

Evidence and education in a post-truth and post-COVID world

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Abstract

Professor Brian Schmidt AC FRS DistFRSN FAA and Nobel Laureate in Physics gave this address at the 2020 Annual General Meeting of the Royal Society of NSW on 27 June 2020. It was Zoomed. He was introduced by Her Excellency the Honourable Margaret Beazley AC QC, Governor of NSW.

Margaret Beazley:

It is my delight as your Patron to join with you tonight in celebrating 199 years of the Royal Society of NSW — the oldest learning society in the Southern Hemisphere.

The Royal Society's original name — the Philosophical Society of Australasia — and the Society's purpose of advancing and communicating knowledge, bring to mind Plato's description of the philosopher as concerned with the pursuit of truth: "not the changing world of sensation, which is the object of opinion, but the unchanging reality which is the object of knowledge."¹ Whilst, in the 21st century, knowledge develops exponentially, Plato's differentiation of sentiment from knowledge remains as a granite-like edifice in the pursuit of truth.

Plato's perception of the pursuit of truth is to be contrasted with what Winston Churchill perceived to be the essential pursuit of lawyers. As a lawyer, I know that law is concerned with the application of principle to found facts — which are the truth for that purpose. According to Churchill, however, lawyers "occasionally stumble across

the truth, but most pick themselves up and hurry off as if nothing had happened."² But I digress from the timely topic upon which tonight's guest speaker, Professor Brian Schmidt, will speak.

In 2016, the word *post-truth* was the Oxford Dictionary's word of the year. Defined to mean "relating to or denoting circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief."³ So defined, "post truth" describes a world which is the perfect inversion of Plato's philosopher. *Time Magazine* well understood this, pointing out that "post-truth" is where "feelings trump facts."⁴

None of this is new. Writing in 1967, philosopher Hannah Arendt observed in her essay "Truth and Politics," "the greatest antagonist of factual truth is an opinion,

¹ Plato, 'The Philosopher and the Two Orders of Reality' *The Republic*.

² Attributed to Winston Churchill, "Picturesque speech and patter," *Reader's Digest* 40 (April 1942) 92.

³ Oxford University Press, "Word of the Year 2016" <https://global.oup.com/academic/content/word-of-the-year/?cc=au&lang=en>

⁴ Kelly Steinmetz (2016) "Oxford's word of the year for 2016 is *post truth*" *TIME Magazine* (online, 15 November) <https://time.com/4572592/oxford-word-of-the-year-2016-post-truth/>

[not] a lie.”⁵ And in 1992, Serbian American playwright Steve Tesich, who is credited with popularizing the term “post-truth” in his essay “A Government of Lies,” criticized the public for submitting to a world “where truth was no longer important or relevant.”⁶ The President at the time was George Bush, sr.

For the philosopher, no less than every person who seeks to be an engaged and informed member of our society, it is concerning, if not chilling, that what this 2016 word of the year represents has become part of our contemporary Zeitgeist — where mass communication has enabled a discourse in which experts are “perceived as a cartel of villains,”⁷ where experts are disregarded in favour of those whose popularity or celebrity provides a platform from which to proffer “their” opinion⁸ — invariably subjective and emotional — which is “truth,” at least for that day.

An MIT study, published in 2018, analysed English language news stories tweeted from 2006 to 2017. The study found 126,000 false news stories were re-tweeted by just over 3 million people, more than 4.5 million

times.⁹ The top 1% of false-news tweets “routinely diffused to between 1,000 and 100,000 people” — at six times the rate of the truth.¹⁰ The most common categories of false-news, were, in order: politics, urban legends, business, terrorism & war, science & technology, entertainment and natural disasters.

The current coronavirus outbreak, COVID-19 — or “Rona” as it is more colloquially referred to on Twitter¹¹ — has demonstrated both the sheer devastation that a post-truth discourse can have and the strength of its counterpart — “researched truth” — by which I mean evidence-based information.

In this regard, Australia’s response to COVID-19, has been careful, vigilant and impressive. The Government has based its policy and decision-making on infection rates, sources of infection, scientific research and modelling.¹² And, importantly, the focus of social media in this country has been on the provision to the community of government and health-based information, not the provision of someone’s mere opinion.

It can readily be seen that reliance upon “evidence” by decision makers is thus inherently valuable. One only needs to utter the words “disinfectant” and “a sort of

5 Hannah Arendt (1967) “Truth and politics” *The New Yorker* (25 February) <https://www.newyorker.com/magazine/1967/02/25/truth-and-politics>

6 Yael Brahm (2020) “Philosophy of post-truth” *Institute for National Security Studies*, 1.

7 Matthew D’Ancona (2018), *Post-Truth: The New War on Truth and How to Fight Back*, Ebury Publishing.

8 Nick Enfield (2017) “In a post-truth world, who can we believe?” (17 November, online) *University of Sydney* https://www.sydney.edu.au/news-opinion/news/2017/11/17/we_re-in-a-post-truth-world-with-eroding-trust-it-can-t-end-wel.html

9 Soroush Vosoughi, Deb Roy and Sinan Aral (2018) “The spread of true and false news online” *Science* 359(6380): 1146–1151 (9 March) <https://science.sciencemag.org/content/359/6380/1146/tab-pdf>

10 Robinson Meyer (2018) “The grim conclusions of the largest-ever study of fake news” *The Atlantic* (online, 8 March) <https://www.theatlantic.com/technology/archive/2018/03/largest-study-ever-fake-news-mit-twitter/555104/>

11 <https://twitter.com/hashtag/rona?lang=en>

12 See, e.g., Johns Hopkins University & Medicine Coronavirus Resource Center <https://coronavirus.jhu.edu/map.html>

cleaning,”¹³ to say nothing of the reported observation that “if we stop testing, we’d have fewer cases,” to appreciate, indeed cringe, at the difference.

So, in a post-truth, post-COVID world, it has never been more essential to know and understand the evidence, as decisions are made in respect of education for the immediate and near future — decisions which will have a lasting impact on the present and upcoming generations, decisions which cannot lose sight of what “education” is.

In Trent Dalton’s debut novel, *Boy Swallows Universe*, there is an exchange between Robert, the dissolute father of the two boys around whom the story revolves and the school counsellor.¹⁴ The father, the usually drunk, sad wreck of a man but who, perversely, reads widely, says to the counsellor, “Educating the mind without educating the heart is no education at all.” He references the quote to Aristotle, as the stunned counsellor nods in agreement, saying it is the mantra by which she lives.

Researchers doubt the attribution but do accept that Aristotle likely said that “teaching is powerless without a foundation of good habits.” John Dewey, the American philosopher and educator was of similar mind. On the title page of Tara Westover’s memoir *Educated*, appears this quote from Dewey, “I believe ... that education must be conceived as a continuing reconstruction of experience; that the process and the goal of education are one and the same thing.”¹⁵

May I again wish the Royal Society of NSW a very happy 199th birthday and con-

gratulate the 2020 Award winners as we all settle back and listen to our eminent and erudite guest speaker, Professor Brian Schmidt, the Vice Chancellor of the Australian National University, as he speaks to us on “*Evidence and Education in a Post-Truth and Post-COVID world*”. — Margaret Beazley

The Address

If there is one thing that the motion of democracy has made me better understand over the past few years, it is the rise of Fascism in Europe after World War I. How could a whole country do things that were so crazy and so horrible — I never understood it. I still don’t understand it, but I now know how it can happen — and it all comes from playing with people’s minds and values by the information they receive.

The Germans, under Goebbels’ leadership, produced the propaganda playbook which was used in the years after World War II by non-democratic governments around the world to control their people.

But, in the years after 1945 — despite a protracted Cold-War that had huge negative effects to people outside the central players — the open democracies, capitalism, and the emergence of technology ultimately crushed the alternative forms of government from having significant power. The decisive end was on 9 November 1989 with the symbolised fall of the Berlin Wall.

With this event passing, a highly interconnected globalised society emerged — with human life expectancy rapidly rising, and poverty rapidly falling across the world. After 100,000 years humans had finally — it seems to me — learned to work *en masse*, largely for the collective good. This is not to say it was perfect everywhere, but it was

13 <https://www.youtube.com/watch?v=zicGxU5MfwE>

14 Trent Dalton (2018) *Boy Swallows Universe*, Harper Collins, 302.

15 Tara Westover (2018) *Educated*, Penguin.

the broadest-scale improvement for humanity as a whole in our history.

And, in my lifetime, a lot has changed. In my childhood (and I am only 53 years old), China has had mass starvation and malnutrition, but in recent decades it has seen a rapid economic shift by embracing western capitalism, and driving the mass production of increasingly less expensive consumer goods to more and more of the world. China's relatively low labour costs, coupled with their rapid increases in productivity and associated resource boom, has largely led to Australia's economic prosperity, and only now are we seeing an end to a 28-year period of growth.

In the time immediately following World War II, the research and the technology that emerged was front of mind for everyone. University-trained researchers led many of the biggest discoveries and scientific breakthroughs of the 20th century. They discovered penicillin — and Howard Florey later became ANU Chancellor. Mark Oliphant, a founding ANU physicist, led a team in England to develop the foundations of radar; and then went on to help with centrifuge uranium in Oakridge that led to the creation of a nuclear bomb. Kenneth Le Couteur, another founding ANU physicist, worked alongside Alan Turing who cracked the Enigma Machine. And of course, a vaccine for polio was developed saving millions of people around the world. Percival Bazeley who worked in Salk's lab, returned to Australia to run the Commonwealth Serum Laboratories (CSL). CSL are of course, currently working on a COVID-19 vaccine which will be available in the (hopefully) not too distant future ...

Scientists were king in the 1950s. Their education, associated knowledge and the

evidence they applied to the problems of the world were highly regarded both in the West, and, of course, in the Soviet Union.

Every year, more and more people were involved in technologically-underpinned pursuits. In the space race, nearly 6 per cent of US government expenditure was spent “to get a Man on the Moon” — and the Cold War created a huge investment in defence-related technology. To some, this might be seen as a waste of money. But I disagree — the economic and other positive spill overs to society were enormous ...

Higher Education became something children in the upper half of the income distribution aspired to, rather than the upper half per cent — and universities around the world grew in size although, unfortunately, not necessarily in stature. In the pinot noir business (also one of my trades), if everyone can afford your wine, it is, almost by definition, not perceived as being very good, no matter the quality.

And technology, based on the basic research of universities, increasingly emerged out of corporations (rather than universities and government labs). These entities became huge when they created something everyone wanted, and entrepreneurial billionaires who were usually educated — or partially educated at university (noting some very famous drop-outs ...) — became (and still are) the new technological heroes.

So we are now in a time where it is not so much the researchers, but rather the innovators who are seen as important figures by the public. It not the people or organisations as much who invented the technologies, but rather the innovators who converted those ideas and became rich.

But research did continue — and at pace across the world — but in a more anonymised form. Huge research teams found the particles that vindicated the standard theory of particle physics; sequenced the Human Genome; and detected Gravitational waves. They also greatly increased agriculture efficiency and improved public health. Life expectancy for people around the world has risen from 46 years in 1950 to 72 years today. In 2015 less than 10 per cent of the world was living in extreme poverty, down from 42 per cent in 1981, when the current measure was first introduced.

In 1991, Tim Berners-Lee, who was part of one of those big anonymised teams at CERN (and whose mother Mary Lee Woods worked at Mt Stromlo Observatory at ANU where I work — again emphasising how connected our universities really are to the events that have shaped the century) invented the world-wide-web.

This invention enabled the internet — developed out of DARPA in the USA and widely used in the research community — to be used by anyone and everyone to easily exchange information. I remember the day that “WWW” was effectively born for me (and for the world). In 1993, when Mosaic¹⁶ — the first graphical browser — was released for UNIX, I downloaded it using Gopher¹⁷ (the internet pre WWW). I made my own web page on that first day and I watched the world wide web grow exponentially across the research community, and in the following months explode into mainstream life.

16 [https://en.wikipedia.org/wiki/Mosaic_\(web_browser\)](https://en.wikipedia.org/wiki/Mosaic_(web_browser))

17 [https://en.wikipedia.org/wiki/Gopher_\(protocol\)](https://en.wikipedia.org/wiki/Gopher_(protocol))

I believe this day in 1993 — April 22 — is the day of my life where the course of the world changed more than any other.

A big call, but on that day, information became shareable between everyone in the world — not immediately of course, but shareable.

Before that day, facts were found in books in libraries — the information in them was curated by expert academics around the world and in democracies reported by a free press. In democracies the academics and the press were self-regulated with power and influence related to the perceived quality of the knowledge, analysis and reporting.

In 2020, while prestige in the academy and press still flows from quality — the power and influence of elite institutions is slowly being overwhelmed by the ever increasing din of information on the internet.

In 1993 I was excited. I could see the promise. Everyone finally has a voice. Everyone has access to the world’s knowledge. It will be impossible for institutions or individuals to avoid transparency.

But even in 1993 I already could see some emerging issues. With so much information, how do you find what was interesting? And, geeze, there was a lot of junk ... I lived through the World Wide Web Wanderer¹⁸, then Infoseek¹⁹, then WebCrawler²⁰, then Lycos²¹, Excite²², AltaVista²³ and HotBot²⁴.

18 <https://www.oxfordreference.com/view/10.1093/oi/authority.20110803r24909395>

19 <https://en.wikipedia.org/wiki/Infoseek>

20 <https://en.wikipedia.org/wiki/WebCrawler>

21 <https://en.wikipedia.org/wiki/Lycos>

22 <https://en.wikipedia.org/wiki/Excite>

23 <https://en.wikipedia.org/wiki/AltaVista>

24 <https://en.wikipedia.org/wiki/HotBot>

AltaVista and HotBot were my go-to search engines which I became expert at using — and then there was that day, I was told about Google in 1998, while on an observing run in Hawaii — it was so much better than everything else, and the rest is history ...

Google was very good because it found what I wanted — and indeed it has continued to deliver on that promise using more and more clever algorithms in the 22 years since I first used it. But there is a problem — what if I have a prior belief on let's say, climate change ...

These search engines help me sift through the internet and find the information I want. So if I believe climate change will boil the oceans this century, or that climate change is a fabrication of the deep state to enslave humanity — I will be preferentially connected to that information that help confirm my prior belief. Even if the search engine is made to be completely agnostic, most people's brains will select and connect to the information they already believe. And the world-wide-web allows anyone to put up anything they believe or want to believe. The curation of information by experts — as old as humanity itself — has been upended.

But it gets worse! Imagine you want to convince people to your way of thinking — why not flood their world with your story, even if not exactly true. Or why not be cleverer, and nudge people slowly but surely — moving their point of view by tailoring the information they receive over time. Behaviour psychology and economics works! Perhaps a bit too well.

And what if you want to create discord in your enemy — flood their information channels with polarising information about other people in their society. And with more and more information aggregated on the

web from people's phones, emails, social media accounts, public information, credit card records — a clever institution's ability to understand how individuals tick and manipulate people *en masse* should not be underestimated.

In this regime, what is a fact? What is the news? What is truth? Facts and news — which we used to take for granted from what was in the encyclopædia or in a decent newspaper — were actually carefully curated by our academics and free press. All of the ambiguities were carefully sorted out by highly trained experts largely behind the scenes of the average citizen.

And how does democracy work when there is no longer an agreed set of facts or news? Where intentionally deceptive information is rampant, and where we come into contact with polarising material via multiple streams every day. And how does democracy defend itself against totalitarian states where information, instead of being allowed to run rampant as part of personal freedom, is carefully controlled and used to control people to the states' desires? My observation is, not very well ...

And this is the world I saw as 2019 finished. The COVID-19 pandemic, for all the death, pain, and disruption it is causing, perhaps provides the opportunity to reclaim, at least partially, the ascendancy of truth, knowledge, expertise — of course, if we do not descend into anarchy first.

Why do I say this? In 2020, expertise and knowledge have showed their strength in a way that the tools of misinformation and disinformation cannot compete, and where those who are in power, and uninformed, have been left wanting, and unfortunately with tragic consequences in many cases.

Here in Australia we did not listen to the advice of fire experts last year around the coming fire season and prepare as we should have. Now, there is only so much one can do in a year like this one. But we could have done more, and less destruction would have resulted, and that is something that there is a consensus view of in the community, that could not be plastered over with spin and misinformation.

But in the same vein, Australia has largely listened to its health experts, and we find ourselves in a state that is much better than most of the world in dealing with COVID-19 — although I note it is a long journey ahead. And I know there will be cynics out there on many sides, but from the first decision to close the border, to a moderately hard lock down, to our current re-openings, and to our economic response — the Prime Minister has listened consistently to the expertise of the Chief Medical Officer (CMO) and the Secretary of Treasury. His popularity has soared, and Australia has benefited by being in a much better state than most other places. I have been careful throughout the pandemic to listen to the experts, and not become an arm-chair epidemiologist. Although I will say I still do ask them lots of questions.

It turns out not taking expert advice can really do real harm. We only have to look at my homeland of the United States and [as of 6 June] the 130,000 people and counting who have died there, to see how big a difference it can make. And seeing the effect of ignorance is making believers — at least temporarily — out of voters. In our democracies we must find a way to support evidence-informed decision making of our politicians, and not re-normalise the spin, hyperbole, and the “whatever it takes to get elected”

over “what’s good for our nation” approach to business as usual.

So we have a chance, now, for our political leaders of all sides — federal, states and territories — to undertake a course correction for our democracy. But there are some key ingredients.

First of all, we need a commitment by political leaders that winning the next election is secondary to what is right for the nation. And that means acknowledging appropriate evidence when making decisions, even if political compromise is necessary. And when decisions are changed to improve the situation based on evidence, we need to applaud these decisions, rather than berating them as a sign of weakness in our leaders. We, as leaders in the community, need to stand up for good behaviour and decision making of our politicians, even if we disagree with their ultimate choices.

Education is the foundation of successful nations. We need to take a fresh look at our kindergarten to year-12 education system and ask if we want a system that increasingly separates people into different schools based on their culture or socio-economic status. Where I grew up, we all went to the same school — rich kids, poor kids, black kids, white kids, Muslims, Catholics, protestants, and atheists, immigrants, indigenous ... you name it. And that was good for me — it was good for everyone ... Going to school is not just about scholarly learning, it is also a time to build up a shared value set within the community. We need to ensure our nation grows with a more universal set of principles, rather than one where the identity of the country fragments into multiple value sets, and, in turn, leads to multiple conflicting truths.

Education is the great equaliser. And while I can appreciate the efforts to equalise funding based on need as an improvement of the current system, I think it is as true as in 1954 when the Supreme Court of the US ruled unanimously that “separate education facilities are *inherently* unequal.”

My views here are not main-stream Australian on this point — and I don’t blame any parent for wanting to do what they think is best for their child. But supporting individual parents to do what they think is best for their child has societal consequences. And these consequences are now amplifying. For a successful and prosperous Australian democracy, we need a highly educated population, with a shared set of values, that creates a level playing field so that the talents of the nation can most appropriately be nurtured. The current system is underperforming on multiple fronts.

The Higher Education sector has been hit hard by the COVID-19 crisis, and we have a chance to reset the status quo and make sure our system serves the Australia of the future — rather than be a patchwork of ideas quilted together from the past.

I think we need to think hard about what we want out of our TAFE and university sector. For me, it is making sure that every Australian has access to higher education throughout their working lives that enables them to be productive, and, taken together, gives Australia one of the world’s most productive workforces. This system needs to provide the foundational education that underpins a life’s work, as well as the specific skills that will need to be continuously updated across someone’s working life. So this means getting our TAFE system up and first rate — let’s look to Switzerland for inspiration. But, also, Australian business

have to be highly integrated and invested in TAFE for this to work. And it has to cover a vast range of employments, from basic training all the way up to highly skilled technical skills — and it needs to be open for people for their entire lives. That is how to remain relevant and productive in the modern world.

And for universities, let’s start by making sure our students and their education are outstanding. I’d like to be able to spend a bit more money on our students actually. Right now for example, for one of my Law students may well have come from a private Sydney school where last year their fees were \$38,000 and the government topped it up with an additional \$3,800. For me to educate these same students, a year later — and, may I add, support a Law faculty in the world top-20 — I get \$11,000 from the student, and \$2,160 from the government. But even if you are from, for example, Queanbeyan High, the total support per student there is in excess of \$20,000 — still more than 50 per cent of what a university gets. In principle, I could use my international student fees to help fund the education program (and I do — as I do not cover my costs educating my Law students), but I think the halcyon days where international student fees fixed deficiencies in our university funding system are largely over. And don’t even get me started on how this impacts the Australian research endeavour. But that is for another talk ...

The globalised world will be forever changed in the post COVID-19 world. It will be a long time before nation states will allow themselves to be so dependent on the world outside their borders. For Australia, as a highly open economy, this will have profound consequences on what we need

to do next. But we are going to need to be more self-reliant — and I think that means protecting our democracy and its underpinning institutions.

At the beginning of the year, The ANU-Poll asked Australians about their level of trust in a whole range of groups and organisations. Universities and schools were at the top of the level of trust, but at the bottom was the press, banks, and politicians.

A free and trusted press is a critical part of a successful democracy. The press are cornerstones of reporting news and reporting information in real time. And if we are going to sensibly use evidence in a post-truth and post-COVID world, we need to sort out the press.

If only 20 per cent of the country trusts the press, it is no wonder we are in a post-truth world. To make matters worse, the disruption of the business model of advertising by Google and other service providers on the internet has killed the financial viability of most people's sources of news. But there are successes in the disruption. *The Economist*, the *New York Times* and *Washington Post* — who go to huge global markets — represent the high quality that people are prepared to pay for. What is still unclear is how to get something that will serve everyone appropriately. Ideally, people will pay for quality content, but why do so, when you can read and hear what you believe on the internet, for free?

I fear we may need more regulation. Perhaps where the word “news” is reserved for a certain standard of journalism. A strong public broadcaster is another approach. But how do we get people to avoid fake news? I think it all comes down to education around how to interrogate information. It needs to be embedded in our curriculum from kin-

dergarten onwards — not just what the facts are — but also how to learn how to decide if something should be believed, and making it a personal responsibility to not be fooled by misinformation.

In the post-truth and post-COVID world. I see three paths for nations.

One where the citizens of a nation get a more and more fractured set of information, where prosperity plummets and chaos rises, and where local bullies oversee an increasingly dysfunctional world. Let us call this the Mad Max Path²⁵.

My second path is where the citizens get a more and more controlled set of information. Where the truth is coherently manufactured to manipulate the majority of the citizenry and bring harmony to the population. Outliers are dealt with in a way that might seem unseemly to us, but prosperity increases, albeit more and more slowly over time under the careful control of the centre. Let's call this the 1984 Path²⁶ (noting the citizens live in the superstate of Oceania in this future) ...

My third path — not surprisingly my favourite — is where citizens access and use more and more accurate information over time. A vibrant democracy flourishes, prosperity increases as the citizenry take risks, make mistakes, but learn more and more as they bumble along. But, they get where they need to go, a better place not pre-specified, in the end. Let's call this The Dish Path²⁷.

If we are going to shoot for the Moon and take the Dish Path, we need an education system that enables all of our chil-

25 https://en.wikipedia.org/wiki/Mad_Max

26 https://en.wikipedia.org/wiki/Nineteen_Eighty-Four

27 https://en.wikipedia.org/wiki/The_Dish

dren, regardless of their background, to interrogate information. We need a Higher Education sector to educate and train its students to the best of their ability in skills, knowledge, and problem solving. We need a university and research sector that creates new knowledge from which ideas that improve life will flow. We need a trusted media sector that reports information and

news with a high degree of fidelity and rigor, and we need a political class who are prepared to use evidence and information to do what is right for Australia. And if they don't, the population will have the information and nous to hold them accountable. A truly virtuous cycle.

Thank you everyone, I hope my thoughts tonight are provocative.

