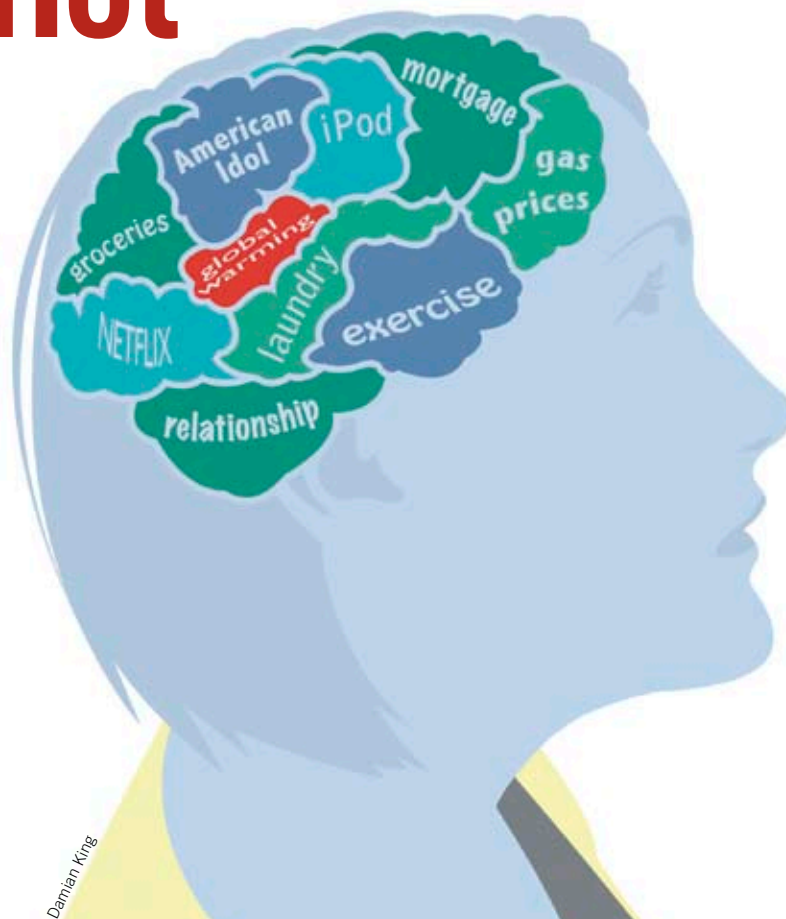


The Hot Spot



Climate scientists wonder why people don't do more about global warming. Social scientists have some troubling answers.

BY LISA BENNETT

THREE YEARS AGO, I BECAME OBSESSED WITH global warming. Practically overnight, my worries about its potential effects outstripped my worries about so many other national and global issues, even personal ones.

Indeed, as the mother of two young boys, I began to think it a bit crazy that I attended to every bump and scrape on my children's little bodies and budding egos, but largely ignored the threat likely to put sizeable areas of the world, including parts of the coastal city where we live, underwater within their lifetime.

That year, 2005, marked a turning point for many people. After decades of observation, speculation, and analysis, the world's climate scientists had reached a consensus, and increasingly the general public was accepting it. As *USA Today* reported, "The Debate is Over: Globe is Warming."

The next step, scientists advised, was action. We needed to take significant and urgent steps to cut our dependence on fossil fuels by 25 percent or more, something NASA's top climate scientist, James Hansen, said we had only a decade to do if we were to avoid the great global warming tipping point—that level at which increased temperatures would unleash unprecedented global disasters.

So how are we doing?

Surely, some things have changed. Sales of the Toyota Prius and other hybrids have skyrocketed. Many of us have converted to the new energy-saving compact fluorescent light bulbs. A flood of books are hitting the market offering tips about how to save the Earth. And there is a frenzy of advertising about everything from "eco-friendly" houses to "green"

hair salons, showing just how widespread Americans' desire is to do the right thing for the environment.

Yet none of this adds up to the significant and urgent action scientists have called for. The question is why: Why don't more of us respond more seriously to the most serious threat to the planet in human history?

"Many climate scientists find the response to global warming completely baffling," says Elke Weber, a Columbia University psychologist and the chair of the Global Roundtable on Climate Change's Public Attitudes/Ethical Issues Working Group. According to Weber, climate scientists just can't understand why government and the public have been so slow to act on the extraordinary information these scientists have provided.

But now a growing number of social scientists are offering their expertise in behavioral decision making, risk analysis, and evolutionary influences on human behavior to explain our limited responses to global warming. Among the most significant factors they point to: The way we're psychologically wired and socially conditioned to respond to crises makes us ill-suited to react to the abstract and seemingly remote threat posed by global warming. Their insights are also leading to some intriguing recommendations about how to get people to take action—including the potentially dangerous prospect of playing on people's fears.

Our misleading emotions

There are a significant number of researchers now devoted to studying how people decide that something is truly bad for them. They are called "risk-analysis scholars," and they believe there are, in general, two ways we may assess a risk such as global warming. One is through our analytic abilities, by which we examine the scientific evidence and make logical decisions about how to respond. This is the process that was used by climate scientists to reach the strong and clear conclusion that the risks of global warming are momentous and require immediate and significant action.

But most of us do not rely on our analytic abilities to evaluate the risk of global warming—or any risk, for that matter. Instead, we rely on the second and more common way of perceiving risk: our emotions.

"For most of us, most of the time, risk is not a statistic. Risk is a feeling," says Weber. We are swayed by our feelings, and those feelings—while an essential part of the decision-making process—can be misleading guides, depending on the type of risk involved.

For example, in a recent paper on how emotion shapes risk perception, Weber cites the growing number of parents who choose to forego having their children vaccinated against diphtheria, tetanus, and pertussis. To most physicians, this is a highly irrational decision, since vaccinations help prevent serious illnesses and pose very slight risks. So why do parents make such decisions? Because when they learn that

roughly one child out of 1,000 will suffer from high fever and one out of 14,000 will suffer seizures as a result of vaccinations, their emotions lead them to imagine that *their* child will be the one to suffer.

"If I feel scared," says Weber, "that overshadows any amount of pallid statistical information."

And perhaps most importantly, emotions, more than anything else, are what motivate us to act. As decades of behavioral decision research has shown, most people have to *feel* a risk before they do something about it.

In this way, our limited response to global warming is similar to our limited response to mass murder or genocide, according to Paul Slovic, a professor of psychology at the University of Oregon and the president of Decision Research, a nonprofit that studies human judgment, decision making, and risk.

In a series of research papers, Slovic has explored why reports of genocide so often fail to stir us to action. These reports, he writes, usually stress the thousands or even millions of people who have been killed. In doing so, they speak to our analytic abilities but not our feelings. Slovic has found that people are much more likely to donate money to a cause after reading the story of a single victim than after reading a statistic citing a million victims.

Like genocide, the long-term consequences of global warming are so enormous we can't wrap our heads around them. Scientists predict in 40 years global warming will displace 20 million people from Beijing, 40 million from Shanghai and surrounding areas, and 60 million from Calcutta and Bangladesh. These statistics are daunting, but they're abstract; they don't inspire us to feel for the one individual whose life will be put at risk. As a result, we fail to take appropriate action.

And as with others, so with ourselves: It is emotions, such as fear or worry, that motivate us to protect ourselves from risk. With global warming, this presents an even more challenging situation because, says Weber, our emotions are shaped by two forms of past experience: either direct personal experience or evolutionary experience that still guides human behavior.

We feel the hairs stand up on the back of our necks if someone in a dark alley appears dangerous. This happens because, from an evolutionary perspective, deep in our psyches we know what it feels like to have another human being physically threaten us. There's also the chance that we've been threatened or assaulted personally.

But we have no innate experience of global warming that tells us, from personal or evolutionary experience, that when we burn too many fossil fuels, it causes the build-up of greenhouse gases that trap warm air within the Earth's atmosphere, which, in turn, melts ice caps and glaciers, raises ocean levels, and causes hurricanes to intensify, floods to worsen, droughts to increase, lakes and water supplies to disappear, and, as in any such dire and threatening circumstance, famine and warfare to spread.

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As dramatic as these scenarios are, we can’t feel them because we haven’t experienced them (yet). Human-driven climate change is simply unprecedented.

“Global warming doesn’t make evolutionary sense to us,” says Weber. “Our minds haven’t adjusted to the much more complex technological risks that are removed in space and time.”

Timing is everything

Our lack of past experience with global warming is also exacerbated by the fact that global warming is not a clear and present danger but, rather, something that is projected to reveal its most dramatic consequences decades from now.

“It’s a very well established fact about human behavior,” says Slovic, “that we discount future negative outcomes a great deal, especially if it means having to postpone some immediate positive benefit, such as the convenience of driving our car.” He likens our attitudes toward the future risks of global warming to how teenagers discount the risk of smoking, despite abundant evidence of its risks.

“Young people tend not to be quite clear about whether there will be consequences from their smoking, what they would be, and what it would be like for them,” he says. “The future risk is not imaginable, and that tends to make people more complacent.”

The fact that global warming appears to represent a hazard of nature also leads people to underestimate the risk. “People don’t respect nature and what it can do,” says Slovic. “They feel nature is benign, even though it really isn’t.”

Case-in-point: He contrasts the response to Hurricane Katrina with the response to September 11. “After Katrina, people started to pay more attention to strengthening the levies even though the information was available in advance. There was a short period of time when there was a heightened response, then it dampened.”

The response to September 11, in contrast, has been far more significant and long-lasting, even though, he says, “from a physical damage standpoint, 9-11 was relatively smaller.” The difference was that Katrina, which many scientists believe was fueled by human-driven global warming, seemed like an act of nature, and that failed to trigger our millennia-old fears of having our homes and lives invaded by a stranger—fears evoked by September 11.

Reality vs. worldview

A third obstacle that limits people’s response to global warming—and even their willingness to believe in it—is also one of the most intractable. In a series of recent studies, a group of scholars from Yale and other universities have been studying how cultural values shape our perceptions of risk. Based on the premise that Americans are

culturally polarized on a range of societal risks, from global warming to gun control, Paul Slovic, Yale Law School professor Dan Kahan, and others analyzed the results of surveys and experiments that matched the risk perceptions of some 5,000 Americans to the worldviews of those Americans. Their finding: People may simply reject evidence that clashes with their worldview.

“To a certain extent our attitude toward risk and behaviors are conditioned not just by the raw facts of the matter, but by the orientation that we have to the world,” says Slovic.

In the case of global warming, researchers found two general worldviews that seemed to have the most significant influence on perception and action. One group consists of egalitarians, or people who prefer a society where wealth, power, and opportunity are broadly distributed. Researchers called the other group the hierarchists, those who prefer a society that is linear in its structure, with leaders on top and followers below.

“What we’ve seen through this research is that egalitarians are generally more concerned about environmental risks over a range of hazards, including global warming. Hierarchists tend to be less concerned,” says Slovic. In fact, he says, when it comes to perceptions of risk, one’s worldview is vastly more influential than other individual characteristics, such as race or political ideology.

The researchers also found that when proposed solutions to global warming clash with people’s worldviews, those people are more likely to reject evidence of the problem altogether. For example, in one experiment, Kahan and his colleagues gave two groups of people two contrasting newspaper articles about global warming. Both reported the problem in similar terms: temperatures were rising, human behavior was the cause of climate change, and global warming could lead to disastrous environmental and economic consequences if left unaddressed. But the articles then went on to offer different solutions: one called for increased regulation of pollution emissions, while the other called for revitalization of nuclear power.

When people with a hierarchical worldview received the article that called for increased regulation—policies currently associated with a more egalitarian and liberal worldview—they were more likely to reject that global warming was a problem than when they received the article that called for a revitalization of nuclear power.

This research helps explain the attitudes and behaviors of global warming skeptics. Slovic says it also shows how difficult it is to communicate persuasively when people feel their worldview is challenged. “The truly disconcerting thing about this work is that it shows how difficult it is to change people’s views and behaviors with factual information,” says Slovic. “People spin the information to keep their worldview intact.” They do their best to hold onto their worldviews, says Slovic, because so



Social scientists argue that seemingly natural disasters like Hurricane Katrina (left) don't alarm people as much as man-made threats like the September 11 attacks, which triggered ancient fears of having our homes and lives invaded by a stranger.

much of their personal identity and social networks are tied up in maintaining it.

Fearful futures, hopeful actions

With such significant obstacles to spurring action on global warming, what can social scientists recommend about how to inspire the necessary response?

First, communication about global warming needs to reach people's emotions and trigger fear, and that means emphasizing the dramatic consequences to come. "It is only the potentially catastrophic nature of (rapid) climate change (of the kind graphically depicted in the 2004 film *The Day After Tomorrow*) and the global dimension of adverse effects, which may create hardships for future generations, that have the potential for raising a visceral reaction to the risk," Elke Weber writes in a recent paper on why global warming doesn't scare us yet.

This means making future hardships vivid, imaginable, personalized, and credible, says Slovic. For example, he suggests that people communicating about global warming answer the questions: "How will it change the whole economy and whole quality of life in a particular region? Will the forests die out? Will the summers be so hot and dry that the Earth will be uninhabitable?"

In setting out to evoke fear, however, one must tread judiciously. "If people are being scared without seeing a way out, it makes them dysfunctional and freeze," says Weber. "They will switch channels and watch Britney Spears instead."

And that leads to a second recommendation: People need to be offered a set of actions they can take to combat global warming. "In general, a good guide is: Where does most of our energy get used?" says Susanne C. Moser, co-editor of the 2007 anthology, *Creating a Climate for Change*. The top three categories of energy-consumption for

individuals are transportation, home-energy use, and food consumption. Already, plenty of books and websites offer tips on how to reduce energy use in all these areas. (Many are listed in the "Resources for the Greater Good" on page 49.) Reports on global warming need to draw on these resources, so that people feel there is something concrete they can do about it.

Finally, beyond the many small energy-saving solutions people can take, combating global warming will require making people more aware of the large-scale lifestyle changes that will really make a difference. "I don't want to have to make a zillion little decisions," says Baruch Fischhoff, a professor at Carnegie Mellon University and the former president of the Society for Risk Analysis. "I'd like to see people working out for me some alternative ways of organizing my life where it will really be a sustainable way to live."

Indeed, figuring out these big lifestyles changes, Fischhoff suggests, is the practical work that now lies ahead for climate and social scientists.

As for ordinary Americans like myself, I believe that significant collective action on global warming will come from a very personal place—such as love for our kids, who will, after all, be among those most likely to experience its greatest consequences. But perhaps even more significantly, I'm finding hope in knowing that the drive to protect our children is another universal desire for which most of us are, in fact, hard-wired.

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