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the Cultural Cognition Project at Yale Law School

The Second National Risk and Culture Study: Making Sense of—and Progress in—the American Culture War of Fact

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Introduction

Is there a "culture war" in the United States? If so, what it is it about?

Political scientists tend to treat the "culture war" thesis as media hype. Polls, they point out, consistently show that the vast majority of citizens rank societal welfare—economic prosperity, national security, the quality of the environment, and the like—ahead of "moral values" when asked to identify issues of political importance (Fiorina 2005).

At the same, time, what people believe government should *do* to promote societal welfare is undeniably correlated with their cultural outlooks. Most citizens might be less concerned about whether the government should ban flag burning than whether it should do something about global warming; about whether state judges should be permitted to display the Ten Commandments in their courtrooms than whether workers should be afforded a higher minimum wage; about whether men should be allowed to marry other men than about whether the U.S. should send more men (and women) to Iraq. But it turns out that individuals' positions on the former set of so-called symbolic, cultural issues strongly predicts what they think about the latter set of material, non-cultural ones (Kahan & Braman 2006).

Most of us, in fact, are perfectly aware of this connection. When we reflect on controversial policy positions—"the death penalty doesn't deter murder"; "climate change is a natural, cyclical phenomenon"; "gun control will reduce violent crime"; "the minimum wage will lead to unemployment and ultimately hurt the poor"—we don't think of them as being merely right or wrong. We also instantly recognize them as the sort of things "people like them" assert or deny; they are beliefs that our close associates tend to have unified position on—the challenging of which could actually cost us their friendship.

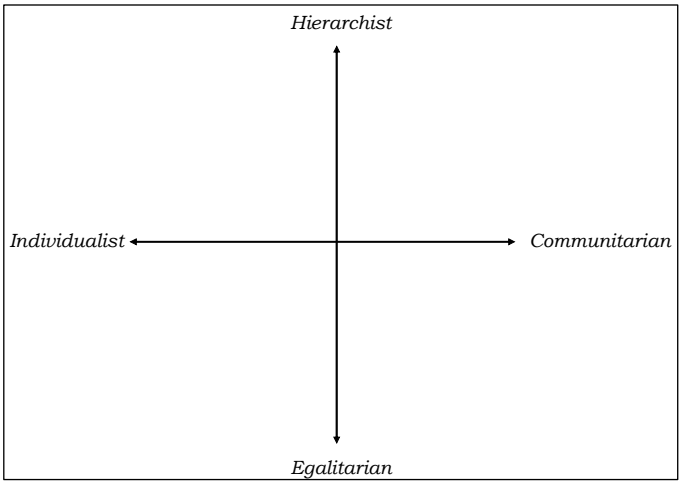
So even if the political scientists are right about what citizens really want, there still *is* a culture war in American politics. It's not so much about whether law should reflect "our" values or

"theirs" but about whose view of the *facts*—"ours" or "theirs"—societal welfare policies of various sorts should be based on.

Understanding this peculiar cultural war of facts and trying to assess what might be done to broker peace in it are the motivating aims of the Cultural Cognition Project at Yale Law School. This report describes the results of a series of surveys and experiments, conducted over a nine-month period and involving some 5,000 Americans, that bear on these matters.

Cultural Cognition: Theory and Empirical Testing

The "cultural cognition thesis" asserts that people's beliefs about risk are shaped by their core values. Because of a combination of interrelated psychological dynamics, individuals conform their views about what sorts of activities endanger societal welfare, and what sorts of policies effectively combat those dangers, to their cultural evaluation of those activities (Kahan & Braman 2006).



The theory of cultural cognition rests on a parsimonious framework for classifying individuals' cultural values. This framework (patterned on Douglas, 1970) characterizes "cultural worldviews," or preferences for how to organize society, along two cross-cutting axes: "hierarchy-egalitarianism" and "individualism-communitarianism." People who subscribe to a "hierarchical" worldview believe that rights, duties, goods, and offices should be distributed differentially and on the basis of clearly defined and stable social characteristics (e.g., gender, wealth, lineage, ethnicity). Those who subscribe to an "egalitarian" worldview believe that rights, duties, goods, and offices should be distributed equally and *without* regard to such characteristics. People who subscribe to a "communitarian" worldview believe that societal interests should take precedence over individual ones and that society should bear the responsibility for securing the conditions of individual flourishing. Those who subscribe to an "individualistic" worldview believe that individuals should secure the conditions of their own flourishing without collective interference or assistance.[1]

Using this framework, researchers affiliated with the Cultural Cognition Project found in the First National Risk and Culture Study (2004) that beliefs about societal risks are distributed across persons in patterns consistent with the cultural cognition thesis (Kahan et al. 2007a). Ega-

[1] Our studies measure individuals' worldviews with two attitudinal scales (Kahan et al. 2007a). For ease of exposition, we refer to persons as either "egalitarians" or "hierarchs," and either "individualists" or "communitarians," depending on where their worldview scores fall in relation to the average on the relevant scale. This framework, of course, is only one representation of people's cultural values; "worldviews" are more numerous, and more complex, than this. The value of the parsimonious scheme we use, however, is that it makes it possible to characterize individual differences in a tractable way that enables relatively straightforward empirical testing of how values interact with risk perceptions.

litarians and communitarians, for example, worry about environmental risks (nuclear power accidents, global warming, air pollution, etc.), the abatement of which would justify regulating commercial activities that generate inequality and legitimize the unconstrained pursuit of individual self-interest. Individualists, in contrast, reject claims of environmental risk precisely because they cherish markets and private orderings. They worry instead that excessive gun control will render individuals unable to defend themselves—a belief congenial to the association of guns with individualist virtues such as self-reliance, courage, and martial prowess. Hierarchs fret about the societal risks of drug use and promiscuous sex, and the personal risks associated with obtaining an abortion or smoking marijuana—forms of behavior that denigrate traditional social norms and roles.

The Second National Risk and Culture Study was commenced in late December 2006 and continued through early September 2007. During this time, researchers administered a series of surveys and experiments to a nationally representative sample of some 5,000 persons, who participated in these studies through on-line testing facilities.[2]

The Study had two aims. The first was to identify the discrete social and psychological mechanisms through which cultural worldviews shape individuals' beliefs about risk and related issues. The second was to determine what sorts of techniques for providing information might counteract or neutralize cultural cognition. The aim of such techniques isn't to promote the formation of any particular set of beliefs. Rather it is to enable citizens who agree that they should *not* be using the law to impose one or another cultural group's values on the others to avoid doing that unwittingly as they deliberate about what policies promote society's material welfare.

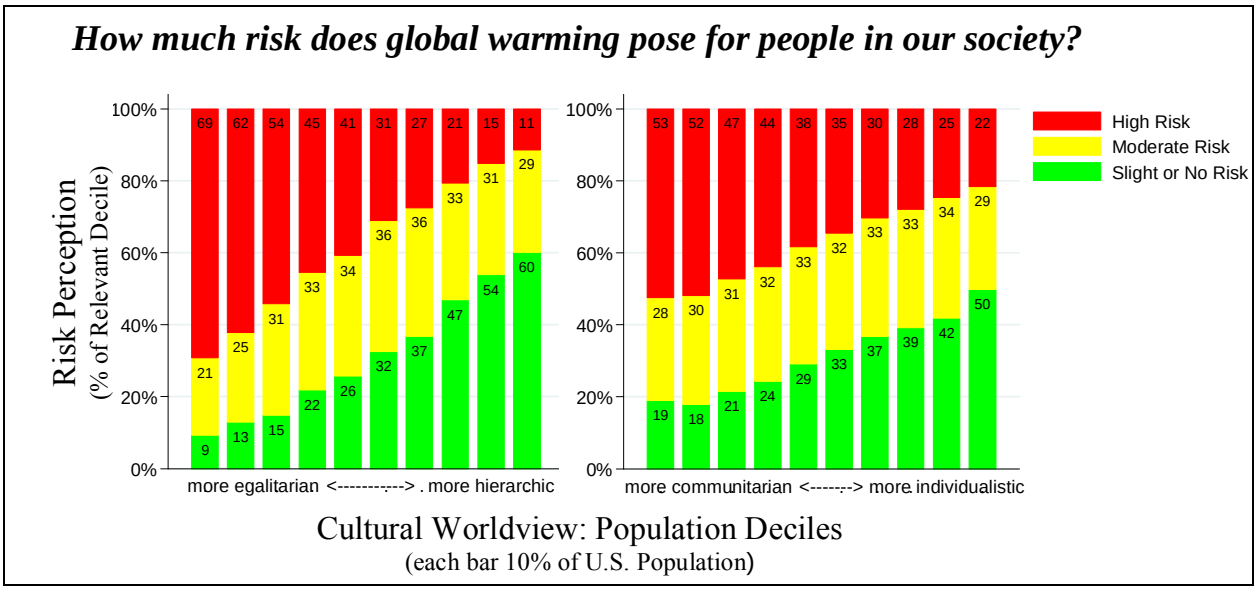
Issues and Studies

1. Global Warming

Cultural Polarization Generally

The global warming debate turns a host of factual issues: Is the temperature of the earth really increasing? Are humans the cause of any such change in the earth's temperature? Does climate change pose a threat to human health and prosperity? Beliefs on these facts, however, are distributed in patterns that reflect citizens' values. Replicating evidence from the First Study, the Second found that cultural worldviews accurately predict who is global warming skeptic and who a true believer: hierarchs and individualists tend to dismiss the claim that global warming is occurring and is serious threat to our society, whereas egalitarians and communitarians take the opposite view.

[2] The nature of the sample and the study methods is discussed in greater detail in Appendix A.



Individuals' worldviews, we found, explained individuals' beliefs about global warming more powerfully than any other individual characteristic. How liberal or conservative people are, for example, explains less than one-third as much of variance in such beliefs as how egalitarian or hierarchical and how communitarian or individualistic they are. Whether one is a man or a woman—a characteristic known to influence environmental risk perceptions generally—explains than one-tenth as much.

Global Warming Risk Perception Multivariate Regression Model	
Female	.053***
Black	-.032
Other Minority	.107***
Age	.080***
Income	.001
Education	-.048**
Republican	-.118***
Independent	-.015
Conservative	-.106***
Trust in Govt	-.064***
Individualism	-.093***
Hierarchy	-.165***
R^2	.26

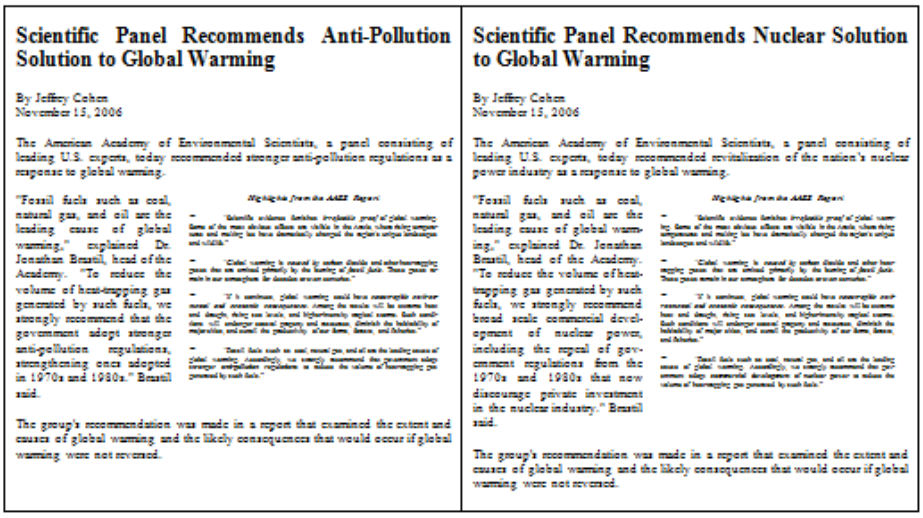
$N \approx 1700$. Semi-partial regression coefficients. Dependent variable: GWRISK. *** $p \leq .01$, ** $p \leq .05$, * $p \leq .10$.

Nuclear Power Makes Hierarchs and Individualists See Green

We also devoted considerable attention to figuring out precisely *why* culture exerts this effect, and whether anything might be done to counteract the resulting cultural polarization on global warming beliefs. We conducted an experiment, the results of which show that the impact of culture on the processing of factual information on climate change is highly conditional what sort of *policy* people anticipate will be used to address it.

In the experiment, subjects were supplied with one of two versions of a newspaper article reporting a study by a group of scientific experts. In both versions, the report was described as finding that the temperature of the earth is increasing, that humans are the source of this condition, and that this change in the earth's climate could have disastrous environmental economic

consequences. In one, however, the scientific report was described as calling for "increased anti-pollution regulation," whereas in another it was described as calling for "revitalization of the nation's nuclear power industry."



Scientific Panel Recommends Anti-Pollution Solution to Global Warming

By Jeffrey Cohen
November 15, 2006

The American Academy of Environmental Scientists, a panel consisting of leading U.S. experts, today recommended stronger anti-pollution regulations as a response to global warming.

"Fossil fuels such as coal, natural gas, and oil are the leading cause of global warming," explained Dr. Jonathan Brastil, head of the Academy. "To reduce the volume of heat-trapping gas generated by such fuels, we strongly recommend that the government adopt stronger anti-pollution regulations, strengthening once adopted in 1970s and 1980s." Brastil said.

Highlights from the AAES Report

– "Scientific evidence furnishes irrefutable proof of global warming. Some of the most obvious effects are visible in the Arctic where rising temperatures and melting ice have dramatically changed the region's unique landscape and wildlife."

– "Global warming is caused by carbon dioxide and other heat-trapping gases that are emitted primarily by the burning of fossil fuels. These gases remain in our atmosphere for decades or even centuries."

– "If it continues, global warming could have catastrophic environmental and economic consequences. Among the results will be extreme heat and drought, rising sea levels, and higher-intensity weather events. Such conditions will endanger natural systems and resources, diminish the habitability of major cities, and exert the productivity of our farms, forests, and fisheries."

– "Fossil fuels such as coal, natural gas, and oil are the leading causes of global warming. Accordingly, we strongly recommend that government adopt stronger anti-pollution regulations to reduce the volume of heat-trapping gas generated by such fuels."

The group's recommendation was made in a report that examined the extent and causes of global warming and the likely consequences that would occur if global warming were not reversed.

Scientific Panel Recommends Nuclear Solution to Global Warming

By Jeffrey Cohen
November 15, 2006

The American Academy of Environmental Scientists, a panel consisting of leading U.S. experts, today recommended revitalization of the nation's nuclear power industry as a response to global warming.

"Fossil fuels such as coal, natural gas, and oil are the leading cause of global warming," explained Dr. Jonathan Brastil, head of the Academy. "To reduce the volume of heat-trapping gas generated by such fuels, we strongly recommend broad scale commercial development of nuclear power, including the repeal of government regulations from the 1970s and 1980s that now discourage private investment in the nuclear industry." Brastil said.

Highlights from the AAES Report

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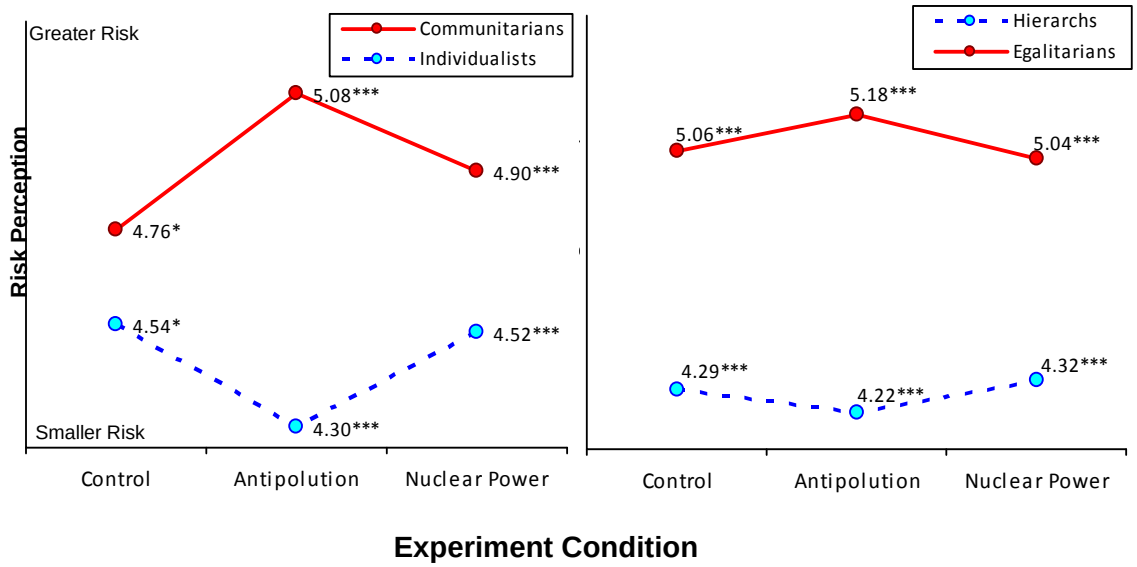
– "Fossil fuels such as coal, natural gas, and oil are the leading causes of global warming. Accordingly, we strongly recommend that government adopt commercial development of nuclear power to reduce the volume of heat-trapping gas generated by such fuels."

The group's recommendation was made in a report that examined the extent and causes of global warming and the likely consequences that would occur if global warming were not reversed.

The results of the experiment showed that subjects receiving the "nuclear power" version of the article were less culturally polarized than ones receiving the "anti-pollution" version. That is, individualists and hierarchs who received the "nuclear power" version were less inclined to dismiss the facts related by the described report—that the earth's temperature was increasing, that humans were the cause, and that the consequences would be dire if global warming were not reversed—than were individualists and hierarchs who got the "antipollution" version, even though the factual information, and its source, were the same in both articles. Indeed, individualists and hierarchs who received the "antipollution" version of the news report were even more skeptical about these facts than were hierarchs and individualists in a control group that received no newspaper story—and thus no information relating to the scientific report that made these findings.

We anticipated these results based on a dynamic known as "identity-protective" cognition (Kahan et al. 2007a). As a way of avoiding dissonance and estrangement from valued groups, individuals subconsciously resist factual information that *threatens* their defining values. This defensive response can be reversed or mitigated when information is instead framed in a manner that *affirms* those same commitments (Cohen et al. 2000; Cohen et al. in press).



$n \approx 160$ per condition. Global warming risk perception measured with 4-point scale *** $p \leq .01$, ** $p \leq .05$, * $p \leq .10$ for differences in means across conditions.

The "anti-pollution" and "nuclear" versions framed the factual information in the report in a "threatening" and "affirming" way, respectively, for individuals culturally predisposed to dismiss global warming risks. Hierarchs and individualists tend to resist information on environmental risks, the former because it seems to imply restriction of market activity and the latter because it implicitly challenges governmental and business elites (Douglas & Wildavsky 1982; Kahan et al. 2007a). The demand for greater "anti-pollution controls" accentuates these connotations, and thus increases the disposition of these persons to dismiss information relating to global warming. Individualists and hierarchs, however, *support* nuclear power development, which is a symbol of industrial markets, human mastery over nature, and the power and competence of scientific and industrial elites. Accordingly, when they are told that increased investment in nuclear power is the appropriate response to global warming, individuals with these orientations are less threatened. As a result they are more willing to accept the *factual claims* that suggest that global warming is really a problem (Kahan et al. 2006).

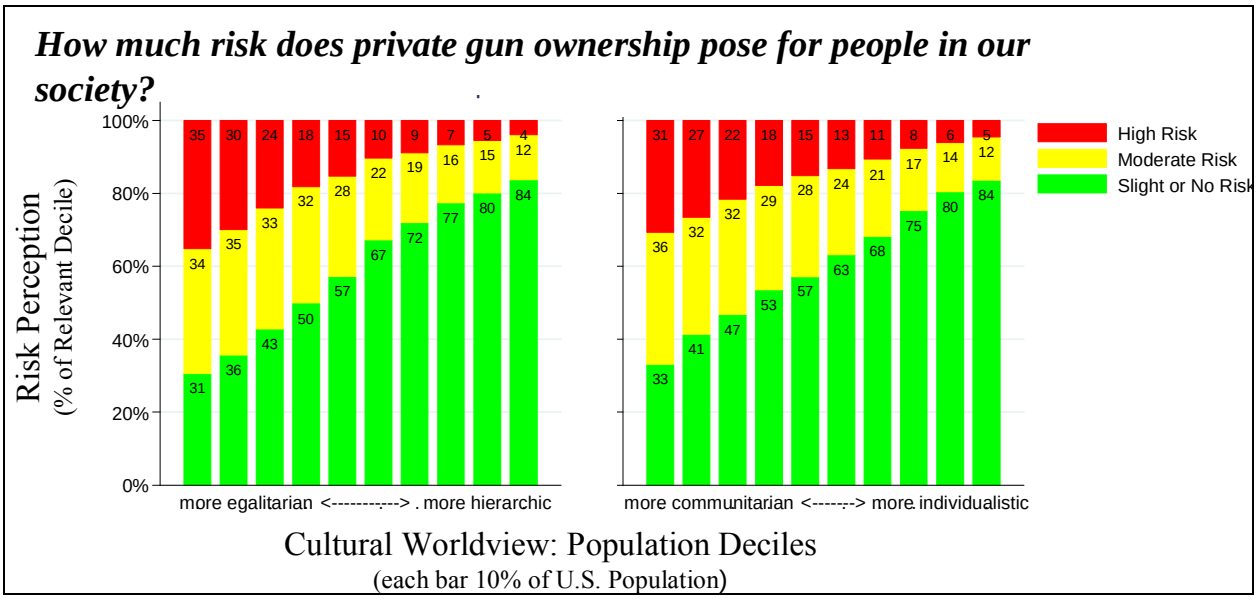
2. Guns

Cultural Polarization Generally

The gun control debate features competing claims about risk. On the one hand, there's the concern of gun control supporters that too few restrictions on private gun ownership will lead to accidents and violent crime. On the other, there's the concern of gun control opponents who worry that too *many* restrictions will prevent law-abiding citizens from defending themselves (Kahan & Braman 2003).

In the First National Risk and Culture Study, we found evidence that individuals' cultural outlooks determine which of these risks they take more seriously. Hierarchs tend to favorably associate guns with hierarchical roles such as father, protector, and with respected hierarchical institutions like the military; individualists favorably associate them with virtues like self-reliance and courage. Consistent with identity-protective cognition, persons with these values

worry more about the risk of defenselessness. This is especially true for men who hold these cultural outlooks. Egalitarians, who associate guns with racial animus and sexism, and communitarians, who see private weapon ownership as symbols of distrust and lack of concern for others, worry more about the risk of gun accidents and gun violence (Kahan et al. 2007a).



In the Second National Risk and Culture Study, we found these patterns persist. People still divide over the risks of gun ownership based on their cultural orientations, which in fact exert considerably more influence than do other sorts of factors (thirteen times as much as ideology, four times as much as race, and two times as much as gender, for example).

Gun-Risk Perception Multivariate Regression Model	
Female	.136***
Black	.094***
Other Minority	.108***
Age	.029
Income	.014
Education	-.013
Republican	-.073***
Independent	.007
Conservative	-.055***
Trust in Govt	.077***
Individualism	-.142***
Hierarchy	-.136***
R^2	.25

$N \approx 1800$. Semi-partial regression coefficients. Dependent variable is GUNOWN. *** $p \leq .01$, ** $p \leq .05$, * $p \leq .10$.

Post- Virginia Tech

The terrible shooting massacre that killed 32 students at Virginia Tech occurred during the course of our study. Predictably, gun control proponents cited the incident as evidence of the need for greater restrictions on firearms (Brady Campaign 2007), while opponents countered that existing firearms restrictions on school and university campuses had disarmed students who might have cut the tragic attack short (Lott 2007).

We conducted a 1,500-person national survey after the incident to see whether individuals' cultural worldviews influence which position they take on this question. We found that, indeed, members of the American public are culturally divided on the effect of regulation guns on school campuses, too. Communitarians (66%) and egalitarians (68%) predominantly reject the claim that "strict gun control laws make it harder for potential victims of shootings at schools and uni-

versities to protect themselves"; not so for Hierarchs and Individualists, majorities of whom (59% and 56%, respectively) reject the notion that "stricter gun control laws would on the whole increase safety of students at schools and universities."

	"Strict gun control laws make it harder for potential victims of shootings at schools and universities to protect themselves."		**"Stricter gun control laws would on the whole increase safety of students at schools and universities."**	
	Agree	Disagree	Agree	Disagree
U.S. Population	41%	58%	54%	46%
Hierarchs	49%	50%	41%	59%
Egalitarians	31%	68%	68%	31%
Communitarians	33%	66%	64%	35%
Individualists	48%	51%	44%	56%

N = 1,520. Margin of error ≈ +/- 2.5%

We also found that in the wake of the incident, the breakdown of Americans who support and oppose stricter gun regulation was essentially *unchanged* from what it had been when we conducted our initial National Risk and Culture Study some three years ago. This finding is consistent with ones that showed no movement in public opinion on gun control after the Columbine massacre in 1999 (Smith 2000). One reason this might be so is that individuals of opposing cultural persuasions draw exactly the opposite conclusions from such an event (Kahan & Braman 2003). Our findings of cultural polarization on the impact of gun regulation on school and university campuses supports this hypothesis.

Persistence of Cultural Polarization on Gun Control After Virginia Tech

"I favor stronger gun control laws."

	2004		July 2007	
	Agree	Disagree	Agree	Disagree
U.S. Population	61%	39%	59%	40%
Hierarchs	48%	54%	46%	54%
Egalitarians	78%	22%	74%	25%
Communitarians	73%	27%	72%	28%
Individualists	52%	48%	48%	52%

N = 1,520. Margin of error ≈ +/- 2.5%

3. Nanotechnology

The asserted risks of climate change and gun ownership are familiar. So is the cultural complexion of public disputes surrounding these assertions.

The risks surrounding *nanotechnology*, however, are not at all familiar and have not, as of yet, generated significant public dispute, cultural or otherwise. The Cultural Cognition Project, in collaboration with the Project on Emerging Nanotechnologies at the Woodrow Wilson International Center for Scholars, designed a study of nanotechnology risk perceptions to assess how cultural cognition influences the formation of attitudes toward novel risks (Kahan et al. 2007b).

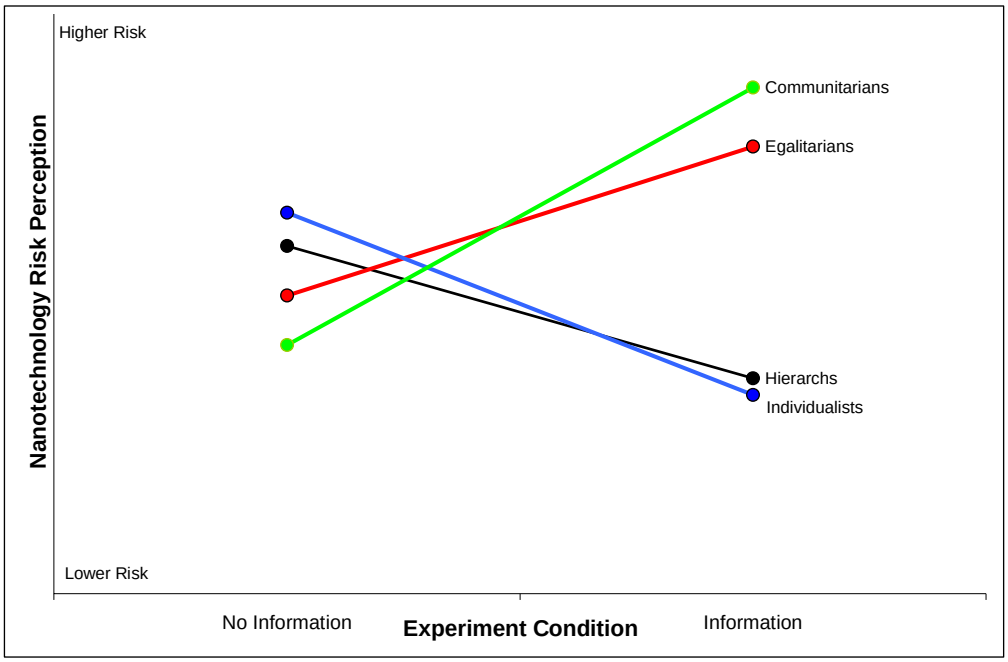
In particular, that study was designed to assess whether cultural worldviews influence the processing of risk information. *Biased assimilation* refers to the disposition of persons to notice and credit evidence in a selective fashion that affirms their predispositions. When this dynamic is at work, individuals of diverse values don't converge but instead polarize when exposed to a common body of information on some disputed factual issue (Lord et al. 1979).

We divided a diverse sample of 1,800 individuals into two groups. Because we anticipated that the vast majority (as it turned out, some 80%) would not have previously heard very much about nanotechnology, we supplied members of both groups with a brief description of what nanotechnology is ("a relatively new form of science that involves the ability to measure, see, predict and make things on the extremely small scale of atoms and molecules"). One set of subjects (the "no information" group) was furnished with no additional information, while the other (the "information-exposed group") was instructed to read two paragraphs that presented balanced information on the potential risks and benefits of nanotechnology. Members of both groups were then asked to indicate their beliefs about the relative size of these risks and benefits.

	Mean Nanotechnology Risk Perception	
	No Information	Information Exposed
Hierarchs	2.64	2.72*
Egalitarians	2.67	2.58*
Individualists	2.62	2.73**
Communitarians	2.70	2.54**

$N \approx 1{,}800$. Risk perception is risk vs. benefit measured on a four-point scale . * denotes differences in differences of means of opposing groups across conditions significant at $p \leq .10$, ** significant at $p \leq .05$.

Comparisons of their responses showed that information polarized subjects along cultural lines. In the "no information" group, there were no significant differences in beliefs among hierarchs and egalitarians or among individualists and communitarians. But in the "information-exposed group," egalitarians and communitarians were significantly more concerned with the risks of nanotechnology relative to its benefits than were hierarchs and individualists. The subjects, in sum, had assimilated the information in a biased fashion that reflected their cultural predispositions toward environmental risks (like global warming and nuclear power) generally.



This study, then, generated two important conclusions. One was that cultural worldviews play a critical role in determining not just how individuals assess information about familiar and already controversial risks but unfamiliar and as-yet unpoliticized risks as well. Another was that nanotechnology might well emerge as another culturally divisive risk issue as the public learns more and more about it.

4. Mandatory HPV Vaccination

The FDA recently approved a vaccine that would inoculate girls and women against infection by the human papillomavirus (HPV). HPV infection is sexually transmitted disease and is the leading cause of cervical cancer. The CDC recommends vaccination at a relatively young age (11-12), before the onset of sexual activity that can lead to HPV exposure and infection (at which point the vaccine is ineffective). A political debate has started to emerge over whether government (through public schools or other agencies) should mandate HPV vaccination for all young girls.

The HPV-vaccine debate—like the gun debate—features competing risk claims. Proponents argue that the failure to administer mass vaccinations will lead to continuing widespread infection and correspondingly high rates of cervical cancer. Opponents argue that the vaccination, by eliminating the risk of one common STD, might induce young women to engage in unprotected sex and thus increase their risk of contracting other diseases, including HIV-AIDS. They also raise concerns about potential unforeseen side effects from the vaccination (Gibbs 2006).

Moreover, the policy of mandatory HPV vaccination seems to touch on a variety of issues of cultural import: from premarital sex to parental autonomy, from individual choice to the power of the state to control medical decisions. One might expect, then, that individuals will resolve competing factual claims about the risks of HPV in a manner that affirms rather than threatens their cultural worldviews.

At the same time, the risks associated with HPV—like those associated with nanotechnology—are relatively novel. As a result, many members of the public are unlikely to have an intuitive or emotional response to the issue informed by their cultural affiliations. For that reason, the

advent of the HPV vaccination debate supplies another opportunity to investigate the discrete mechanisms through which culture operates to shape risk perceptions on new issues.

Biased Assimilation and Polarization

To that end, we constructed a multi-part experimental study. The first had the same aim as our nanotechnology study: to determine whether individuals' cultural predispositions biases how they process information on a relatively novel risk. We divided 500 subjects into two groups: one that received no information about the policy of mandatory vaccination of school-age girls other than it was being proposed (the "no argument" group); and another that was instructed to read opposing arguments relating to the policy ("argument" group). Both groups of subjects were asked to indicate their beliefs about various facts relating to the policy (including its asserted benefits in reducing the incidence of cervical cancer, its possible unanticipated side-effects, and its contribution to the propensity of vaccinated females to have unprotected sex).

We again found that subjects exposed to information polarized along cultural lines relative to ones who were not. Even in the "no argument" condition, individualists and hierarchs rated the potential risks of the policy as being slightly higher, and the potential benefits lower, than did communitarians and egalitarians. But in the "argument" condition, these disparities in risk-benefit perceptions were significantly more pronounced.

	Mean HPV Vaccine Risk Perception	
	No Argument	Arguments
Hierarchs	2.43	3.03**
Egalitarians	2.19	2.63**
Individualists	2.37	2.95*
Communitarians	2.25	2.67*

$n \approx 250$ per condition. Risk perception is risk vs. benefit measured on a four-point scale. * denotes differences between differences in differences of means of opposing groups across conditions significant at $p \leq .10$, ** significant at $p \leq .05$.

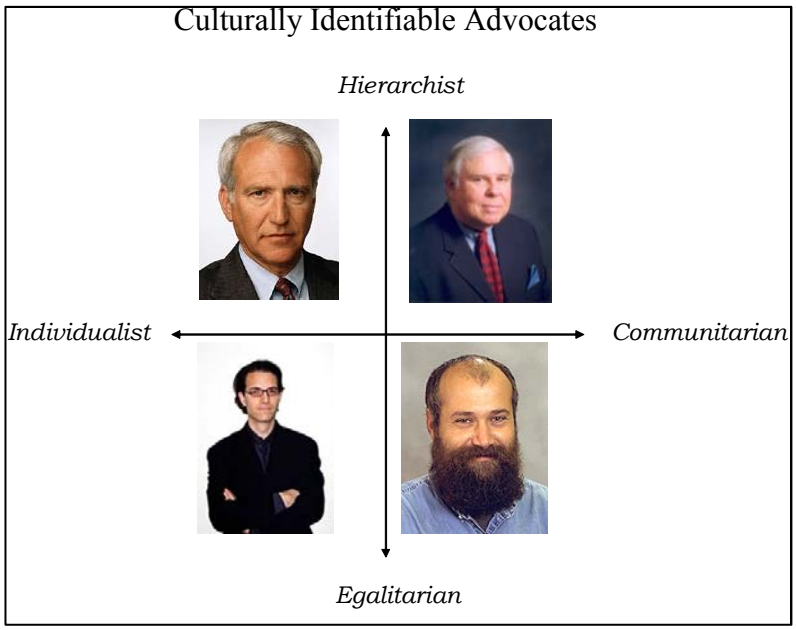
Culture and Credibility

Next we conducted an experiment to see whether the perceived cultural values of *argument advocates* would make a difference. We started by creating four culturally identifiable "policy experts": individuals who, based on their pictures and mock CVs, were perceived by pretest subjects as holding one or another of the worldviews featured in the cultural cognition theory. We then asked 800 completely new subjects to indicate what *they* thought about the risks and benefits of the HPV vaccine after reading the balanced arguments, which were now randomly assigned to debating pairs of culturally identifiable experts.

We found that policy advocates' perceived cultural worldviews can indeed significantly accentuate or mute cultural polarization. Where an egalitarian advocate defended mandatory vaccination and a hierarchal advocate opposed it ("expected alignment" condition), the gulf between egalitarian and hierarchical subjects widened. The same was true of the gap between communitarians and individualists when advocates sharing their identities took the pro- and con- positions, respectively.

But when the advocate-argument alignments were reversed—that is when a hierarchal or an individualist expert defended mandatory vaccination against an egalitarian or communitarian expert who opposed it ("unexpected alignment" condition)—polarization *shrunk*. Indeed, individu-

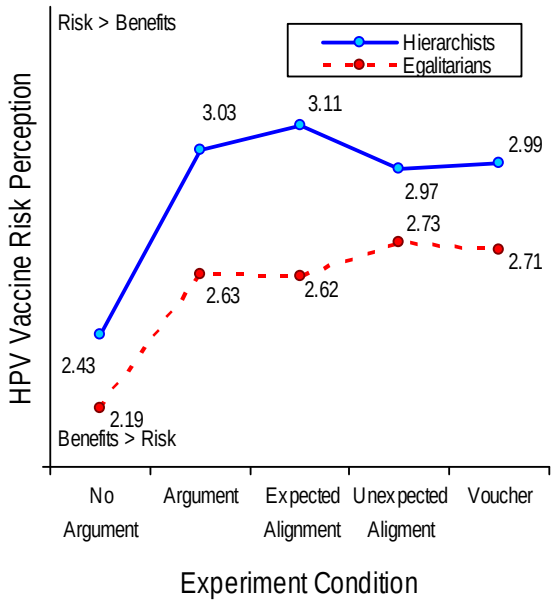
alists and communitarians in this "unexpected alignment" condition actually *swapped* places: now communitarians displayed greater concern for the risks of the HPV-vaccination policy (although the difference between the two groups' was small and not statistically significant in that condition; in effect, polarization along this dimension had disappeared). Clearly, the cultural identity of advocates is an incredibly powerful mechanism—one that rivals the power that predispositions have on information processing—in the cultural cognition of risk.



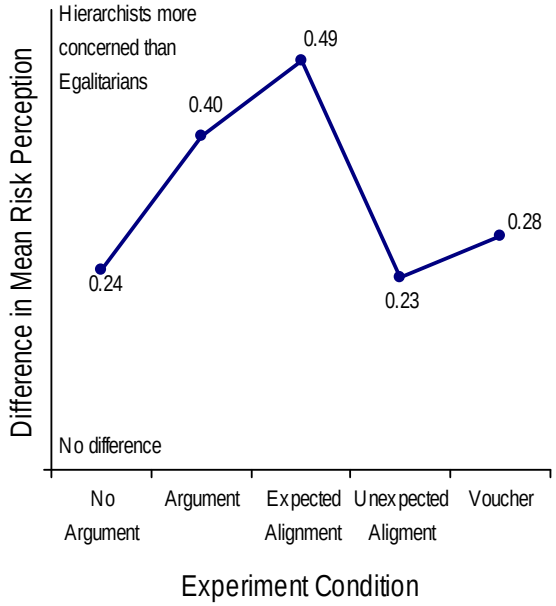
The inversion of the alignment between advocate identity and arguments need not be this complete in order to counter polarization. We found that polarization was also small (relative to that in the "argument" and "expected alignment" conditions) among subjects in what we called the "voucher" condition. Each subject in that condition had observed a debate among advocates who *both* shared that subject's worldview. Accordingly, only one of the two debating experts in this condition was taking a position contrary to the stance normally associated with his (and the subject's) perceived values.

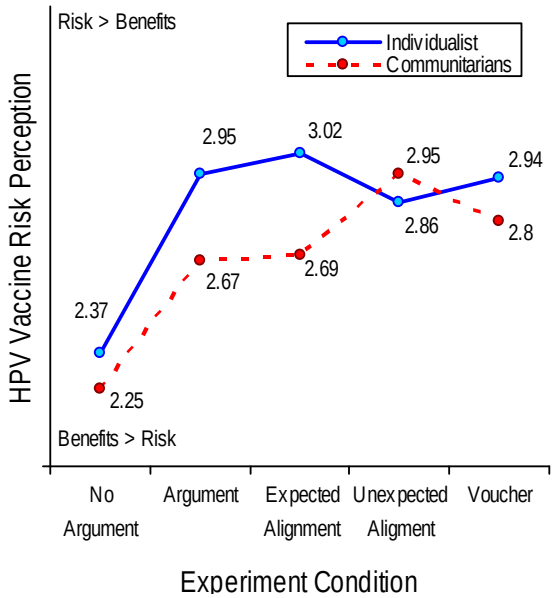
The diminishment of polarization in this condition is an important finding. People in the real world won't encounter many examples of debates in which there is a radical inversion of the cultural identities of advocates and the cultural resonances of the arguments they are making. But they might well see examples of advocates whose values they share taking unexpected positions in debates with others of their own persuasion. The conservative Governor of Texas, for example, surprised many of his ideological peers when he came out in favor of mandatory HPV vaccinations (Elliott 2007). When individuals see that even some persons who hold their values are willing to take such a position—to "vouch" for that position as acceptable for someone with their values to hold—they are less likely to form the subconscious impression that taking such a view will estrange them from their peers. In that state, they are more likely to consider the merits of an argument that runs contrary to their cultural predispositions.

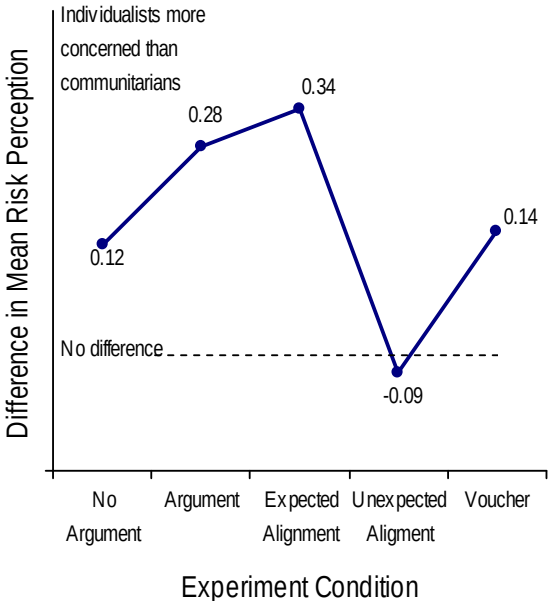
Cultural Risk Perceptions Across Conditions



Degree of Polarization Across Conditions



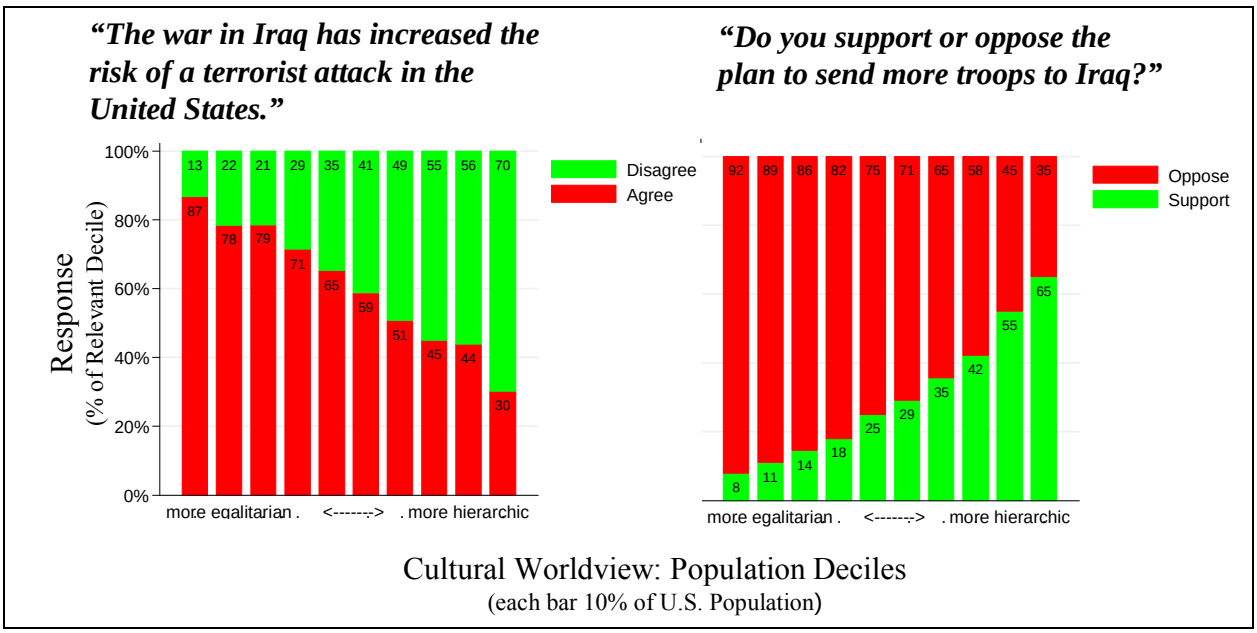




5. Terrorism and National Security

How large the risk of domestic terrorism is—and how effective restrictions of domestic civil liberties, foreign wars, and other policies aimed at abating it are—dominate contemporary American politics. On these questions, too, Americans are *culturally* divided.

Hierarchs and egalitarians are both concerned about terrorism, but have radically different beliefs about where the risk of it comes from and what to do about it. Egalitarians, we found, believe that the *war in Iraq* has increased the risk of terrorist attack. Hierarchs reject that claim. *They* supported increasing the number of troops sent to Iraq at the time President Bush's "surge" policy was being implemented, while egalitarians strongly opposed that policy.



Individualists aren't inclined to share the beliefs of hierarchs on terrorism. Their parting of the ways on this issue fits the logic of their respective worldviews: believing that terrorism is a serious risk is congenial to investing governmental authorities with significant power, a prospect that affirms hierarchical sensibilities but that threatens individualist ones. Indeed, individualism inclines persons to oppose, hierarchy to support, reintroducing the draft and the warantless wiretapping of the telephone communications of U.S. citizens suspected of communicating with terrorists (see regression table in the next section).

6. Culture, Ideology, and Mass Political Opinion

The late political scientist Aaron Wildavsky posited that that cultural outlooks of the sort featured in the cultural cognition theory are the font of political preferences generally. He therefore advocated the use of a two-dimensional, hierarchy-egalitarianism/individualism-communitarianism framework rather than a one dimensional, liberal-conservative one for explaining political attitudes and behavior (Wildavsky1987).

The Second National Risk and Culture Study generated evidence strongly supportive of Wildavsky's view. On a host of issues—from raising the minimum wage to repealing the estate tax; from the provision of universal health care to the imposition of the death penalty; from regulating the possession of firearms at home to increasing the number of U.S. troops in Iraq—cultural worldviews explained differences in individuals' opinions more powerfully than did liberal-conservative ideology.

Explanatory Power of Liberal-Conservative Ideology and Cultural Worldviews, Overall and at "Low" Level of Political Knowledge

	Gun Control		Capital Punishment	
	Overall	Low Knowledge	Overall	Low Knowledge
Conservative vs. Liberal	-.063***	-.017	.023	-.011
Individualism vs. Communitarianism	-.186***	-.151***	.103***	.137***
Hierarchy vs. Egalitarianism	-.156***	-.175***	.180***	.121***
	Warrantless Wiretap		**Universal Health**	
	Overall	Low Knowledge	Overall	Low Knowledge
Conservative vs. Liberal	.036	-.051	-.095***	-.024
Individualism vs. Communitarianism	-.063***	-.022	-.111***	-.012
Hierarchy vs. Egalitarianism	.192***	.077*	-.175***	-.197***
	Raising Min. Wage		**Repeal Estate Tax**	
	Overall	Low Knowledge	Overall	Low Knowledge
Conservative vs. Liberal	-.079	-.028	.033	-.009
Individualism vs. Communitarianism	-.099***	.061	.147***	.111***
Hierarchy vs. Egalitarianism	-.170***	-.152***	.066***	-.011
	Reintroduce Draft		**Iraq Surge**	
	Overall	Low Knowledge	Overall	Low Knowledge
Conservative vs. Liberal	.029	.037	.071***	.037
Individualism vs. Communitarianism	-.057**	-.038	.004	-.002
Hierarchy vs. Egalitarianism	.101***	.115***	.185***	.165***

$N \approx 1{,}450$. *** $p \leq .01$, ** $p \leq .05$, * $p \leq .10$. Dependent variables is support for indicated policy. Coefficients are semi-partial correlations in multivariate regression controlling for gender, race, income, education, and political party affiliation.

Even more importantly, data from the Second National Risk and Culture Study furnish support for Wildavsky's conjectures on the role of culture in orienting mass opinion. It is a staple of conventional public opinion research that conventional measures of ideology, such as liberalism-conservativism, lack the power to explain the opinion of most members of the public, who presumably lack the time and aptitude to deduce policy positions from abstract principles. Wildavsky hypothesized that such persons are guided instead by cultural cues—primarily the meanings policies express, and the positions espoused by culturally like-minded peers. Consistent with Wildavsky's position, the National Risk and Culture Study found that on a host of issues cultural orientations, but not political ideologies, explain the views of persons of low levels of political sophistication.

Conclusion

There *is* a culture war in America, but it is about *facts*, not values. There is very little evidence that most Americans care nearly as much about issues that symbolize competing cultural values as they do about the economy, national security, and the safety and health of themselves and their loved ones. There is ample evidence, however, that Americans are sharply divided along cultural lines about what sorts of conditions endanger these interests and what sorts of policies effectively counteract such risks.

Findings from the Second National Culture and Risk Study help to show why. Psychologically speaking, it's much easier to believe that conduct one finds dishonorable or offensive is dangerous, and conduct one finds noble or admirable is socially beneficial, than vice versa. People are also much more inclined to accept information about risk and danger when it comes from someone who shares their values than when it comes from someone who holds opposing commitments.

Researchers associated with the Cultural Cognition Project believe that cultural polarization arising from these types of influences is unfortunate. Most Americans believe the goal of law is to secure society's collective well-being, not to declare winners and losers among persons who subscribe to different cultural outlooks. Nevertheless, because of the decisive influence of their worldviews on their risk perceptions, such people end up drawn into divisive forms of cultural conflict nevertheless as they deliberate about what sorts of polices will best promote their common ends.

The Second National Risk and Culture Study identifies conditions that help to ameliorate this state of affairs. When *policies* are framed in ways that affirm rather than threaten citizens' cultural values, people are less likely to dismiss information that runs contrary to their prior beliefs. They are also more willing to weigh and reflect on such information in an environment in which they can see that others who share their values find that information credible.

These findings can be used to structure risk communication and policymaking. The goal *wouldn't* be to move people toward one set of beliefs or another on a disputed issue (such as gun control, or global warming, or mandatory HPV vaccination). Rather it would be to neutralize the tendency of people to polarize along cultural lines as they consider information. Disagreements about facts would no doubt persist, but they would no longer take the form of battles between rival cultural factions.

Much work remains to be done, however, to formulate risk-communication and policymaking strategies of this sort. Armed with increased knowledge about how values shape beliefs about risk, researchers should now energetically apply themselves to identifying deliberative process that make it possible to fashion regulatory policies that are both consistent with sound scientific data *and* congenial to persons of diverse cultural outlooks.

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Appendix A. Study Sample and Methods

Study subjects consisted of a nationally representative general population sample of approximately 5,000 Americans. Initially, the cultural values of all subjects were measured using two scales corresponding to "Hierarchy-Egalitarianism" and "Individualism-Communitarianism," respectively (Kahan et al. 2007a). Individuals drawn from the resulting "subject pool" were thereafter used as subjects for particular surveys and experiments, which were conducted at various points between late December 2006 and early September 2007.

Subjects participated in these surveys and experiments through the on-line testing facilities of Knowledge Networks (http://www.knowledgenetworks.com/). Knowledge Networks is a public opinion research firm with offices located throughout the United States. It maintains an active respondent pool of some 40,000 persons who are recruited to participate in on-line surveys and experiments administered on behalf of academic and governmental researchers and private businesses. Knowledge Network respondents agree to participate in three to four surveys per month in exchange for Internet access and other forms of compensation. It uses recruitment and sampling methods that assure a diverse sample that is demographically representative of the U.S. population. Numerous studies have found that on-line testing of Knowledge Network samples generates results equivalent in their reliability conventional live testing methods, including random-digit-dial surveys (http://www.knowledgenetworks.com/ganp/2005aapor.html). Studies using Knowledge Networks facilities are routinely published in peer-reviewed academic journals (http://www.knowledgenetworks.com/ganp/docs/List%20of%20Journals%208-28-2006.pdf).

Appendix B. Cultural Cognition Project Researchers

Dan M. Kahan is the Elizabeth K. Dollard Professor of Law at Yale Law School. His principle areas of research include the legal and policy significance of emotions, social norms, and public risk perceptions. He has published widely in academic journals including the *Harvard Law Review*, the *Columbia Law Review*, and the *University of Chicago Law Review*, and is co-author of *Urgent Times: Policing and Rights in Inner-city Communities* (Beacon Press 1999) (with Tracey Meares). He received his J.D. from Harvard Law School in 1989.

Donald Braman is an Associate Professor of Law at George Washington University. His principle areas of research include the familial and community effects of criminal sanctions, public attitudes towards punishments, and the influence of cultural values on risk perception and legal debates. He has published widely in academic journals and is co-author of *Doing Time on the Outside: Incarceration and Family Life in Urban America* (U. Mich. Press 2004). He received his J.D. from Yale Law School in 2005.

Paul Slovic, Professor of Psychology at the University of Oregon and founder and President of Decision Research, studies human judgment, decision making, and risk analysis. He and his colleagues worldwide have developed methods to describe risk perceptions and measure their impacts on individuals, industry, and society. He publishes extensively and serves as a consultant to industry and government. Dr. Slovic is a past President of the Society for Risk Analysis and in 1991 received its Distinguished Contribution Award. In 1993 he received the Distinguished Scientific Contribution Award from the American Psychological Association. In 1995 he received the Outstanding Contribution to Science Award from the Oregon Academy of Science. He has received honorary doctorates from the Stockholm School of Economics (1996) and the University of East Anglia (2005).

John Gastil, Associate Professor, has taught at the University of Washington since 1998. Gastil teaches courses on small group decision making, political deliberation, and public scholarship. From 1994-1997, Gastil conducted public opinion research at the University of New Mexico Institute for Public Policy. He received his Ph.D. in communication from the University of Wisconsin-Madison in 1994, and he received a B.A. in political science from Swarthmore College in 1989. He is the author of *Political Communication and Deliberation*, *The Deliberative Democracy Handbook* (co-edited with Peter Levine), *By Popular Demand* and *Democracy in Small Groups*.

Geoffrey Cohen is Associate Professor at the University of Colorado at Boulder. Much of his research concerns the processes of self-evaluation and identity maintenance. One area of research addresses the effects on achievement motivation of individuals' group memberships, with a focus on the role of social stereotypes in shaping intellectual identity and performance. A second research area links resistance to probative information, and intransigence in negotiation and social conflict, to concerns of identity maintenance. His laboratory examines the psychological processes underlying significant social problems and phenomena and seeks to use the acquired knowledge of basic processes to develop, refine, and test intervention strategies. Professor Cohen received his Ph.D. from Stanford University in 1998.