ACHIEVING ECONOMIC AND SOCIAL OBJECTIVES

Is it possible to achieve both equity and high quality in education? Are some countries doing it better than others? How does Australia rate?

International comparative analyses undertaken by the Organisation for Economic Cooperation and Development (OECD) make clear the extent to which higher levels of education pay off for countries and for individuals.

The OECD research shows that there are only two factors which are consistently related to differences in economic growth across the OECD countries – trade exposure i.e. those countries which had opened up their trade to international trading grew faster, and human capital development i.e. those countries that increased the level of education in their population were the ones whose economies grew faster. The OECD economists conclude that if a country were to increase the level of education of their working population by one year on average, it would achieve a growth in GDP of between three and six per cent and a one per cent increase in the rate of growth of GDP (OECD, 2006).

International surveys of adult literacy skills show that those countries whose adult literacy scores are 1% above the international average have labour productivity 2.5% and GDP of 1.5% per cent above the international averages. So there’s a pay off for countries not only from the amount of education but also from the quality of education.

There’s also a pay off for individuals. Any of the comparisons of people who don’t finish secondary school/finish secondary school/finish higher degrees show that people with more education experience higher employment rates, lower unemployment rates, higher average earnings and a higher internal rate of return on the investment required to get that higher education level. In the UK it’s an 18% return. These rates of return do not diminish as more and more people complete higher education.

Australia does not stand out as a country whose population finishes secondary education or the equivalent.

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1 Australian data are not available.
There are no internationally comparable data on trends in completion rates for upper secondary education but a picture for past decades can be obtained from the percentages of the population in different age brackets that have attained this level.

The figure above shows the attainment rates for 55-64 year-olds in OECD countries and, for successively younger age groups, the increase in the rate compared with the next oldest group.

The percentage of 55-64 year olds who have attained upper secondary education indicates completion rates from 1960 to 1969. The picture is only approximate because some will have attained this level as adults, long after having left initial education, and also because some of the population will not have survived to this age group. Younger groups provide corresponding pictures for more recent decades.

The rates for 25-34 year-olds reveal that, from 1990 to 1999, 17 of the 30 OECD countries had achieved attainment rates of 80% or higher. Australia was not among them.

The Republic of South Korea started from a low base but grew quickly, rising from 24th to 1st. Over the same period, Japan rose from 10th to 3rd. The US started from a high base but grew quite slowly, slipping from 1st to 11th. Australian rates have grown relatively slowly from a comparatively low base, with the rank slipping marginally from equal 18th to 20th. Meanwhile Canada held its ranking at 7th.

In the mid-1960s, South Korea had a GDP per capita equivalent to that of Afghanistan and behind all the countries of Latin America. South Korea is now a member of the OECD, with a GDP per capita that is just below the top two thirds of the Members. Education reform and a deep national commitment to education and skill development are recognized as key drivers of this remarkable economic growth.

The negative impact of failing to complete upper secondary education or its equivalent is evident in the labour market consequences as Richard Sweet’s recent document has shown. Sweet (2006) concludes:

"There is normally an inverse relationship between the incidence of low qualifications and the penalty that those with low qualifications suffer in the labour market. In countries where nearly all complete upper secondary education, the cost of being one of the handful not to do so is normally high. Where many do not complete high school, the labour market
consequences are generally less. However, Australia seems to have the worst of both worlds: both a relatively high number of young people without an upper secondary qualification or better, and these young people being at a significant disadvantage in the labour market. The result ... is that the penalty for not completing Year 12 or its equivalent is one of the highest in the OECD. The incidence of unemployment among those without Year 12 or its equivalent is more than twice that among those who have completed upper secondary education. ... 

... In Australia’s labour market, demand for skills and qualifications is high, and so the penalty for lacking these is substantial.\(^2\)

The figure above shows the mean performances of countries in reading literacy in PISA 2000. Reading literacy assessed in PISA is the capacity to use, interpret and reflect on written material.

The line in the middle of the box for each country gives the mean performances of 15-year-olds in the country. The size of the box reflects the precision with which a country’s mean is estimated. Where the boxes overlap on the vertical dimension, there is no significant difference between the means for the countries. (Further details are given in the PISA report, as indicated in the source information at the foot of the figure.)

The results reveal marked variations in performance levels among the 42 participating countries – ranging from Finland, significantly better than all others at the top, to Peru, significantly worse than all others are the bottom.

Australia ranked in 2\(^{nd}\) place but its mean is not significantly different from those of two countries above it or five below it. It is, therefore, appropriate to say that Australia ranked between 2\(^{nd}\) and 9\(^{th}\) or that Australia tied in 2\(^{nd}\) place with seven other countries.

The above table shows Australia’s ranking in the top scoring countries in reading, maths, science and problem solving. So in terms of quality Australia does very well in the international comparisons. We are consistently behind largely the same set of countries.

Concerns about Equity in Australian Data

In most countries there is a strong relationship between literacy levels of students and their social background in the PISA data.

The evidence above on the equity of the outcomes of education systems is drawn from the OECD’s Programme for International Student Assessment (PISA) for which details are available on [www.pisa.oecd.org](http://www.pisa.oecd.org).
The 15-year-olds involved in PISA complete a questionnaire that collects information important for the interpretation and analysis on the results. Students are asked about characteristics such as gender, economic and social background, and activities at home and school.

The information on economic and social background (parents' education and occupation, cultural artifacts in the home) permit the construction of an index of social background that ranges from socially disadvantaged to socially advantaged. This scale is comparable across countries.

The relationship between social background and reading literacy in PISA 2000 is shown in the figure above in which the results of the 265,000 15-year-olds in the sample on both variables are plotted. The correlation is relatively high (around 0.45) indicating quite a strong relationship between the two variables. The slope of the regression line that summarizes the relationship is quite steep, indicating that increased social advantage, in general, pays off with considerable increase in educational performance.

It can, nevertheless, be seen that there are many expectations – socially advantaged individuals who do not perform well (towards the bottom-right of the graph) and students from disadvantaged backgrounds who perform well (towards the top-left of the graph).

This result has been long established in research in many individual countries and it can lead to a counsel of despair. If the relationship between social background and educational achievement is so strong, education can seem to be impotent, unable to make a difference. There is other research evidence that provides assurance that schools can make a difference to the life chances of their students, but the PISA also provides additional insights because it is possible to compare regressions lines of the type above for individual countries.

An examination of the relationship between social background and educational achievement country-by-country reveals marked differences among countries. The figure above shows the results for four countries. The lines for Finland and Canada are significantly less steep than the one for all OECD countries shown in the previous graph. Increased social advantage in Finland and Canada is associated with less increase in educational achievement than in the OECD as a whole. The results in these two countries are more equitable than those of the OECD overall. Students differ in achievement but not in a way that is so substantially related to their social background.
The lines for Australia and Germany are both significantly steeper than the one for the OECD as a whole, as are those for the US and the UK which are not shown in the figure above. In all of these countries, social background is more substantially related to educational achievement than in the OECD as a whole. Their results are inequitable in the sense that differences among students in their literacy levels reflect to a marked extent differences in their social background.

The differences between these four lines at the left-hand end are substantial. Socially disadvantaged students do very much worse in some of these countries. The gap in educational achievement between similarly socially disadvantaged students in Germany and Finland represents around three years of schooling. Similarly disadvantaged students in Australia fall about half-way between, around 1½ behind their counterparts in Finland.

More detailed analysis of the German data shows the pattern to be strongly related to the organization of schooling. From age 11, students are separated into vocational and academic schools of various types on the basis of the educational future judged to be most appropriate for them. Students from socially disadvantaged backgrounds generally end up in low-status vocational school and achieve poor educational results. Students from socially advantaged backgrounds are directed to high-status academic schools where they achieve high-quality results. The schooling system largely reproduces the existing social arrangements, conferring privilege where it already exists and denying it where it does not.

Equity versus Quality?

It is possible to achieve high quality, high equity results. The regression lines for Korea, Finland, Canada, Japan, and Hong Kong are all significantly less steep than the OECD on average. Those countries have much more equitable results than Australia’s. It makes it quite clear that there are countries that are both high quality and high equity. The idea that often gets in the way of any serious debate about equity in Australia, that you can’t have equity without sacrificing quality is just wrong. There are countries that address issues of equity, that ameliorate the effects of differences in home background, that achieve much more equitable results than Australia’s while achieving quality as least as good and in some cases better.

Another way of thinking about this is to look at the total variation of results in a country among its 15 year olds. Some of that variation is going to occur within schools, but a fair bit of it is going to occur between schools. In the graph below, a whole column shows the variability for a country. The blue part of that column shows how much of that is occurring within schools and the part below the line shows how much variability is between schools.

In the schools to the right of the graph - Iceland, Finland, Norway, Sweden, Poland - there is almost no difference between the schools. At the left hand side the differences between schools are huge. In some of the countries, this is by design. In Hungary, Germany and Switzerland at age 12 students are separated according to school ability and are sent to schools of different kinds, vocational or academic. The education system reproduces the social arrangements. In between the countries that actively make schools different and those where there is almost no difference, there are countries such as Australia and the United States where there is a reasonably large difference among schools. What is interesting to reflect upon is how much of that difference between schools actually reflects the differences in the social backgrounds of the students.
The figure above divides the variation in student performance in mathematics in PISA 2003 for each country into two components: the component shown above the zero line is due to differences among students within schools, and the component below the zero line is due to differences between schools.

In Iceland, Finland and Norway there is very little variation in scores between schools. For parents in these countries, choice of school is not very important because there is so little difference among schools.

Among the countries in which there is a large component of variation between schools, there are some in which this occurs by design. In Hungary, Belgium and Germany, for example, students are sorted into schools of different types according to their school performance as early as age 12. The intention is to group similar students within schools differentiated by the extent of academic or vocational emphasis in their curriculum. This is intended to minimise variation within schools in order then to provide the curricula considered most appropriate for the differentiated student groups. It has the consequence of maximising the variation between schools.

In some other countries, the grouping of students is less deliberate but, nevertheless, results in substantial between-school variation. In Japan, for example, 53% of the overall variation is between schools. In Korea, 42% is between schools. In Australia, 20% is between schools.

For Poland, in PISA 2000, 63 per cent of the variation in reading was between schools whereas in PISA 2003 in mathematics only 13 per cent was between schools. This remarkable difference was due to a reform in which early streaming of students into schools of different types was abandoned in favour of comprehensive schools for students up to the age of which PISA measures their performance. (Not only was the between-school variation reduced. Poland was the only country to improve its average performance significantly on all measures used in both PISA 2000 and PISA 2003. It did so largely by raising the achievement levels of its poorer performing students).
A further way in which to examine equity is to determine the extent to which the variation between schools can be explained in terms of differences in the social backgrounds of the students. This is done in the figure above, with the between-school variation subdivided into three components: (a) variation that can be accounted for in terms of the social backgrounds of the individual students in the schools; (b) variation that can be accounted for in terms of the average social background of the students in the schools; and (c) variation that cannot be accounted for in terms of the social backgrounds of the students.

The first indicates the impact of students’ own social backgrounds on their educational outcomes, the second the impact of the company they keep in school. In Australia, 70% of the variation between schools can be accounted for in terms of differences between schools in the social background of their students – 40% individual social background and 30% the average social background of students in the schools.

Where differences in social background account for a large percentage of the between-school variation, this suggests that the educational arrangements in the country are inequitable. Where much of the account derives from the social background of other students in the school, it suggests that there is a benefit for advantaged students in keeping company with similarly advantaged students but a compounded disadvantage for disadvantaged students keeping company with others like themselves. That suggests an impossible policy conundrum for those who might want different groupings to ameliorate the influence of social background on disadvantaged students because it implies that reduction in disadvantage for them could only be won by a reduction in advantage for the advantaged. Additional analyses of the PISA 2000 data for Austria, however, offer a more encouraging conclusion. These analyses suggest that “that students with lower skills benefit more from being exposed to clever peers, whereas those with higher skills do not seem to be affected much. Social heterogeneity, moreover, has no big adverse effect on academic outcomes. These results imply considerable social gains of reducing stratification in educational settings” (Schneeweis & Winter-Ebmer, Peer effects in Austrian schools. Working Paper No. 0502, Department of Economics, Johannes Kepler University of Linz, Austria 2005, p.2).

Public vs Private
Enrolment data for public and private schooling in OECD countries are provided in OECD’s annual publication, *Education at a Glance*. In these data, as shown in the left-handed panel in the figure above, three categories of schools are distinguished:

- Government schools (funded and managed by government agencies)
- Government dependent schools (private managed but with some government finances)
- Private (privately managed and fully privately funded).

In the Netherlands, there are no fully private schools but almost 80% of students attend government-dependent private schools. These schools receive full public funding on the same basis as government schools and do not charge fees in addition. They thus differentiate themselves from the public sector and from each other on the basis of values, faith-commitment, or pedagogy but not resources. In the United States, there are no government-dependent schools (except for a few private schools accepting students with public vouchers). Schools are either publicly funded and run or privately funded and run. In Australia, there are only a small number of private schools. Virtually all schools are either government or government-dependent.

The right-hand panel above shows the difference between PISA 2003 mathematics means scores for government and other schools. When the difference is positive, government schools have a higher mean, as in Luxembourg, Japan, Italy, Switzerland, Finland, Denmark and the Czech Republic (the dark purple bars). Once differences between the school systems in the social backgrounds of their students and the schools have been taken into account, there is no remaining significant overall superiority of non-government schooling in any country (the dark blue bars). The observed superiority of non-government schools in the base data appears to be due to the students they enrol rather than what they do as schools.

Whether this is the case in Australia is unknown since the information distinguishing government and non-government schools in the Australia database is suppressed before it is submitted for international analysis. That practice should be changed.

**THE EQUITY ISSUE – WHAT CAN WE DO ABOUT IT?**

Given the marked variation in performance between schools in Australia and the strong relationship between those differences and differences in the social background of the students in the schools, what could be done to reduce the differences while maintaining government and non-government provisions and parental choice of schools?

Schools divide – on the basis on gender, on the basis of faith, on the basis of social class. The only thing that is common is schooling. What we need to do is find ways in which
schooling with its separate expressions in schools of different kinds, can, in fact, bridge the differences and not sharpen the differences.

Co-location of schools seems to be a novel but a potentially significant way of addressing the way in which in Australia’s schools might create less difference rather than more difference. Positive features of co-location are:

- More collaboration among education providers
  - Co-location of schools has beneficial consequences
    - Sharing resources – physical, personnel, programs
    - Regard for public schools rises
  - Co-location with other providers extends coverage
    - Considering learning needs of whole community

- Characteristics of service
  - Meeting diverse and changing education needs of all
  - Contributing to sustainable economic development
  - Contributing to social connectedness

- New arrangements to achieve outcomes
  - Governance that enables community to shape service
  - Efficient, high-quality resource provision

In the late 1980s, a South Australian property developer, Delfin, worked with the government and non-government school providers to develop new communities in which government and non-government schools were co-located. In Golden Grove, a new community of around 30,000 residents in the north-west Adelaide, all school sites have both government and non-government schools. On primary school sites, collaboration ranges from as little as sharing playing fields to as much as a common library, staff room and tuckshop. On the one secondary school site, there are three schools – government, Catholic and joint Anglican-Uniting Church – with a common library, senior science laboratories and technology facilities centrally located between the schools. The schools now share some programs as well, for example timetabling foreign language teaching at the same time to offer more languages together than any could alone and having students move to whichever school offers the language they wish to study. The public schools in these arrangements are typically in demand and not in decline as others around them often are.

More extensive collaboration on the provision of education services, from preschool to adult, is now being used to address regional economic and social needs as well. Delfin, now Delfin Lend Lease, has developed an explicit education services model for the communities it develops. It is intended to ensure that the education service addresses the needs of all learners, contributes to economic development and to improving social connectedness. To make this work effectively would require a new governance mode to give communities a voice in shaping their education services and new ways of managing resources allocations at the community level. This could all be done in ways that leave participation as a matter of choice for providers and that respect the ‘badges’ of all providers. It is expected that a significant trial of the model, in a large new area with multiple developers, will commence in one State this year.

The Federal Labor leader, Kevin Rudd, recently announced that Labor would commit funds to co-location in new developments and to follow-up with a careful evaluation.

The whole storyline…..

Education pays off for countries and individuals.

Australia has lower participation rates in upper secondary and tertiary education than other OECD countries with which it competes.
Australian school education is high average quality but social background is more strongly related to educational achievement than in many OECD countries, including Finland, Canada, South Korea.

There are relatively large differences in educational achievement among schools in Australia, with 70% of the differences attributable to differences in social background of students.

If Australia genuinely wants to make schools more equal, funding is one issue but achieving new forms of collaboration among schools is another. The goal should be to have schools build both human and social capital – including both bonding social capital and bridging social capital.