

Partisan Barriers to Bipartisanship: Understanding Climate Policy Polarization

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Phillip J. Ehret¹ , Leaf Van Boven², and David K. Sherman¹

Abstract

Everyday partisans evaluate policies partly by following partisan cues, fomenting polarization. However, there is debate over the influence of partisan cues in “real-world,” nonlaboratory contexts. An experiment with a real climate change initiative in the 2016 Washington State election tested whether partisan cues influenced climate policy polarization. In a primary study, 504 prospective voters were randomly assigned to view veridical policy endorsements by partisan elites; this study was followed by a preregistered conceptual replication ($N = 1,178$). Democrats supported the climate policy more than Republicans. But this difference was greater when Democrats endorsed the policy (with Republican opposition) than when Republicans endorsed the policy (with Democratic opposition). Neither knowledge nor belief in climate change reduced these polarizing effects, and greater policy knowledge was associated with increased polarization. Further, the effect of partisan cues on normative perceptions mediated the effect of partisan cues on policy support.

Keywords

partisan cues, environmental policy, party-over-policy, normative perceptions, policy knowledge

Most Americans, including most Republicans, recognize that climate change is a global crisis that could be mitigated by reducing carbon emissions (Howe, Mildenberger, Marlon, & Leiserowitz, 2015; Leiserowitz et al., 2014; Van Boven, Ehret, & Sherman, in press). Yet the U.S. Congress has failed to act largely because of political polarization over climate policy (see Skocpol, 2013, for review). Many climate change activists, Republicans and Democrats alike, have turned to the states to address the problem (Carbon Tax Center, 2017). In 2016, Washington State had a bipartisan carbon tax ballot initiative that ultimately did not pass. In the lead up to the election, we conducted an experiment to test a psychological barrier to climate policy support: Specifically, that political polarization on climate policy between partisans is partly driven by which political party—their own or the opposition—supports the policy, even when holding the details of the policy content constant.

Partisan cues exert powerful influence on how individuals evaluate political policies (Green, Palmquist, & Schickler, 2002; Zaller, 1992). Democrats are largely supportive of climate change policies, whereas Republicans are not (Fisher, Waggle, & Leifeld, 2013). The weighting of partisan cues (i.e., stances of politicians and partisan leaders) can be so strong that it leads people to place “party-over-policy.” In the first experimental examination of this effect, college students evaluated either a stringent or generous (mock) welfare policy that they were told was supported by either Democratic or Republican politicians (G. L. Cohen, 2003; see also, Smith,

Ratliff, & Nosek, 2012). The manipulation led to a nearly symmetrical polarization effect, where Democrats and Republicans reading the exact same policy reported opposite views according to whether their own party or the opposing party proposed the policy. Partisan cues have been shown to influence evaluation of immigration and energy policies such that people support policies more when their own party supported and the other party opposed the policy (Bolsen, Druckman, & Cook, 2014; Druckman, Peterson, & Slothuus, 2013).

The broader implications of the party-over-policy effect have been criticized on methodological grounds. Some have argued that the effect is limited to contrived and tightly controlled laboratory situations (Boudreau & Mackenzie, 2014; Bullock, 2011; Bullock, Gerber, Hill, & Huber, 2015). Critics contend that people are unlikely to be strongly influenced by partisan cues that vary independently of policies in more realistic environments compared to laboratory studies. Partisan cues are often ecologically valid cues to policies themselves. Democratic politicians typically support different policies than do

¹ Department of Psychological and Brain Sciences, University of California, Santa Barbara, Santa Barbara, CA, USA

² Department of Psychology and Neuroscience, University of Colorado Boulder, Boulder, CO, USA

Corresponding Author:

Phillip J. Ehret, Department of Psychological and Brain Sciences, University of California, Santa Barbara, Santa Barbara, CA 93106, USA.
Email: phillip.ehret@psych.ucsb.edu

Republican politicians. In actual political contexts, using partisan cues to evaluate policies is tantamount to evaluating different policies.

Critics of the party-over-policy effect have also argued that when voters consider important policies, particularly on highly polarizing topics such as climate change, they are more inclined to evaluate policies using other factors such as policy knowledge or personal beliefs like recognizing the reality of climate change. The more people know about a particular topic, the less they rely on heuristic cues, such as partisan framing, to render evaluations (Gilovich, Griffin, & Kahneman, 2002; Kahneman, 2003). Some theorists have argued that, on the whole, U.S. voters rely on their own personal beliefs and relevant knowledge to arrive at their political decisions (Key, 1966; Nie, Verba, & Petrocik, 1976). When people evaluate actual policies, personal beliefs and policy knowledge can be strong predictors of policy evaluation, such that more compelling information in the presence of partisan cues leads to more reliance on the information (and not cues), particularly for strong partisans (Boudreau & Mackenzie, 2014; Bullock, 2011). Although these findings suggest policy knowledge reduces biased policy evaluation and resulting polarization, there are competing theories regarding how knowledge may (or may not) moderate the relationship between partisan cues and policy evaluation.

Information-deficit theories suggest the more people know about a policy or issue, the less likely they are to be influenced by partisan cues, and instead rely on their own knowledge and beliefs to inform their policy evaluation. These theories propose that the more educated and informed individuals are, the better they can evaluate information such as policy content, and are thus more likely to evaluate policies using personal knowledge (Locke, 1999; Ziman, 1991). When individuals are highly knowledgeable about a policy, that knowledge can influence policy evaluation at least as much, if not more than, partisan cues (Bullock, 2011; see also, Boudreau & Mackenzie, 2014; Bullock et al., 2015). In the context of climate change, greater knowledge about climate is associated with greater acceptance of the scientific consensus on climate change, which should increase support for climate policies to reduce carbon emissions (Bord, O'Connor, & Fisher, 2000; Frick, Kaiser, & Wilson, 2004). Similar to information-deficit models, theories regarding belief in climate change also predict that greater levels of climate change beliefs would reduce reliance on partisan cues and therefore polarization. For example, the values-belief-norm model posits that beliefs are a fundamental predictor of environmental decisions (Stern, Dietz, Abel, Guagnano, & Kalof, 1999). Other work has found a consistent relationship between climate change beliefs and pro-environmental behaviors (Dunlap, Van Liere, Mertig, & Emmet Jones, 2000; Fransson & Garling, 1999). Knowledge about policies (e.g., climate policies) and problem contexts (e.g., climate change) should reduce reliance on partisan cues.

By contrast, ideological-consistency theories imply that knowledge should increase (rather than decrease) reliance on partisan cues and partisan identity. The cultural-cognition

model (Kahan, Jenkins-Smith, & Braman, 2011) and the receive-accept-sample model (Zaller, 1992) both propose that general knowledge, often measured through educational attainment which is closely tied to political knowledge (Price & Zaller, 1993), serves to reinforce prescribed group stances. In the context of climate change, greater levels of educational attainment did not lead individuals to adopt the scientific consensus regarding climate change, but rather, more highly educated partisans aligned their climate change beliefs with their political party, resulting in the greatest levels of polarization among the most highly educated (Ehret, Sparks, & Sherman, 2017; Hamilton & Saito, 2015; Kahan et al., 2012; McCright & Dunlap, 2011a, 2011b). The information-deficit and ideological-consistency theories thus make diverging predictions about the role of education and knowledge in moderating the effects of partisan identity and partisan cues on policy evaluation. We examined both the effects of knowledge and climate change beliefs in terms of main effects as well as interactions with the partisan cue manipulation.

In addition to examining knowledge and beliefs as potential moderators, we examined a novel mediating process of the effect of partisan cues on policy evaluation. Specifically, we test whether partisan cues might influence policy evaluation partly because people infer that partisan cues will influence other people's policy evaluation, and these inferred social norms influence people's personal policy evaluations (Van Boven et al., in press). Partisan cues are widely assumed to influence policy evaluation, which is why endorsements are so prevalent in election contexts (Campbell, Converse, Miller, & Stokes, 1980). Further, how much other partisans support or oppose a policy is related to individuals' own policy support (Pronin, Berger, & Molouki, 2007, study 4). Thus, perceptions of how much other ordinary Democrats and Republicans support a policy (i.e., descriptive norms) may mediate the relationship between partisan cues and personal policy support. Descriptive norms, beliefs about how others think and act, often influence individuals' behaviors (Cialdini, Kallgren, & Reno, 1991; Perkins, 2003) and influence individuals' personal policy evaluations (Hurlstone, Lewandowsky, Newell, & Sewell, 2014). Norms provide information about how individuals should evaluate a policy to be "good" group members (Kahan & Braman, 2006). In-group and out-group norms each serve an important psychological purpose. In-group norms help partisans cohere around a uniform set of beliefs; out-group norms provide a contrast to establish clear group boundaries (Greene, 1999; Iyengar, Sood, & Lelkes, 2012; Kahan & Braman, 2006). Both in-group norms (through assimilation and conformity) and out-group norms (through differentiation and opposition) may help explain the effect of partisan cues on policy evaluation.

The current study had three goals: (1) to examine whether partisan cues would influence support for a genuine climate policy among a large and diverse sample of prospective voters; (2) to examine competing hypotheses, derived from ideological-consistency and information-deficit theories, regarding the potential moderating roles of policy knowledge

and climate change beliefs; and (3) to examine whether the effect of partisan cues on policy support would be mediated by the effects of partisan cues on perceptions of in-group versus out-group norms.

The primary study pursued these goals among a sample of prospective voters in Washington State with I-732, a carbon emissions tax on the 2016 ballot. This policy was designed to be bipartisan and elicited both support and opposition from prominent liberal and conservative organizations and leaders (Harvey, 2016), creating the opportunity for an externally valid manipulation of partisan cues by highlighting different patterns of policy support and opposition. Approximately 12 months after the election, we ran a preregistered conceptual replication study to further test and extend the primary study findings.

Method

Participants

We recruited registered voters in Washington State who had not yet voted in the November 2016 election through Turk Prime's self-service panels between November 3 and midday November 8, 2016 (election day). We aimed to recruit at least 500 participants, which enabled us to achieve 80% power for a regression coefficient for a small effect size ($f^2 = .02$; J. Cohen, 1992; Faul, Erdfelder, Lang, & Buchner, 2007). The total recruited sample was 519; however, 15 reported they had already voted in the election and were excluded. Our final sample was 504 individuals: 238 Democrats, 219 Republicans, and 47 Independents¹ (see Table 1).

Procedure

The study was conducted with an online survey. First, participants reported their political party identification. Party identification ranged from -3 , *strong Democrat* to $+3$, *strong Republican*, with 0 representing Independents. Participants then answered self-perceived knowledge questions regarding the carbon tax initiative (1 = *strongly disagree*, 7 = *strongly agree*). Items included "I have heard of Initiative 732," "I have researched Initiative 732," and "I understand what Initiative 732 proposes" ($\alpha = .95$). Climate change belief was measured by agreement with 4 items: "Climate change is happening," "Climate change poses a risk to human, health, safety, and prosperity," "Human activity is largely responsible for recent climate change," and "Reducing greenhouse gas emissions will reduce global warming and climate change" ($\alpha = .92$; Van Boven et al., in press).

Next, participants were randomly assigned to one of the two conditions (see Figure 1). In the Democratic-supported and Republican-opposed policy condition (Democratic support), only traditionally liberal and Democratic supporters as well as conservative and Republican opponents were presented. In the Republican-supported and Democratic-opposed policy condition (Republican support), only traditionally conservative and Republican supporters as well as liberal and Democratic opponents were presented. The supporters and opponents were

Table 1. Demographics From Primary Study and Replication Study.

Variable	Primary Study		Replication Study	
	M (SD)/ Median	Percent of Sample	M (SD)/ Median	Percent of Sample
Age	39.30 (13.94)		40.31 (14.94)	
Marital status	Married		Married	
Educational attainment	Some college		Some college	
Income	US\$50,000– 74,999		US\$50,000– 74,999	
Gender				
Male		33.3		25.7
Female		66.7		74.3
Race				
Caucasian		83.9		86.5
Asian		5.6		4.1
Hispanic/ Latino		4.0		2.8
Other		2.0		2.3
Black		1.8		2.0
Native		1.4		1.6
American				
Pacific Islander		1.2		0.8

displayed for 15 s, and then the full ballot text of the initiative was displayed below the list of supporters and opponents.

Our primary dependent measure was participants' personal support for I-732. After viewing the policy, participants indicated their agreement (-3 = *strongly disagree*, $+3$ = *strongly agree*) with 2 items: "I personally support the policy statement" and "I support enactment of legislation based on the principles in the policy statement" ($r = .93$). Participants also indicated whether they would vote yes, no, or abstain in the election.

Participants then saw the same two policy support questions but were asked to estimate how the average Democrat and the average Republican in Washington State would respond to the same agreement statements. Finally, participants estimated what percentage of Democrats, Republicans, and Independents in Washington State would or would not support I-732 or were undecided.

All conditions are reported. All other measures not relevant to our analyses are reported in the Online Supplemental Material.

Results

Partisan Cues and Policy Support

Correlations and means are presented in Table 2. First, we regressed participants' policy support on the measure of continuous party identification, dummy-coded partisan cues (0 = *Democratic support*, 1 = *Republican support*), and their interaction. The model yielded the predicted interaction ($B = 0.15$,

	We are interested in your opinions about Washington State Ballot Initiative 732, the Washington Carbon Emission Tax and Sales Tax Reduction. As you may have heard, there has been much debate about Carbon Tax Initiative 732, with many prominent proponents and opponents of the measure.
Democratic Support/Republican Opposition	<p>Proponents include: U.S. Representative Jim McDermott (D) Steven Chu (D), former U.S. Secretary of Energy Green Party of Seattle, a progressive political organization promoting values of peace, sustainability, grassroots democracy, and justice for all. Audubon Society of Washington, a progressive group promoting conservation of natural ecosystems and building healthy communities for people, birds, and other wildlife.</p> <p>Opponents include: American Exploration and Mining Association, a trade organization promoting the mining industry that traditionally support Republican candidates. Washington Oil Marketers Association, a trade organization promoting the petroleum industry that traditionally support Republican candidates. Industrial Customers of Northwest Utilities, a conservative organization advocating for Northwest industry on issues related to electrical energy. American Enterprise Institute, a conservative public policy think tank promoting human dignity, human potential, and a freer and safer world.</p>
Republican Support/Democratic Opposition	<p>Proponents include: George P. Shultz (R), former U.S. Secretary of State, Secretary of the Treasury, and Secretary of Labor State Senator Joe Fain (R) State Senator Jim Moeller (R)</p> <p>Opponents include: Washington State Democratic Party Sierra Club of Washington State, a progressive organization promoting environmental protections.</p>
Initiative Summary	<p>I-732: Washington Carbon Emission Tax and Sales Tax Reduction</p> <p>This measure would impose a carbon emission tax on certain fossil fuels and fossil-fuel-generated electricity, reduce the sales tax by one percentage point and increase a low-income exemption, and reduce certain manufacturing taxes.</p> <p>The Law as it Presently Exists</p> <p>The sales tax is imposed on retail sales of most articles of personal property, digital products, and some services. The current state sales tax rate is 6.5 percent, though some local governments impose their own sales taxes that make the rate paid by purchasers higher. The state business and occupation tax is imposed on the gross income of business activities conducted in Washington. The business and occupation tax rate varies by the type of business or occupation. Most manufacturing businesses are taxed at a rate of 0.484 percent of their gross income, but some manufacturers pay lower rates. Burning fossil fuels (such as coal, oil, and natural gas) produces carbon dioxide, which can trap heat in the Earth's atmosphere. There is no state tax on carbon dioxide emissions in Washington.</p> <p>The Effect of the Proposed Measure if Approved</p> <p>This measure would create a new tax and reduce certain existing taxes. It would impose a new "carbon emission tax" that applies to the sale or use of certain fossil fuels and electricity generated from fossil fuels. It also would reduce the state sales tax rate, reduce the business and occupation tax rate on manufacturing, and fund a partial sales tax exemption for low-income families.</p>

Figure 1. Partisan endorsement manipulations and ballot text. Participants saw either the Democratic support/Republican opposition (above dashed line) or the Republican support/Democratic opposition (below dashed line). Full ballot text was displayed to participants and is provided in Online Supplemental Material.

Table 2. Correlations, Means, and Standard Deviations.

Variable	1.	2.	3.	4.	5.
1. Climate change beliefs	—				
2. I-732 knowledge	.03	—			
3. Policy support	.50***	.01	—		
4. Estimated Republican support	.10*	−.05	.07	—	
5. Estimated Democratic support	.05	.10*	.20***	−.48***	—
6. Continuous party identification	−.51***	−.02	−.36***	.09*	−.01
Mean	5.44	3.84	0.24	−0.66	1.09
Standard deviation	1.51	1.85	1.86	1.72	1.59

* $p < .05$. *** $p < .001$.

$SE = .07$, $p = .039$, 95% confidence interval [CI] = [0.01, 0.30]; $F = 25.66$, $p < .001$, $R^2 = .14$; see Table 3). As seen in Figure 2, the more participants identified as Republican, the

less they supported the carbon tax policy, as indicated by the negative slopes, and this polarization effect was larger in the Democratic support condition ($b = −0.38$, $t = −8.48$, $p < .001$) than in the Republican support condition ($b = −0.23$, $t = −2.06$, $p = .041$).² The Online Supplemental Material reports additional models of voting intentions and categorical measures of party identification, which yielded nearly identical patterns of results.

Partisan Cues, Perceived Policy Knowledge, and Climate Change Beliefs

We next examined whether perceived policy knowledge and climate change beliefs moderated the party identification by partisan cues interaction. We added 2 three-way interactions to the linear regression model described above: interaction between party identification, partisan cues, and policy knowledge and between party identification, partisan cues, and climate change beliefs.

Table 3. Policy Support Regression Models From Primary Study With Party Identification and Partisan Cues, as well as Inclusion of Interactions With Knowledge and Climate Change Beliefs.

Variable	B (SE)	B (SE)
Constant	0.34** (.11)	4.26*** (.24)
Continuous party identification	-0.38*** (.05)	-0.06 (.11)
Partisan cues	-0.30 (.16)	0.16 (.35)
Party \times Cues	0.15* (.07)	-0.28 (.32)
Climate change beliefs		0.49*** (.08)
Climate change beliefs \times Party		0.03 (.03)
Climate change beliefs \times Cues		0.02 (.12)
Climate change beliefs \times Cues \times Party		0.02 (.05)
I-732 Knowledge		0.04 (.06)
I-732 Knowledge \times Party		-0.04 (.03)
I-732 Knowledge \times Cues		-0.10 (.08)
I-732 Knowledge \times Cues \times Party		0.08* (.04)

Note. Party refers to continuous party identification.

* $p < .05$. ** $p < .001$.

The three-way interaction between party identification, policy knowledge, and partisan cues was significant ($B = 0.08$, $SE = .04$, $p = .029$, 95% CI [0.01, 0.16]; $F = 17.01$, $p < .001$, $R^2 = .29$; see Table 3; Figure 3). We then estimated the party identification by partisan cues interaction at high and low ($\pm 1 SD$) levels of policy knowledge. The significant three-way interaction appeared to be driven by the reversal of the interaction coefficients at different levels of knowledge, although the relevant two-way interactions were not significant at either high ($B = 0.19$, $SE = .30$, $p = .522$, 95% CI [-0.40, 0.78]) or low ($B = -0.11$, $SE = .30$, $p = .704$, 95% CI [-0.69, 0.47]) levels of knowledge. These findings failed to support the information-deficit model, which would have implied that greater knowledge was associated with reduced polarization and reliance on partisan cues. However, neither did these findings provide strong support for ideological-consistency models since greater knowledge did not increase polarization.

Next, we tested whether climate change beliefs influenced policy support above and beyond effects of partisan cues, party identification, knowledge, and the corresponding interactions

discussed above. The three-way interaction between climate change beliefs, partisan cues, and party was not significant ($B = 0.02$, $SE = .05$, $p = .717$, 95% CI [-0.08, 0.12]). There was a significant main effect of climate change beliefs ($B = 0.49$, $SE = .08$, $p < .001$, 95% CI [0.33, 0.65]). Stronger belief in climate change was related to greater policy support, independent of knowledge and partisan cues, supporting models that posit relevant individual beliefs can influence policy support.

Normative Perceptions as a Mediator of the Effect of Partisan Cues

To examine whether the effect of partisan cues on perceived normative support for the policy among political in-groups and out-groups would mediate the effect of partisan cues on personal support for the policy, we conducted a moderated-mediation analysis (PROCESS in SPSS, Model 59; Hayes, 2013). Both estimates of other Democrats and Republicans mediated the effect of partisan cues on personal policy support (see Table 4; Figure 4). Partisan cues predicted estimates of Democrats support ($B = -0.83$, $SE = .14$, $p < .001$, 95% CI [-1.10, -0.56]) and estimates of Republicans support ($B = 0.68$, $SE = .15$, $p < .001$, 95% CI [0.37, 0.98]). Participants estimated that ordinary Republicans would support the policy more when it was supported by Republican leaders/organizations ($M = 3.71$, $SD = 1.73$) than supported by Democratic leaders/organizations ($M = 2.99$, $SD = 1.64$). Participants also estimated that ordinary Democrats would support the policy more when it was supported by Democratic leaders/organizations ($M = 5.50$, $SD = 1.34$) than Republicans leaders/organizations ($M = 4.66$, $SD = 1.71$).

Party identification moderated the effect of estimates of others on personal policy support, as indicated by the interaction of party identification with estimates of Democrats ($B = -0.15$, $SE = .02$, $p < .001$, 95% CI [-0.19, -0.10]) and Republicans ($B = 0.10$, $SE = .02$, $p < .001$, 95% CI [0.06, 0.14]). Greater estimates of Republican support led to greater policy support among Republicans, and greater estimates of Democratic support led to greater policy support among Democrats.

We used bootstrapping to test for indirect mediation effects (10,000 samples; bias corrected) at one standard deviation

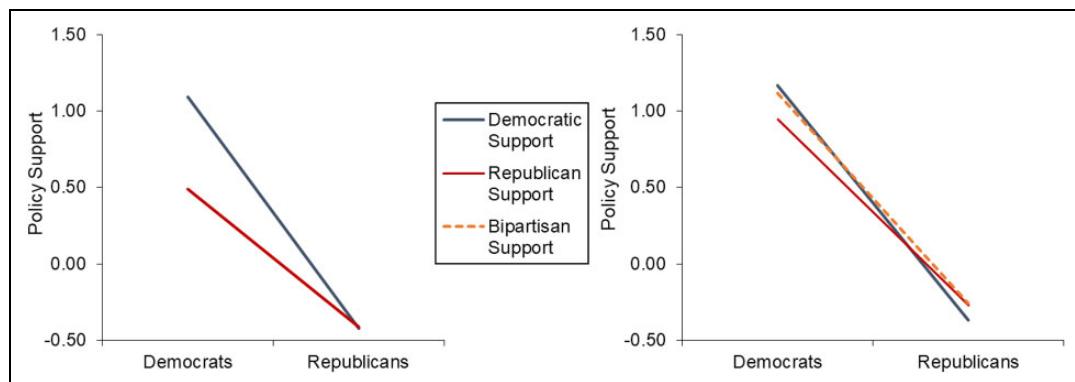


Figure 2. Influence of partisan cues by political party on policy support. Continuous party identification graphed at values of -2 and 2 (on the scale of -3 [strong Democrat] to 3 [strong Republican]) for the primary study and replication study.

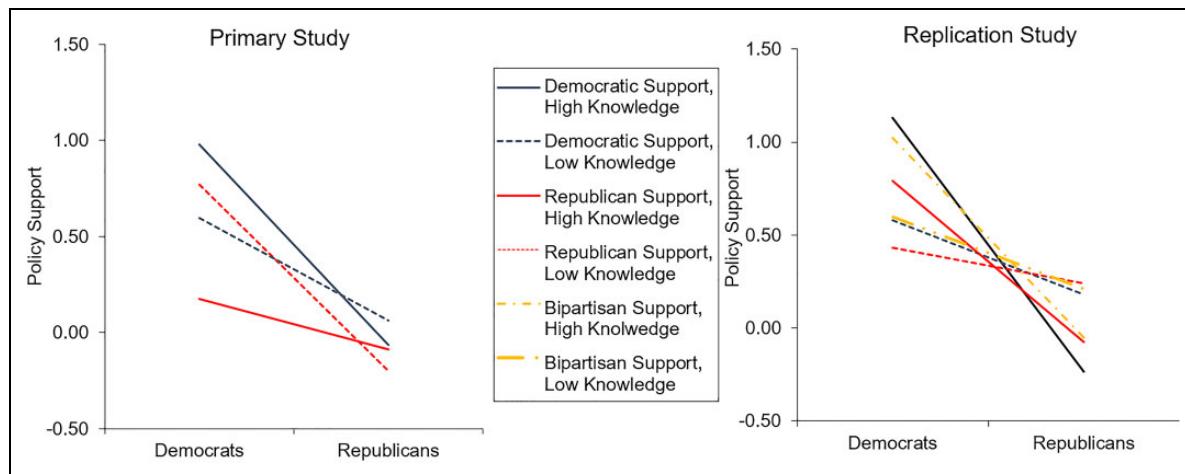


Figure 3. Interaction of party identification, partisan cues, and knowledge (policy knowledge for primary study, left panel; knowledge composite for replication study, right panel). Both interactions suggest greater knowledge does not lead to less reliance on partisan cues or party identification (i.e., no main effect of greater knowledge leading to greater policy support). Interaction plotted at ± 1 SD of knowledge. Model controlling for climate change beliefs (mean centered) by partisan cues by party three-way interaction and all corresponding main effects and two-way interactions.

Table 4. Coefficients for the Moderated-Mediation Model.

Variable	Step 1: Policy Support		Step 2a: Estimated Republican Support	Step 2b: Estimated Democratic Support	Step 3: Personal Policy Support
	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)
Constant	0.34*** (.11)		-1.02*** (.11)	1.52*** (.09)	0.05*** (.12)
Party	-0.38*** (.05)		0.04 (.05)	0.01 (.04)	0.15 (.18)
Partisan cues		-0.30 (.16)	0.68*** (.15)	-0.83*** (.14)	-0.24 (.14)
Party \times Cues	0.15* (.07)		0.05 (.07)	-0.04 (.06)	-0.03 (.07)
Estimated Republican support					0.30*** (.05)
Estimated Democratic support					0.38*** (.05)
Estimated Republican support \times Party					0.10*** (.02)
Estimated Democratic support \times Party					-0.15*** (.02)

Note. Regression models from model 59 in the PROCESS macro.

* $p < .05$. *** $p < .001$.

above and below the mean of party identification. Estimates of Democrats significantly mediated the relationship between partisan cues and policy support only for Democrats (tested value = -2.21, effect = -0.52, bootstrapped $SE = .16$, 95% bias corrected [BC] CI [-0.85, -0.24]). Estimates of Republicans significantly mediated the relationship between partisan cues and policy support only for Republicans (tested value = 2.13, effect = 0.41, bootstrapped $SE = .12$, 95% BCCI [0.20, 0.67]). These results suggest that the effect of partisan cues on partisans' support for climate policy is explained by estimates of partisan in-group policy support. Full model provided in Online Supplemental Material.

Conceptual Replication

We conducted a preregistered replication study to address three issues regarding the primary study's findings (Open Science Framework, osf.io/qhg8e). First, we examined the moderating

role of knowledge, given that post-hoc investigations of the significant three-way interaction did not reveal support for predictions from either the ideological-consistency or information-deficit theories. We also improved the measurement of knowledge, including both perceived knowledge and actual knowledge. Second, we pretested the strength of the partisan framing manipulation to address the possibility that the greater polarization in the Democratic support condition than in the Republican support condition might have reflected an asymmetry between the two conditions in the strength of partisan cues. Third, we included a bipartisan support condition that reflected that both Democrats and Republicans had supported the policy.

We recruited 1,178 Washington State residents. Sample size was based on the effect size of the three-way interaction in the primary study and considering the addition of a third condition. Participants completed the same procedures and measures as described in the primary study with the following

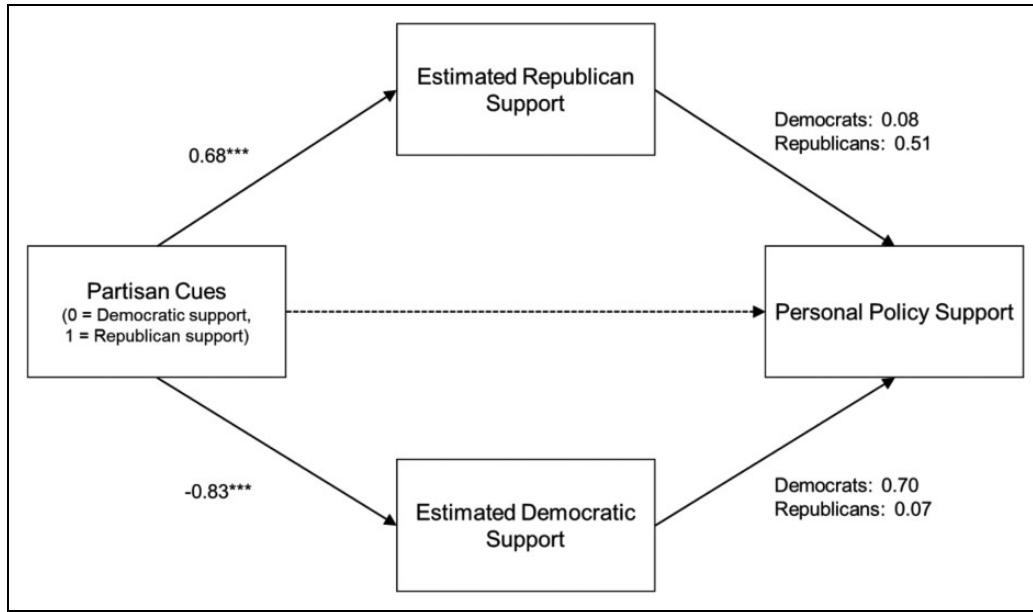


Figure 4. Moderated-mediation from the primary study showing that the effect of partisan cues on personal policy support is explained by changes in estimates of policy support from in-group members for partisans. Overall, path coefficients are reported between partisan cues and estimates since there was no significant interaction between partisan cues and party. Indirect effects for estimated Republican support, Democrats: 0.05, 95% confidence interval (CI) [−0.01, 0.16], Republicans: 0.41, 95% CI [0.20, 0.67]. Indirect effects for estimated Democratic support, Democrats: −0.52, 95% CI [−0.85, −0.24], Republicans: −0.07, 95% CI [−0.24, 0.08]. No significant direct effects. *** $p < .001$.

changes. In addition to perceived policy knowledge, we measured actual carbon tax knowledge, actual political knowledge, and perceived political knowledge. Given our a priori analysis plan, all four knowledge measures were averaged into an overall knowledge composite ($\alpha = .81$). Second, we selected a new set of equivalent numbers of partisan supporters and opponents (13 each) to be equally influential and partisan, as confirmed by pilot testing. Additionally, we included a bipartisan support condition presenting only endorsements from Republicans and Democrats. Finally, the policy was described as proposed energy policy and presented nearly identical policy content as the primary study. The complete study procedures, pilot testing, and manipulations are presented in the Online Supplemental Material as well as discussion of key differences between the primary and replication studies.

Partisan Cues and Policy Support

A multiple regression was used to test for the effect of partisan cues on policy support and included continuous party identification and two dummy-coded variables to represent the three partisan cue conditions (D1: *Democratic and Bipartisan support* = 0, *Republican support* = 1; D2: *Democratic and Republican support* = 0, *Bipartisan support* = 1) and the two-way interactions between party and partisan cues. We replicated the moderating effect of partisan cues, as indicated by the two-way interaction between party identification and D1, representing Republican versus Democratic support ($B = 0.08$, $SE = .03$, $p = .003$, 95% CI [0.03, 0.13]) on policy support (see Figure

2, right panel). There was also a significant interaction between party identification and D2, representing Bipartisan support versus Democratic support ($B = 0.04$, $SE = .02$, $p = .023$, 95% CI [0.01, 0.07]). A second regression model was run with alternative dummy codes (D3: *Republican and Democratic support* = 0, *Bipartisan support* = 1; D4: *Republican and Bipartisan support* = 0, *Democratic support* = 1) to compare Bipartisan versus Republican support; there was no significant interaction (D3 by party identification: $B = −0.01$, $SE = .02$, $p = .487$, 95% CI [−0.05, 0.02]). Full models are presented in Online Supplemental Material. These interactions replicated the findings of the primary study: The stronger participants identified as Republican, the less participants supported the policy compared to Democrats and that effect of partisan identification was strongest in the Democratic support condition ($b = −0.38$, $t = −12.14$, $p < .001$) followed by the Bipartisan support ($b = −0.34$, $t = −17.42$, $p < .001$) and Republican support conditions ($b = −0.30$, $t = −17.38$, $p < .001$).

Partisan Cues and Knowledge

A multiple regression including the same variables and interactions as the primary study, with the addition of the Bipartisan condition, tested the potential moderating role of knowledge. Unlike the primary study, the three-way interaction between the Republican versus Democratic (D1) support, party identification, and knowledge was not significant ($B = 0.08$, $SE = .05$, $p = .140$, 95% CI [−0.03, 0.18]). There was a significant three-way interaction between Bipartisan support versus Democratic support (D2), party identification, and knowledge ($B = 0.04$,

$SE = .02, p = .031, 95\% \text{ CI} [0.01, 0.07]$; see Figure 3, full model reported in the Online Supplemental Material). This was not a replication of findings from the primary study. However, there was a significant party identification by knowledge two-way interaction. In a second regression that removed only the nonsignificant three-way interaction, the party identification by knowledge interaction was significant ($B = -0.07, SE = .02, p = .003, 95\% \text{ CI} [-0.11, -0.02]$). Post-hoc testing revealed that there was still polarization between Republicans and Democrats at high (+1 SD: $b = -0.29, t = -6.98, p < .001$) and low knowledge (-1 SD: $b = -0.17, t = -3.86, p < .001$) and that the polarization was greatest among those with higher knowledge as reflected by the interaction and the steeper negative slope. The two-way interaction between knowledge and party identification reflects that the solid lines are steeper than the dashed lines in Figure 3, but the slopes of the red and blue lines are not significantly different from each other. This finding was inconsistent with information-deficit models, which would have implied that greater knowledge would be associated with smaller effects of partisan identification and less reliance on partisan cues. Instead, greater knowledge was associated with larger effects of partisan identification and was not associated with differential reliance on partisan cues. The replication study found stronger evidence supporting ideological-consistency models. Online Supplemental Material provides full model results.

Normative Perceptions as a Mediator of the Effect of Partisan Cues

A path analysis was used to test the moderated-mediation model (see Figure 4).³ All pathways were replicated, including the same moderated mediation (see Online Supplemental Material for full details). For Democrats, estimates of Democrats significantly mediated the effect of Republican versus Democratic support on personal policy support (-1 SD: effect = -0.10, bootstrapped $SE = .03, 95\% \text{ BCCI} [-0.16, -0.04]$). For Republicans, estimates of Republicans significantly mediated the effect of Republican versus Democratic support on personal policy support (+1 SD: effect = 0.09, bootstrapped $SE = .03, 95\% \text{ BCCI} [0.03, 0.16]$). Additionally, estimates of Democrats was a significant mediator for Republicans (effect = -0.02, bootstrapped $SE = .01, 95\% \text{ BCCI} [-0.04, -0.01]$); this indirect effect of out-group norms was much smaller than in-group norms. Estimates of Republicans was not a significant mediator for Democrats (effect = <0.01, bootstrapped $SE = .01, 95\% \text{ BCCI} [-0.02, 0.01]$). Overall, this model replicated the finding that the effect of partisan cues can be explained by perceptions of fellow in-group members' policy support.

Discussion

For an experiment on the carbon tax policy initiative in Washington State, voters relied on partisan cues (determined by random assignment) to formulate their policy evaluations, with Democratic support (and Republican opposition) leading to greater polarization than Republican support (and

Democratic opposition). Perceived policy knowledge and climate change beliefs were also associated with policy evaluation. These results extend prior work on the effect of partisan cues, addressing concerns about external validity and generalizability of the effect to a real-world policy evaluation context. Partisan cues influenced policy support over and above climate change beliefs. Both personal factors (i.e., climate change beliefs and knowledge) and situational factors (i.e., partisan cues) influenced climate policy support.

Moderators and Mediators

Policy knowledge as a moderator. Greater levels of knowledge led, generally, to greater levels of polarization, supporting ideological-consistency model predictions. Consistent across both studies, knowledge, whether perceived policy knowledge or a knowledge composite that included actual knowledge, did not independently reduce polarization as predicted by information-deficit models. However, the primary study and replication study showed different interaction patterns with no consistent polarization in the primary study and more polarization regardless of partisan cues in the replication. The primary and replication study may have shown different results regarding knowledge due to differences in context. The primary study was during the heat of an election cycle, and Democrats may have been more attuned to this particular policy than Republicans given its relevance to traditionally important Democratic issues. Future research will need to carefully consider how knowledge interacts with party identification and policy endorsements as well as the larger political context.

Perceptions of others as a mediator. Normative in-group perceptions of policy support explained the relationship between partisan cues and personal policy support in both studies. Broadly, this mechanism is consistent with social norms theory (Perkins, 2003) and social identity explanations of the effect of partisan cues (Greene, 1999; Kahan, 2012; Pearson, Schuldt, & Romero-Canyas, 2016). However, social identity theory is not clear as to whether in-group norms, out-group norms, or both would mediate the effect of partisan cues (Tajfel & Turner, 1986). Our finding that in-group norms mediated the effect of partisan cues suggested that own party endorsements are more meaningful than opposing party opposition. However, this does not mean out-group norms do not matter; it is more likely that out-group norms are simply a weaker mediator (e.g., the replication study here; see also, Van Boven et al., in press).

Asymmetry Between Republican and Democratic Policies

Our results revealed asymmetries between Republican- and Democratic-supported policies, where Democratic-supported policies consistently led to the greatest levels of polarization. Although a policy supported by Republicans and opposed by Democrats suggests continued political polarization, we observe that this actually reduced polarization compared to the more traditional Democratic support and Republican

opposition. Further, the Bipartisan support condition elicited the same patterns of partisan support as the Republican-supported condition. Simply breaking away from the status quo (i.e., Democratic support, Republican opposition) could reduce divisions between Democrats and Republicans on climate policy. Yet the reduced polarization did not necessarily lead to stronger policy support for either policies with Republican or bipartisan support. Instead, it led to more neutral levels of policy support.

Final Thoughts

The I-732 initiative would have passed with around 60% supporting it (in our sample), while it actually failed in the election, receiving only 41% support (Washington State, 2016). Thus, one question is how representative the present sample was, in particular, because there were no publicly available estimates of what percentage of voters had already voted (and thus ineligible to participate) before our primary study.

However, the policy participants considered was veridical and representative of climate change policies proposed by Republican groups (Plumer, 2013; Schwartz, 2017). Despite the potential for bipartisan-supported climate policies, the failure of I-732 in Washington State suggests bipartisanship alone is not sufficient to solve policy inaction. Our results showed that bipartisan designed policies are susceptible to the same partisan polarization due to framing as national environmental policies in the United States. Further, the replication study included a Bipartisan support condition and found that it did not lead to significantly stronger support among Democrats and Republicans as one might optimistically hope a bipartisan policy would do. It is an open question whether bipartisan endorsements will, by themselves, lead to greater policy support across the political spectrum. They may, however, help to reduce polarization between Democrats and Republicans.

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ORCID iD

Phillip J. Ehret  <http://orcid.org/0000-0002-0664-4996>

Supplemental Material

The supplemental material is available in the online version of the article.

Notes

- Independents who leaned toward a party were placed in that party, a common procedure to classify "leaners" (American National Election Studies, 2012). Primary analyses treated party identification as a continuous measure, categorical analyses are presented in the Online Supplemental Material.
- b* represents simple slope coefficient.
- PROCESS does not allow for multicategory independent variables.

References

- American National Election Studies. (2012). *User's Guide and Codebook for the ANES 2012 Time Series Study*. Retrieved from electionstudies.org
- Bolsen, T., Druckman, J. N., & Cook, F. L. (2014). The influence of partisan motivated reasoning on public opinion. *Political Behavior*, 36, 235–262. doi:10.1007/s11109-013-9238-0
- Bord, R. J., O'Connor, R. E., & Fisher, A. (2000). In what sense does the public need to understand global climate change? *Public Understanding of Science*, 9, 205–218. doi:10.1088/0963-6625/9/3/301
- Boudreau, C., & Mackenzie, S. A. (2014). Informing the electorate? How party cues and policy information affect public opinion about initiatives. *American Journal of Political Science*, 58, 48–62. doi:10.1111/ajps.12054
- Bullock, J. G. (2011). Elite influence on public opinion in an informed electorate. *American Political Science Review*, 105, 496–515. doi:10.1017/S0003055411000165
- Bullock, J. G., Gerber, A. S., Hill, S. J., & Huber, G. A. (2015). Partisan bias in factual beliefs about politics. *Quarterly Journal of Political Science*, 10, 519–578. doi:10.1561/100.00014074
- Campbell, A., Converse, P. E., Miller, W. E., & Stokes, D. E. (1980). *The American voter*. Chicago, IL: The University of Chicago Press.
- Carbon Tax Center. (2017). *States*. Retrieved from <https://www.carbonatax.org/states/>
- Cialdini, R. B., Kallgren, C. A., & Reno, R. R. (1991). A focus theory of normative context: A theoretical refinement and reevaluation of the role of norms in human behavior. *Advances in Experimental Social Psychology*, 24, 201–234.
- Cohen, G. L. (2003). Party over policy: The dominating impact of group influence on political beliefs. *Journal of Personality and Social Psychology*, 85, 808–822. doi:10.1037/0022-3514.85.5.808
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112, 155–159.
- Druckman, J. N., Peterson, E., & Slothuus, R. (2013). How elite partisan polarization affects public opinion formation. *American Political Science Review*, 107, 57–79. doi:10.1017/S0003055412000500
- Dunlap, R. E., Van Liere, K. D., Mertig, A. G., & Emmet Jones, R. (2000). Measuring endorsement of the New Ecological Paradigm: A revised NEP Scale. *Journal of Social Issues*, 56, 425–442. doi:10.1111/0022-4537.00176
- Ehret, P. J., Sparks, A. C., & Sherman, D. K. (2017). Support for environmental protection: An integration of ideological-consistency and information-deficit models. *Environmental Politics*, 26, 253–277. doi:10.1080/09644016.2016.1256960

- 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. *Behavioral Research Methods*, 39, 75–191.
- Fisher, D. R., Waggle, J., & Leifeld, P. (2013). Where does political polarization come from? Locating polarization within the U.S. climate change debate. *American Behavioral Scientist*, 57, 70–92. doi:10.1177/0002764212463360
- Fransson, N., & Garling, T. (1999). Environmental concern: Conceptual definitions, measurement methods, and research findings. *Journal of Environmental Psychology*, 19, 369–382. doi:10.1006/jevp.1999.0141
- Frick, J., Kaiser, F. G., & Wilson, M. (2004). Environmental knowledge and conservation behavior: Exploring prevalence and structure in a representative sample. *Personality and Individual Differences*, 37, 1597–1613. doi:10.1016/j.paid.2004.02.015
- Gilovich, T., Griffin, D., & Kahneman, D. (Eds.). (2002). *Heuristics and biases: The psychology of intuitive judgement*. Cambridge, MA: Cambridge University Press.
- Green, D., Palmquist, B., & Schickler, E. (2002). *Partisan hearts and minds: Political parties and the social identities of voters*. New Haven, CT: Yale University Press.
- Greene, S. (1999). Understanding party identification: A social identity approach. *Political Psychology*, 20, 393–403. doi:10.1111/0162-895X.00150
- Hamilton, L. C., & Saito, K. (2015). A four-party view of US environmental concern. *Environmental Politics*, 24, 212–227. doi:10.1080/09644016.2014.976485
- Harvey, C. (2016, November 7). The battle over Washington state's carbon tax has gotten even weirder. *The Washington Post*. Retrieved from <http://www.washingtonpost.com>
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Press.
- Howe, P. D., Mildenberger, M., Marlon, J. R., & Leiserowitz, A. (2015). Geographic variation in opinions on climate change at state and local scales in the USA. *Nature Climate Change*, 5, 596–603. doi:10.1038/nclimate2583
- Hurlstone, M. J., Lewandowsky, S., Newell, B. R., & Sewell, B. (2014). The effect of framing and normative messages in building support for climate policies. *PLoS One*, 9, 1–19. doi:10.1371/journal.pone.0114335
- Iyengar, S., Sood, G., & Lelkes, Y. (2012). Affect, not ideology: A social identity perspective on polarization. *Public Opinion Quarterly*, 76, 405–431. doi:10.1093/poq/nfs038
- Kahan, D. M. (2012). Why we are poles apart on climate change. *Nature*, 488, 255–255. doi:10.1038/488255a
- Kahan, D. M., & Braman, D. (2006). Cultural cognition and public policy. *Yale Law & Policy Review*, 24, 149–172.
- Kahan, D. M., Jenkins-Smith, H., & Braman, D. (2011). Cultural cognition of scientific consensus. *Journal of Risk Research*, 14, 147–174. doi:10.1080/13669877.2010.511246
- Kahan, D. M., Peters, E., Wittlin, M., Slovic, P., Ouellette, L. L., Braman, D., & Mandel, G. (2012). The polarizing impact of science literacy and numeracy on perceived climate change risks. *Nature Climate Change*, 2, 732–735. doi:10.1038/nclimate1547
- Kahneman, D. (2003). A perspective on judgment and choice. *American Psychologist*, 58, 697–720.
- Key, V. O. (1966). *The responsible electorate: Rationality in presidential voting*. Cambridge, MA: Harvard University Press.
- Leiserowitz, A., Feinberg, G., Rosenthal, S., Smith, N., Anderson, A., Roser-Renouf, C., & Maibach, E. (2014). *What's in a name? Global warming vs. climate change*. New Haven, CT: Yale Project on Climate Change Communication, Yale University and George Mason University. doi:10.7326/M13-2834
- Locke, S. (1999). Golem science and the public understanding of science: From deficit to dilemma. *Public Understanding of Science*, 8, 75–92. doi:10.1088/0963-6625
- McCright, A. M., & Dunlap, R. E. (2011a). Cool dudes: The denial of climate change among conservative white males in the United States. *Global Environmental Change*, 21, 1163–1172. doi:10.1016/j.gloenvcha.2011.06.003
- McCright, A. M., & Dunlap, R. E. (2011b). The politicization of climate change and polarization in the American public's views of global warming, 2001–2010. *Sociological Quarterly*, 52, 155–194. doi:10.1111/j.1533-8525.2011.01198.x
- Nie, N. H., Verba, S., & Petrocik, J. R. (1976). *The changing American voter*. Cambridge, MA: Harvard University Press.
- Pearson, A. R., Schuldt, J. P., & Romero-Canyas, R. (2016). Social climate science: A new vista for psychological science. *Perspectives on Psychological Science*, 11, 632–650. doi:10.1177/1745691616639726
- Perkins, H. W. (Ed.). (2003). *The social norms approach to preventing school and college substance abuse*. San Francisco, CA: Jossey-Bass.
- Plumer, B. (2013, March 14). Could Republicans ever support a carbon tax? Bob Inglis thinks so. *The Washington Post*. Retrieved from <http://www.washingtonpost.com>
- Price, V., & Zaller, J. (1993). Who gets the news? Alternative measures of news reception and their implications for research. *Public Opinion Quarterly*, 57, 133–164.
- Pronin, E., Berger, J., & Molouki, S. (2007). Alone in a crowd of sheep: Asymmetric perceptions of conformity and their roots in an introspection illusion. *Journal of Personality and Social Psychology*, 92, 585–595. doi:10.1037/0022-3514.92.4.585
- Schwartz, J. (2017, February 2). "A conservative climate solution": Republican group calls for carbon tax. *New York Times*. Retrieved from <http://www.nytimes.com>
- Skocpol, T. (2013). Naming the problem: What it will take to counter extremism and engage Americans in the fight against global warming. *The Politics of America's Fight Against Global Warming*, 1–142.
- Smith, C. T., Ratliff, K. A., & Nosek, B. A. (2012). Rapid assimilation: Automatically integrating new information with existing beliefs. *Social Cognition*, 30, 199–219. doi:10.1521/soco.2012.30.2.199
- Stern, P. C., Dietz, T., Abel, T., Guagnano, G. A., & Kalof, L. (1999). A value-belief-norm theory of support for social movements: The case of environmentalism. *Human Ecology Review*, 6, 81–97. doi:10.2307/2083693
- Tajfel, H., & Turner, J. C. (1986). The social identity theory of intergroup behavior. In S. Worchel & W. G. Austin (Eds.), *Psychology of intergroup relations* (pp. 7–24). Chicago, IL: Nelson-Hall.
- Van Boven, L., Ehret, P. J., & Sherman, D. K. (in press). Psychological barriers to bipartisan support for climate policy. *Perspectives on Psychological Science*.

- Washington State. (2016). *Elections & voting*. Retrieved from <http://results.vote.wa.gov/results/20161108/Measures.html>
- Zaller, J. (1992). *The nature and origins of mass opinion*. New York, NY: Cambridge University Press.
- Ziman, J. (1991). Public understanding of science. *Science, Technology & Human Values*, 16, 99–105. doi:10.1177/016224399101600106

Author Biographies

Phillip J. Ehret is a graduate student at the University of California, Santa Barbara, in the Psychological and Brain Sciences Department.

He studies psychological motivators and barriers to environmental and health behaviors.

Leaf Van Boven is a professor of psychology at the University of Colorado, Boulder, in the Psychology and Neuroscience Department. He studies judgment, emotion, decision-making, and identity.

David K. Sherman is a professor of psychology at the University of California, Santa Barbara, in the Psychological and Brain Sciences Department. He studies how people cope with threatening events and information.

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