

Why do some controversies persist despite the evidence?

August 4 2014, by Brian Martin



Climate change tends to attract some form of protest such as this in 2009 in Copenhagen, Denmark. Credit: Flickr/Simon Leufstedt, CC BY-SA

The debate over climate change is relatively young while nuclear power and pesticides have been heated topics since the 1960s, and [fluoridation since the 1950s](#). So what is it about these scientific controversies that makes them seem to go on forever?

Some campaigners despair, assuming that those on the other side simply refuse to acknowledge the overwhelming evidence: "They must be ignorant. Or devious – they're lying. Or they're getting paid."

Ignorance or psychological resistance might be relevant in some cases, but there are better explanations for why controversies persist.

Sociologists have been studying scientific and technological controversies for many decades, and have documented that new evidence seldom makes much of a difference.

So what is going on? Anyone who wants to better understand controversy dynamics needs to consider several factors as I've outlined in a new [Controversy Manual](#).

Confirmation bias

Psychologists have observed that few people approach information with an open mind. Instead, they look for evidence that supports their views and ignore contrary evidence if possible, or pick holes in it. The issue was explored by Carol Tavris and Elliot Aronson in their book [Mistakes Were Made \(But Not By Me\)](#).

Suppose there's a new study of hip fractures in communities with or without fluoride added to public water supplies.

Those favouring fluoridation will be especially interested if the study suggests fluoride strengthens bones, whereas if the result is the other way around, anti-fluoridationists will pay special attention to it.

If the result is unwelcome, it will be ignored or challenged: "It's a flawed study – and the researchers were biased!"

The burden of proof

In a polarised controversy, the two sides usually differ over what needs to be proved. Those [supporting fluoridation](#) believe the evidence of benefits is overwhelming and there is no evidence of significant harm, so they demand convincing evidence to change their views. They put the burden or onus of proof on their [opponents](#).

[Anti-fluoridationists](#), in contrast, believe the evidence of benefit has flaws and there is worrying evidence of harm, so they demand that pro-fluoridationists prove their case beyond reasonable doubt. They put the burden of proof on the other side.

In a court case, it makes a big difference which side has to prove guilt beyond reasonable doubt. Likewise in controversies. A key tactic in the debate is assigning the burden of proof to the other side.

Confirming assumptions

Thomas Kuhn's idea of [scientific paradigms](#) posits that scientists operate using a set of assumptions, standard methods and ways of seeing the world.

If you believe in evolution, then everything can be explained in evolutionary terms, whereas if you believe in creation, then everything is understood using different assumptions about how the world works.

In many controversies, the two sides operate from different assumptions and worldviews that are analogous to scientific paradigms. Any fact that doesn't fit into the standard picture is dismissed as an anomaly.

For example, pro-fluoridationists dismiss studies suggesting a link

between [water fluoridation](#) and the crippling disease skeletal fluorosis.

Group dynamics

Campaigning groups can develop a sense of solidarity and community. They are advocating for a worthy cause, after all, and it feels good to be among like-minded people.

Most campaigners interact mainly with others on the same side, and seldom have dinner with bitter opponents.

Many years ago, when I [interviewed](#) leading scientists, doctors and dentists who were active and prominent in the fluoridation debate, it was obvious they identified with those on the same side and interacted with their opponents only in antagonistic forums such as debates.

Beware of vested interests

Wealthy and powerful groups may have a stake in controversies, such as over [climate change](#), microwave radiation hazards, pesticides and nanotechnology.

Money and political influence can affect debates in various ways. For example, [the tobacco industry](#) funded sympathetic scientists and tried to discredit critics.

Some industries sponsor fake citizens' groups and use connections in the media and professional groups to try to [sow seeds of doubt](#).

Just because vested interests are involved doesn't mean that the side backed by money and power is wrong, but it does mean that extra attention needs to be given to possible distortions in the debate.

The [tobacco industry](#) undoubtedly made the debate over smoking and lung cancer continue longer than it would have otherwise.

Depends on your values

Public scientific controversies are not just about the science. They invariably involve differences in values concerning ethics and social choices. Partisans will come at the issue with [differing assessments](#) of fairness, care, authority and sacredness.

In the fluoridation debate, the morality of caring for others is present on both sides. Proponents say fluoridation potentially benefits everyone, especially those who are too poor to afford good dental care.

Opponents care more about those who might be damaged by fluoridation, arguing against putting a medication in the water supply to treat the population, using an uncontrolled dose.

Arguing with opponents

If new evidence seldom makes a difference in a controversy, what does?

Rather than trying to convince die-hard opponents, it is usually better to take the argument to those whose views are less set. Some people are open-minded and willing to listen. It is also important to speak to people's values rather than assume that facts speak for themselves.

Behaving in an honourable way can be important. Making derogatory comments about opponents may seem justified and effective, but it can create an image of nastiness and intolerance.

Observers may respond to behaviours, such as debating style, as much as

to the arguments. Challengers to orthodoxy need to appear sensible and credible and defenders of orthodoxy need to appear tolerant and fair.

Sometimes, when debates are interminable, it is worth thinking about alternative options. If [fluoridation](#) of public water supplies is perpetually debated, then it might be better to sidestep the debate and advocate voluntary measures such as fluoride toothpaste and mouthwashes.

Not every debate has such alternatives, however.

It is wise then to better understand what is driving those on the other side, and to treat them as thinking, caring individuals with a different set of values and a different way of looking at the world.

Indeed, if you are not already involved as a partisan, it might be worthwhile trying to arrange a friendly discussion. Rather than castigating opponents, it is possible to learn about them and from them.

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