

Ladies and Gentlemen, it is a great honour and privilege to be able to address you this evening to discuss something that I am absolutely passionate about – Public Education. As someone who has been immersed in education in one form or another my entire life – I see the benefits of getting it right, and the problems of getting it wrong.

So Why am I so passionate about public education? You might think as a scientist that I am principally concerned about the future of research in our nation, about ensuring that Australia is able to transform its innate talent in people into knowledge that will help us retain and even improve our current level of prosperity. And yes – that is of great importance to me – but my primary concern goes deeper than that – to the very heart of our democracy

In Australia I believe we, almost to a person, across our nation, wish to live in a society that provides an environment where everyone should have the opportunity to achieve what they want in life bounded only by their own aspirations, their own talent, – and should not be limited by the socio-economic circumstances of their upbringing. In practice we know reality is not so ideal – It seems if you are born the child of a media baron, you are much more likely to end up being some sort of media baron yourself (and this is not just an Australian phenomenon – it happens in egalitarian Sweden, for example, as well)– on the flip-side - If you are born into a low-socio-economic and dysfunctional family situation, your prospects are much lower than others.

But education is the great leveller of the playing field of life. It is the vehicle society gives each of its citizens to enable them to transform their innate talent into the human capital that they can use to achieve their life's aspirations. And it is by giving each person in our society a great education that we best enable them to achieve based on their own ability, and not be limited by their parent's circumstances. It is what allowed myself to go from a small town in the Mountains of Montana and Alaska and be part of a discovery worthy of a Nobel Prize, and it is what allowed John Howard and Julia Gillard to become Prime Ministers of this country.

So what is the state of education in Australia? From an international perspective, the OECD has conducted the so called PISA tests since 2000 – where they test 15 year olds in reading, math, and science. The last tests results in 2012 showed that Australia performs Above the OECD average in Mathematics, and significantly above the average in Science and Reading. Advanced-Economy Asian countries and Finland consistently outperformed Australia, and countries like Canada, Ireland, Germany, Poland, Liechtenstein, and Switzerland outperformed us over all. Overall this is not too bad of a state – but the worrying thing, from my perspective, is the rapid trend downward in our results – not compared to other countries, but in terms of performance on an absolute scale. Mathematics is particularly problematic, but both reading and science also indicate a slide – and this over a time where the Australian Government has increased its resources to schools, not decreased them. A main thrust of the Gonski reforms is ensuring that money is spent where it is needed, rather than just spending money.

When I moved to Australia in 1994, I was rather surprised to see the level of participation in independent schools – it was very foreign to my up-bringing in Montana and Alaska. During my childhood, private schools, as we called them, were exclusively for fundamental religious sects – essentially everyone went to government funded schools.

Here in Australia 35% of students now attend non-Government schools, and what is perhaps the most startling to me is that that fraction has risen from 22% in 1970. Every year a larger and larger fraction of Australians are giving up on the public system and paying, most-often times, substantial fees for the privilege of attending these non-government schools. (The fraction in the US is approximately 10%, and despite the rather dismal performance of the school system on average, has not changed a lot over the last 15 years).

So it is worth asking – Why are parents choosing private over public education. Is the public School system failing them? Is it because they like the cultural aspects covered by the school? Or perhaps they believe they are giving their kids a leg-up in life.

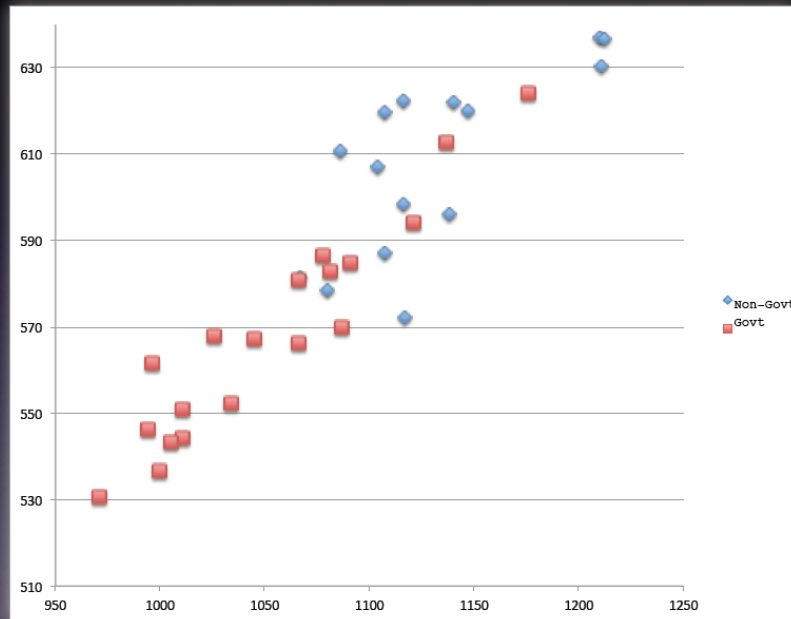
I do know, that my personal commitment has always been that I would only live in a place where I felt that I could send my kids to public school with a good conscious, and I literally would move if I felt I could not do so.

So let's look at the evidence. Despite the Australian Curriculum Assessment and Reporting Authority's reporting through its MySchools website, and intense interest in this area across the nation, I found it surprisingly difficult to find much evidence about the differences between public and private schools. It is such a taboo subject as near as I can tell, having discussed it with colleagues and friends in anticipation of tonight's talk, that I fear ending up in tomorrow's headlines, independent of what I say.

Since I live in Canberra – we'll start here. But it is a good place to examine, because Canberra has also the country's most homogenous school system without selective schools, very uniform funding across the sector, and the country's highest participation rate in non-Government Schools. I will turn to the trusty MySchools website which contains information on each school's Social Economic Profile quantified as number, its recurrent income per student, and its NAPLAN scores. I am surprised to find that the only numerical information for a school I can find is the average NAPLAN score for the school without any adjustment for social economic Profile – but I know that school performance the world over depends on this social economic profile – the numbers themselves are simply going to tell you how rich the school is, not its performance. To illustrate my point I plot here – sorry guys - I am a scientist – the Index of Community Socio-Educational Advantage against the NAPLAN scores for each school.

All Schools in ACT who offer year 7 and 9

NAPLAN - Year 9

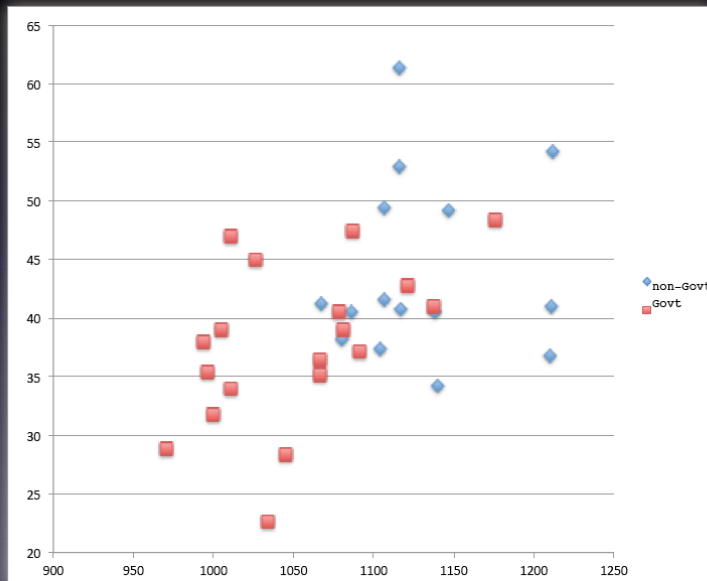


Social Economic Index

What you see is a trend where the average NAPLAN score rises as Socio-Economic Advantage rises. And it is seen in both the government and non-government sectors. What do I take from this analysis – NAPLAN results depend on Socio-Economic Advantage much more than whether or not you are paying fees for your education. The PISA program has done a much more rigorous analysis of this than I have done here – And they find the same thing – once corrected for Socio-Economic Advantage PISA test scores (15 year olds) do not show any difference between Government and non-government schools. This measure is fine, but tells you as much about what a school was given in terms of its students, rather than what it actually gave to the students. That is, if you look up James Ruse Selective School in Sydney – they are completely off the charts on this diagram because they intentionally selected the best students in the Sydney Area to attend (they also end up selecting a Socio Economic Cohort which is richer than most of the richest of the Independent Schools). What I am interested in is how much has the school improved the outcomes of their students. This would have been useful – and indeed I think should be the headline product of the MySchools Website – but it was only provided in a very non-useful graph form – so I had to calculate it myself. Here are the results for schools that offer year 7 and year 9 in Canberra, where I have looked at the gain in NAPLAN score of the same cohort of students in years 7 (2011) and year 9 (2013). As you can see, again, how much a school improves a student's learning outcomes (as inferred from NAPLAN) depends on the Socio Economic Advantage of its students, but in Canberra at least, there is no apparent difference between Government and non-Government schools.

All Schools in ACT who offer year 7 and 9

NAPLAN - Year 9-7



Social Economic Index

Perhaps an even more telling result is that in Canberra, the average ATAR score (the score that gets you into University), is essentially identical between year 12s in the Government and Non-Government sector – despite the very different Socio-Economic Advantage profiles of the two groups of students.

I am more than justified to feeling affronted when people tell me that I am terrible human being for 'sending my kids to public school' – 'How can you bear the responsibility of imposing onto your kids the costs of sending them to a public school.' Its easy – I haven't done anything to harm their education attainment here in Canberra. And statements similar to this have said to me from people who vote Green, Labour, Liberal, and National.

So why do parents fork out \$5000 to \$12000 per year in Canberra? I think it comes down to a number of factors. There are parents who like the religious aspects of some of the schools, and many of the non-government have pastoral care arrangements which are have more resources than the public system – and these arrangement are clearly appropriate for some children. For some it is a genuine effort at making sure your child gets a leg up –not in the educational outcomes they receive, but rather in the connections they make in School. For example, Scotch College in Melbourne, and Geelong Grammar - single schools - have had 19 and 17 alumni respectively receive the Companion of the Order of Australia – our nation' highest civilian honour (until earlier this year). That is 10% of all such honours in a nation of 23 Million to two schools that graduate 400 students between them each year. Clearly these schools give you more than just a good education. Such extreme advantage is handed over to only a few schools – and such advantage I think will not survive in modern Australia like it thrived in previous generations. This is not to say I have anything against those who send their kids to either school

(I don't and have presented at one of the two schools) – but the success of these school's alumni cannot be explained by education alone.

What I believe is going on is more a kin to the 'As A Guilty Mum' Series on the CheckOut TV series on ABC – where people do it because they have what is ultimately an irrational fear of not being perceived as doing absolutely everything they can for their child's well being.

So if we go back to my chart on Socio-Economic Advantage versus educational outcome – alarm bells should starting ringing. On average the socio-economic advantage of students in non-government schools is a lot higher than those in government schools – we are segregating based on factors related to wealth. And before all of us here get too sanctimonious – Even within the public system, we congregate into schools that reflect our socio-economic situation. I am as guilty too.

So the grand-solution for ensuring every person gets an equal education – Make all schools free and randomly mix people from different background together. This essentially happened by default where I grew up in Alaska and Montana – there were essentially only public schools and you could choose which one you wanted to go to – but imposing such a solution onto the country as a whole is itself not democratic, and is not a solution to this problem in my opinion.

On a purely pragmatic level – if some fraction of wealthier Australians want to send their kids to private schools and they get essentially no advantage (and from my perspective at teaching kids at the ANU – kids from non-government schools have some different characteristics than those from government schools – but I see no evidence at the University level that they have advantage) – then this whole process serves as some sort of wealth tax, that eases the burden of the public purse to providing education.

But such a system only works when enough of Australians from a broad range of Socio Economic Advantage attend public schools so that they do not become stigmatised. I worry that with a 1/3 of all students, and the majority (75%) of wealthy families using the non-government sector, stigma is beginning to creep in – as evidenced, for example, by my regularly having to defend my choice to send my children to a public school to a certain fraction to people spanning the entire political spectrum.

The goal here in Australia I think has to be ensuring that the public school system provides a product which is sufficiently competitive with the non-government sector that families simply do not see the value in spending thousands of dollars per year. And it has to cater to a wide range of abilities, and a wide range of Social Economic Advantage at the same time.

The Grattan institute has looked at how to improve performance of schools and many of their recommendations I think would also help address the concerns of parents and make schools more attractive to a broader range of

families than they are currently. They find the key things that make a school thrive include

- The strong role the principal plays in setting the tone of a school, providing expectations amongst teachers, students, and parents of what it means to be part of the school.
- Placing emphasis and resources that help ensure that effective teaching is taking place, with teachers learning from each other.
- Measuring how students are learning and using this information to improve learning outcomes,
- And using all of these activities to develop a positive school culture that engages parents and the local community in the activities of the school.

I would like to see the Australian Educational Union – the sponsor of tonight's talk take an active role in helping bring about strong change in the public school sector in these areas.

Principals are just another form of leader – the set of qualities that enable a Principal to be a great leader is a very complex mix which is hard to judge in advance. Most principals are selected because they are excellent teachers – but that is not enough. We need to have a system in place which gets the right people into the job and keeps them there, but has the flexibility to gracefully return the principals who, for whatever reason aren't great at this leadership role, back to their teaching role. This requires ensuring principals have the right skills, but it also means taking a good hard look at their performance on a regular basis, and holding them to a much higher standard than I think we do now. Every time we let a poorly performing principal continue in their job – hundreds to thousands of students suffer the consequences.

Quality of teaching is the essential service that a school provides, and ensuring that teachers are fully trained, continually learning from their peers, is of paramount importance. It is imperative to empower teachers to teach well – something that the Union very strongly advocates. I for one find it unconscionable that teachers are regularly required to teach out of area of competency at a rate higher than almost any other country. My solution – **ban the practice** – and this will force a solution.

But ultimately teachers must be held accountable for their performance. My children and presumably many of your children have suffered through a few perennially poor performing teachers – whose poor performance is agreed upon by parents, students and principal alike – which the current system allows to go on seemingly until retirement. It is not a lot of teachers – but they can drag a system down, lowering morale, and lowering confidence in the school.

If I could ask the AEU to do one thing - it is to come up with a plan that addresses teacher and principal performance issues in a way that is acceptable to the teachers and principals. I do not think forcing a solution on you will work – but having a better system in place will help learning, help teaching, and improve confidence in the public school system.

Monitoring student performance via the NAPLAN tests is something that I know teachers find obtrusive – and when they are used to illegitimately create league tables that reflect the socio-economic profile of their school rather than the value the school is adding to their student cohort – I can sympathise with resistance to the test. But the tests can be used for good – and can help a school improve its educational outcomes. I think they are most importantly, if used correctly, a way of establishing confidence in the public school system (as I have tried to demonstrate tonight), and a way of holding the school system accountable to public. I would encourage us to demand an improvement in how NAPLAN is reported on the MySchools website such that it reflects what the school has done for its student, rather than reflecting its socio-economic makeup. The Grattan institute has an excellent report advocating just this activity.

And finally, we need to get families and communities involved in the activities of our public schools. My school in Alaska and Montana catered a whole range of extracurricular activities (sport, music, drama) – just like a high-end non-government school does here – that bonded the school together. These activities are missing from many of our public schools and are an important reason why many parents leave the public system. For me, it is the part of the Australian public school system that is letting my kids down compared to the experience I had in the United States. To Australians, their public school is a place where they go to class – for me, my school was almost my entire existence. Everything I did outside of my family, was done in my school. I would advocate increasing the extra-curricular activities offered by our public school – this is a big change for Australia, and one that requires more resources.

I realise a lot of what I have said here at the end will challenge some views of the audience. But the stakes are high – the fundamental tenant of Australian democracy – that we all deserve a go – is at risk of being eroded away with along with our public school system.

I look forward to working together to ensure that Public Schools are able to continue to provide a great education for all Australians.

