I am still learning

by

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I graduated from Monash 43 years ago with a Bachelor's degree in economics. I was proud of this achievement, but it was also a source of unease. This was caused by my uncles: both practical men of the world in thriving businesses. Neither had training in economics but both made me feel inadequate with their seemingly well-informed, forceful views on the economic topics of the day. I suspect that some of the new graduates will have similar feelings of inadequacy. But this is where our University's motto comes in: *Ancora Imparo: I am still learning.*

As a new graduate, lack of deep knowledge of your field should not be a reason for lack of confidence. Instead, you should have confidence that if you continue to apply the analytical methods and ways of thinking that you learned in the classroom and if you continue to exercise the determination that got you through your degree, then you will be a person who accumulates knowledge, a person who benefits from experience and a person who makes contributions to the wellbeing of your community, nation and in some cases the world. But for this to happen you will need to be a person who can always truly say: *I am still learning*.

The way in which a person can live a life of continuous learning varies across fields. But I suspect that a common component is a willingness to leave one's comfort zone. For an academic like me, my comfort zone is the University office where I can read and write learned articles. But I have been fortunate. The nature of my work in policy modelling has continuously forced me into new, unfamiliar territory, territory that has often been intellectually uncomfortable and sometimes even physically uncomfortable.

Like the time some years ago when I was assisting Australia's urban water authorities with pricing policies. The client was keen that I should gain industry credibility by visiting sewage treatment plants.

My first appointment was at the Carrum treatment works. The weather was hot and humid. After not giving the matter much thought, I decided that shorts and T-shirt were appropriate attire for inspection of a sewage treatment facility on a hot day. I was embarrassed to be met on arrival by a team of suited managers and engineers, and whisked into a formal lunch. After lunch, I was given a comprehensive tour of the facility and a lucid explanation of how it worked. At one stage we went into an enormous room containing five gigantic pumps. Even to my untrained eye, it was apparent that only two of these were working. Still feeling a little conspicuous in my shorts and T-shirt and hoping to appear incisive, I suggested that perhaps here was an example of over-engineering: why have five pumps where two could do the job.

It was explained that the purpose of the pumps was to push the treated water, a stream of a couple of metres in diameter, over the Frankston hill. This is about 300 meters up and is eight kilometers from Carrum. From there, the treated water flows down to Cape Schanck where it is released into the sea. As a patient engineer pointed out, an eight-kilometer column of water, two metres in diameter and raised 300 meters represents a colossal amount of potential energy.

Opinion among the engineers seemed divided on what would happen if there were a cessation of pumping. One optimist seemed to think that the law of the siphon might work, and the column of water would continue over the hill. However, most seemed to think that after a bit of a pause, the water would return to Carrum with devastating effects. As it came back through the treatment works, it would wash vast volumes of untreated water out of the huge pools where it undergoes processing by micro-organisms. Then treated and untreated water would proceed in an unholy alliance up the Nepean highway, with depressing effects on the Government's prospects in the sand-belt electorates. I had to agree that the provision of considerable backup pumping capacity seemed rather a small cost to pay to avoid the possibility of such a calamity.

My second appointment was at the North Head sewage treatment facility in Sydney. Again it was hot and humid. But after my Carrum experience, I went fully suited. Again I was made to feel rather foolish by the reception party. This time it was just one engineer dressed in very grubby shorts and T-shirt.

On many days, the inflow to North Head was too great for effective treatment. The stream was simply released into the sea with only the manual removal of the larger particles.

On inspection I saw that these larger particles were mainly black and white TV sets. This observation allowed me to ask my incisive economist's question: why are there so many black and white TV sets in the stream? The not-so-patient Sydney Water engineer made the obvious response: "You wouldn't throw away a coloured one would you!"

After a little fine-tuning on my question, I was told that some years earlier Sydney's rubbish collectors banned the collection of black and white TVs. It was feared that these old TV sets could release harmful chemicals. (This was apparently not a fear held by workers at the treatment plant.) In these circumstances it seems that the average Sydney-sider, on finding that his black and white TV had given up the ghost, placed it on his nature-strip. After six months or so, he realized that the rubbish collectors were never going to take it away. Cursing, he put it under his arm and walked up and down the street until he found a manhole. He then ripped the lid off the manhole and dumped the offending TV into the sewers. After much pumping, the set arrived at the treatment plant, where, as I have mentioned, it was withdrawn from the stream.

A more recent example of being forced out of my comfort zone into a physically uncomfortable place was a briefing session I conducted for officers of the U.S. Department of Homeland Security on the economics of illegal immigration. On arriving at the venue I was asked whether I was carrying. After some initial confusion I realized that the answer was no: I was not carrying a gun. Not that there was any objection to carrying a gun. At presentations they just like to know where all the guns are. Explaining controversial economics to a heavily armed stake-holding audience certainly concentrates the mind.

But of course, it is not really physical circumstances that I am talking about when I say that moving out of one's comfort zone is an important part of being a person who can truly say *I am still learning*. What I am really talking about is living a life in which you go on learning by frequently embracing intellectual discomfort. In such a life you continue learning by working hard to understand the forces operating in unfamiliar situations. You continue learning by communicating your ideas in ways that are free from the jargon of your own comfort zone so that skeptical audiences can understand what you are saying and give you feedback which, while potentially ego-bruising, can provide vital insights. Let me give an example.

My colleagues at the Centre of Policy Studies have been working for many years on greenhouse economics. One way to talk about their results is to say that in the absence of greenhouse gas policies (e.g. carbon taxes) Australia's GDP will grow at an average annual rate of 2.2 per cent between 2000 and 2050. In this scenario, Australia's greenhouse gas emissions by 2050 are 80% above their level in 2000. In an alternative scenario, Australia undertakes policies to reduce its greenhouse gas emissions by 2050 to 50% below their level in 2000. With this deep cut in emissions (50% down rather than 80% up), Australia's GDP grows between 2000 and 2050 at an annual rate of 2.1 per cent (rather than 2.2 per cent). This is an acceptable way for economists to talk to other economists. But I doubt that it gives you much insight into what is going on or whether you should believe the results, or what sort of questions you should ask. Let's try it again in a way that gives the same information but encourages feedback and discussion.

About 70 per cent of Australia's greenhouse gas emissions come from electricity and motor fuels, based on fossil energy (coal, oil and gas). Producing electricity and motor fuels accounts for about 5% of GDP, that is producing these commodities uses up about 5 per cent of all the productive effort in our economy. Advice from engineers indicates that adoption of alternatives to fossil-fuel technologies (e.g. wind, geothermal, biofuels, solar and others) would no more than double the costs of electricity and motor fuels (require about 10 per cent of our productive effort rather than 5 per cent). This

suggests that Australia could eliminate 70 per cent of its greenhouse gas emissions, those associated with electricity and motor fuels, at a cost of about 5 per cent of GDP. This is about two year's economic growth. Put another way, we could largely eliminate the greenhouse gas problem by making decisions which would cause our children and grandchildren to wait until January 1, 2052 for a standard of living that they otherwise would have reached two years earlier, on January 1, 2050.

Presenting the information in this way concentrates the debate on the points that really matter. And we shouldn't be afraid to do this even if it allows critics to make life uncomfortable by challenging key assumptions: how credible is it that we could replace fossil-based fuels with non-greenhouse alternatives at no more than twice the cost? By always making a genuine attempt to communicate and being ready to receive feedback you become a person who can say Ancora Imparo, *I am still learning.*

Let me conclude by congratulating the new graduates. It is a proud day for you. I remember my own graduation, held here 43 years ago, as a proud and happy event. But I must admit that I can remember absolutely nothing of the Graduation Address.