



The scientific method can be used to challenge any claim made

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# Distinguishing between reliable and unreliable sources

**John Sprague** shows how knowledge communities have methods that allow you to distinguish between reliable and unreliable information sources

In the December 2016 IB Review Update I discussed Maria Bustillos' idea of dismediation, which she characterises as a 'form of propaganda that seeks to

undermine the medium by which it travels'. The take-home point of that concept was that a common belief today is that we can't really trust *any* news source. Once you accept that *some* news sources are consciously biased, then it stands to reason that *all* news sources are also biased. The genius of certain news sources was to call into question all sources of knowledge, just as their own reliability had been called into question.

## Only 97%?

This style of thinking shows a reluctance to make genuine distinctions between reliable and unreliable sources of information, and is the opposite of critical thinking. A real-life example of this, and one with quite significant implications, is the perceived tension over climate science, particularly the debate around anthropogenic global warming (AGW): the belief that human activity is the cause of the warming climate.

While it is often said that 97% of climate scientists agree that AGW is occurring, the fact that others disagree seems to suggest to many that there is in fact a genuine debate. A recent online poll from Canada suggested that 43% of people believe that scientific findings are a matter of opinion. Ironically, 79% of them believe that 'fake news' has an adverse effect on public understanding of scientific inquiry.

## Knowledge communities

In my own TOK teaching, I've been developing the notion of a knowledge community to discuss AOKs. This opens a discussion to focusing on experts in various subject-based fields, and the rules they follow when constructing knowledge. This provides a nice distinction between those experts and others, like me, who sit well outside that community of knowers.

The natural science community of knowers (into which all IB students are being inducted by their group 4 science teachers) has a useful tool by which to challenge any claim made, whether it be in the 97% or not: the *scientific method*.

## Learning from mistakes

In the paper 'Learning from mistakes in climate research' (2016, [www.tinyurl.com/benestad-et-al](http://www.tinyurl.com/benestad-et-al)) the methods of a small number of 'scientific' articles offering the contrarian position against AGW are examined. The abstract is well worth a read, as it chronicles the various methodological mistakes that these contrarian positions make, including:

- missing contextual information

- ignoring information that doesn't fit the desired conclusions
- flaws in the set-up of the experiments

Taken together, these flaws render the conclusion of this 3% deeply flawed and unjustified. Standing outside the community, but knowing enough about the general rules they follow when constructing knowledge, I tend to accept these sorts of claims. The scientific method (extended into peer review and replication of results) is a tool by which all such claims are tested, and in the case of the 3% they were found to be largely and deeply flawed.

However, the report doesn't suggest that even its own conclusions are flawless — the authors anticipate supposed weaknesses in their own method, thus exemplifying a process by which, they say, 'real-life scientific disputes in some cases can be resolved, and we can learn from mistakes.' The point being that we can still make reasonable judgements about what is reliable and what is not. Perhaps the 3% are looking for *certainty*. In which case, I hope they're all mathematicians.

## Further reading

'Canadians are confused about science vs. opinion, poll suggests': [www.tinyurl.com/y9bmr8ek](http://www.tinyurl.com/y9bmr8ek)

'OSC Canadian Science Attitudes Research' (PDF): [www.tinyurl.com/y7zk7efu](http://www.tinyurl.com/y7zk7efu)

'Those 3% of scientific papers that deny climate change? A review found them all flawed':

[www.tinyurl.com/ycv9tw9l](http://www.tinyurl.com/ycv9tw9l)

'Here's what happens when you try to replicate climate contrarian papers':

[www.tinyurl.com/y8puujeh](http://www.tinyurl.com/y8puujeh)

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