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How Does the Mind Grasp Climate Change?

A Research-Based Guide Tries to Narrow a Communication Gap



Free printed copies and an interactive online version of the guide are available from the Center for Research on Environmental Decisions

A poll conducted in October shows that the proportion of Americans who are convinced that human activity is warming Earth's climate has dropped sharply since last year, to under 40 percent—even though most scientists say the evidence is overwhelming. A concise new publication delves into what goes on in human minds that causes this disconnect, and what communicators of climate science can do about it.

The new 43-page guide, *The Psychology of Climate Change Communication*, released today by Columbia University's Center for Research on Environmental Decisions, looks at how people process information and decide to

take action, or not. Using research into groups as disparate as African farmers and conservative U.S. voters, it offers insights on how scientists, journalists and educators can convey evolving scientific knowledge, increase chances that the public will understand what they are saying, and take action when appropriate.

For the nonscientist, climate can seem alternately confusing, overwhelming and politically loaded, say lead authors [Debika Shome](#) and [Sabine Marx](#). In eight brief chapters, the guide identifies basic tactics to overcome predictable roadblocks. For one, communicators would do well to frame complex issues in ways that people can relate to personally: New Yorkers may respond more to the idea that sea-level rise threatens to flood their subways, than to the idea that it also threatens much of Bangladesh. Communicators also need to do a better job of sorting the larger picture from smaller uncertainties—for instance, concentrating on the strong consensus that sea levels will rise in the 21st century, versus confusing readers with disagreements over exactly how much levels will rise.

When individuals respond to threats like climate change, they are likely to alleviate their worries by taking only one action, even if it is in their interest to take more than one.

Scientists generally acknowledge that nothing can be known with absolute certainty; their trade involves reducing the amount of uncertainty. But, as with the numbers they give out, the words they habitually use can be misinterpreted to mean they do not really know what they are talking about. For instance, a recent report from the [Intergovernmental Panel on Climate Change](#) states that global temperature increases that have taken place in the last 50 years have been "very likely due to the observed increase in anthropogenic GHG concentrations." Panel scientists have agreed that "very likely" means 90 percent certain or more—but when

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researchers asked ordinary people to assign a percentage to that specific phrase, most came up with a much lower number. The guide also attacks fancy words like anthropogenic (translation: manmade) and acronyms such as GHG, (greenhouse gases), which may alienate even educated people. Even many graphs that in the eyes of scientists show alarming trends elicit only yawns or incomprehension from almost everyone else.



One chart in the guide lists words with columns showing their meaning as perceived by scientists, and by nonscientists. To scientists, a “theory” is the “physical understanding of how [something] works.” Hence, the well-accepted theory of evolution, the theory that the earth formed over billions of years—and now, the theory of manmade climate change. But to the public, a theory may be just “a hunch, conjecture or speculation.” (Politicians long ago learned the lesson that language matters: one [recent study by the authors and their colleagues](#) finds

that conservative Americans find “carbon offsets” more acceptable than a “carbon tax”—even though it might be argued the two are essentially the same. Climate legislation now before Congress avoids mention of anything labeled “tax.”)

The public has its own chronic problems. For one thing, there is a phenomenon that social scientists call the “finite pool of worry.” In other words, people can deal with only so much bad news at a time before they tune out. For another, when individuals respond to threats like climate change, they are likely to alleviate their worries by taking only one action, even if it is in their interest to take more than one—an effect called “single action bias.” For Americans, recycling often serves as a catchall green measure; some people will zealously separate out their trash, but neglect to do anything more to curb high energy usage in their homes or vehicles. One study showed that farmers in Argentina who had capacity to store grain in the face of drought were less likely to use irrigation or crop insurance, even though those added measures would have made their operations more resilient to weather.

“Gaining public support for climate change policies and encouraging environmentally responsible behavior depends on a clear understanding of how people process information and make decisions,” say Shome and Marx. “Social science provides an essential part of the puzzle.”



Free printed copies and an interactive online version of the guide are [available from the Center for Research on Environmental Decisions](#). The project received funding from the Charles Evans Hughes Memorial Foundation and the U.S. National Science Foundation.

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