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## **RESISTANCE TO CHANGE: A SOCIAL PSYCHOLOGICAL PERSPECTIVE**

THE PHENOMENON OF RESISTANCE TO CHANGE HAS BEEN CENTRAL TO THE study of social psychology since the very inception of the field. In the late nineteenth century, the American sociologist Thorstein Veblen (1857–1929) took sober notice of the inherently conservative aspects of the human mind—that is, the ways in which human beings are prone to privilege custom and tradition over progress and social change. In his magnum opus, *The Theory of the Leisure Class*, Veblen (1899) critiqued the culture of waste and “conspicuous consumption” that he associated with the emerging champions of the Industrial Revolution. He was openly pessimistic about where the cultivation of such lifestyles would lead society, but even Veblen could not have anticipated the environmental crises that, according to leading scientific experts, now loom ominously before us. “All change in habits of life and of thought is irksome,” he wrote. Human nature, Veblen believed, contains “an instinctive revulsion at any departure from the accepted way of doing and of looking at things—a revulsion common to all men and only to be overcome by stress of circumstances” (199).

Somewhat improbably, Veblen’s views about habits of thought and action were shared by the eccentric psychologist William McDougall (1871–1938), who authored one of the first two textbooks under the fledgling banner of *Social Psychology*. McDougall (1908) argued that:

Of the great general tendencies common to the minds of all men of all ages . . . [is] the tendency for all mental processes to become facilitated by repetition, the tendency to the formation of habits of thought and action which become more and more fixed in the individual as he grows older; and the consequent preference . . . for the familiar and the dislike of all that is novel in more than a very moderate degree.

He went on to write that “imitation is the great conservative tendency of society,” and that imitation is often socially adaptive or functional, insofar as habits perpetuate customs and customs are necessary for social organization.

One problem, McDougall (1908) observed, is that human beings have a tendency to “convert means into ends.” For instance, in early adulthood we may begin to try to earn money as a necessary means of living (or living well or living happily), but before we know it, earning money has become an end in itself, to which, as he put it, “the true end may be in large measure sacrificed” (356–357). Customs, which McDougall regarded as collective habits formed through cultural repetition, also become ends in themselves, and he noted that people are prepared to maintain a custom “often at great cost of effort or discomfort, long after it serves any useful end.” He was especially suspicious of “moralists” who “expressly commend the transformation of such means into ends.” Unfortunately, McDougall took these points in some bizarre ideological directions, suggesting that the Enlightenment ideals of “liberty and equality” were originally intended as means to “human welfare and happiness” and that treating them as ends in themselves had created serious social problems, such as the so-called “negro problem” in the United States. It would appear that, on some level, McDougall felt that welfare and happiness were appropriate ends for descendants of Europe but not necessarily for others.

## **RESISTANCE TO CHANGE FROM THE PERSPECTIVE OF MODERN EXPERIMENTAL SOCIAL PSYCHOLOGY**

Kurt Lewin (1890–1947), who is rightly considered the modern founder of social psychology, rejected as overly vague concepts such as “habit” and “custom,” as articulated by McDougall and many other psychologists of the early twentieth century. Although contemporary research on repetition and automaticity may suggest that McDougall’s emphasis on the psychological significance of familiarity was reasonable (e.g., Logan 1990), Lewin wrote in 1947 that “the concept [of] ‘habit’ has played havoc with the progress of psychology for decades” and that it should be “regarded as a popular term referring to a conglomeration of various processes” that ought to be distinguished from one another.

Whereas McDougall conceived of human behavior in terms of animal instincts and patterns of training, Lewin preferred to draw analogies between experimental physics and the social sciences. He developed a “field theory” in which human behavior was predicted and explained in terms of the relative strengths of internal and external forces acting on the individual. Lewin used field theory to try to understand some of the same problems raised by Veblen and McDougall, including the question of why personal—and especially social—change is so difficult and so gradual. He proposed that internal forces, such as cognitive and motivational dynamics that we typically associate with personality structure, provide one kind of stability, whereas external forces, such as the immediate situation—and social conformity pressures in particular—provide another. Lewin argued that social norms, standards, and institutions become like “vested interests,” insofar as we become highly protective of them. The individual, in other words, is embedded in social groups, and social groups are embedded in social systems (or structures).

In this view, resistance to change stems from the fact that we value the groups to which we belong, and therefore changing our attitudes or behavior is tantamount to leaving the comfortable embrace of a social reality of which we are a part—a social reality that

is largely shared by friends and family members (see also Hardin and Higgins 1996). Because of this, attitudes, once formed, tend to be “frozen” in place, and the only way to create real change is to temporarily “unfreeze” the individual’s attitudes, ideally in a social setting in which one’s friends’ attitudes are also “unfrozen” at the same time, and the group as a whole is subjected to argumentation. If persuasion takes place in this social context, the new attitudes should be frozen in place and solidified by the same social relationships.

During World War II, the US government sought Lewin’s assistance in helping people to change their eating behavior in light of food shortages and rationing. Lewin argued that it should be easier and more effective to create real change in a group situation rather than an individual situation. So he brought neighbors together, provided them with nutritional facts, and had them participate in open, democratically organized discussions about food. Lewin found that this method was far more effective than any other in bringing about changes in buying and eating habits.

Many of Lewin’s ideas, including the notion that there are pressures toward uniformity and consistency in the individual’s cognitive and motivational system (as well as in groups and social systems), were taken up and expanded upon by his most famous student, Leon Festinger (1919–1989). Festinger (1957) pointed out that in order to escape an aversive psychological state that he called “cognitive dissonance,” people are prone to seek out information that confirms their preexisting views and to “avoid new information that might increase the existing dissonance.” So, for instance, a smoker (like Festinger himself) might seek out material that is highly critical of research purporting to show that smoking is bad for one’s health and avoid information that supports such conclusions. Persuasion, in such cases, is no simple matter, because of the problem of “selective exposure”—a problem that is especially acute when it comes to the public’s understanding of scientific information pertaining to climate change.

## **OPENNESS VERSUS RESISTANCE TO ATTITUDE AND BEHAVIOR CHANGE**

Since Festinger's time, a great many factors in addition to the desire for cognitive consistency have been identified by social psychologists that make people especially unlikely to change their attitudes and behaviors (e.g., Eagly and Kulesa 1997; Knowles and Linn 2004; McGuire 1985; Petty and Krosnick 1995).

One factor has been referred to as ego-involvement, self-interest, personal significance, and "vested interests" (Crano 1995; Sherif and Sherif 1967). It will surprise no one to learn that (on average) people who are financially dependent on the oil and gas industry will be more resistant to acknowledging and doing something about climate change compared to those who are not. The problem is that we are already talking about millions of people around the world.

A second factor is social validation, group support, or peer pressure. People who live and work in communities that are highly skeptical about climate change will be more resistant than those who do not. As Lewin (1947) noted, if you want to "unfreeze" prior opinions, it may be better to work with members of such groups collectively rather than individually, counterintuitive as this may seem.

As a rule, people are far more likely to be persuaded by sources who are perceived as credible, trustworthy, powerful, attractive, expert, and similar to themselves (or members of the same social group). Conversely, people resist change when it is advocated by those whom they regard as untrustworthy, unattractive, or dissimilar (e.g., Hovland and Weiss 1951; McGuire 1985; Turner 1991). Furthermore, those who resist messages from expert sources tend to form stronger, more stubborn opinions than those who resist messages from nonexpert sources, apparently because the practice of disagreeing with experts reinforces self-confidence (Tormala and Petty 2004). Pervasive distrust of the scientific community in some segments of the population is therefore a serious social psychological obstacle to taking action to ameliorate problems associated with climate change (see Leiserowitz, Maibach, Roser-Renouf, Smith, and Dawson 2012).

One of my mentors, William J. McGuire (1925–2007), argued more than 50 years ago that people engage in “wishful thinking” by adjusting their judgments of probability or likelihood to fit with their judgments of liking or desirability. In other words, people are motivated to rationalize outcomes that are extremely undesirable (such as environmental catastrophes) as unlikely to occur (McGuire 1960; McGuire and McGuire 1991).

McGuire (1964) also demonstrated that people are more resistant to attitude change when they know that someone is trying to persuade them, and they build up a kind of “immunity” to arguments that they have heard before, insofar as they are able to recruit defensive counterarguments more or less automatically. This “immunity” to persuasion poses a daunting challenge when it comes to communication and persuasion about climate change in the twenty-first century.

Another mentor and friend, Arie Kruglanski (born in 1939), has shown that people are more likely to “seize and freeze” on their opinions and to be highly resistant to attitude change to the extent that they are chronically or temporarily high on the “need for cognitive closure.” That is, some individuals dislike uncertainty, ambiguity, and rumination. They want to make up their minds quickly and stop thinking about it. Certain situations—such as time pressure, mental distraction (sometimes called “cognitive load”), and alcohol intoxication—tend to increase the need for cognitive closure and resistance to persuasion, even in people who are not typically (or dispositionally) high in the need for closure (Kruglanski, Webster, and Klem 1993). Interestingly, these same situational factors seem to be associated with an increased affinity for politically conservative (vs. liberal or moderate) beliefs, opinions, and labels (e.g., Eidelman, Crandall, Goodman, and Blanchard 2012; Jost, Krochik, Gaucher, and Hennes 2009).

There is a great deal of research suggesting that if you *can* get people to think deeply or systematically about an issue (which usually depends on getting them to see it as personally relevant), they will be more likely to be resistant to persuasion later. In other words, “attitude elaboration” is one major contributor to attitude strength,

which is associated with stability and persistence rather than change (Eagly and Kulesa 1997; Petty, Haugtvedt, and Smith 1995).

Finally, we know that people are far more resistant to changing beliefs that are logically or psychologically connected to other beliefs and values that are important to them. The classic example is *ideology*, which can be thought of as a network of interrelated beliefs, values, and opinions (e.g., Eagly and Kulesa 1997; McGuire 1985; Sniderman and Tetlock 1986). People are highly resistant to persuasion when it comes to a belief that is ideologically relevant, because if they change one belief they are obliged to reconsider other beliefs that are logically dependent on the initial belief—or face the consequences, which might include cognitive dissonance and accusations of hypocrisy or inconsistency.

This last factor, the role of ideology, has been the focus of my own work on motivated resistance to scientific information about climate change. It purports to integrate and build upon insights gained from classic social psychological research programs on cognitive consistency, rationalization, and openness versus resistance to attitude change. I turn now to describing several of the studies we have conducted on the role of ideology and system justification processes in sustaining skepticism and environmental inaction and—under certain circumstances, at least—the ways in which these motivational forces may be channeled in an opposite direction.

## **A FOCUS ON IDEOLOGY AND SYSTEM JUSTIFICATION MOTIVATION**

Public opinion research reveals quite clearly that skepticism about climate change is especially prevalent among conservative White males, a strong majority of whom continue to deny that climate change is occurring, that it is problematic, and that it is the result of human activity (e.g., McCright and Dunlap 2011a; see also Jacquet, Dietrich, and Jost, 2014 for a brief review of research pertaining to the ideological divide over climate change). Despite the fact that environmental scientists have learned a good deal more about the causes,

consequences, and manifestations of climate change over the last 10 to 20 years, ideological polarization has increased rather than decreased during this time period (Guber 2012; McCright and Dunlap 2011b). Other contributions to this special issue of *Social Research* address some of the institutional (or macro-sociological) aspects of ideological polarization—including a well-funded movement designed to “manufacture uncertainty” about the science of climate change (see also Dunlap and Jacques 2013; Klein 2014; Oreskes and Conway 2010).

I will focus instead on an often underappreciated ideological factor, which we refer to as system justification motivation—that is, a “Panglossian” tendency to believe that the societal status quo is fair, legitimate, and if not ideal, at least pretty close to it (e.g., Jost, Banaji, and Nosek 2004; Kay, Jost, et al. 2007). We measure system justification in a number of different ways, but the most direct way is to measure agreement or disagreement with explicit attitude statements, such as those listed in tables 1 and 2. Consistently, we find that conservatives are more likely than liberals or progressives to endorse system-justifying statements; that is, to state that the American social, economic, and political systems operate as they should and that, by and large, people in our society get what they deserve (e.g., Jost, Nosek, and Gosling 2008).

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**Table 1: Items Used to Measure General (or Diffuse) System Justification**

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1. In general, you find society to be fair.
2. In general, the American system operates as it should.
3. American society needs to be radically restructured.
4. The United States is the best country in the world to live in.
5. Most policies serve the greater good.
6. Everyone has a fair shot at wealth and happiness.
7. Our society is getting worse every year.
8. Society is set up so that people usually get what they deserve.

Note: This scale was introduced by Kay and Jost (2003). Research participants are asked to indicate their level of agreement or disagreement with each item. Responses to items 3 and 7 are reverse-scored prior to calculating an overall system justification score.

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**Table 2. Items Used to Measure Economic System Justification**

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1. If people work hard, they almost always get what they want.
2. The existence of widespread economic differences does not mean that they are inevitable.
3. Laws of nature are responsible for differences in wealth in society.
4. There are many reasons to think that the economic system is unfair.
5. It is virtually impossible to eliminate poverty.
6. Poor people are not essentially different from rich people.
7. Most people who don't get ahead in our society should not blame the system; they have only themselves to blame.
8. Equal distribution of resources is a possibility for our society.
9. Social class differences reflect differences in the natural order of things.
10. Economic differences in the society reflect an illegitimate distribution of resources.
11. There will always be poor people, because there will never be enough jobs for everybody.
12. Economic positions are legitimate reflections of people's achievements.
13. If people wanted to change the economic system to make things equal, they could.
14. Equal distribution of resources is unnatural.
15. It is unfair to have an economic system which produces extreme wealth and extreme poverty at the same time.
16. There is no point in trying to make incomes more equal.
17. There are no inherent differences between rich and poor; it is purely a matter of the circumstances into which you are born.

Note: This scale was introduced by Jost and Thompson (2000). Research participants are asked to indicate their level of agreement or disagreement with each item. Responses to items 2, 4, 6, 8, 10, 13, 15, and 17 are reverse-scored prior to calculating an overall economic system justification score.

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We also find that people who endorse these system-justifying statements are less concerned about environmental problems, more skeptical about climate change, and less likely to report engaging in recycling and other ecologically minded behaviors. Importantly, scores on these system justification scales statistically mediate (or account for) the effects of political ideology and gender on skepticism about climate change and lack of support for pro-environmental policies (Feygina, Jost, and Goldsmith 2010). System-justifying beliefs thus help to explain why conservatives (and men) are less likely than progressives (and women) to acknowledge environmental problems and to favor taking action to mitigate the effects of climate change and other environmental threats. Presumably, this is because industrial production and economic growth under capitalism has long depended upon the exploitation of environmental as well as other human

and nonhuman resources. To defend the environment is therefore to challenge the legitimacy of common business practices and perhaps even the foundational assumptions of the capitalist economic system itself (Klein 2014; Parenti 2013). And to acknowledge problems associated with anthropogenic climate change is, in most political contexts, tantamount to embracing the need for government regulation, which is ideologically unacceptable to many on the political right (Campbell and Kay 2014).

Consistent with this general approach, a study of university students in Finland revealed that perceptions of climate change as a threat to the national system (as well as right-wing orientation) predicted scores on a Finnish translation of the General System Justification Scale (see table 1) as well as justification of the food distribution system in Finland (Vainio, Mäkineniemi, and Paloniemi 2014). The latter was measured in terms of agreement with items such as: “Finnish eating habits do not accelerate climate change,” “Finnish food production is already environmentally friendly enough,” and “Finnish food is the most climate-friendly in the world.” Justification of the food system in Finland was, in turn, associated with reduced knowledge about food choices and a reluctance to make climate-friendly food choices. Both types of system justification were associated with denial of anthropogenic climate change, which was measured in terms of agreement with statements such as “The climate has always been changing; humans do not have any role in climate change” and disagreement with statements such as “Climate change is boosted by the emissions produced by the actions of individuals.”

Surveys involving nationally representative samples of Australians indicated that individuals’ scores on the Economic System Justification Scale (see table 2) were negatively correlated with support for carbon pricing and other pro-environmental initiatives (Leviston and Walker 2014). System justification was also negatively correlated with moral engagement with respect to environmental issues (for example, “I feel a moral duty to do something about climate change”). And, congruent with the notion that system justification serves the

*palliative* function of making people feel better about and more satisfied with the status quo (Jost and Hunyady 2005), system justification was associated with decreased guilt, shame, anger, and fear pertaining to issues of climate change.

Experimental research suggests that especially dire messages about environmental problems may cause individuals who are prone to believe that the world is a just, orderly place in which people “get what they deserve and deserve what they get” to express greater skepticism about climate change (Feinberg and Willer 2011). In one study, individuals who were asked to unscramble phrases that strengthened “just world” beliefs (such as “The world is highly predictable” and “Somehow justice will always prevail”) and exposed to a highly threatening message became more skeptical about climate change and less willing to try to reduce their carbon footprint, in comparison with individuals assigned to a control condition.

My students and I have demonstrated that system justification motivates skepticism about climate change by encouraging biased forms of information-processing that affect the evaluation of and memory for scientific data, and even tactile perception. For instance, Erin Hennes and I exposed rural Midwesterners to excerpts from a genuine Associated Press newspaper article about the 2010 controversy over typographical and other errors in the report issued by the Intergovernmental Panel on Climate Change. After reading the article, participants evaluated the quality of scientific evidence concerning climate change, reported their own beliefs, and completed the Economic System Justification Scale (see table 2). As we anticipated, individuals who scored higher on this measure, that is, individuals who believe that the economic system is fine as it is, evaluated the scientific evidence for anthropogenic climate change to be significantly weaker, and their evaluation of the evidence statistically mediated their degree of skepticism about climate change in general (Hennes, Feygina, Ruisch, and Jost 2014). This suggests that one way in which defenders of the status quo are able to maintain their skepticism about climate change is by derogating the quality of scientific evidence.

In follow-up experiments, Hennes et al. (2014) demonstrated that temporarily increasing system justification motivation—that is, the desire to believe that the status quo is fair, legitimate, and justifiable—causes people to process information in a biased manner, so that the credibility of scientific concerns about climate change is undermined and skepticism is sustained or increased.<sup>1</sup> So, in one study, college students were first exposed to a manipulation of “system dependence,” which has been shown in prior research to increase system justification motivation in a variety of contexts (e.g., see Kay et al. 2009). Specifically, half of the participants were led to believe that, according to social science research, the quality of their lives is highly dependent upon “the system,” in this case, the government, the economy, and other institutions and policies. The other half were instead told that the system has little effect on their livelihood and well-being, so we expected they would be less motivated to justify the status quo.

We found that participants who were assigned to the high system dependence condition did indeed report feeling more dependent, so the experimental manipulation worked, and, more important, these participants expressed greater skepticism about the existence of climate change than did those who were assigned to the low system dependence condition. Participants assigned to the high system dependence condition were also more likely to misremember evidence pertaining to climate change in a way that facilitated denial and skepticism. For instance, they were less likely to remember the correct proportion of carbon emissions believed to be the product of power plants, cars, or trucks, as described in the newspaper article they had read. Only 21 percent of participants assigned to the high system dependence condition answered the question correctly, as compared with 64 percent in the low system dependence condition. And in fact, everyone assigned to the high system dependence condition who selected an incorrect ratio *underestimated* the problem of carbon emissions due to these sources, which was not the case in the other condition.

Participants assigned to the high system dependence condition were also much less likely to recall that errors in the climate change report were actually discovered by climate change scientists, including a coauthor of the report, than were participants assigned to the low system dependence condition. (Only 36 percent got this question right in the high system dependence condition, as compared with 60 percent in the low system dependence condition.) And in fact, 29 percent of participants assigned to the high system dependence condition falsely reported that the errors were discovered by scientists who were skeptical of global warming. Only 4 percent of participants assigned to the low system dependence condition made this mistake.

In another experiment, Hennes et al. (2014) exposed research participants to a television program in which a prominent climate change skeptic was asked to respond to clips taken from a NASA documentary. Afterward, participants were asked to remember details from the documentary and to make their own assessments of the quality of scientific evidence pertaining to climate change. As hypothesized, individuals who scored higher (vs. lower) on the Economic System Justification scale misremembered the scientific data that had been presented earlier in such a way that the problem of climate change was minimized and the quality of scientific evidence was weaker. Thus, it would appear that information-processing biases play an important role in sustaining skepticism about climate change for people who are chronically or temporarily high in system justification motivation.

Our research team explored these ideas further in an analysis of focus group interviews that were conducted by the Environmental Defense Fund (or EDF), which is a nonprofit environmental advocacy group. Their primary goal was to better understand conservative (or Republican) opinion and rhetoric about climate change to try to develop more effective messaging campaigns. The EDF shared videos of the group discussions with the members of my laboratory after they had completed the interviews, so we had no input or control over the questions that were asked or the individuals who were interviewed.

Nevertheless, the videos are lively and rich and provide considerable insight into how ordinary citizens process information about climate change in group settings. All the interviewees were registered Republican voters from Indiana or Pennsylvania; they participated in two-hour, semi-structured interviews in groups of 8 or 9. (About half were women, and nearly all were White, and they ranged in age from 19 to 63.)

We sought to determine whether individuals who spontaneously espoused system-justifying attitudes would be more likely to express false information when discussing climate change. So, Erin Hennes recruited a team of research assistants to transcribe the videos and code the contents of the transcripts for a number of things, including belief in climate change, system justification, and whether a given statement was intended as a statement of fact or not. Later, research assistants conducted online investigations to determine whether each of the factual statements was in fact true (that is, supported by scientific or other evidence) or false (not supported by evidence).

When the moderator asked participants to complete the sentence fragment, “Global warming is . . .,” responses even within this entirely Republican sample ranged from “not happening” and “hoax” to “an issue” and “anthropogenic.” So, we do observe some variability in belief vs. skepticism about climate change in this sample. There was also variability in the expression of system-justifying attitudes. For instance, one participant said: “[B]eing good stewards of the planet is something that we all should strive for. But destroying our way of life or our economy just *because* . . . isn’t something we should do.” Another stated: “I don’t see a problem with the air, frankly. I think it’s fine. And I think, I think we’re a pretty great place [America], and air pollution isn’t for me one of the top five things I worry about.” Both of these participants were coded as high system-justifiers. The following participant was coded as lower in system justification, because he seemed more critical of the status quo when he declared: “we’re supposed to be living in this sort of democracy where everybody has a voice . . . [but] I see the standard of living going further and further down.”

Overall, we observed that participants who made comments that were coded as system-justifying were less likely to believe in anthropogenic climate change and just as likely as others to make “factual” statements, but such statements were significantly less likely to be true and more likely to be false, including: “Throughout history, throughout the creation of the planet, volcanoes erupting, one volcano eruption emits more toxic chemicals into our environment than all the cars put together,” and “Greenland was called Greenland because it used to be green. No one said the world was ending when there was a major change there.” Furthermore, participants who expressed skepticism about anthropogenic climate change were more likely than others to make statements of a factual nature, but, again, these statements were much more likely to be false. Thus, we obtained considerable evidence—in a relatively unconstrained “real-world” setting—that system justification tendencies are associated not only with skepticism about climate change but with misinformation and the expression of false statements about scientific matters.

### **EFFECTS OF SYSTEM JUSTIFICATION ON JUDGMENTS OF THE AMBIENT TEMPERATURE**

A number of studies suggest that people believe more in climate change on warmer days than on colder days (e.g., Egan and Mullin 2012; Zaval, Keenan, Johnson, and Weber 2014)—a phenomenon that has been parodied by comedian Jon Stewart, among others. Based on these studies, we hypothesized that people who are chronically high in economic system justification and people who are temporarily made to feel more dependent on the system would be motivated to estimate the temperature outside as cooler, insofar as perceiving (or reporting) cooler temperatures facilitates skepticism about global warming.

In one study, for instance, our research assistants approached adults in New York City’s Washington Square Park on a summer’s day and—without mentioning anything about climate change until the end of the study—asked them to estimate the current temperature. We found that ideology was indeed related to perceptions of the

ambient temperature, perhaps at a nonconscious level of awareness. Participants who scored higher on economic system justification reported the temperature to be significantly cooler than did those who scored lower in system justification. In addition, perceptions of the outside temperature partially mediated the effect of economic system justification on belief in climate change, suggesting that biased tactile perceptions may also facilitate skepticism.

We successfully replicated this study with an experimental manipulation of system dependence and—just to be sure that economic system justification was not associated with temperature underestimation in general—we repeated this procedure in an indoor location. We observed that system justification was unrelated to indoor perceptions, so the phenomenon of motivated perception only seems to occur when it has some psychological bearing on belief in climate change (Hennes et al. 2014).

## **A THEORY OF SYSTEM JUSTIFICATION**

I interpret many of these kinds of results to be in line with system justification theory, which holds that—to varying degrees—people are motivated (often nonconsciously) to defend, justify, and bolster aspects of the societal status quo, and that this is an important psychological and ideological contributor to resistance to change. This general approach is consistent with Kurt Lewin’s assumption that the individual (and his or her personality) is structurally embedded in the activities of social groups and the practices of social systems. The strength of system justification motivation as a “driving force” varies according to individual (or dispositional) and social (or situational) factors, such as the strength of needs to manage uncertainty, threat, and social relationships (Jost and Hunyady 2005). The idea is that system-justifying beliefs and ideologies are psychologically appealing because they help people to address fundamental epistemic, existential, and relational needs or motives.

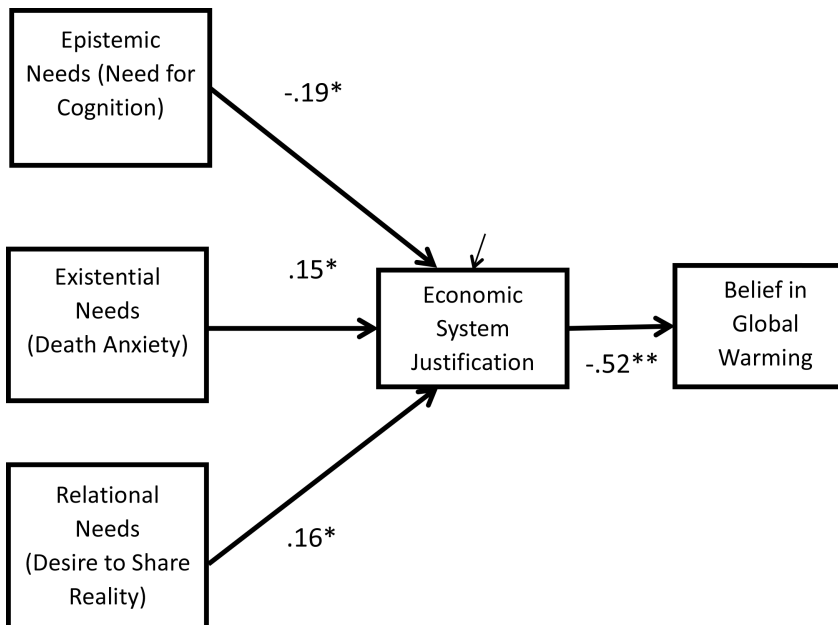
Hennes, Nam, Stern, and Jost (2012) conducted an online survey of Americans to investigate the relationship between disposi-



tional variability in epistemic, existential, and relational needs and economic system justification as well as other social and political attitudes, including environmental attitudes. Results revealed that scores on the personal need for cognition (that is, the tendency to engage in and enjoy effortful cognitive activity) were negatively associated with economic system justification, whereas scores on measures of death anxiety and the desire to share reality with like-minded others were positively associated with economic system justification. Economic system justification, in turn, mediated the effects of epistemic, existential, and relational needs on beliefs about global warming.<sup>2</sup> The general pattern of results is illustrated in figure 1 (see next page); the full model explained 34.3 percent of the statistical variance in beliefs about global warming. The upshot is that individuals who are chronically concerned with the attainment of certainty, security, and conformity are more likely to endorse the legitimacy of the economic system and are therefore less likely to believe that climate change is occurring and that it is manmade.

Some critics have alleged that system justification theory is incapable of explaining how or why change would ever occur, but this criticism obscures the distinction between that which is difficult and that which is *impossible*. System justification theory does not state that social change is impossible. Rather, like many other perspectives in the history of social psychology, system justification theory suggests that real change is difficult—for psychological as well as other reasons. Given the evidence that has accumulated since the time of Kurt Lewin, it seems misleading to imply, as some authors have, that social change is just as likely an outcome as social stability.

Danielle Gaucher and I have described several ways in which one can account for social change from a system justification perspective. First, there are other motives identified by the theory—such as ego and group justification (that is, tendencies to defend and bolster personal and collective interests and esteem)—that may trump system justification motives in any given situation. Furthermore, system justification theory does suggest that most (but by no means all) indi-



**Figure 1.** Simplified path model illustrating the mediation by economic system justification of epistemic, existential, and relational needs on belief in global warming.

**Note:** Numerical entries are standardized regression coefficients for the full model. This is a simplified illustration; indirect paths and correlations among epistemic, existential, and relational needs are not shown. See Hennes, Nam, Stern, and Jost (2012) for full details concerning the method, statistical model, and results. \*  $p < .05$  \*\*  $p < .01$

viduals resist changes to the status quo, but once it appears to be highly likely (or perhaps inevitable) that a new regime will take its place, these same individuals tend to engage in anticipatory justification of the new status quo (Kay, Jimenez, and Jost 2002; Laurin, Kay, and Fitzsimons 2012). Thus, Frances Beinecke, the president of the Natural Resources Defense Council, chooses her words wisely when she emphasizes that “the clean energy future is desirable, necessary, and inevitable.” Finally, it follows from the general approach I have outlined that people will be less defensive and more open to new pos-

sibilities when potential changes to the status quo are described as congruent rather than incongruent with the official, cherished ideals and values of the overarching social system (Gaucher and Jost 2011).

### **FRAMING PRO-ENVIRONMENTAL INITIATIVES TO MINIMIZE IDEOLOGICAL DEFENSIVENESS**

The notion that potential changes to the status quo will be more palatable to the extent that they are “system-sanctioned”—seen as arising from, or having strong connections with, the overarching social system—was addressed in the context of a study of environmental attitudes by Feygina, Jost, and Goldsmith (2010). We hypothesized that if conservatives and high system-justifiers are resistant to pro-environmental initiatives because they do not want to admit that something is wrong with our socioeconomic system or are reluctant to change their own behavior or to advocate significant changes to the status quo, then it might be possible to harness their system justification motivation on behalf of the environment simply by reframing pro-environmental initiatives as “patriotic” and consistent with the goal of protecting and preserving the “American way of life.” When the need for pro-environmental action was “system-sanctioned”—that is, described as congruent with the preservation of the American system—we found that high system-justifiers were indeed much more committed to helping the environment and more likely to sign a pro-environmental petition.

In a kind of conceptual replication, Campbell and Kay (2014) demonstrated that Republicans were significantly more likely to agree that human activity was responsible for climate change after reading a passage suggesting that “the United States could help stop climate change and profit from leading the world in green technology”—as opposed to a passage emphasizing the need for governmental regulation of business. A similar result was obtained by Hardisty, Johnson, and Weber (2010), who found that Republicans were especially sensitive to the manner in which environmental costs were framed or labelled. Specifically, the researchers observed that Republicans

were highly resistant to carbon pricing when it was described as a “tax”—presumably because the notion of taxation was experienced as threatening to or incompatible with their economic ideology. However, when the same costs were described as “offsets,” Republicans were significantly more open to their implementation. (Democrats and Independents were unaffected by the labeling manipulation). These approaches combined theory and research on persuasion, ideology, and motivation to produce results that should be useful when it comes to designing methods of intervention to overcome resistance to change.

It is perhaps noteworthy that in recent years pro-environmental organizations have increasingly appealed to values associated with the desire to preserve that which is socially and culturally familiar, such as a nostalgic vision of small-town America. One example is the campaign to stop TransCanada’s plans for the Keystone XL Pipeline to carry liquid petroleum from Alberta to Texas. Progressive activists, including Jane Kleeb, have appealed to Nebraska farmers by being “careful not to use the word ‘environment’ or mention climate change, preferring to talk ‘about the land’ and the rich foreigners putting the country’s water at risk” (Elbein 2014). To be sure, there is a danger here of avoiding the “real” issues and postponing necessary changes (e.g., Klein 2014, 57–58), but, from a practical perspective, it would be foolhardy to ignore powerful forces of ideological defensiveness or to provoke conflict simply for the sake of conflict.

There is a nonprofit organization called “The Climate Mobilization,” which describes the need to take action against climate change as a patriotic duty and declares on its website that to address the problem “the United States must respond on a scale comparable only to the World War II home-front mobilization” (see <http://www.theclimatemobilization.org/>). In the spring of 2014, Frances Beinecke praised action taken by President Barack Obama by highlighting its continuity with American tradition:

America has gained another crown jewel in our extraordinary collection of wild, beautiful, and historic public

places. Today President Obama is designating nearly half a million acres in New Mexico as the Organ Mountains-Desert Peaks National Monument. This designation is part of a noble tradition: nearly every president in the past 100 years has declared national monuments. . . . President Obama's executive action guarantees this tradition of conserving our natural and cultural heritage will continue uninterrupted.

For better or worse, people find it much easier, for social psychological reasons, to support and defend that which is part of the established status quo—as opposed to that which seems to question or upend it.

Despite occasional moments of encouragement, one is generally hard-pressed to be optimistic about the present environmental situation. Pessimism is warranted, in part, because of the many social psychological forces—including system justification motivation—that contribute to resistance to change. To make matters worse, there is a formidable constellation of social and psychological differences between liberals and conservatives that contributes to the present era of ideological conflict, polarization, and gridlock (see Jost 2006; Jost and Krochik 2014; Mooney 2012). Nevertheless, the possibility that conservative impulses may be harnessed on behalf of environmental protection efforts rather than against them (as Theodore Roosevelt understood)—and the fact that some types of messaging campaigns clearly seem to work better than others—provides some measure of hope that skepticism about the science of climate change may be overcome and that something can be done about the problem sooner rather than later.

### **“FORWARD, FORWARD LET US RANGE”**

In this article I have emphasized social, cognitive, and motivational forces that—more often than not—lead people to resist making the kinds of personal and political changes that would be necessary for us (as a society) to take robust action against anthropogenic climate change. As Gardiner (2011, 31) put it, there is “a status quo bias in

the face of uncertainty” because “contemplating basic change may be unnerving, even distressing” and the “social ramifications of action appear to be large, perspicuous, and concrete,” whereas “those of inaction appear uncertain, elusive, and indeterminate.” These conclusions are highly compatible with an analysis of environmental inaction in terms of system justification motivation. Of course, it does not follow that *no one* in society (even in positions of decision-making authority) is reachable or that our nation’s energy policies could never be moved in a more sustainable direction. To quote the poet Alfred Lord Tennyson (1835) from “Locksley Hall”: “Not in vain the distance beacons. / Forward, forward let us range, / Let the great world spin for ever / down the ringing grooves of change.”

Scholars in the tradition of Kurt Lewin would place their faith in democratic procedures, on the assumption that resistance to change can be defeated in the long run through “the use of group meetings in which [leadership] effectively communicates the need for change and stimulates group participation in planning the changes” (Coch and French 1948, 531). Work summarized by McGuire (1964) suggests that some ideological convictions are like truisms in that they are adopted mindlessly and never really scrutinized; this lack of scrutiny makes them especially vulnerable to persuasive attack when they are eventually challenged. It remains to be seen whether ideologically motivated reasons to oppose pro-environmental action (for example, the assumption that “green” policies are necessarily harmful to the economy) are really “paper tigers.” Cognitively oriented researchers, in any case, would advise that one “lesson for persuasion on environmental issues is to communicate lots of information and to repeat it frequently” (Eagly and Kulesa 1997, 131). One reason this is advisable is that people have a tendency to trust that familiar information is valid and true (e.g., Begg, Anas, and Farinacci 1992; Hasher, Goldstein, and Toppino 1977)—a fact about metacognition that may help to explain why ideological truisms persist, at least until they are directly challenged (McGuire 1964). Another reason is that environmentally minded citizens need strong arguments that are cognitively

accessible to counter skeptics of climate change when they encounter them, as they inevitably will.

In a direct application of Lewinian field theory, Kruglanski et al. (2011) proposed that an individual's thoughts will translate into action only when the magnitude of driving forces—which is determined by his or her willingness to expend mental resources, the demands of the situation, and the presence or absence of competing goals—exceeds the magnitude of restraining forces, which is determined by the mental resources available and the importance of the focal goal. At the same time, there are both situational and dispositional factors that affect the extent to which one is committed to change in general. For instance, Scholer and Higgins (2012) demonstrated that chronic and temporary variability in self-regulatory states associated with “locomotion” (or action) versus “assessment” (or comparison) interact to predict sustained commitment to behavioral change. In particular, exposure to a “movement-focused frame” of deliberation (which emphasized messages such as “When individuals are stuck in an ambivalent state, it's most effective to adopt a ‘just do it’ attitude . . . . Deliberation can get you ‘unstuck’ by prompting action and progress”) was effective in leading individuals who were chronically high in locomotion motivation to pursue transformative personal goals more aggressively three weeks later (in comparison with a control condition). Anyone who feels queasy about the ethics of using social influence tactics to combat skepticism and inaction when it comes to global warming would do well to ponder McGuire's (1985, 235) remark that “a few aberrant young who see visions and old who dream dreams may discern that persuasion is the worst possible mode of social mobilization and conflict resolution—except for all the others.”

And, finally, if framing tactics and other attempts at persuasion fail, recent work suggests that direct, personal exposure to traumatic weather-related events (such as Hurricanes Irene and Sandy in 2011 and 2012, respectively) may make people more supportive of “green” policies and politicians—perhaps at an implicit or automatic level of awareness (Miller et al. 2014; Rudman, McLean, and Bunzl,

2013). One is reluctant to pin hopes for the future on lessons learned through the experience of disaster, but the sense that we are running out of other, more planful, proactive options is increasingly difficult to dispel. The admonition of Thorstein Veblen (1899) haunts us still: Could it be that the “instinctive revulsion” to change can only be vanquished, once and for all, when we are confronted, perhaps severely, with the “stress of circumstances”?

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### **NOTES**

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2. Specifically, participants were asked to respond on a seven-point scale ranging from 1 (*definitely not*) to 7 (*definitely*) to each of three items: “Do you believe that global warming is occurring?”; “Do you believe that global warming is anthropogenic (caused by human behavior)?”; and “Do you believe that there is strong scientific evidence that global warming is occurring and man-made?” Responses to these three items were combined to form an index of belief in global warming ( $\alpha = .90$ ).



## REFERENCES

- Begg, I. M., A. Anas, and S. Farinacci. 1992. "Dissociation of Processes in Belief: Source Recollection, Statement Familiarity, and the Illusion of Truth." *Journal of Experimental Psychology: General* 121: 446–458.
- Blank, J. M., and D. Shaw. 2015. "Does Partisanship Shape Attitudes toward Science and Public Policy? The Case for Ideology and Religion." *The ANNALS of the American Academy of Political and Social Science* 658: 18–35.
- Campbell, T. H., and A. C. Kay. 2014. "Solution Aversion: On the Relation between Ideology and Motivated Disbelief." *Journal of Personality and Social Psychology* 107: 809–824.
- Coch, L., and J. R. P. French Jr. 1948. "Overcoming Resistance to Change." *Human Relations* 1: 512–532.
- Crano, W. D. 1995. "Attitude Strength and Vested Interest." In *Attitude Strength: Antecedents and Consequences*, edited by R. E. Petty and J. Krosnick, 131–157. Mahwah, N.J.: Erlbaum.
- Dunlap, R. E., and P. J. Jacques. 2013. "Climate Change Denial Books and Conservative Think Tanks: Exploring the Connection." *American Behavioral Scientist* 57: 699–731.
- Eagly, A. H., and P. Kulesa. 1997. "Attitudes, Attitude Structure, and Resistance to Change." In *Environment, Ethics, and Behavior: The Psychology of Environmental Valuation and Degradation*, edited by M. H. Bazerman, D. M. Messick, A. Tenbrunsel, and K. A. Wade-Benzoni, 122–153. San Francisco: New Lexington Press.
- Egan, P. J., and M. Mullin. 2012. "Turning Personal Experience into Political Attitudes: The Effect of Local Weather on Americans' Perceptions of Global Warming." *Journal of Politics* 74: 796–809.
- Eidelman, S., C. S. Crandall, J. A. Goodman, and J. C. Blanchard. 2012. "Low-Effort Thought Promotes Political Conservatism." *Personality and Social Psychology Bulletin* 38: 808–820.
- Elbein, Saul. 2014. "Jane Kleeb vs. the Keystone Pipeline." *The New York Times Magazine*, May 16. <http://nyti.ms/1jEQWc>
- Feinberg, M., and R. Willer. 2011. "Apocalypse Soon? Dire Messages Reduce Belief in Global Warming by Contradicting Just World Beliefs." *Psychological Science* 22: 34–38.

- Festinger, L. 1957. *A Theory of Cognitive Dissonance*. Stanford: Stanford University Press.
- Feygina, I., J. T. Jost, and R. Goldsmith. 2010. "System Justification, the Denial of Global Warming, and the Possibility of 'System-Sanctioned Change.'" *Personality and Social Psychology Bulletin* 36: 326–338.
- Gardiner, S. M. 2011. *A Perfect Moral Storm: The Ethical Tragedy of Climate Change*. New York: Oxford University Press.
- Gaucher, D., and J. T. Jost. 2011. "Difficulties Awakening the Sense of Injustice and Overcoming Oppression: On the Soporific Effects of System Justification." In *Conflict, Interdependence, and Justice: The Intellectual Legacy of Morton Deutsch*, edited by P. T. Coleman, 227–246. New York: Springer.
- Guber, D. L. (2013). "A Cooling Climate for Change? Party Polarization and the Politics of Global Warming." *American Behavioral Scientist* 57: 93–115.
- Hardin, C. D., and E. T. Higgins. 1996. "Shared Reality: How Social Verification Makes the Subjective Objective." In *Handbook of Motivation and Cognition: The Interpersonal Context*, edited by E. T. Higgins and R. M. Sorrentino, Vol. 3, 28–84. New York: Guilford.
- Hardisty, D. J., E. J. Johnson, and E. U. Weber. 2010. "A Dirty Word or a Dirty World? Attribute Framing, Political Affiliation, and Query Theory." *Psychological Science* 21: 86–92.
- Hasher, L., D. Goldstein, and T. Toppino. 1977. "Frequency and the Conference of Referential Validity." *Journal of Verbal Learning and Verbal Behavior* 16: 107–112.
- Hennes, E. P., I. Feygina, B. Ruisch, and J. T. Jost. 2014. "Motivated Evaluation, Recall, and Tactile Perception in the Service of the System: The Case of Anthropogenic Climate Change." Unpublished manuscript.
- Hennes, E. P., H. H. Nam, C. Stern, and J. T. Jost. 2012. "Not All Ideologies Are Created Equal: Epistemic, Existential, and Relational Needs Predict System-justifying Attitudes." *Social Cognition* 30: 669–688.

- Hovland, C. I., and W. Weiss. 1951. "The Influence of Source Credibility on Communication Effectiveness." *Public Opinion Quarterly* 15: 635–650.
- Jacquet, J., M. Dietrich, and J. T. Jost. 2014. "The Ideological Divide and Climate Change Opinion: 'Top-Down' and 'Bottom-Up' Approaches." *Frontiers in Psychology* 5: 01458. doi: 10.3389/fpsyg.2014.01458
- Jost, J. T. 2006. "The End of the End of Ideology." *American Psychologist* 61: 651–670.
- Jost, J. T., M. R. Banaji, and B. A. Nosek. 2004. "A Decade of System Justification Theory: Accumulated Evidence of Conscious and Unconscious Bolstering of the Status Quo." *Political Psychology* 25: 881–919.
- Jost, J. T., and O. Hunyady. 2005. "Antecedents and Consequences of System-justifying Ideologies." *Current Directions in Psychological Science* 14: 260–265.
- Jost, J. T., and M. Krochik. 2014. "Ideological Differences in Epistemic Motivation: Implications for Attitude Structure, Depth of Information Processing, Susceptibility to Persuasion, and Stereotyping." In *Advances in Motivation Science*, edited by A. Elliot, 181–231. San Diego: Elsevier/Academic Press.
- Jost, J. T., M. Krochik, D. Gaucher, and E. P. Hennes. 2009. "Can a Psychological Theory of Ideological Differences Explain Contextual Variability in the Contents of Political Attitudes?" *Psychological Inquiry* 20: 183–188.
- Jost, J. T., B. A. Nosek, and S. D. Gosling. 2008. "Ideology: Its Resurgence in Social, Personality, and Political Psychology." *Perspectives on Psychological Science* 3: 126–136.
- Jost, J. T., and E. P. Thompson. 2000. "Group-based Dominance and Opposition to Equality as Independent Predictors of Self-esteem, Ethnocentrism, and Social Policy Attitudes Among African Americans and European Americans." *Journal of Experimental Social Psychology* 36: 209–232.
- Kay, A. C., D. Gaucher, J. M. Peach, K. Laurin, J. Friesen, M. P. Zanna, and S. J. Spencer. 2009. "Inequality, Discrimination, and the Power of

- the Status Quo: Direct Evidence for a Motivation to See the Way Things Are as the Way They Should be.” *Journal of Personality and Social Psychology* 97: 421–434.
- Kay, A., M. C. Jimenez, and J. T. Jost. 2002. “Sour Grapes, Sweet Lemons, and the Anticipatory Rationalization of the Status Quo.” *Personality and Social Psychology Bulletin* 28: 1300–1312.
- Kay, A. C., and J. T. Jost. 2003. “Complementary Justice: Effects of ‘Poor but Happy’ and ‘Poor but Honest’ Stereotype Exemplars on System Justification and Implicit Activation of the Justice Motive.” *Journal of Personality and Social Psychology* 85: 823–837.
- Kay, A. C., J. T. Jost, A. N. Mandisodza, S. J. Sherman, J. V. Petrocelli, and A. L. Johnson. 2007. “Panglossian Ideology in the Service of System Justification: How Complementary Stereotypes Help us to Rationalize Inequality.” In *Advances in Experimental Social Psychology*, edited by M. Zanna, Vol. 39, 305–358. San Diego: Academic Press/Elsevier.
- Knowles, E. S., and J. A. Linn. 2004. *Resistance and Persuasion*. Mahwah, N.J.: Erlbaum.
- Kraft, P. W., M. Lodge, and C. S. Taber. 2015. “Why People ‘Don’t Trust the Evidence’: Motivated Reasoning and Scientific Beliefs.” *The ANNALS of the American Academy of Political and Social Science* 658: 121–133.
- Kruglanski, A.W., J. J. Bélanger, X. Chen, C. Köpetz, A. Pierro, and L. Manetti. 2011. “The Energetics of Motivated Cognition: A Force-Field Analysis.” *Psychological Review* 119: 1–20.
- Kruglanski, A. W., D. M. Webster, and A. Klem. 1993. “Motivated Resistance and Openness to Persuasion in the Presence or Absence of Prior Information.” *Journal of Personality and Social Psychology* 65: 861–876.
- Laurin, K., A. C. Kay, and G. J. Fitzsimons. 2012. “Reactance Versus Rationalization: Divergent Responses to Policies that Constrain Freedom.” *Psychological Science* 23: 205–209.
- Leiserowtiz, A. A., E. W. Maibach, C. Roser-Renouf, N. Smith, and E. Dawson, E. 2012. “Climategate, Public Opinion, and the Loss of Trust.” *American Behavioral Scientist* 57: 818–837.

- Leviston, Z., and I. Walker. 2014. "System Legitimacy and Support for Climate Change Policy in Australia." Paper presented at the Biennial Conference of the International Society of Justice Research, New York, N.Y.
- Lewin, K. 1947 (1951). *Field Theory in Social Science*. New York: Harper and Row.
- Logan, G. 1990. "Repetition Priming and Automaticity: Common Underlying Mechanisms?" *Cognitive Psychology* 22: 1–35.
- McCright, A. M., and R. E. Dunlap. 2011a. "Cool Dudes: The Denial of Climate Change Among Conservative White Males in the United States." *Global Environmental Change* 21: 1163–1172.
- . 2011b. "The Politicization of Climate Change and Polarization in the American Public's Views of Global Warming, 2001–2010." *The Sociological Quarterly* 52: 155–194.
- McDougall, W. J. 1908. *An Introduction to Social Psychology*. New York: Luce.
- McGuire, W. J. 1960. "A Syllogistic Analysis of Cognitive Relationships." In *Attitude Organization and Change*, edited by M. J. Rosenberg, C. I. Hovland, W. J. McGuire, R. P. Abelson, and J. W. Brehm, 65–111. New Haven: Yale University Press.
- . 1964. "Inducing Resistance to Persuasion: Some Contemporary Approaches." *Advances in Experimental Social Psychology* 1: 191–229.
- . 1985. "Attitudes and Attitude Change." In *Handbook of Social Psychology*, edited by G. Lindzey and E. Aronson, 3rd ed., Vol. 2, 233–346. New York: Random House.
- McGuire, W. J., and C. V. McGuire. 1991. "The Content, Structure, and Operation of Thought Systems." In *Advances in Social Cognition*, edited by R. S. Wyer Jr. and T. K. Srull, Vol. 4, 1–78. Hillsdale, N.J.: Erlbaum.
- Miller, S., G. Kidd, F. Montalto, P. Gurian, C. Worrall, and R. Lewis. 2014. "Contrasting Perspectives Regarding Climate Risks and Adaptation Strategies in the New York Metropolitan Area after Superstorm Sandy." *Journal of Extreme Events* 1: 1–22.
- Mooney, C. 2012. *The Republican Brain: The Science of Why They Deny Science—and Reality*. Hoboken, N.J.: Wiley.

- Oreskes, N., and E. M. Conway. 2010. *Merchants of Doubt*. New York: Bloomsbury.
- Parenti, C. 2013. "A Radical Approach to the Climate Crisis." *Dissent* (Summer): 51–57.
- Petty, R. E., C. P. Haugtvedt, and S. M. Smith. 1995. "Elaboration as a Determinant of Attitude Strength: Creating Attitudes that are Persistent, Resistant, and Predictive of Behavior." In *Attitude Strength: Antecedents and Consequences*, edited by R. E. Petty and J. Krosnick, 93–130. Mahwah, N.J.: Erlbaum.
- Petty, R. E., and J. Krosnick. 1995. *Attitude Strength: Antecedents and Consequences*. Mahwah, N.J.: Erlbaum.
- Rudman, L. A., M. C. McLean, and M. Bunzl. 2013. "When Truth Is Personally Inconvenient, Attitudes Change: The Impact of Extreme Weather on Implicit Support for Green Politicians and Explicit Climate-change Beliefs." *Psychological Science* 24: 2290–2296.
- Scholer, A. A., and E. T. Higgins. 2012. "Commitment to Change from Locomotion Motivation during Deliberation." *Motivation and Emotion* 36: 114–129.
- Sherif, C. W., and M. Sherif. 1967. *Attitude, Ego-involvement, and Change*. New York: Wiley.
- Sniderman, P. M., and P. E. Tetlock. 1986. "The Interrelationship of Political Ideology and Public Opinion." In *Political Psychology*, edited by M. G. Hermann, 62–96. San Francisco: Jossey-Bass.
- Tormala, Z. L., and R. E. Petty. 2004. "Source Credibility and Attitude Certainty: A Metacognitive Analysis of Resistance to Persuasion." *Journal of Consumer Psychology* 14: 427–442.
- Turner, J. C. 1991. *Social Influence*. Buckingham, U.K.: Open University Press.
- Vainio, A., J. P. Mäkinen, and R. Paloniemi. 2014. "System Justification and the Perception of Food Risks." *Group Processes and Intergroup Relations* 17: 509–523.
- Veblen, T. 1899. *The Theory of the Leisure Class: An Economic Study of Institutions*. New York: Heubsch.
- Zaval, L., E. A. Keenan, E. J. Johnson, and E. U. Weber. 2014. "How Warm Days Increase Belief in Global Warming." *Nature Climate Change* 4: 143–147.