

The scientific consensus as a gateway belief for climate change and GMOs

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Greenland's glaciers have been breaking off into the Atlantic Ocean at an accelerated pace due to the effects of climate change. Credit: Tim Norris

Public debate on scientific topics is in no short supply. Though science recognizes the evidence validating evolution, genetically modified

organisms (GMOs), or climate change, it does not take long to find articles or people who oppose regarded scientific facts. In many of these cases, unnecessary debate inhibits positive action. Also, confronting these debates effectively is no trivial task. Studies have shown that administering facts to people may only harden their misguided beliefs. Therefore, finding effective ways to inform the public about issues pertaining to science and society is imperative to driving support for evidence-based policies. A recent *PLOS ONE* article provided causal evidence that people's initial assumptions about the scientific consensus on climate change—known as a "gateway belief"—may help shape people's perceptions of climate change and make them more likely to support action.

A major motivator of climate change doubt is public misunderstanding about the [scientific consensus](#) on the issue. Agents of doubt have successfully promoted the false message that it is up for debate among scientists whether human action is causing climate change. This sentiment is untrue. Nine out of every 10 scientists believe that human activities are the primary driver of [global climate change](#). However, only one in 10 Americans correctly estimates that the consensus is this high. Moreover, science demonstrates that knowledge of this consensus can influence whether people acknowledge the fact of climate change.

Testing the Gateway Belief Model

Van der Linden and colleagues hypothesized that study participants would be more convinced of the evidence behind global warming if they knew about the high scientific consensus. Thus, knowledge of the scientific consensus would serve as a gateway belief to facilitate other key beliefs about climate change and support for action. The novelty of their approach was that it would provide causal instead of correlative data—something that has remained elusive in these types of studies.

Through mathematical modeling, the scientists found a direct causal relationship between knowledge of the scientific consensus and support for public action. Also, people who learned of the scientific consensus were more likely to worry about climate change, and believe that the phenomena is happening and caused by humans.

However, following the study, the increase in support for action was not nearly as substantial as the increase in the participant's ability to correctly estimate the scientific consensus. While understanding of the scientific consensus makes some people more likely to support public action, the gateway belief model will not influence everyone. There are likely other factors involved in making someone support action.

Using the Scientific Consensus to Combat Public Misunderstanding

These results provide promise. The findings indicate that the gateway belief model can be used to inform the public and increase the likelihood that support will be generated for action to be taken. Even if the gateway belief model influences only a fraction of the population to support action, even small shifts in public support for an issue can have expansive consequences. The results beg the question, "Can the gateway belief model be extended to other science issues?"

I would argue that climate change is the most pressing issue in science, with huge impacts for society if it is not addressed in a timely manner. But public discourse on other scientific issues is fraught with similar misunderstandings. For example, data from a Pew research poll that compared differences in opinion between the public and scientists indicated that the biggest gap between the two groups was on the issue of GMOs in food. 88% of AAAS scientists think that it is safe to eat genetically modified foods, while only 37% of adults in the United

States believe that it is safe—a gap of 51%. For comparison, the public/scientist gap on climate change being mostly due to human activity was 37%.

Using the scientific consensus as a gateway belief to build support for GMOs in food has not been addressed yet, but it would be interesting to examine for two key reasons. First, it is harder to promote discourse on issues such as GMOs in food because they appeal to people's core values on different levels. Most of the debate around GMOs is not actually debate about the science, but rather is a debate of values. Second, if the gateway belief model were successful in educating, then it would embolden the idea that it is an effective strategy to combat misinformation and could be extended to other issues such as vaccine denial. If it were not effective at garnering change in GMO understanding, then it would indicate differences between these issues that go beyond the misunderstanding of the scientific consensus.

Curbing Doubt with Science

When trying to communicate topics such as [climate change](#) to the public, scientists should consider employing the gateway belief model to best understand how to drive change and engender [support](#). Assaulting people with facts is becoming an antiquated technique in science communication. While informing people of the scientific consensus is technically providing a fact, the existence of a consensus is something that cannot really be disputed, and is far enough removed from the core values of individuals. The use of the gateway belief model then allows people to acknowledge these facts on their own, which is important for maintaining them.

More information: "The Scientific Consensus on Climate Change as a Gateway Belief: Experimental Evidence." *PLoS ONE* 10(2): e0118489. [DOI: 10.1371/journal.pone.0118489](https://doi.org/10.1371/journal.pone.0118489)

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