○	○	○	○	○	Wise
Immoral	○	○	○	○	○	○	○	Moral
Negative	○	○	○	○	○	○	○	Positive
Wrong	○	○	○	○	○	○	○	Right

Q34. Statement: Providing government incentives to **encourage energy conservation** is...

Bubbles under positive numbers (1, 2, 3) indicate more agreement with the adjective on the right. Bubbles under negative numbers (-1, -2, -3) indicate more agreement with the adjective on the left. 0 represents neutral.

	-3	-2	-1	0	1	2	3	
Bad	○	○	○	○	○	○	○	Good
Unwise	○	○	○	○	○	○	○	Wise
Immoral	○	○	○	○	○	○	○	Moral
Negative	○	○	○	○	○	○	○	Positive
Wrong	○	○	○	○	○	○	○	Right

Q35. Statement: **Passing policy** that **conserves wildlife**...

Bubbles under positive numbers (1, 2, 3) indicate more agreement with the adjective on the right. Bubbles under negative numbers (-1, -2, -3) indicate more agreement with the adjective on the left. 0 represents neutral.

	-3	-2	-1	0	1	2	3	
Bad	○	○	○	○	○	○	○	Good
Unkind	○	○	○	○	○	○	○	Kind
Immoral	○	○	○	○	○	○	○	Moral
Negative	○	○	○	○	○	○	○	Positive
Wrong	○	○	○	○	○	○	○	Right

Q36. The next set of questions will ask about Darren Shore, the interviewee you read about in the online article.

Q37. On a scale from 1 (*not at all*) to 5 (*extremely*), please tell us the extent to which the interviewee, Darren Shore, is **trustworthy**.

○ Not at all 1

○ Slightly 2

○ Moderately 3

○ Very 4

○ Extremely 5

Q38. On a scale from 1 (*not at all*) to 5 (*extremely*), please tell us the extent to which the interviewee, Darren Shore, is **credible**.

○ Not at all 1

○ Slightly 2

○ Moderately 3

○ Very 4

○ Extremely 5

Q39. On a scale from 1 (*not at all*) to 5 (*extremely*), please tell us the extent to which the interviewee, Darren Shore, is **knowledgeable**.

○ Not at all 1

○ Slightly 2

○ Moderately 3

○ Very 4

○ Extremely 5

Q40. On a scale from 1 (*not at all*) to 5 (*extremely*), please tell us the extent to which the interviewee, Darren Shore, is **likeable**.

○ Not at all 1

○ Slightly 2

○ Moderately 3

○ Very 4

○ Extremely 5

Q41. On a scale from -3 (*very atypical*) to 3 (*very typical*), to what extent was the interviewee, Darren Shore, atypical or typical of a **Republican**?

○ Very atypical -3

○ Moderately atypical -2

○ Slightly atypical -1

○ Neither typical nor atypical 0

○ Slightly typical 1

○ Moderately typical 2

○ Very typical 3

Q42. On a scale from -3 (*very atypical*) to 3 (*very typical*), to what extent was the interviewee, Darren Shore, atypical or typical of a **Democrat**?

○ Very atypical -3

○ Moderately atypical -2

○ Slightly atypical -1

○ Neither typical nor atypical 0

○ Slightly typical 1

○ Moderately typical 2

○ Very typical 3

Q43. On a scale ranging from 1 (*not at all*) to 5 (*extremely*), please tell us the extent to which you were surprised by Darren Shore's stance on a carbon tax to reduce the effects of climate change?

○ Not at all surprised 1

○ Slightly surprised 2

○ Moderately surprised 3

○ Very surprised 4

○ Extremely surprised 5

Q44. Below are the thoughts you listed earlier regarding the article you read about carbon tax policy. We would like to know how you would evaluate your thoughts. Next to your thoughts, please categorize each thought as follows:

Positive towards Darren Shore (in support of Darren Shore, the interviewee)

Positive towards carbon tax policy (in support of carbon tax policy).

Negative towards Darren Shore (opposed to Darren Shore, the interviewee).

Negative towards carbon tax policy (opposed to carbon tax policy).

Neutral (neither in support of or in opposition to carbon tax policy policy <u>or</u> the interviewee, Darren Shore)

 You can select <u>as many response options</u> as appropriate per thought (e.g., positive/negative towards Darren Shore AND positive/negative towards carbon tax policy if appropriate).

	Negative towards carbon tax policy	Negative towards Darren Shore	Neutral	Positive towards Darren Shore	Positive towards carbon tax policy
[Thought 1]	☐	☐	☐	☐	☐
[Thought 2]	☐	☐	☐	☐	☐
[Thought 3]	☐	☐	☐	☐	☐
[Thought 4]	☐	☐	☐	☐	☐
[Thought 5]	☐	☐	☐	☐	☐
[Thought 6]	☐	☐	☐	☐	☐
[Thought 7]	☐	☐	☐	☐	☐
[Thought 8]	☐	☐	☐	☐	☐
[Thought 9]	☐	☐	☐	☐	☐
[Thought 10]	☐	☐	☐	☐	☐

Q45. On a scale ranging from 1 (extremely *uncharacteristic* of me) to 5 (extremely *characteristic* of me), please rate the following statements.

	Extremely uncharacteristic of me 1	Moderately uncharacteristic of me 2	Neither uncharacteristic nor characteristic of me 3	Moderately characteristic of me 4	Extremely characteristic of me 5
I would prefer complex to simple problems.	○	○	○	○	○
I like to have the responsibility of handing a situation that requires a lot thinking.	○	○	○	○	○
Thinking is not my idea of fun.	○	○	○	○	○
I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.	○	○	○	○	○

I really enjoy a task that involves coming up with new solutions to problems.	○	○	○	○	○
I really enjoy a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.	○	○	○	○	○

Q46. In the online article you read, did Darren Shore, the interviewee, support a carbon tax policy or oppose a carbon tax policy?

○ Support carbon tax policy

○ Oppose carbon tax policy

○ I'm not sure

Q47. In the online article you read, was the interviewee, Darren Shore, a Republican or a Democrat?

○ Republican

○ Democrat

○ I'm not sure

Appendix E2: Additional Main Study Tables

Table 17

Means and Standard Deviation for Interviewee Evaluation by Target Affiliation,
Participant Affiliation, Message Status, and Interviewee Prototypicality

Target affiliation	Participant Affiliation								
	Democrat			Republican			Total		
	M	*(SD)*	*n*	*M*	*SD*	*n*	*M*	*(SD)*	*n*
Democrat									
Prototypical									
Majority	3.98	(0.87)	30	2.97	(0.88)	37	3.42	(1.00)	67
Minority	3.12	(0.98)	28	3.33	(0.86)	34	3.23	(0.92)	62
Atypical									
Majority	3.43	(0.75)	41	2.88	(0.90)	36	2.91	(1.00)	79
Minority	2.36	(0.95)	38	3.64	(1.03)	26	2.88	(1.16)	64
Republican									
Prototypical									
Majority	2.19	(0.88)	35	3.77	(0.65)	29	2.91	(1.11)	64
Minority	3.21	(0.71)	38	3.42	(1.13)	33	3.31	(0.93)	73
Atypical									
Majority	3.02	(0.82)	33	3.31	(0.92)	35	3.17	(0.88)	68
Minority	3.58	(0.55)	41	3.21	(0.88)	37	3.40	(0.75)	78

Note. $N = 551$

Table 18

*Means and Standard Deviation for Pro-Environmental Attitudes by Target Affiliation,
Participant Affiliation, Message Status, and Interviewee Prototypicality*

Target affiliation	Participant Affiliation								
	Democrat			Republican			Total		
	M	*(SD)*	*n*	*M*	*(SD)*	*n*	*M*	*SD*	*n*
Democrat									
Prototypical									
Majority	6.26	(0.81)	30	5.17	(0.85)	36	5.67	(0.99)	66
Minority	6.17	(0.70)	27	4.95	(0.89)	34	5.49	(1.01)	61
Atypical									
Majority	6.23	(0.80)	41	5.18	(1.01)	36	5.74	(1.04)	77
Minority	6.39	(0.72)	37	5.25	(0.98)	26	5.92	(1.01)	63
Total	6.30	(0.76)	78	5.21	(0.99)	62	5.82	(1.03)	140
Republican									
Prototypical									
Majority	6.28	(0.91)	35	5.22	(1.00)	28	5.81	(1.08)	63
Minority	6.28	(0.86)	38	5.38	(0.89)	33	5.86	(0.98)	71
Atypical									
Majority	6.39	(0.56)	32	5.14	(0.85)	35	5.74	(0.96)	67
Minority	6.23	(0.77)	41	5.26	(0.81)	37	5.77	(0.92)	78
Minority	6.30	(0.69)	73	5.20	(0.82)	72	5.76	(0.93)	145

Note. N = 546

Table 19

Means and Standard Deviation for Attitudes towards Carbon Tax by Target Affiliation, Participant Affiliation, Message Status, and Interviewee Prototypicality

| Target affiliation	Participant Affiliation								
	Democrat			Republican			Total		
	M	*(SD)*	*n*	*M*	*(SD)*	*n*	*M*	*(SD)*	*n*
Democrat									
Prototypical									
Majority	5.79	(1.14)	28	3.73	(1.69)	37	4.62	(1.79)	65
Minority	5.17	(1.54)	28	2.86	(1.23)	34	3.90	(1.79)	62
Atypical									
Majority	5.82	(1.23)	41	3.75	(1.68)	36	4.85	(1.78)	77
Minority	5.49	(1.39)	38	2.77	(1.39)	26	4.39	(1.93)	64
Republican									
Prototypical									
Majority	5.75	(1.02)	35	3.17	(1.46)	29	4.58	(1.80)	64
Minority	6.00	(0.86)	38	3.98	(1.98)	33	5.06	(1.79)	71
Atypical									
Majority	5.17	(1.21)	33	3.73	(1.52)	68	4.43	(1.55)	68
Minority	6.04	(0.94)	41	4.33	(1.51)	37	5.23	(1.50)	78

Note. N = 549

Appendix F: PROCESS Model Templates

Hayes (2018)

Model 4

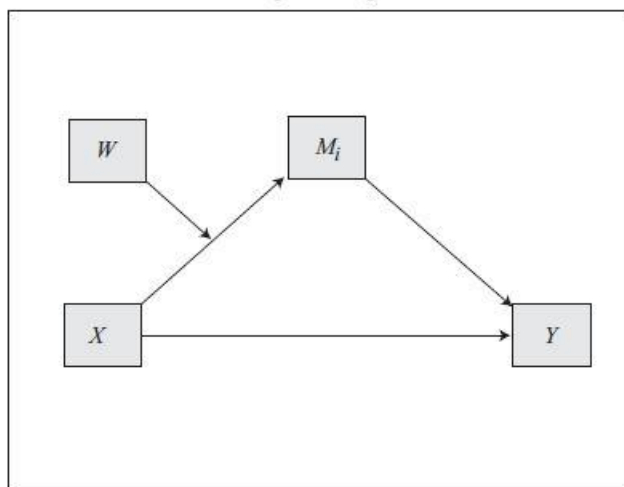### Conceptual Diagram
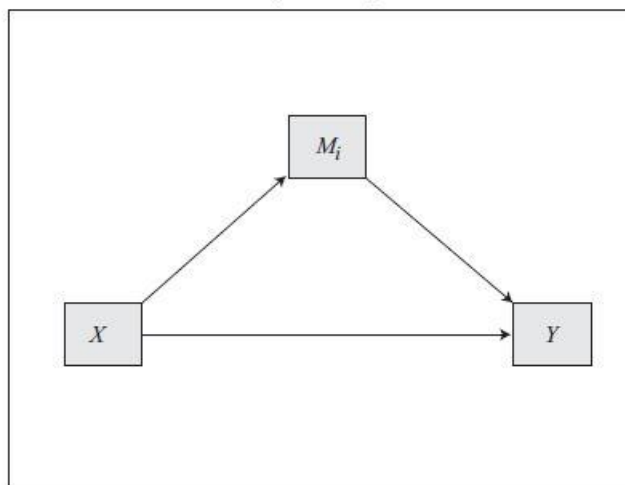
Model 7

Conceptual Diagram

Model 11

Conceptual Diagram