

### Reading 3, Why Scientists Disagree About Global Warming (2024)

If you ask me, education can and should play a crucial role in the climate crisis. Coming from an educator, it's probably not surprising that I believe this.

What you may find surprising is that climate change deniers also find educators and education of central importance. And, they are doing something about it – in a big way.

A 2016 report from the [National Center for Science Education](#) (NCSE) revealed that as many as 30% of K-12 teachers teaching climate change teach that this is a two-sided argument and that “many scientists’ see natural causes behind recent global warming.” Conversely, more than half of K-12 teachers do not teach climate change at all. And those who do teach it only devote an hour or two to the issue.

Part of the problem is that many of these teachers are themselves unclear on the facts. The most referenced of all papers on climate change notes that 97% of scientists are in agreement that anthropogenic climate change is real and happening. However, when questioned about this scientific consensus by the NCSE, only 30% of middle-school and 45% of high-school teachers selected the correct answer from a broad range (“81 to 100%”). In other words, even if they thought that just 80% or 90% of scientists were in consensus, they would have still selected the right answer – but they didn't.

So, what are so many teachers confused about the climate crisis?

This confusion is not too surprising, as teachers have been targeted by fossil fuel affiliates like the Heartland Institute (I will talk more about this organization in a minute or two), which mailed 300,000 unsolicited and free copies of the book [Why Scientists Disagree About Global Warming](#), a portion of which we are reading, to K-12 teachers across the US. in 2017. As the [Heartland Institute](#) notes, this book purports to explain “why the claim of ‘scientific consensus’ [in other words, that 97% figure] on the causes and consequences of climate change is without merit. The authors comprehensively and specifically rebut the surveys and studies used to support claims of a consensus. They...then provide a detailed survey of the physical science of global warming.”

Although sent to K-12 teachers, the real targets are – of course – children, as the goal is to teach them climate change skepticism by way of the people that they trust most in this regard: their school teachers.

Assuming that each of the teachers that received this book teaches around 30 children, this approach could potentially teach climate change skepticism to 10 million American children. And this, of course, it's just one year. Hence, we are really talking about tens of millions of children.

As you will see when reading *Why Scientists Disagree About Global Warming*, this does not read like the rants of a fringe group, but rather is built upon carefully constructed arguments. Don't be at all surprised if it causes you to become a little skeptical yourself. That's why it was written – and written carefully.

Incidentally, even if K-12 teachers are correctly informed and desire to teach the climate crisis, in a number of states ([Maine](#), [South Dakota](#), and [Virginia](#), for example) bills have been introduced that would hamper their efforts. The Virginia bill argues that this is necessary because “many teachers in public elementary and secondary school classrooms are abusing taxpayer resources and abusing their ability to speak to captive audiences of students in an attempt to indoctrinate or influence students...under the guise of ‘teaching for social justice’ and other sectarian doctrines.”

If this sounds familiar, it may well be because dozens of states are similarly attempting to ban the teaching of critical race theory, which draws attention to another truth: the fact that racism is systemic in the United States and has been even before our country was founded. In many ways, these efforts to ban the teaching of critical race theory were led by former President Donald Trump, who said that it is “[propaganda](#)” and “[left-wing indoctrination](#),” and that the “[\[t\]eaching this horrible doctrine to our children is a form of child abuse in the truest sense of those words.](#)”

Some states are attempting to go even further in mandating that students be taught that the scientific consensus on climate change is simply wrong. A [bill introduced in Montana in 2019](#) states that “when providing educational and informational materials on climate change,” the following findings should be observed: “reasonable amounts of carbon dioxide released into the atmosphere have no verifiable impacts on the environment; science shows human emissions do not change atmospheric carbon dioxide emissions enough to cause climate change; claims that carbon associated with human activities causes climate change are invalid; and nature, not human activity, causes climate change.”

As the book *Why Scientists Disagree About Global Warming* makes clear, Americans are clearly being influenced by a massive campaign of disinformation that has been ongoing for decades

now, supported by a range of groups that includes a number of conservative think tanks (generally referenced as CTTs), such as the Cato Institute, the Heartland Institute, and the Competitive Enterprise Institute, which are funded by fossil fuel companies (like the Koch family) and interests.

Dating from the Reagan administration and earlier, these groups have long seen themselves, to quote the Cato Institute, as the defenders of “America’s heritage of individual liberty, free markets, and constitutionally limited government.” In practice, the Heartland Institute, which published the book that we are reading from, *Why Scientists Disagree About Global Warming*, has, example, fought bitterly against issues like tobacco regulation, which was one of its earliest initiatives in the 1980s. At the time, it received funding from the tobacco industry.

With respect to climate change, a 2013 study by two scholars, Riley E. Dunlap and Peter J. Jacques, which looked at over 100 English-language books denying anthropogenic climate change dating from the 1980s to 2010, found verifiable links to CTT groups for 87% of those emerging from publishing houses (links with self-published denial books, now proliferating, are more difficult to trace). That number was once even higher: 100% of all books from the 1980s and 95% from the 1990s.

Simply put, if you pick up a book denying that anthropogenic climate change is real, it is exceptionally likely that it was published or financed by a conservative think tank (CTT ) funded by the fossil fuel industry.

And this is just the tip of the iceberg; CTTs support a range of websites, blogs and other online activities, as well as more traditional advertising. A billboard campaign by the Heartland Institute featured a photograph of convicted “Unabomber” Ted Kaczynski, who thinks of himself as an environmentalist, beside the words, “I still believe in global warming. Do you?” A television commercial by the Competitive Enterprise Institute argued that the greenhouse gas CO<sub>2</sub> is not, in fact, a contributing factor to climate change. To the contrary, it is represented as “essential to life. We breathe it out. Plants breath it in...They call it pollution. We call it life.”

These conservative think tanks also directly attack science and scientists. In response to the definitive reports on climate change produced by the Intergovernmental Panel on Climate Change (IPCC), the Heartland Institute commissioned its own group, the Nongovernmental International Panel on Climate Change (NIPCC), which has produced over a dozen reports, comprising thousands of pages.

The book from which we are reading, *Why Scientists Disagree About Global Warming*, is in some sense similar to the IPCC Summary for Policymakers, as it is produced by the NIPCC in order to deliver its findings to policymakers and others. With this goal in mind, “[m]ore than 50,000 copies of the first edition were sold or given away in five months to elected officials, civic and business leaders, scientists, and other opinion leaders” (pages xv-xvi).

With the second edition, from which we are reading, the Heartland Institute widened their free distribution of the book, as they posted the entire book online as a free PDF (which we are reading). In addition, as noted above, the Heartland Institute mailed 300,000 copies of the second edition of this book to teachers across America.

In short, *Why Scientists Disagree About Global Warming* is designed to make a range of individuals question whether anthropogenic climate change is real: policymakers (i.e. politicians and business leaders), educators – and by extension, tens of millions of children – and others, by making the text available to everyone as a free PDF.

I am curious to hear what you think about the portion of *Why Scientists Disagree About Global Warming* that you read and the larger issue of this campaign of disinformation in general, as well as how it is specifically being aimed at children by way of educators.

Class discussion of *Why Scientists Disagree About Global Warming*

(Note that the following observations, which are in italics, have not been paraphrased or altered, though I do correct the occasional typo and, because of space concerns, often just part of the comment is reproduced here along with my reply. In working through these, I will first quote an observation by a student, followed by my thoughts.)

There were literally hundreds of comments that expressed a similar sentiment to the following:

*I've never been more angry reading a document. The authors of "Why Scientists Disagree About Global Warming" are lying through their teeth for money.*

Here is another example:

*This reading, as well as the attached Amazon reviews, really pissed me off.*

To be honest, it really pisses me off too.

As we have seen, the direct consequences of the rise of greenhouse gas (GHG) emissions are more than a little frightening. Even if every person and every country on the planet agreed to quickly and decisively to mitigate the climate crisis, this will still be a formidable challenge, likely the greatest that humanity has ever collectively faced.

However, as *Why Scientists Disagree About Global Warming* makes clear, we face another challenge, which is in some sense every bit as formidable, as the fossil fuel industry is working, in a whole host of ways, to attempt to keep us from acting quickly and decisively to mitigate the climate crisis. And, make no mistake, they are doing a pretty good job.

If you are unfamiliar with their methods, you might easily dismiss their efforts. Before I started studying climate change denial literature a few years ago, I have to confess to not taking it very seriously. This was a mistake. I quickly realize that an enormous amount of work was being put into this literature and, perhaps not surprisingly as a consequence, it can be very effective at causing people to doubt the validity and/or severity of the climate crisis.

How effective is this particular book? I just checked the Amazon reviews of it, which gave it a 4.2. This is all the more astonishing as a number of people gave it scathing reviews, such as [the most popular on](#), which begins, "[t]his is one of the most egregious attempts to defuse any support of fact on the existence of global warming and climate change that I have ever read..." In contrast, there were many reviews with labels like ["Well Documented And Provides Much Needed Balance To The Climate Change"](#)

[Debate](#)” and “[Should be a mandatory read for media and politicians.](#)” There were clearly for more positive reviews, which accounts for that rating of 4.2.

In any event, hundreds of people in Climate Crisis 101 had the same reaction when they read our selection from *Why Scientists Disagree About Global Warming*: their gut response was to get angry – which, as far as I am concerned, given the circumstances, is entirely appropriate.

*I don't quite understand what an individual will gain by pushing for a more clean and green environment.*

If you just happened upon the book *Why Scientists Disagree About Global Warming*, or any similar climate denial literature, you may well have this same question. After all, what is to be gained by pushing for a greener and cleaner environment other than...well... a green cleaner environment and future? In other words, what could possibly be the secret agenda here? After all, we hardly need one, as this is, obviously, a worthy goal in itself.

Nonetheless, climate change deniers have come up with a variety of conspiracy theories questioning the motives of climate change scientists and activists.

One is that climate scientists are corrupt and are receiving money to sell the American public on the idea of climate change. On the cover of the book *The Deliberate Corruption of Climate Science* by Tim Ball, a wad of cash is being exchanged between two hands. Who is providing the payoff money here? According to this theory, it is coming from a range of institutions, including the federal government, as they are purportedly pursuing a goal that has nothing to do with the environment and climate, which brings us to the big conspiracy theory here.

When communism collapsed across the world in the early 1990s, the United States was presented with something of an epistemological dilemma (in other words, a challenge to the way that the US. understood itself).

In order to develop and maintain a sense of Self, all sorts of entities are locked into a binary structure with an Other. For example, the idea of men as strong, capable, and emotionally stable is consolidated by imagining an opposite of men, an Other, as weak, incapable, and emotionally unstable: women. Such binary structures in opposition, which obviously do a profound violence to the imagined Other (in this case, women), are sadly common. Racism has long functioned by postulating inferior Others to the normative white Self.

During the Cold War, the United States postulated communist countries as the Other. Hence, the most conspicuous feature of Americans was that we were free and happy because people in communist countries were imagined as neither free nor happy. Hence, communism was perceived as a profound threat to our way of life. However, when the

Cold War and the so-called Red Scare ended, the United States suddenly found itself without an Other.

Not to worry, as very quickly a new entity replaced communism as the threat to America and our way of life. What replaced the Red Scare of communism? Environmentalism, as the phrase "green is the new red" came on the scene.

In case this doesn't make intuitive sense, allow me to explain the logic.

The particular aspect of communism at issue here is that it is a form of big government. Imagine two very different ways of governing. On the one hand, a system where the government is small and plays a relatively small role in our lives. In such an approach, the economy and corporations are allowed to largely function freely, without unnecessary government intervention.

In the other extreme, of which the large communist experiments of the 20th century (i.e. the Soviet Union and Mao's China) are prime examples, a large government is in direct control of the economy and corporations. This is government at its biggest.

What does this have to do with environmentalism and being green? The (conspiracy) theory here is that all sorts of restrictive government regulations will be introduced under the guise of being environmental. Because these restrictions are being cast as benign and good, we will allow them to be adopted without realizing that the hidden goal is to create a large and stronger government, like communism.

In terms of the climate crisis, because the nations of the world need to act together on this particular issue, the fear is that this project will go even further, linking up individual countries to act essentially as one world government – which, allegedly, is also the goal of communism.

In other words, in this view, environmentalism is a particularly insidious way of bringing big government and communism back.

Of course, this does raise the question of who stands to gain here. Not people or the planet, as reduced environmental restrictions put us all at greater risk. In contrast, corporations that would like to act as freely as possible without government intervention, stand to gain a lot here.

In particular, the fossil fuel industry has an enormous amount at risk. If you measure the wealth of companies by revenue, Apple Computer ranks number 10 in the world. Not at all bad; however, there are four oil and gas companies on [the top ten list](#) that are larger. If we phase out our fossil fuel economy and replace it with renewable energy, these companies (at least as fossil fuel companies) will go out of business.

Hence, the fossil fuel industry and its affiliates are in a desperate battle to survive. The difficulty is that their survival comes at the cost of making it difficult for life on earth, including human life, to survive.

*When I first started reading the book, I hadn't read the webpage introducing the book, any of the Amazon reviews, or watched Ken's introduction about it. I found myself confused and almost started believing what I was reading until I took a step back and realized this book was denying climate change. I'm shocked at their convincing skills...*

The first time that I taught Climate Crisis 101, a number of people similarly jumped right into reading *Why Scientists Disagree About Global Warming* without first encountering my framing of the selection. Although I certainly did not intend for this to happen, these became, in a certain way, an interesting case study in the effectiveness of the work.

And make a new mistake, it was effective.

Dozens of people in the class had the same response. As this person so succinctly puts it, "I found myself confused and almost started believing what I was reading..." If this was the response of bright, attentive college students who were likely predisposed to already believe in the validity of the climate crisis (I suspect nearly all students who enroll in Climate Crisis 101 are of this belief), how might the general public respond to such a work?

When I first read *Why Scientists Disagree About Global Warming*, it became clear to me that it would likely be very effective for certain audiences. However, I have to admit to being surprised at how effective it was, even on my students.

*I went to a high school in a relatively conservative town. My freshman year of high school, I remember the honors biology teacher explaining how climate change was a hoax only perpetuated to continue taxing Americans. I took this to be true. At that point, I was thirteen years old and wasn't presented with other information that would contradict his argument. It wasn't until my junior year of high school that I began to question what the teacher's motives were for spreading misinformation to 13- and 14-year-olds. I then realized how many of my classmates were not going to have the same realization as I did about climate change... Many of my classmates, most likely, still believe that climate change is a hoax because of this teacher, and will see it only as a ploy used to tax Americans.*

The fact that the Heartland Institute mailed 300,000 unsolicited copies of *Why Scientists Disagree About Global Warming* to K-12 teachers across the US. does not prove that it was effective at influencing these educators.

However, there were many comments like this attesting to the fact that K-12 teachers are indeed teaching climate change denial, even in progressive states like California.

Note that the approach used by this particular biology teacher buys into the aforementioned conspiracy theory that the climate crisis is a hoax designed to create a



stronger central government in the US. Not only would this, as previously noted, restrict the unchecked activities of a variety of industries, it would result in more taxes on Americans. Hence, this conspiracy theory creates a compelling personal reason to resist climate change action.

However, it should be noted, that in countries that have stronger central governments, such as many EU countries (like Denmark and France,), while individuals do indeed pay more taxes, they receive a great deal in return, such as free health and dental care, free college educations, higher minimum wage and other protections for workers (like thirty-hour work weeks in Denmark), free and better mass transit, and so forth.

In any event, it is more than a little disturbing that climate change denial is being taught to 13- and 14-year-olds right here in California, where, as we have seen, climate change is already at a crisis point with wildfires, droughts, heat deaths, and other impacts.

Not only do high school students receive wrong information, as with this example, but as the following comments makes clear, many simply do not receive any instruction at all on the climate crisis.

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*It's frustrating that deniers target teachers, legislators, and businesspeople but quite frankly, who else did we think they would target? They want to get at the root of our society, children who trust their teachers more than anyone. As I was reading, I was reminded of all of my teachers growing up – none of them talked about climate change at all.*

[Similarly, someone else in Climate Crisis 101 noted that,]

*Most of what I myself learned about the climate crisis has been through this class and last quarter's English 22 class.*

Unfortunately, many high school students in the US. have not had an introduction to the climate crisis, even in states like California that are pretty green. A big part of the problem is that California's educational code does not mandate it.

Under [California's Public Resources Code](#) (last amended in 2018), “[s]chools are encouraged to teach environmental literacy, which by definition includes climate change...The...Code does not mandate that schools teach it, however.”

Consequently, when an [informal poll was taken in 2019 in the Oakland Unified School District](#), it was found that “about 60 percent of surveyed science teachers were not familiar with the state's Environmental Principles and Concepts and nearly 70 percent were unfamiliar with the recently adopted board policy for environmental and climate change literacy.”

So, even if there are laws enacted to encourage the teaching of climate change literacy, teachers may will not be aware of them.

The good news is that “[m]ore than 40 California districts and county offices of education have adopted climate change resolutions since 2017 as part of a national effort started by [Schools for Climate Action](#).” The amazing thing is that Schools for Climate Action is not State program, but rather a grassroot “California-based advocacy initiative led by science teacher Park Guthrie and his students at Salmon Creek Middle School in Sonoma County.”

Still, although Schools for Climate Action is encouraging, it is clear that we really need state and federal laws to mandate the teaching of the climate crisis at all levels of K-12.

I know, kindergarten might sound a little young. However, personal experience (with my daughter when she was in kindergarten) has convinced me that children can really understand the situation. For example, as I explained to my daughter, just as veggies are good for your body and treats are not, wind turbines and solar panels are good for the earth, but burning coal and oil is bad. Similarly, bicycles are good; gas guzzling SUVs bad. Beans and lentils good; beef bad. It really is just that simple.

Moreover, this education needs to continue at the university level. Currently neither UCSB nor the University of California requires that students learn about the climate crisis. As far as I am concerned, this absolutely needs to change.

*After reading the start of this book I am in shock. This highlights a deep flaw that we face in our time, which is Google and the ability to find anything. This leads to a problem called confirmation bias, which is a term used in Psychology referring to the act of only acknowledging opinions and facts that align with your prior beliefs. If someone was in denial or only concerned with their day-to-day problems and didn't want to deal with the reality of climate change, they would seek out this book to confirm what they think.*

So far, we have been talking about books, like *Why Scientists Disagree About Global Warming*. However, most people do not now get their information from books nowadays. As this comment notes, the starting point for many people is now Google.

So, you type in something related to the climate crisis into your browser's search field. A list of tens sources appears before you can blink. As you scroll down, you tend to dismiss some options and click on others. For example, if you are a climate change skeptic, you likely click on choices that are in accord with your beliefs.

Why is this the case? As this comment noted, something called “[confirmation bias](#)” is at work here. “Confirmation bias is the tendency to search for, interpret, favor, and recall information in a way that confirms or supports one's prior beliefs or values. People display this bias when they select information that supports their views, ignoring contrary

information, or when they interpret ambiguous evidence as supporting their existing attitudes.”

Confirmation bias is just one of a number of cognitive biases that human beings share. As all of us are susceptible to these, it means that there is a real danger of us falling down any number of online rabbit holes.

Moreover, it has been argued that “Google is manipulating search and news results to bias them towards what it thinks it knows about people, based on the troves of personal data it has on them... This filtering and censoring of search and news results is putting users in a bubble of information that mirrors and exacerbates ideological divides.”

So, not only do people, by virtue of their confirmation bias, select only things that conform with what they believe, but Google itself is offering up search results that it believes are in accord with the beliefs of the person doing the searching, based on the information that they have compiled about of us. This is not the result of the actions of climate change deniers, but rather is the way that our brains and Google’s algorithms work.

In practice, this means that we can very easily slip into an online bubble where people believe, for example, that the climate crisis is a hoax. Once there, it only gets worse, as there are very active online communities of climate change deniers. So, if you happen stumble upon, for example, one of their boards, you will likely find nothing but people who are sincerely convinced that the climate crisis is a massive hoax. If you hang out there long enough, they may well convince you too.

But why, you may ask, would someone agree with something outlandishly improbable, like the fact that the entire scientific community and the collective nations of the earth are perpetrating a massive, global hoax by making up something like the climate crisis? Unfortunately (and to make things worse), human being seem to be hardwired to be drawn to conspiracy theories as a way of “[1]understanding one's environment... [2 feeling]... safe and in control of one's environment... [and 3] maintaining a positive image of the self and the social group” to which you belong.

Hence, although we might hope that our knee-jerk response to an outlandish conspiracy theory would be to simply reject it, we are in many ways hardwired to be predisposed to it.

*To add on to that list of hypocritical things that climate change deniers have done, I'm sitting here thinking about what Ken said regarding the billboard with the unabomber saying “I still believe in climate change. Do you?” Like do climate change deniers know what we could put on a billboard? I kept thinking of different prominent climate change deniers, but in the end, I think*

*the most effective billboard would just be a barrel of oil that read “I don’t believe in climate change, but I also don’t have family in Miami.”*

First, I would love to see that billboard!

Second, it is interesting to note that while fossil fuel interests are often highly effective, including in their use of media, in getting out their message, the same, sadly, cannot always be said of groups and individuals attempting to get spread awareness of the climate crisis. Certainly, climate scientists do their part, but they are generally not trained as public communicators.