

# We must defend science if we want a prosperous future

March 3 2015, by Barry Jones

---



Science is under attack but we must defend it if we want to improve politics in Australia. Victoria University, Author provided

Today's Australians are, by far, the best educated cohort in our history — on paper, anyway — but this is not reflected in the quality of our political discourse. We appear to be lacking in courage, judgement, capacity to analyse and even simple curiosity, except about immediate personal needs.

There are more than 1.1 million [university students](#), both undergraduate and postgraduate (about 900,000 of them locals), [currently at Australian universities](#).

Australia also has about 4.5 million [graduates](#) (nearly 20% of the population), far more than the total numbers of traditional blue collar workers. Members of trade unions amount to about one million people: 18% of the total work force and about 12% of the private sector.

Inevitably, these numbers will shift our political culture, but the process is occurring slowly.

Australia, like the US, UK, Canada and much of Europe, has undergone a serious decline in the quality of debate on public policy. The British journalist Robert Fisk has called this "[the infantilisation of debate](#)".

In the era of "spin", when a complex issue is involved, leaders do not explain. They find a mantra ("stop the boats!") and repeat it endlessly, "staying on message", without explanation or qualification. The word "because" seems to have fallen out of the political lexicon.

Evidence-based policies and actions should be a central principle in the working of our system and reliance on populism and sloganeering should be rejected, but in reality they are not.

## **Selling out science**

Complex problems demand complex solutions. Examples of such problems are refugees and climate change, which cannot be reduced to parroting a few simple slogans ("turn back the boats", "stop this toxic tax").

"Retail politics" – sometimes called "transactional politics" – where policies are adopted not because they are right but because they can be sold, is a dangerous development and should be rejected. We must maintain confidence that major problems can be addressed -- and act accordingly.

A voracious media looks for diversity and emotional engagement, weakening capacity for reflection and serious analysis, compounded by the rise of social media where users, typically, seek reinforcement of their views rather than being challenged by diversity.

Science and research generally are given disturbingly low priority in contemporary public life in Australia. Scientists, especially those involved with climate change or the environment, have come under unprecedented attack, especially in the media.

And the whole concept of the scientific method is discounted, even ridiculed. Gus Nossal sometimes quotes me as saying that Australia must be the only country in the world where the word "academic" is treated as pejorative.

The role of science in policy development is a sensitive issue. I spent years – decades really – bashing my head against a brick wall trying to persuade colleagues to recognise the importance, even centrality, of science policy.

Many, probably most, of my political colleagues had no interest in science as an intellectual discipline, although they depended on science for their health, nutrition, transport, entertainment and communication.

We need to revive the process of dialogue: explain, explain, explain, rejecting mere sloganeering and populism. We need evidence-based policies, but often evidence lacks the psychological carrying power generated by appeals to prejudice or fear of disadvantage ("they are robbing you...").

## **Evidence vs. opinion**

There is a disturbing conflict between evidence and opinion ("you have

evidence, but I have strong opinions"), and political processes are more likely to be driven by opinion rather than evidence in a short political cycle.

Brian Schmidt, our Nobel Laureate in astrophysics, wrote of his experience in this regard in [The Age](#) on February 16:

*As a Nobel Prize winner, I travel the world meeting all kinds of people.*

*Most of the policy, business and political leaders I meet immediately apologise for their lack of knowledge of science.*

*Except when it comes to climate science. Whenever this subject comes up, it never ceases to amaze me how each person I meet suddenly becomes an expert.*

*Facts are then bandied to fit an argument for or against climate change, and on all sides, misconceptions abound.*

*The confusion is not surprising – climate science is a very broad and complicated subject with experts working on different aspects of it worldwide.*

*No single person knows everything about climate change. And for the average punter, it's hard to keep up with all the latest research and what it means.*

*More surprising is the supreme confidence that non-experts (scientists and non-scientists alike) have in their own understanding of the subject.*

I encourage you to read [Thinking, Fast and Slow](#), a 2011 best seller by the psychologist Daniel Kahneman who, although not an economist, won the Nobel Prize for Economic Science in 2002 for his development of

"[prospect theory](#)".

Prospect theory analyses rational and irrational factors in decision making. He demonstrates, regrettably, the extent to which people like you and me use familiar short cuts – "heuristics" – to make intuitive judgements, and discount evidence or rationality in making decisions.

This can apply whether purchasing something, deciding where and how to like something, or taking a political stance on issues. Kahneman became the outstanding authority on behavioural economics and social psychology.

Jonathan Haidt's [The Righteous Mind: Why Good People are Divided by Politics and Religion](#), from 2012, is also an important book. I think Haidt could go much further with his thesis, which states that politics and religion tend to be centred on "values", so people can pick and choose, and can sometimes be blinded to the facts because of their moral worldview. It is clear that many people say: "I reject these particular facts because I don't trust where they come from."

## **Heuristics and confusion**

Psychologists confirm that we habitually engage in the [cherry-picking of evidence](#) -- we choose the bits that we are emotionally, intuitively, attracted to and comfortable with.

The Cambridge political scientist, [David Runciman](#), argues that "opinion, interest and knowledge are too divided, and no event, whether an election [...] or a crisis is clear enough in its meaning to bring closure".

For example, there is fierce opposition in some quarters to the vaccination of children and the fluoridation of water supplies to prevent

dental caries, even though the empirical evidence in support of both is overwhelming. But appeals to fear can be far more powerful than arguing on the basis of hard evidence.

There has been a sustained attack from some quarters – the News Corporation papers, the Institute of Public Affairs ([IPA](#)) and the Centre for Independent Studies ([CIS](#)) to name only three – on scientific research and scientific method, even on rationality and the Enlightenment tradition.

The illusion was created that scientists are corrupt, while lobbyists are pure. One of the false assertions is that scientists who take the mainstream position are rewarded, while dissenters are punished (similar to Galileo and the Inquisition).

In Australia now, and the US until recently, the contrary could be argued. Galileo's work was based on observation of data -- his opponents were operating from doctrine.

Scientists arguing for the mainstream view have been subject to strong attack by denialists who assert that they are quasi-religious zealots who are missionaries for a green religion.

In reality, it was the denialist/confusionist position to rely on faith, the conviction that there were a diversity of complex reasons for climate change but only one could be confidently rejected: the role of human activity.

## **Three fronts**

There are three areas of attack against expertise and taking a long term, analytical view of the world: from the Right, the Left and the anxious Centre.

From the Right there have been systematic and well-financed attacks by lobbyists from the fossil fuels industry and electricity generators. This has been highly personal, often abusive, sometimes threatening.

The anxious Centre includes people working in particular industries and regions (such as Hunter Valley, La Trobe Valley, Tasmanian forests), understandably fearful of potential job losses, without much prospect of creating new jobs. The trade union movement is deeply divided on this -- as is the business community.

But from the Left, or some segments of the intellectual Left, a deconstructionist mind-set has partly undermined an evidence-based approach to policy making or problem solving.

The pluralist or deconstructionist or post-modern theory of knowledge is contemptuous of expertise, rejects the idea of hierarchies of knowledge and asserts the democratic mantra that -- as with votes in elections -- every opinion is of equal value, so that if you insist that the earth is flat, refuse vaccination for children or deny that HIV-AIDS is transmitted by virus, your view should be treated with respect.

Similarly, there has been a repudiation of expertise and or taste -- dismissing the idea of people like [Harold Bloom](#), or myself, that there is a "Western canon" which sets benchmarks. "No," say the deconstructionists, "the paintings of Banksy, the mysterious British graffiti artist, are just as good as Raphael, and hip-hop performances are just as valid as Beethoven's Opus 131."

The Welsh geneticist [Steve Jones](#) asks an important question: if there is a division of scientific opinion, with 999 on one side, and one on the other, how should the debate be handled? Should the one dissenter be given 500 opportunities to speak?

Yet Graham Lloyd, The Australian's environment editor – perhaps more accurately described as the anti-environment editor – trawls the web, finds obscure and unsubstantiated critiques of mainstream science, then publishes them as front page attacks on professional integrity.

## **Science and common-sense**

There are major problems when it comes to explaining some of issues in science, and there have been ever since science began. Some fundamental scientific discoveries seem to be counter-intuitive, challenging direct observation or our common-sense view of the world.

Common sense, and direct observation, tells us that the Earth is flat, that the sun (like the moon) rotates around the Earth and that forces don't operate at a distance.

Aristotle with his encyclopedic -- but often erroneous -- grasp of natural phenomena, was a compelling authority in support of a geocentric universe, and that the seat of reason was in the heart, not the brain, and that females were deformed males. His views were dominant for 1,500 years.

The Greek astronomer Ptolemy, following Aristotle, provided ingenious proofs in support of geocentrism. Then along came Copernicus, Galileo and Kepler who said: "Your common sense observation is wrong. The orbits of sun and moon are completely different, although they appear to be similar." (Our use of the terms "sunrise" and "sunset" preserves the Ptolemaic paradigm.)

By the 20th Century, electronics enabled us to apply force from a distance, to do thousands of things remotely, manipulating spacecraft and satellites, or receiving signals (radio, telephony, television), setting alarms, opening garage doors and, one of the great labour saving devices,



the remote switch for television.

The most obvious disjunction between science and common sense is the question: "right now, are we at rest or in motion?"

Common sense and direct observation suggests that we are at rest. But science says, "wrong again". We are moving very rapidly. The earth is spinning on its axis at a rate of 1,669 kmh at the equator, and in Melbourne (37.8°S) at 1,317 kmh. We are also orbiting round the sun even faster, at nearly 30 kms, or 107,200 kmh. There is a third motion, harder to measure, as the galaxy expands -- and it's speeding up, as Brian Schmidt postulates.

But, sitting here in Footscray, it is hard to grasp that we are in motion, kept in place by gravity. Psychology resists it. Essentially we have to accept the repudiation of common sense on trust, because somebody in a white coat says, "trust me, I'm a scientist". I would challenge anyone to reconcile common sense and quantum theory or to satisfactorily explain the Higgs boson or -- hardest of all -- to define gravity.

The factors that limit the psychological carrying power of much science -- not all -- include these:

- its complexity, often requiring use of a language known only to initiates
- outcomes are seen as too expensive
- outcomes are seen as too slow
- the [history](#) of science has been badly taught, often portrayed as an effortless success story, proceeding from triumph to triumph, instead of the passionate and dramatic reality.

## Science at the core

Scientists and learned societies have been punching below their weight in matters of public policy, and they are careful to avoid being involved in controversies outside their disciplines, possible threats to grants being among them.

Some distinguished scientists are outstanding advocates, including Gus Nossal, Peter Doherty, Ian Chubb, Fiona Stanley, [Robert May](#), Brian Schmidt, Ian Frazer, Mike Archer, Tim Flannery and [Dick Denton](#).

Science must be at the core of our national endeavour and you are well placed to examine the evidence, evaluate it, then advocate and persuade. Our nation's future depends on the quality of its thinking, and its leaders.

There is a wide-spread assumption by industry and government that Australia's economic, social and technological future will be a mirror image of the past. We can be confident that this just won't happen. We have not even begun to talk seriously about the threats and opportunities of a post-carbon economy.

I encourage you, whatever your political persuasion, or lack of it, to argue for higher recognition of the role that science must play in our future, and drive your MP mad unless or until he/ she does something about it.

Remember Archimedes and his lever. But first you have to find a fulcrum, then you push the lever.

*This story is published courtesy of [The Conversation](#) (under Creative Commons-Attribution/No derivatives).*

Source: The Conversation

Citation: We must defend science if we want a prosperous future (2015, March 3) retrieved 25 April 2024 from <https://phys.org/news/2015-03-defend-science-prosperous-future.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.