

Seeing reason: How to change minds in a ‘post-fact’ world

We all skew evidence-based information to fit our beliefs – figuring out when and why could show us how to restore the delusion-busting power of facts



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By Dan Jones

IN NOVEMBER, [Donald Trump](#) defied the pollsters to be elected the 45th US president. A few months earlier, UK voters decided to [end their country's 43-year membership of the European Union](#). Throughout Europe populist movements are prospering. In every case, opponents have cried foul: these campaigns, they argue, win support by distorting or flagrantly disregarding the truth.

Politicians spin and politicians lie. That has always been the case, and to an extent it is a natural product of a free democratic culture. Even so, we do appear to have entered a new era of “post-truth politics”, where the strongest currency is what satirist Stephen Colbert has dubbed “truthiness”: claims that feel right, even if they have no basis in fact, and which people want to believe because they fit their pre-existing attitudes.

In recent years, psychologists and political scientists have been revealing the shocking extent to which we're all susceptible to truthiness, and how that leads to polarised views

on factual questions from the safety of vaccines to human-caused climate change. The fact is that facts play less of a role in shaping our views than we might hope for in a species whose Latin name means “wise man” – and the problem seems to be getting worse. By figuring out when and why we have a partial view of factual information, however, researchers are starting to see how we can throw off the blinkers.

Let’s just establish one fact first: facts are good. They may be uncomfortable, or inconvenient, but only by embracing rational, fact-based solutions can we hope to prosper as a society. “We need to have discussions that are based on a common set of accepted facts, and when we don’t, it’s hard to have a useful democratic debate,” says [Brendan Nyhan](#) at Dartmouth College in New Hampshire.

In a world of rational empiricists, facts and a careful weighing of the evidence would determine which claims we accept and which we reject. But we are biased. In the real world of flesh-and-blood humans, [reasoning](#) often starts with established conclusions and works back to find “facts” that support what we already believe. And if we’re presented with facts that contradict our beliefs, we find clever ways to dismiss them. We’re more wily defence lawyer than objective scientist.

What’s my motivation?

Psychologists call this lawyerly tendency motivated reasoning. Take [climate change](#). The science here is unambiguous: climate change is happening and human activity is driving it. Yet despite this, and the risks it poses to our descendants, many people still deny it is happening.

The major driver, especially in the US, is political ideology. A [Pew Research Center](#) survey released a month before the US election showed that, compared with Democrats, Republicans are less likely to believe that scientists know that climate change is occurring, that they understand its causes, or that they fully and accurately report their findings. They are also more likely to believe that scientists’ research is driven by careerism and political views.

Many liberals like to think this is a product of scientific illiteracy, which if addressed would bring everyone round to the same position. If only. Studies by [Dan Kahan](#) at Yale University have shown that, in contrast to liberals, among conservatives it is the most scientifically literate who are least likely to accept climate change. “Polarisation over climate change isn’t due to a lack of capacity to understand the issues,” says Kahan. “Those who are most proficient at making sense of scientific information are the most polarised.”

For Kahan, this apparent paradox comes down to motivated reasoning: the better you are at handling scientific information, the better you’ll be at confirming your own bias and writing off inconvenient truths. In the case of climate-change deniers, studies suggest that motivation is often endorsement of free-market ideology, which fuels objections to the government regulation of business that is required to tackle climate change. “If I ask people four questions about the free market, I can predict their attitudes towards climate science with 60 per cent certainty,” says [Stephan Lewandowsky](#), a psychologist at the University of Bristol, UK.

But liberal smugness has no place here. Consider gun control. Liberals tend to want tighter gun laws, because, they argue, fewer guns would translate into fewer gun crimes. Conservatives typically respond that with fewer guns in hand, criminals can attack the innocent with impunity.

Despite criminologists' best efforts, the evidence on this issue is mixed. Yet Kahan has found that [both liberals and conservatives](#) react to statistical information about the effects of gun control in the same way: they accept what fits in with the broad beliefs of their political group, and discount that which doesn't. And again, it's not about IQ: "The more numerate you are, the more distorted your perception of the data," says Kahan.

We are blinkered on other contentious issues, too, from the death penalty and drug legalisation to fracking and immigration. In fact, the UK's Brexit vote provides another compelling case study in the distorting power of motivated reasoning.

[Drawing on responses from more than 11,000 Facebook users](#), researchers at the Online Privacy Foundation found that while both Remainers and Brexiteers could accurately interpret statistical information when it came to assessing whether a new skin cream caused a rash, their numeracy skills abandoned them when looking at stats that undermined rationales for their views – for example, figures on whether immigration is linked to an increase or decrease in crime.

"The most numerate people are better at distorting the data to fit their beliefs"



We can't see past our biases on immigration and vaccination risks

Elliott Franks/Eyevine

As a result, the facts they encountered didn't lead them to update their beliefs in line with the evidence – a weakness the Leave campaign exploited. As Arron Banks, co-founder of the Leave.eu group said in a recent interview: “The Remain campaign featured fact, fact, fact, fact, fact. It just doesn't work. You've got to connect with people emotionally. It's the Trump success.”

Lewandowsky points to another problem: the lure of conspiracy theories. When it comes to climate change, “you can say ‘All the scientists have made a mistake’, which is a hard sell, but it's much easier to say ‘They're all corrupt’,” says Lewandowsky. His work shows that many people do in fact reject climate change as a conspiracy, and they tend to endorse a wide range of other conspiracy theories (see “[It's a cover-up!](#)”).



Susannah Ireland/The Times

Political ideology doesn't explain everything. The [bogus](#) link between autism and the vaccine for measles, mumps and rubella, while often portrayed as a liberal obsession, cuts across politics. “Opposition to vaccines is a diverse phenomenon, and resists easy generalisations,” says Nyhan. “There's no demographic factor that predicts who is most vulnerable to anti-vaccine claims.”

It's clear, then, that many of us, if not all, are stuck with blinkers. But how did we get to a point where facts have almost no value? It could be down to how we get our news. In the immediate aftermath of Trump's election, Facebook CEO Mark Zuckerberg came in for criticism for effectively running a media machine – perhaps the world's biggest – without the due care that should come with such a responsibility. In the US, [nearly two-thirds of people get news through Facebook](#), which is programmed to bring you news

similar to what you've already seen – often what the most ideological and politically active people in your feed have shared.

It's not hard to see how that could have an amplifying effect on motivated reasoning, and the rise of social media might well explain why our problems with facts seem to have grown more acute. These days, it's easy to drift into echo chambers reverberating not only with news and views that confirm your biases, but also falsehoods, rumours and conspiracy theories jostling with stories from reputable sources. So if we want to restore the power of facts, perhaps it is time to rethink how news is delivered on the largest scales.

But even if the [social media “filter bubble”](#) is burst and everyone is exposed to inconvenient truths, it may not be enough. A study of 1700 parents done by Nyhan and [Jason Reifler](#) at the University of Exeter, UK, reveals that fact-based messages of the sort often used in public health campaigns don't work – and sometimes have the opposite effect to what was intended. So while messages debunking the claim that the MMR vaccine causes autism, for example, did reduce belief in this misconception, they actually [decreased intent to vaccinate](#) among parents with unfavourable attitudes towards vaccines. Similarly, images of children suffering from the diseases that MMR prevents led sceptical parents to be less likely to vaccinate than they were previously. Nyhan and Reifler call this the [“backfire effect”](#).

That is not to say that debunking myths, which became an Olympic sport during the recent US election campaign, is a waste of time. Nyhan and Reifler found that during the 2014 midterm elections in the US, fact-checking improved the accuracy of people's beliefs, even if it went against ingrained biases. Democrats would update their beliefs after having a claim made by a Democrat debunked, and Republicans did likewise.

Work by [Emily Thorson](#) at George Washington University in Washington DC paints a similar picture. She found that misconceptions on issues like how much of the US debt China owns, whether there's a federal time limit for receiving welfare benefits and who pays for Social Security could be fixed by a single corrective statement.

The bad news is that myth-busting loses its power on more controversial or salient issues. “It's most effective for topics that we're least concerned about as a democracy,” says Nyhan. “Even the release of President Obama's birth certificate had only a limited effect on people's belief that he wasn't born in this country.” And Thorson has found that even when corrections work – say, getting people to accept that a fictional congressman accused of taking campaign money from criminals did no such thing – the taint of the earlier claim often sticks to the innocent target, in what she calls [“belief echoes”](#).

Changing minds

Yet Thorson remains upbeat. “It's easy to become pessimistic when we focus on really frustrating cases like 9/11 conspiracy theories or Obama's birthplace,” she says, “but there's still a lot of room to use facts to change attitudes.”

In some cases, the power of facts to persuade might turn on the way they're presented. In unpublished work, Nyhan and Reifler have found that [information presented graphically](#) leads people to form more accurate beliefs about the topic in question – the effectiveness of Bush's troop surge in Iraq in 2006/2007, say, or the state of the economy under Obama – than simply reading text about the same topic. And this is true even when the people looking over the graphs have political reasons to reject the conclusions they encourage. For Nyhan, it is a simple way of re-packaging information that journalists and the broader media could take into account when reporting stories.

Another avenue draws on the idea that people reject facts because they threaten the identity built around their world view. If so, buffering self-esteem might reduce that threat. When Nyhan and Reifler got people to reflect on and write about values that are important to them, an esteem-enhancing intervention called self-affirmation, they found that [it can do the trick – but its effects are not uniform](#). For instance, for Republicans whose identity is not strongly tied up with their party, self-affirmation makes them less likely to reject claims about climate change, but among Republicans who strongly identify with the party, the intervention either has no effects, or reinforces their beliefs.

Likewise, Miller has found that self-affirmation increases endorsement of conspiracy theories among conservatives, but not among liberals. Combining graphical information with self-affirmation also produces mixed results, depending on who you're dealing with.

Until recently, researchers had found no personality trait that mitigates motivated reasoning. But earlier this year, Kahan discovered something intriguing about people who seek out and consume scientific information for personal pleasure, a trait he calls scientific curiosity. Having devised a scale for measuring this trait, he and his colleagues found that, unlike scientific literacy, [scientific curiosity](#) is linked to greater acceptance of human-caused climate change, regardless of political orientation. On a host of issues, from attitudes to porn and the legalisation of marijuana, to immigration and fracking, scientific curiosity makes both liberals and conservatives converge on views closer to what the facts say.

Perhaps even more encouragingly, Kahan's team found that scientifically curious people were also more eager to read views that clashed with those of their political tribe. So finding ways to increase scientific curiosity, perhaps by increasing the influence of people with this trait, could take the heat out of partisan disputes more effectively than promoting scientific literacy.

Kahan sees other glimmers of hope. One might be to exploit what he calls “cognitive dualism”, the ability to hold two seemingly contradictory beliefs at the same time. It's a phenomenon at play in the recent Pew survey on climate change: just 15 per cent of conservative Republicans agreed that human activity was causing climate change, but 27 per cent agreed that if we changed our ways to limit carbon emissions it would make a big difference in tackling climate change.

“Asking about climate change is akin to asking ‘whose side are you on?’”

The same cognitive dualism is evident among US farmers. A 2013 survey of farmers in Mississippi, North Carolina, Texas and Wisconsin found that only a minority accepted

climate change as a fact. Yet a majority in each state believed that some farmers will be driven out of business by climate change, and the rest will have to change current practices and buy more insurance against climate-induced crop failures. By buying crops genetically engineered to cope with climate change and purchasing specialist insurance policies, many of them already have.

The psychological underpinnings of this “quantum mental state”, in Kahan’s words, are mysterious, he says, but it’s important because it suggests that people can think about factual issues at very different levels, depending on the extent to which the issue is bound up with their identity. Kahan thinks that asking people about human-caused climate change is akin to asking “Who are you, and whose side are you on?”, which is why political identity makes such a difference to their answers. But when you start talking about climate change as a local, personal issue, it loses its political edge and becomes a more pragmatic concern.

“When issues are wrapped up in national electoral politics, they have a resonance that divides people,” says Kahan. “So you want to depoliticise things along one dimension to facilitate action at another level.”

Taking poisonous partisan politics out of factual issues like climate change is part of what Kahan calls “detoxifying the science-communication environment”. A major pollutant of this ecosystem, argues Lewandowsky, is the influence of dark money in politics. A 2013 study by Robert Brulle at Drexel University, Philadelphia, found that between 2003 and 2010, [\\$558 million was funnelled through third-party “pass through” organisations](#), which hide the source of money, to climate-denial groups. “We have to talk about these anti-democratic influences and how they affect public discourse,” says Lewandowsky.



From gun control to climate change, our existing beliefs skew how we see the facts

Joe Raedle/Getty



Damon Winter/NYT/Eyevine

So is there any hope for facts? Restoring their power is not going to be easy. But despite the challenges, Nyhan cautions against despondency. “It’s important not to overstate what’s different about today from the past, when there were other ways of circulating misinformation,” he says. Although slower than today’s instant-access 24-hour news and all-consuming social media, they still allowed politicians to introduce false claims into the national debate.

“There was no Golden Age of democracy when facts dominated public opinion or political discourse,” says Nyhan. “But we’ve survived nonetheless”.

It’s a cover-up!

Why we’re drawn to conspiracy theories

Were the moon landings faked? Was the US government behind the 9/11 attacks? Is human-caused climate change a liberal hoax? The [power of conspiracy theories has never waned](#) – in fact, according to a recent estimation, at least half of the US believes in one or more of the common ones. And to some extent, we’re all susceptible because conspiratorial thinking stems from universal aspects of human psychology.

There is our propensity to see threats lurking everywhere and to make links between coincidental events. But according to Joanne Miller, a political scientist at the University of Minnesota in Minneapolis, [belief in conspiracy theories](#) is also fuelled by politically motivated reasoning – a tendency to skew factual information according to our pre-existing beliefs and political allegiances (see main story). “Both conservatives and liberals are prone to accept conspiracy theories that make the other side look bad,” says Miller. But she has also found that conservatives, especially those who are knowledgeable about politics but distrust mainstream authorities, are most likely to endorse conspiracy theories.

This reason, suggests Miller, is that conspiracy theories are most attractive to those who feel they’re on the losing end of politics. Indeed, Miller has found that inducing this feeling of losing out increases endorsement of conspiracy theories across the political spectrum, though again the effect is more pronounced among conservative Republicans – which means Trump’s claims that the election was rigged made perfect sense as a campaign tactic.

Now Trump has been elected as US president, we might see a reversal, says Miller. “Liberals and Democrats might become more likely to believe conspiracy theories that make the other side look bad now that they find themselves the political losers.”