Centre for the Study of Higher Education

Education, Science and the Future of Australia

A Public Seminar
Series on Policy

Challenges for early learning and schooling

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Director of the Melbourne Education Research Institute
23 July 2007

This PowerPoint was used in a presentation to the third seminar in a series organised by the University of Melbourne on *Education, Science and the Future of Australia: A Public Seminar Series on Policy*. The seminar was held at the University on Monday 23 July 2007. The other presentation in the seminar was delivered by Professor Collette Tayler, Queensland University of Technology, on early childhood education and care.

Professor Barry McGaw is half-time Director of the Melbourne Education Research Institute at the University of Melbourne and works half-time as a consultant through McGaw Group Pty Ltd.

He returned to Australia at the end of 2005 from Paris where he had been Director for Education at the Organisation for Economic Co-operation and Development (OECD). He had previously been Executive Director of the Australian Council for Educational Research (ACER) from 1985 to 1998 and Professor of Education at Murdoch University in Perth Western Australia from 1976 to 1984. He was originally a science teacher in Queensland and was head of the Research and Curriculum Branch in the Queensland Department of Education before moving to the Chair at Murdoch University.

Professor McGaw is a Fellow of the Academy of the Social Sciences in Australia, the Australian Psychological Society, the Australian College of Educators and the International Academy of Education. He received an Australian Centenary Medal in 2003 and was appointed an Officer in the Order of Australia in 2004.

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Three questions

- How good is Australian education?
- How fair is Australian education?
- How could we do (even) better?

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The presentation will address three central questions:

- How good is Australian school education?
- How fair is Australian school education?
- How could we do (even) better?

To address the question of how good Australian school education is we could take two approaches. One would be to compare it with the past; the other would be to compare it with education in other countries in the present.

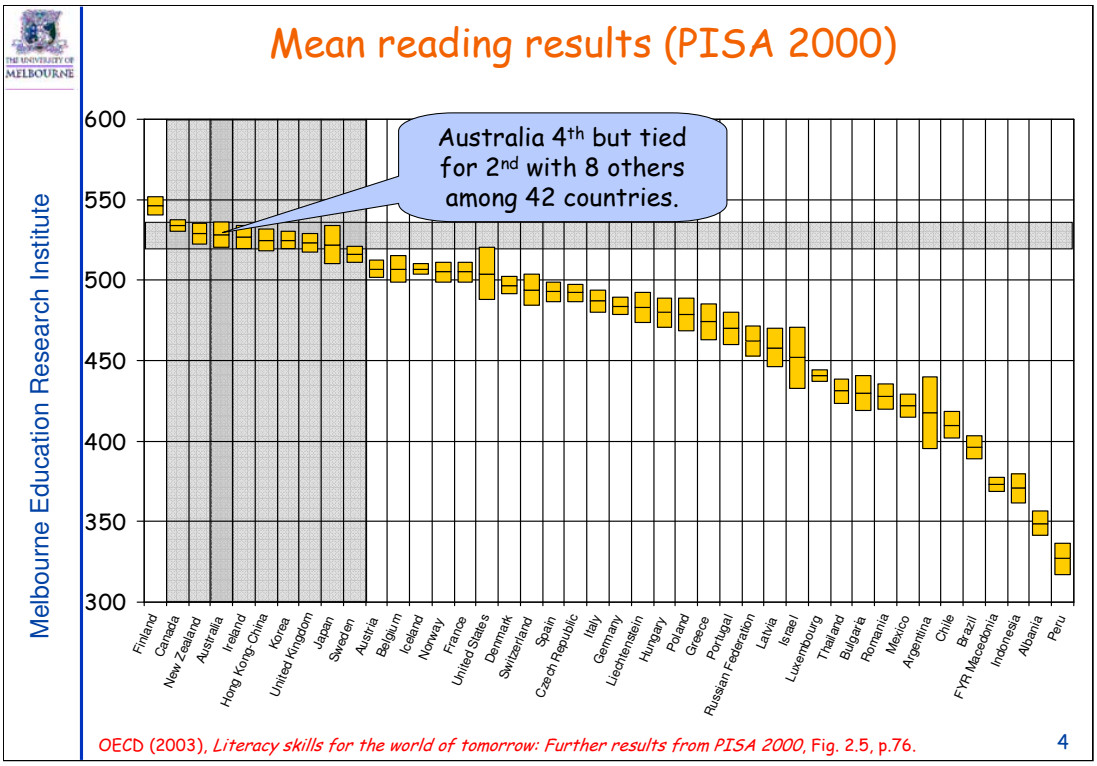
Comparisons with the past are very difficult to make if we want to use more than adults' fading memories of their own childhood and, worse, memories that are often filtered through rose-coloured glasses. Such empirical evidence from the past that exists is difficult to interpret. Old curricula and examination papers give some notion of what students were expected to learn but, in the absence of marked student responses to examination papers we can gain little appreciation of exactly what was required. We would also need good information on the nature of the student cohort.

It is better to use current international comparisons where possible. In this presentation I draw data provided by the Organisation for Economic Co-operation and Development (OECD), most particularly its Programme for International Student Assessment (PISA) for which details are available on www.pisa.oecd.org. PISA provides direct, internationally comparable assessments of the achievements of 15-year-olds in school.

In PISA 2000, students were assessed in reading literacy, mathematics and science, with reading literacy as the main domain and mathematics and science as minor domains. In PISA 2003, mathematics was the main domain and reading and science minor domains together with problem solving which was an additional domain. In PISA 2006, the three original domains were assessed, with science as the main domain.

PISA assesses students' capacity to use the knowledge and skills they have acquired rather than whether they have learned the specific content of their curricula. Sample items, illustrating the content and form of assessment, are provided on the PISA website, given above.

Other international comparisons are provided in *Education at a Glance*, OECD's annual compilation of international comparisons in education..

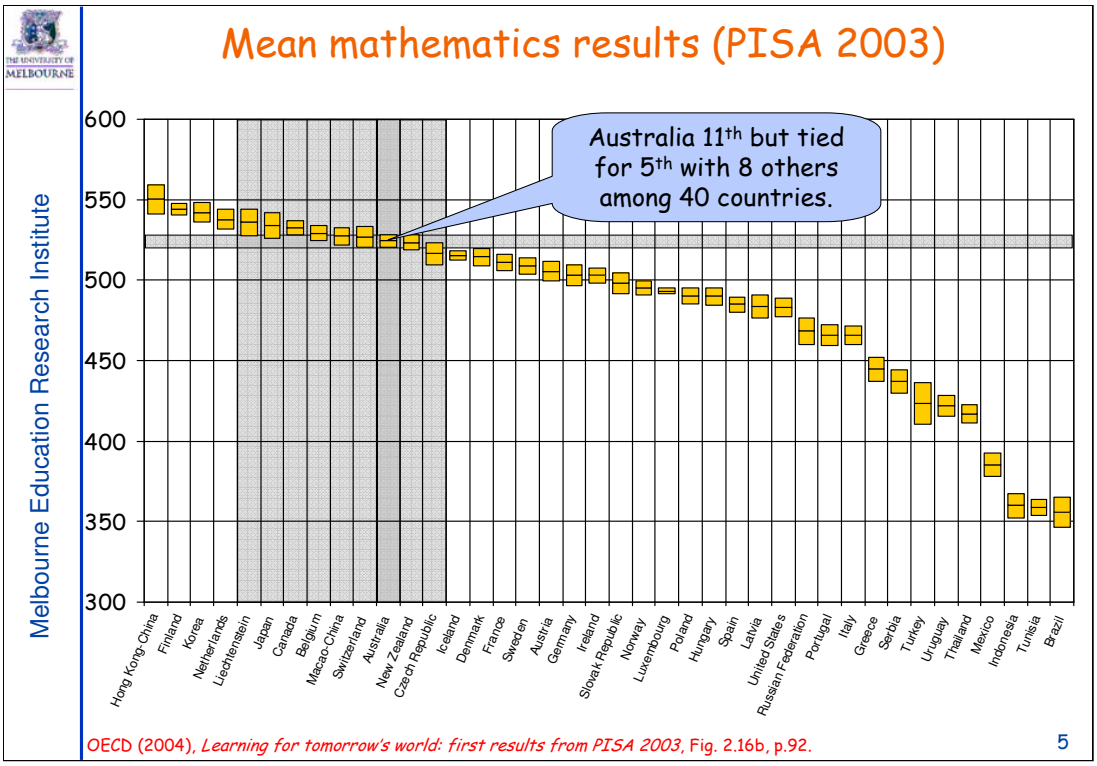


The figure above shows the mean performances of countries in reading literacy in PISA 2000. Reading literacy assessed in PISA is the capacity to use, interpret and reflect on written material.

The line in the middle of the box for each country gives the mean performance of 15-year-olds in the country. The size of a 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 at the bottom.

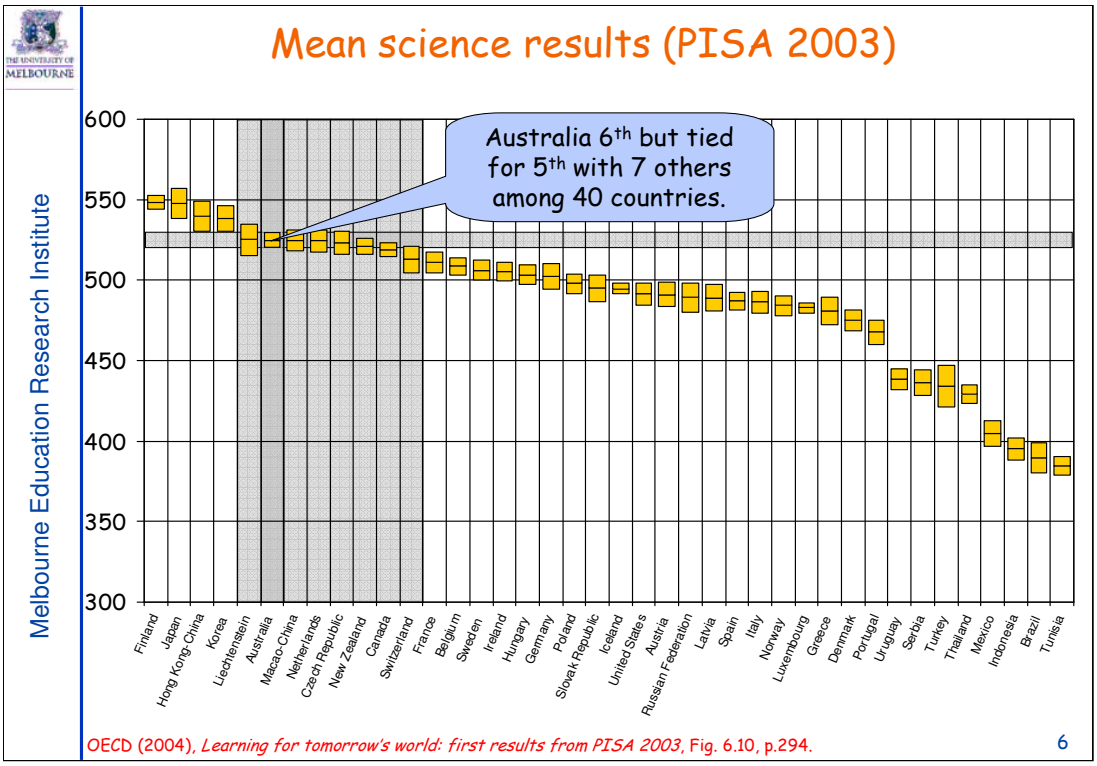
Australia ranked in 4th place but its mean is not significantly different from those of two countries above it or six below it. It is, therefore, appropriate to say that Australia ranked between 2nd and 10th or that Australia tied in 2nd place with eight other countries.



In PISA 2003, mathematics was the main domain of assessment. In this case, Australia ranked 11th overall out of the 40 participants but was not significantly different from six immediately above it or two immediately behind it. It is appropriate, therefore, to say that Australia ranked between 5th and 13th or tied in 5th place with these eight other countries.

The countries significantly ahead of Australia were Hong Kong-China, Finland, Korea and the Netherlands.

PISA assesses whether 15-year-olds can use the mathematics they have learned in school. It does not focus primarily on the curriculum content to determine whether students have learned exactly what they were intended to learn. Instead, it assesses whether students can recognise that a problem can be solved mathematically, are able to 'mathematise' it (i.e. represent it mathematically) and then solve it.

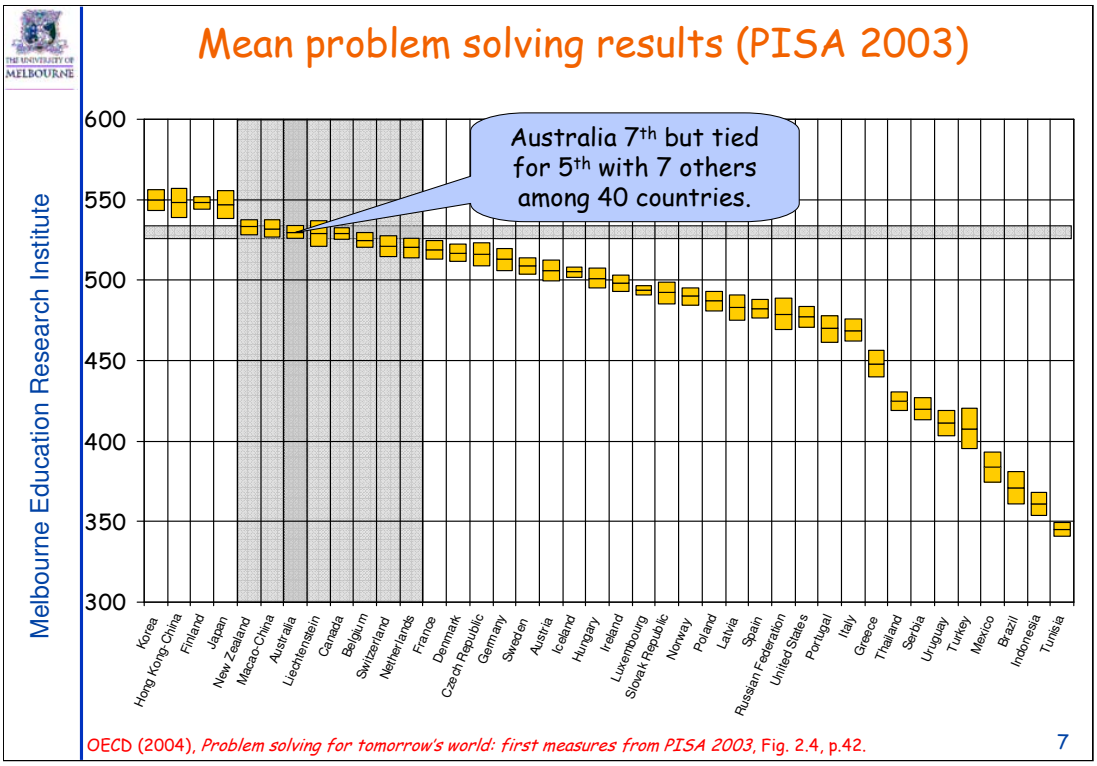


Science was the main domain of assessment in PISA 2006 but the results will not be published until December 2007.

In PISA 2003, when science was assessed as a minor domain, Australia ranked 6th overall but tied in 5th place with seven others, one not significantly ahead of it and six not significantly behind.

The countries significantly ahead of Australia were Finland, Japan, Hong Kong-China and Korea.

In science, PISA assesses whether students can use what they have learned. It assesses whether students can recognise a scientific question, know what counts as evidence to deal with such a question and can marshal such evidence to deal with a question.



In PISA 2003, problem solving was assessed as an additional minor domain.

Australia ranked 7th overall but was not significantly different from two immediately above or five immediately below. Australia thus tied in 5th place with seven others among the 40 participating countries.

Three types of problem solving were assessed in PISA:

Decision making

choosing among alternatives with constraints;

System analysis and design

identifying relationships between parts of a system and/or designing a system to express relationships;

Trouble shooting

diagnosing and correcting a faulty or underperforming system or mechanism.

Sample items are provided in OECD (2004), *Problem solving for tomorrow's world: first measures of cross-curricular competencies from PISA 2003*, and on the OECD/PISA website (http://www.pisa.oecd.org).

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Australian performance in OECD PISA

	Reading PISA 2000	Mathematics PISA 2003	Science PISA 2003	Problem solving PISA 2003
Behind	Finland	*Hong Kong-China* Finland Korea Netherlands	Finland Japan *Hong Kong-China* Korea	Korea *Hong Kong-China* Finland Japan
Rank	**2nd**	**5th**	**5th**	**5th**
Tied with	Canada New Zealand Australia Ireland *Hong Kong-China* Korea United Kingdom Japan	*Liechtenstein* Japan Canada Belgium *Macao-China* Switzerland Australia New Zealand Czech Republic	*Liechtenstein* Australia *Macao-China* Netherlands Czech Republic New Zealand Canada Switzerland	New Zealand *Macao-China* *Liechtenstein* Australia Canada Belgium Switzerland Netherlands

Sources: OECD (2001) *Knowledge and skills for life: First results from PISA 2000*, Fig. 2.4, p.53.
OECD (2004), *Learning for tomorrow's world: First results from PISA 2003*, Fig 2.16b, p.92.
OECD (2004), *Problem solving for tomorrow's world: First measures of cross-curricular competencies from PISA 2003*, Fig 2.4, p.42.

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In summary:

In reading in PISA 2000, Australia ranked in 2nd place, behind Finland and tied with Canada, New Zealand, Ireland, Hong Kong-China, Korea, the United Kingdom and Japan.

In mathematics in PISA 2003, Australia ranked 5th behind Hong Kong-China, Finland, Korea and the Netherlands and tied with Liechtenstein, Japan, Canada, Belgium, Macao-China, Switzerland, New Zealand and the Czech Republic.

In science in PISA 2003, Australia ranked 5th behind Finland, Japan, Hong Kong-China and Korea and tied with Liechtenstein, Macao-China, the Netherlands, the Czech Republic, New Zealand, Canada and Switzerland.

In problem solving in PISA 2003, Australia ranked in 4th place behind Korea, Hong Kong-China, Finland and Japan and tied with New Zealand, Macao-China, Liechtenstein, Canada, Belgium, Switzerland and the Netherlands.

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Storyline on Australian schooling

There is no quality crisis.

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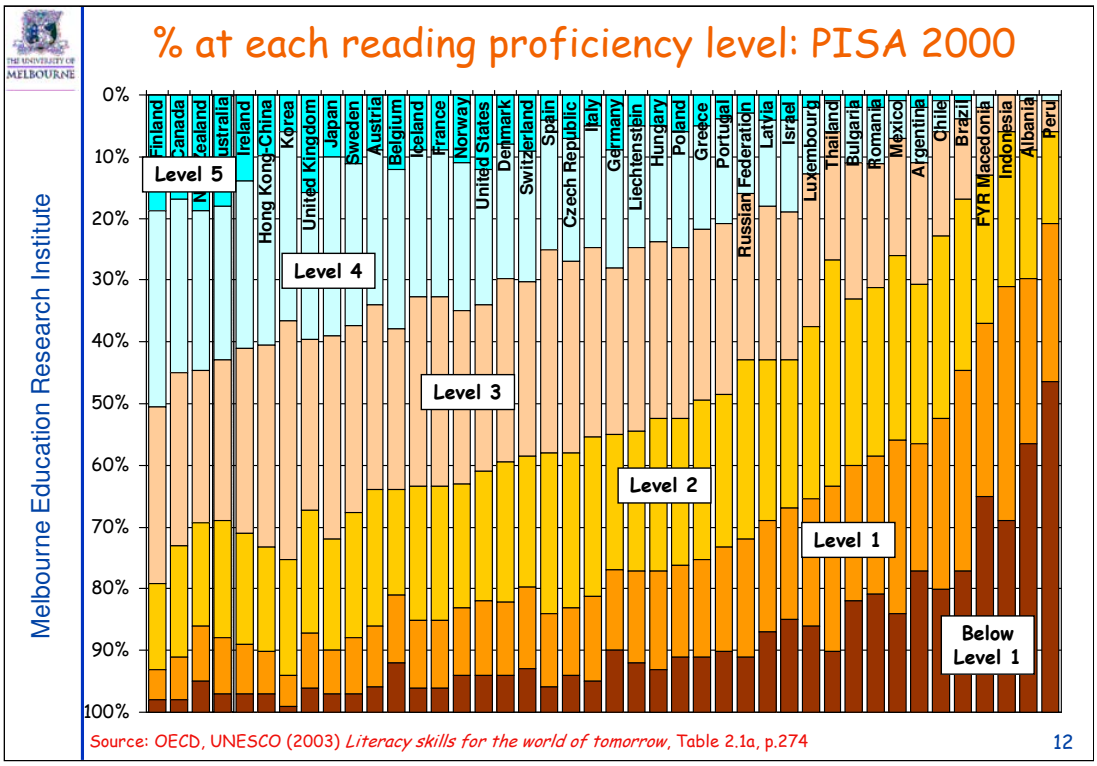
The quality story is that there is no crisis in the quality of Australian school education, despite the way in which a confected crisis is used to create or support political debate about education in Australia.

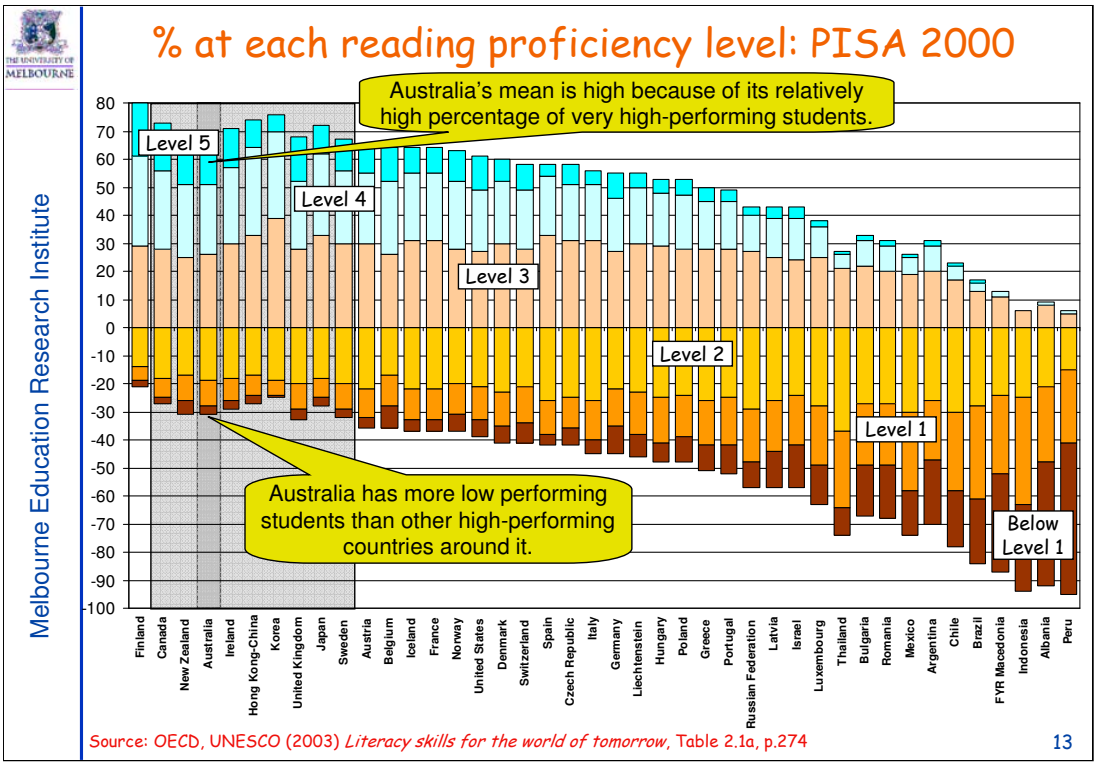
In judging the performance of our education system, we should consider not only the quality of our students' performances but also their equity. This is a country that declares that one of its core values is a commitment to a 'fair go'.

One simple way to address the issue of equity is to examine the spread of results in different countries. Results will always be spread because of individual differences but international comparisons can reveal questionable characteristics of the spread in particular countries.



In the main domains of assessment in PISA, there is sufficient information to establish and describe well-defined levels of performance on the relevant scale. In PISA 2000, five levels of performance were defined on the reading scale, with an additional lower domain not well measured and described only as 'below Level 1'. Students at this level may be literate in the sense of being able to decode printed words and to read text but they do not have a level of literacy sufficient for further study and learning. Even those at Level 1 are highly likely to be deficient in this respect.

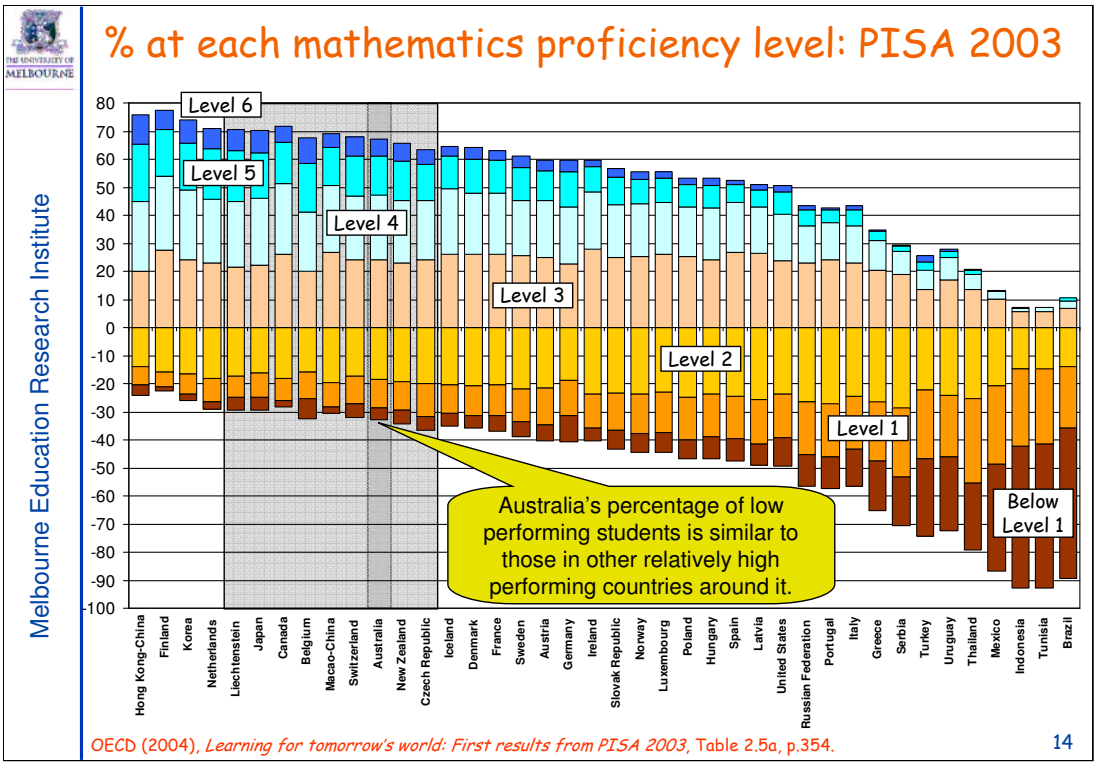
The figure above shows the percentage of students at each level in each country. Countries are arranged in order of their mean performance. Australia stands out in one important respect. It has a considerably higher proportion of students at the highest levels (Levels 5 and 4) than do some of the countries whose mean performances are not significantly different from Australia's. They are Ireland, Hong Kong-China, Korea, Japan and Sweden. The reason that Australia's mean was not significantly better than theirs is that Australia has a higher proportion of students at the lowest levels than do those countries. Australia is leaving its poorer performing students further behind than are those countries.



The figure above provides a different view of the distribution of students across levels of performance in reading in PISA 2000 in the different countries. The percentages of students at Level 3 or above are shown above the zero line and the percentages of students at Level 2 or below are shown below the zero line.

This presentation makes even clearer that Australia (and New Zealand) have larger percentages at Level 2 and below than countries just below them and correspondingly smaller percentages at Level 3 and above than similarly high-performing countries around them. What raises the mean performances of Australia and New Zealand to the levels that give them a high overall rank are their relatively large percentages at Level 5.

Korea provides an interesting contrast. It has a considerably smaller proportion of high achievers but a correspondingly small proportion of very low achievers.



The figure above provides a different view of the distribution of students across levels of performance in mathematics in PISA 2003 in the different countries. Again, the percentages of students at Level 3 or above are shown above the zero line and the percentages of students at Level 2 or below are shown below the zero line.

This presentation shows that, in mathematics, the proportion of low achievers in Australia is in line with its overall mean. In mathematics, as distinct from reading, poorer performers in Australia are not left behind to any greater extent than in other countries that are similarly high performing on average.

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Storyline on Australian schooling

There is no quality crisis.

There are equity problems:

- our weaker students do somewhat worse than those in other high-quality countries,

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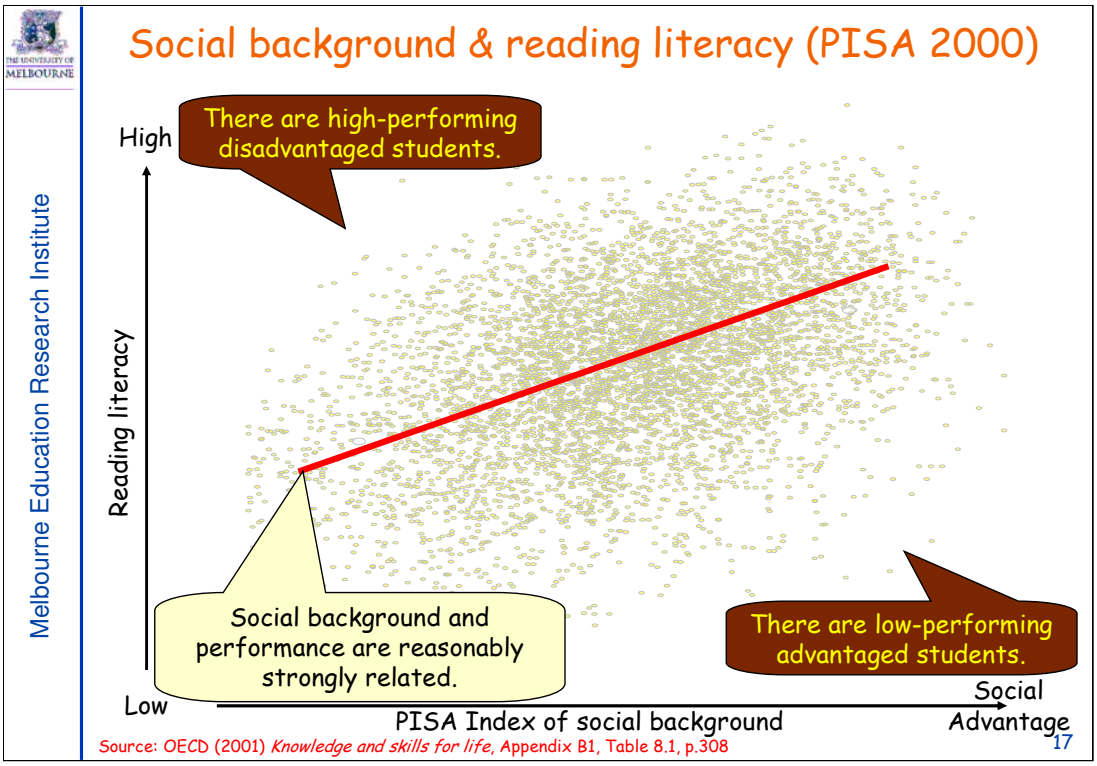
The message of there being no quality problem in Australian schooling can be nuanced by the addition of the observation that, in reading (which is a fundamental skill on which most other learning depends), there are relatively more poor performers in Australia than in other countries where, as in Australia, 15-year-olds perform at a high average level. In mathematics the proportion of low performers is in line with those of other high-performing countries.

A second way in which to examine equity is to investigate the relationship between students' educational performance and their social background.

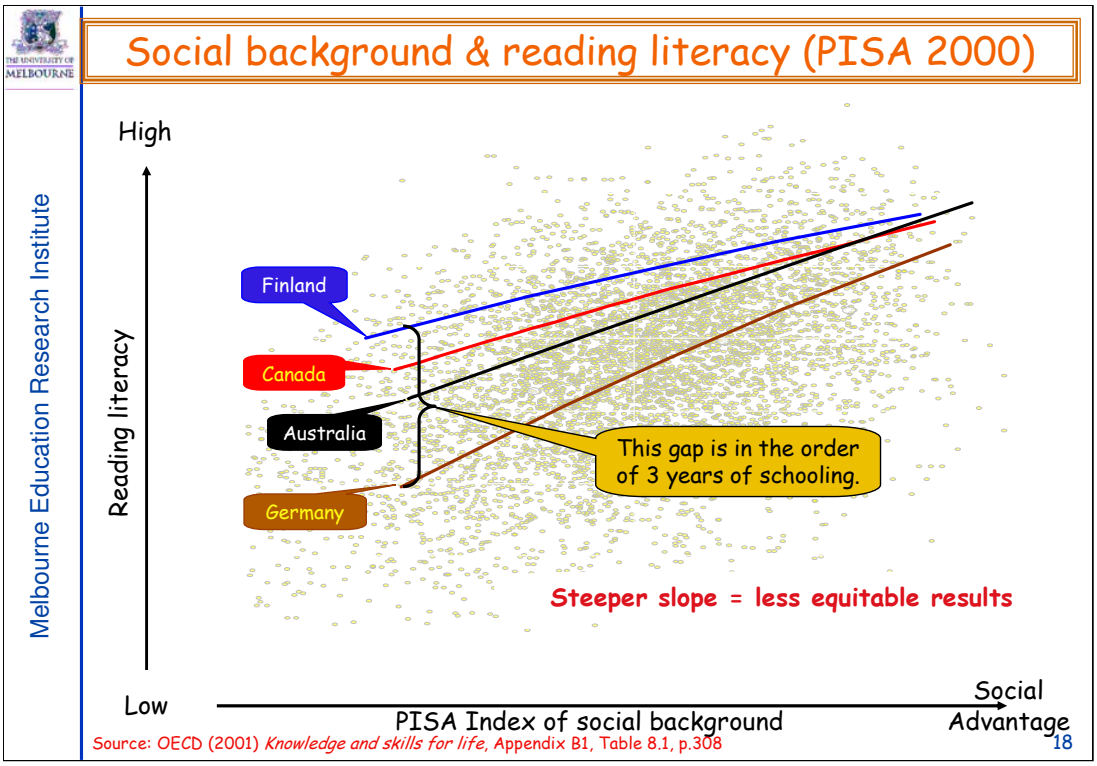


The 15-year-olds in PISA provide information on their economic and social background – parents' education and occupation, cultural artefacts in the home – that permits the construction of an index of social background that ranges from socially disadvantaged to socially advantaged. This scale is comparable 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 summarises 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 exceptions – 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 provide additional insights because it is possible to compare regressions lines of the type above for individual countries.

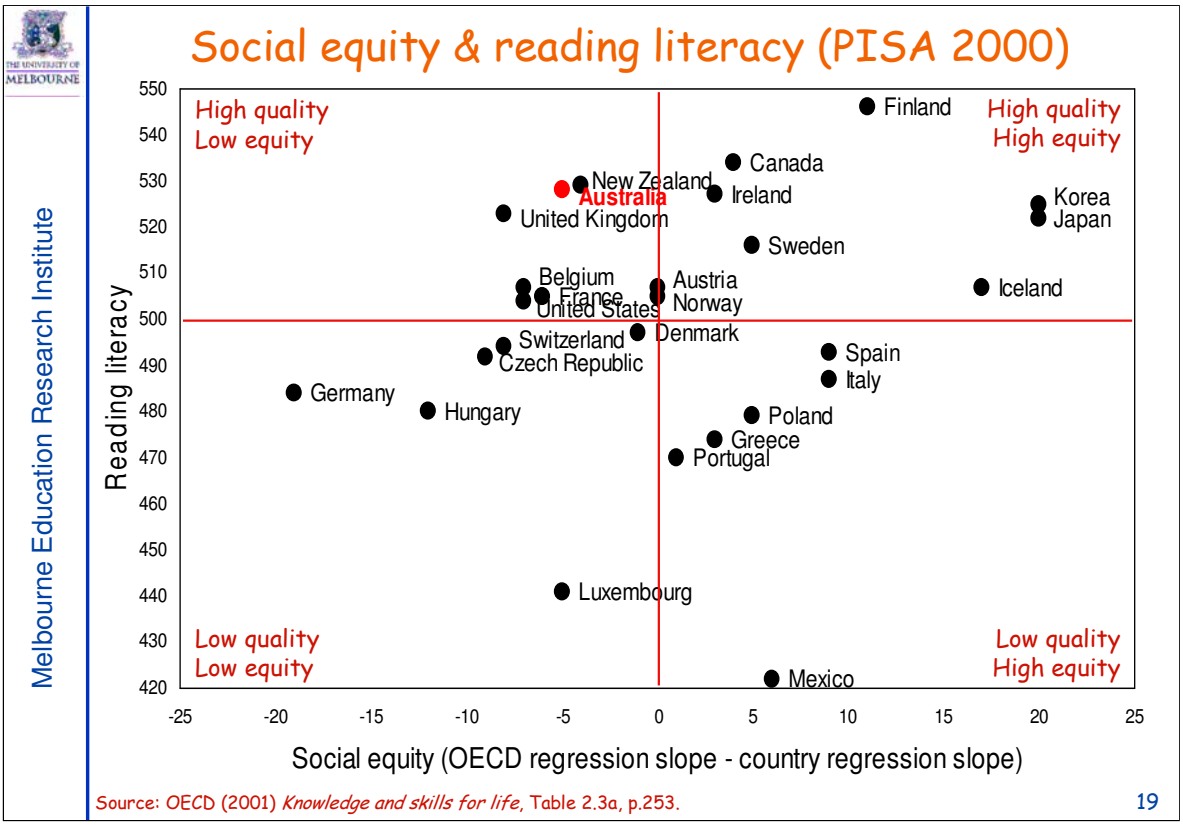


An examination of the relationship between social background and educational achievement country-by-country reveals marked differences among countries. The figure above shows the results for four countries. The lines for Finland and Canada are significantly less steep than the one for the OECD as a whole which was shown in the previous slide. Increased social advantage in these countries is associated with less increase in educational achievement than in the OECD as a whole. The results in these 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 organisation 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.



If lines for more countries were to be added to the figure on the previous slide, the pattern would become difficult to discern. The figure above provides a clearer picture for all OECD countries.

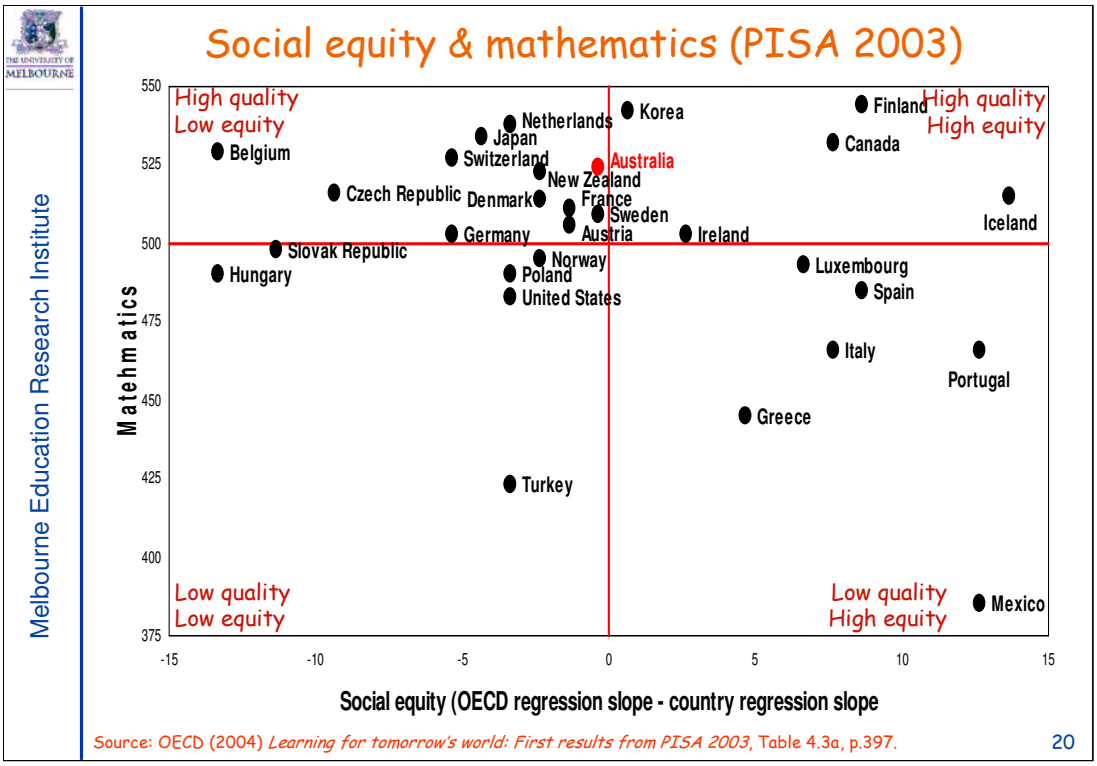
Mean performances of countries in reading literacy are represented on the vertical axis. The slope of the regression line for social equity on reading literacy is represented on the horizontal axis as the difference between the slope for the OECD as a whole and a country's own slope. This places to the left countries where the slope is steeper than in the OECD as a whole (that is, countries in which social background is more substantially related to educational achievement) and to the right countries where the slope is less steep than that for the OECD as a whole (that is, countries in which social background is less related to educational achievement).

Countries high on the page are high-quality and those to the far right are high-equity. The graph is divided into four quadrants on the basis of the OECD average on the two measures.

The presence of countries in the 'high-quality, high-equity' quadrant (top right) demonstrates that there is no necessary trade off between quality and equity. They show that it is possible to achieve both together. Korea, Japan, Finland and Canada are among them.

As already indicated in the previous slide, Australia is a 'high-quality, low-equity' country, with a high average performance but a relatively steep regression line. It is in the top-left quadrant along with the United Kingdom and New Zealand.

The United States is only average quality but it is low-equity. Germany, as a low-quality, low-equity country, is in the bottom-left quadrant along with a number of other countries that also begin to separate students into schools of different types as early as age 11-12.



The figure above shows the relationship between the slope of countries' regression lines and their average performance in mathematics. In this case, the line for Australia is not significantly different that the line for the OECD as a whole. While Australian mathematics performances are thus somewhat more equitable in mathematics than in reading, they remain much less equitable than the results in Canada and Finland.

There are many countries to the left of Australia in this graph (and thus with less equitable results) but the ones on which we should focus are those above the 500 line since they are the higher achieving countries. We should aspire to be clearly in the top-right quadrant of this kind of display.

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Storyline on Australian schooling

There is no quality crisis.

There are equity problems:

- our weaker students do somewhat worse than those in other high-quality countries,
- social background differences matter more than in other high quality countries,

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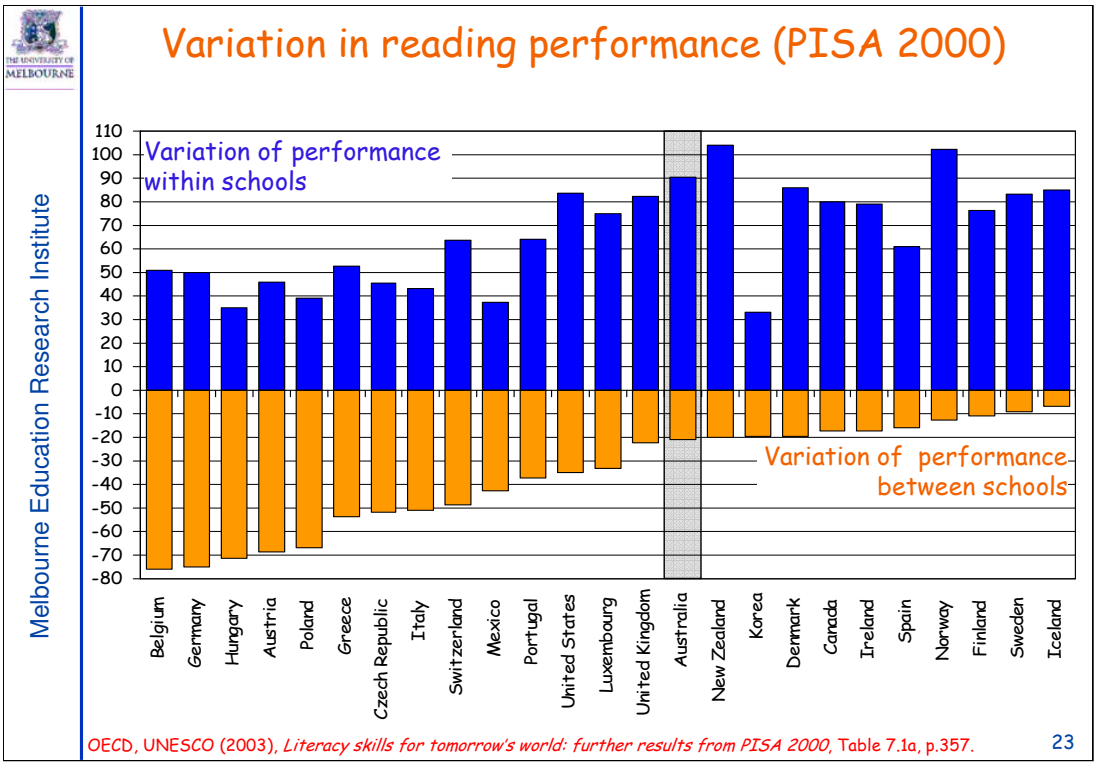
We can add a further nuance to the quality/equity story by noting that social background differences among students are more strongly related to differences in their school achievements in Australia than in some other high-performing countries with which we might want to be compared, such as Canada and Finland. This is more marked for reading than for mathematics, with home background thus exerting a stronger influence on reading performance and schooling, perhaps, a stronger influence on mathematics performance.

A third way in which to examine equity is to investigate the variation in student performance between schools.

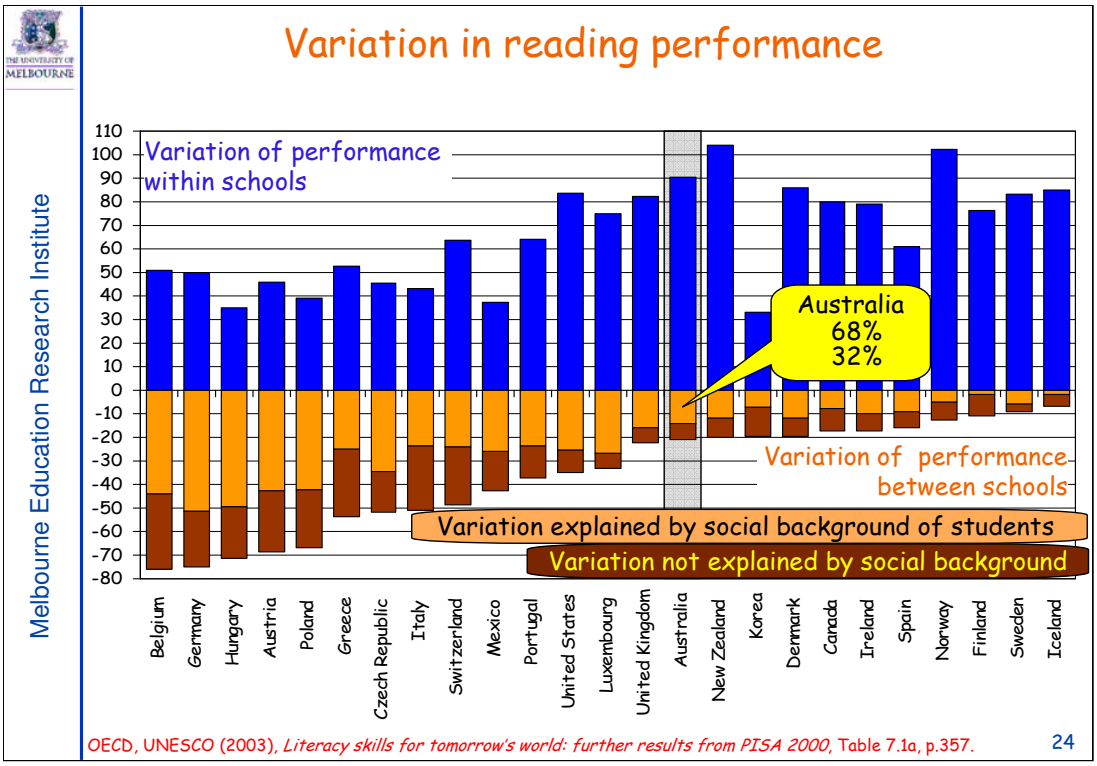


The figure above divides the variation in student performance in reading in PISA 2000 for each country into a component due to differences among students within schools, shown above the zero line, and a component due to differences between schools shown below that line. In Iceland, Finland and Norway there is very little variation in scores between schools. There choice of school is not 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 Belgium, Germany and Hungary, 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 the United States, for example, 30 per cent of the overall variation is between-schools. In Korea, 37 per cent is between schools. In Australia, 19 per cent 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 at 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 two components: (a) variation that can be accounted for in terms of social backgrounds of the students in the schools and (b) variation that cannot be accounted for in terms of the social backgrounds of the students.

In Australia, 68 per cent of the variation between-schools can be accounted for in terms of differences between schools in the social background of their students. Among OECD countries, the percentage is higher in only Luxembourg, the United States, the United Kingdom, Hungary and Germany

In Luxembourg, Hungary and Germany, students are sorted into schools of different types and given different subsequent expectations on the basis of their educational achievement from around the age of 12 but that sorting also involves separation on the basis of social background, as indicated by the fact that the percentage of variation in performance between schools that can be accounted for in terms of differences in students' social backgrounds is 80% in Luxembourg and 69% in Hungary and Germany.

The United States at 73% and the United Kingdom at 71% are like Australia, with no formal sorting of students into schools of different types but rather with a disposition of school types that produces the same consequence. In the United States, school differences reflect community differences. In the United Kingdom and Australia, they reflect community differences and the availability of a large number of private providers that sort students in part on parents' financial capacity to pay the fees required.

In mathematics performance in PISA 2003, 70% of the variation between Australian schools can be explained in terms of differences between schools in the social background of their students.

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Storyline on Australian schooling

There is no quality crisis.

There are equity problems:

- our weaker students do somewhat worse than those in other high-quality countries,
- social background differences matter more than in other high quality countries,
- social background differences account for 70% of differences in school performances.

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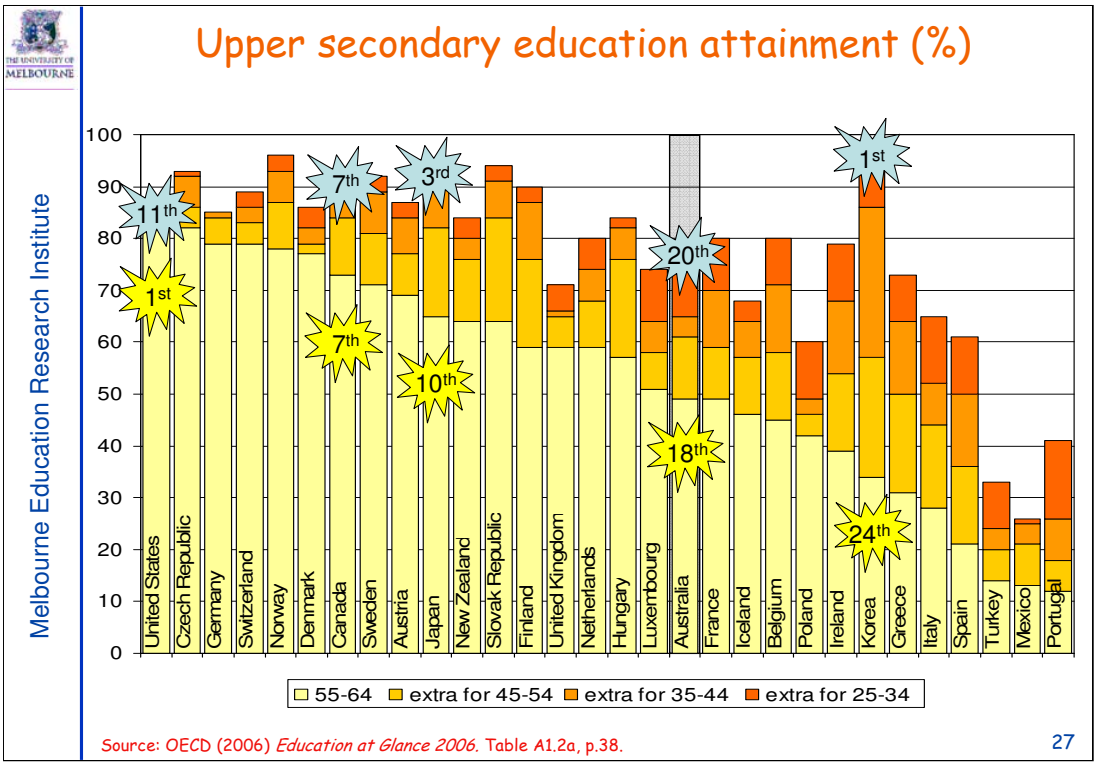
The final nuance to be added to the quality/equity story in Australian school education is that our schools are strongly divided on the basis of the social background of the students they enrol. Little of the differences among schools in the educational performances of their students is a consequence of what the schools do; 70% of it is due to whom they enrol.

We cannot tell to what extent this is a consequence of the public/private divide in Australian schooling since the information on what kind of school the Australian students participating in PISA are enrolled in is suppressed. The Australian sample covers schools of all kinds and the information is available in Australia but not published here and not provided to the OECD. Australia is the only country that withholds this information.

Another way in which to judge the fairness of Australian education is to consider the completion rates for secondary education or its equivalent.



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 percentage of 55-64 year-olds who have attained upper secondary education indicates completion rates 37-46 years ago. 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 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 rates for 25-34 year-olds reveal that, by 7-16 years ago, 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 just below the top two thirds of the Members. Education reform and a deep national commitment to education and skill development are recognised as key drivers of this remarkable economic growth.

Melbourne Education Research Institute

Storyline on Australian schooling

There is no quality crisis.

There are equity problems:
- our weaker students do somewhat worse than those in other high-quality countries,
- social background differences matter more than in other high quality countries,
- social background differences account for 70% of differences in school performances.

There are too many students who drop out before completing the equivalent of upper secondary education.

The challenges for Australian school education are to:
- improve quality to match the high performing neighbours in our region,
- increase equity in our outcomes.

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By international standards, Australia has high-quality but relatively low-equity schooling. It also has far to few young people finishing upper secondary education or its equivalent. On this latter measure, Australia is now in the bottom third of OECD countries, well behind OECD neighbours – Korea and Japan – and also New Zealand, which declined from 11th to 14th as Australia declined from 18th to 20th.

While we can deny there is a quality crisis in Australian school education we must admit there are equity problems. We should, nevertheless, ask how we could do better on both grounds.

First, how could we improve quality. This is a country that is not satisfied by Silver or Bronze in sporting events because it routinely aspires to Gold. We should similarly aspire to be number 1 in education. We should not look to the OECD average and be content with being well above it. We should look for comparison and challenge to Finland, Japan and Korea, and outside the OECD to Hong Kong-China and, from PISA 2009 on, to Singapore which will by then be a participant in PISA.

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Improving student learning

- Student learning
  - Address poor performance (and disadvantage) early

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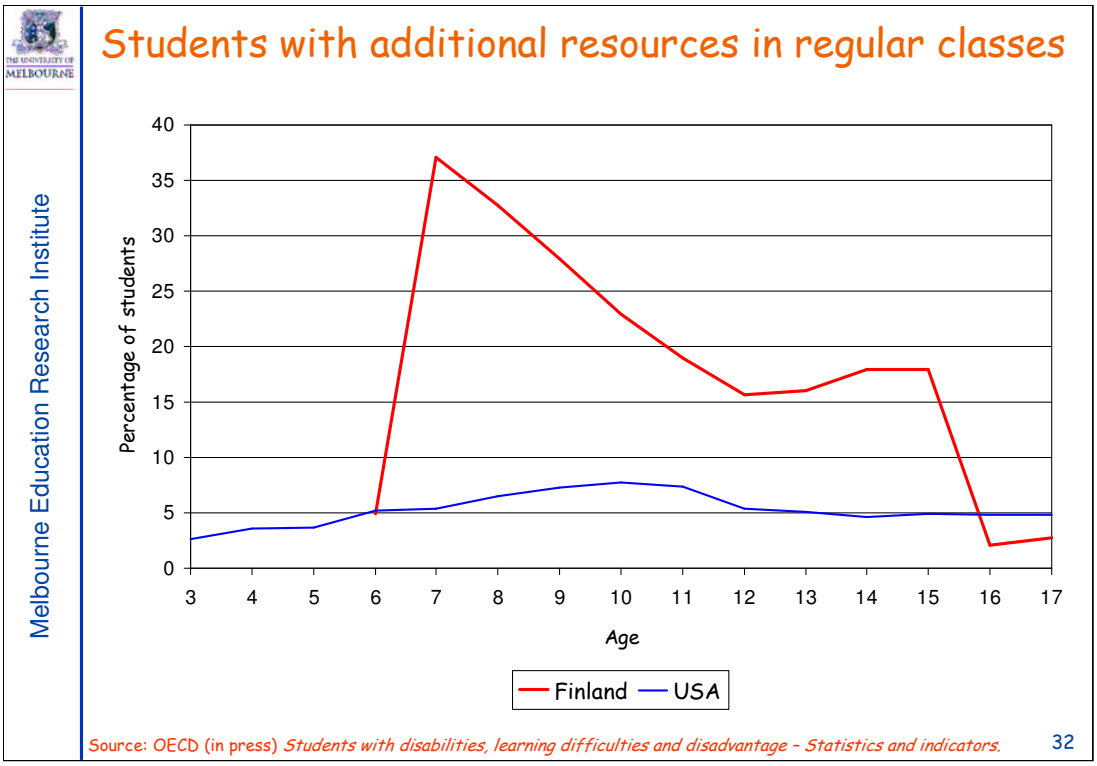
It is, no doubt, true that nothing succeeds like success. It is also true that nothing fails like failure that nothing accumulates like successive failure or early disadvantage.

Collette Tayler has shown how important high-quality early childhood education and care is in preparing children for later educational success. Early identification of poor performance in school and appropriate intervention to build a secure foundation for continuing learning is important.



Recent OECD work on the extent to which countries provide additional support for students in regular school classes provides an interesting window on Finland, the highest performer in OECD's PISA assessments to date.

Students do not commence school in Finland until they are 7 years-of-age. Almost immediately, more than 35% of them have been identified as needing some additional support. The proportion receiving such support then drops away but remains much higher than in the United States which performs much lower in the OECD PISA comparisons – at the OECD average in reading but well below it in mathematics, science and problem solving.

(Australia has not submitted to the OECD data of the type shown in the figure above.)

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Improving student learning

- Student learning
  - Address poor performance (and disadvantage) early
  - Set clear and high expectations (going for No.1)
- Finland's National Core Curriculum as a model
  - Form
    - Objectives: defined in terms of student skills
    - Core content: e.g. Grade 3-5 maths: angle measurement & classification, geometric properties of 2- & 3-dimensional figures…
    - Descriptions of good student: performance at end of grade band
  - Balancing central specification and school responsibility

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A strong curriculum is key influence on student performance, particularly one that sets high expectations of students. We should look in some detail at what students in the higher performing countries are expected to learn. And we should do this as well for the final years of secondary education – beyond the point at which PISA assessments are gathered.

As we debate the value of a national curriculum there are two issues. One is whether it would be wise to abandon the natural experimentation, and competition, that having eight separate jurisdictions can provide. The other is what form the curriculum should take.

Finland's curriculum provides an interesting example. Its national curriculum document has, for each subject area, statement of objectives (expressed in terms of student skills), lists of core content to be covered (with quite specific entries such as "angle measurement and classification of angles" and "study of geometric properties of two and three-dimensional figures" in the geometry section of Grades 3-5 mathematics) and descriptions of what would amount to good student performance at the end of a period such as Grades 3-5. It is a good mix of content and outcomes.

It also provides for a good balance between central specification and school responsibility since considerable professional responsibility is left with schools and teachers.

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Improving teachers and teaching

- Teacher recruitment and retention
  - Supply side
    - of teachers of the quality we say we need
    - of teachers in specialist areas (subjects, locations)
  - Demand side
    - Salaries low and maximum reached in less than 10 years
    - Status low
- Strategies for solving problem
  - Increase salaries
    - Have fewer teachers doing more specialised work
    - Employ other categories of workers at lower costs
  - Improve teacher education
    - Build and use a stronger evidence base for practice

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Whatever the curriculum might prescribe, implementation will be in the hands of teachers.

Many OECD countries face a problem in the recruitment and retention of high-quality teachers of the kind that they say they desire. Finland is not among them. It is more difficult in Finland to gain entry to a teacher education than medicine. Teaching in Finland remains a high status occupation, entered only after six years of Masters-level initial education that provides a strong basis in both content and pedagogy.

That is not the case in Australia. One of our difficulties is that we tend to address the supply problem only on the supply side. We reduce HECS charges for teacher education, assuming that cost is the barrier to entry. We should look at the demand side and ask whether the salaries and conditions that we offer teachers is sufficient to attract people of the kind we want into the profession. Australian teachers reach the top of their salary scale in less than 10 years and the top is less than 1.5 times the starting salary (OECD, 2006, *Education at a Glance*, Table D3.1, p.385) so it is little wonder that we have trouble retaining many. Salary is not the only thing that draws people to teaching, of course, but it does send a strong signal about the value that our society actually attaches to teaching.

Perhaps it is time to pursue a radical solution. One of the reasons that it is difficult to raise the salaries of teachers is that teachers constitute a fairly large labour force. One way to raise their salaries would be to have fewer of them. We could do this if we differentiated the labour force in schools, employing teachers for only those aspects of the work for which professional teaching skills are required and remitting other tasks to a range of other workers. England provides a good example of this development. (See www.tda.gov.uk.)

We also need to strengthen the evidence base for effective teaching and to build our teacher education programs more strongly around it. We still suffer from the legacy of teachers colleges that built teacher education as a kind of craft knowledge around 'tips for practice' from effective practitioners. There is a research base of which we should make much greater use and to which we should more actively contribute.

Melbourne Education Research Institute

Storyline on Australian schooling

There is no quality crisis.

There are equity problems:
- our weaker students do somewhat worse than those in other high-quality countries,
- social background differences matter more than in other high quality countries,
- social background differences account for 70% of differences in school performances.

There are too many students who drop out before completing the equivalent of upper secondary education.

The challenges for Australian school education are to:
- improve quality to match the high performing neighbours in our region,
- increase equity in our outcomes.

To improve quality we should:
- identify individuals with problems early and intervene early,
- set high expectations, expressed in a curriculum that gives schools responsibility,
- recruit, educate and deploy teachers differently and pay them more.

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To improve quality we need to be clearer about what we want schools to teach and to be as demanding of our students as are the highest-performing countries.

We should have clear expectations in our curriculum documents but strong expectations as well of professional responsibility being exercised in our schools. Most of the State Departments of Education now use student performance data to monitor school performance and to provide stronger reviews and additional support for those that under-perform.

We do not generally have such strategies in place for non-government schools to even know which is under-performing let alone to do something about it.

We need also to find ways to improve salaries and conditions for teachers to increase the attractiveness of the profession as a whole. At the low overall level of salaries for teachers, offering some additional salary at the expense of others is no solution. We may need to pay more for teachers in areas of high demand – mathematics and science teachers, those willing to work in difficult areas – and we may gain something at the margin from a performance-based component of salary but without addressing the salary levels for the profession as a whole we will not get what we want in the teaching profession and what we want from it. If performance-based pay is to be implemented then a further caveat should be added. There needs to be a credible basis for assessing performance and the arrangements should not undercut the team work that is essential in schools.

Improving equity will require a focus on low performance not on disadvantaged social background *per se* but we cannot ignore the fact of poor performance being more strongly related to social disadvantage in Australia than in other high performing countries.

Melbourne Education Research Institute

Improving equity

- The government/non-government school divide
  - Non-government funding model
    - To 2001: Education Resources Index
      [funding based on relative need, considering fees income]
    - Since 2001: Socio-economic Status model
      [based on status of communities students come from not the students]
  - Government schools
    - Suffer the cost penalties of providing for all
    - Their average costs drive the funding for non-govt schools

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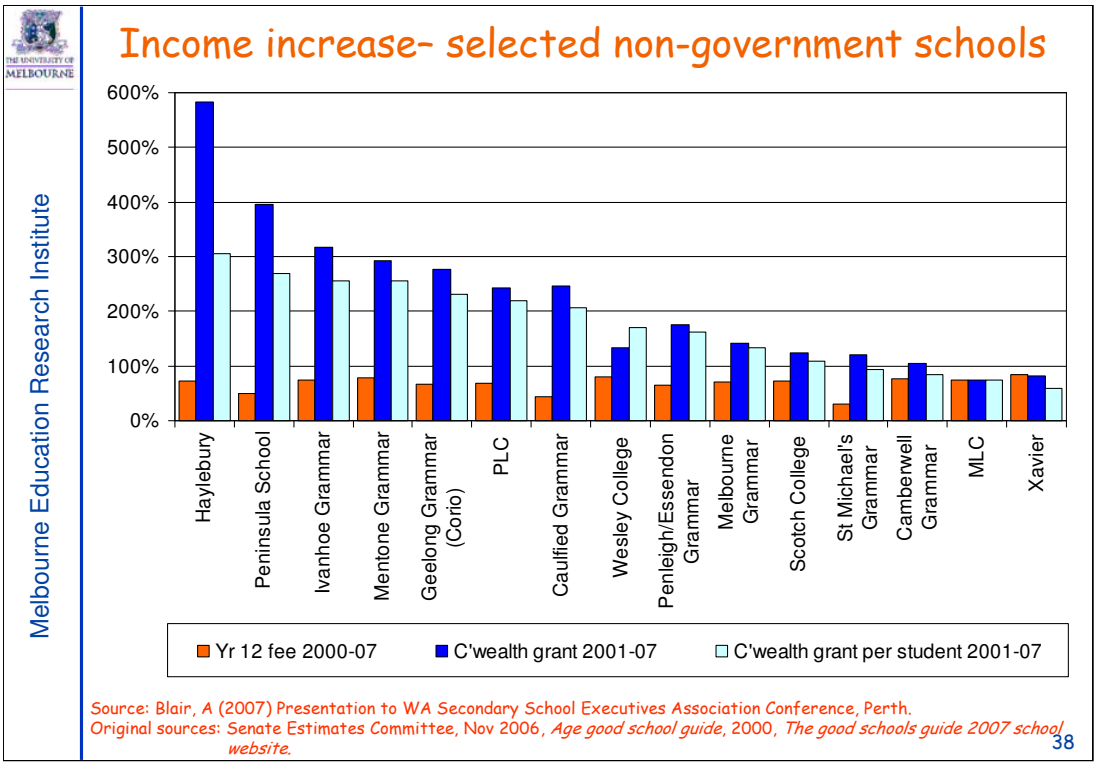
As noted earlier, the information on whether students are in government or non-government schools is suppressed in the Australian PISA data file. There is little other evidence on the basis of which to compare systems in ways which separate the effects of the social background of students and the influence of the school so we are left not knowing much about the influence of the public/private divide in Australian schooling on student learning. We do, however, know a great deal about differences in funding.

Australian government support for non-government schools was based until 2001 on an estimate of the extent of other resources available to individual schools (determined as their Education Resource Index). On this basis, the government provided less funds to school that charged higher fees and that provided some incentives for fees to be held down. Since 2001 the government has based its funding of non-government schools on the socio-economic status of the communities that the schools are presumed to serve. This is determined on the basis of the socio-economic characteristics of the people living in the same area as the students enrolled in the school, though this may bear little relationship to the socio-economic status of the students who actually enrol in the non-government school. Students from wealthier families in relatively deprived areas, such as some country towns, bring with them to a non-government school Australian government support based on the socio-economic characteristics of those they leave behind.

Furthermore, the level of support for non-government schools is also based on Average Government Schools Recurrent Costs (AGSRC). Government support per-student for non-government schools is at a lower rate than this average but that does not take account of the influence on the average cost in government schools of the cost penalties involved in providing for the full range of students and doing so in small schools in remote locations.

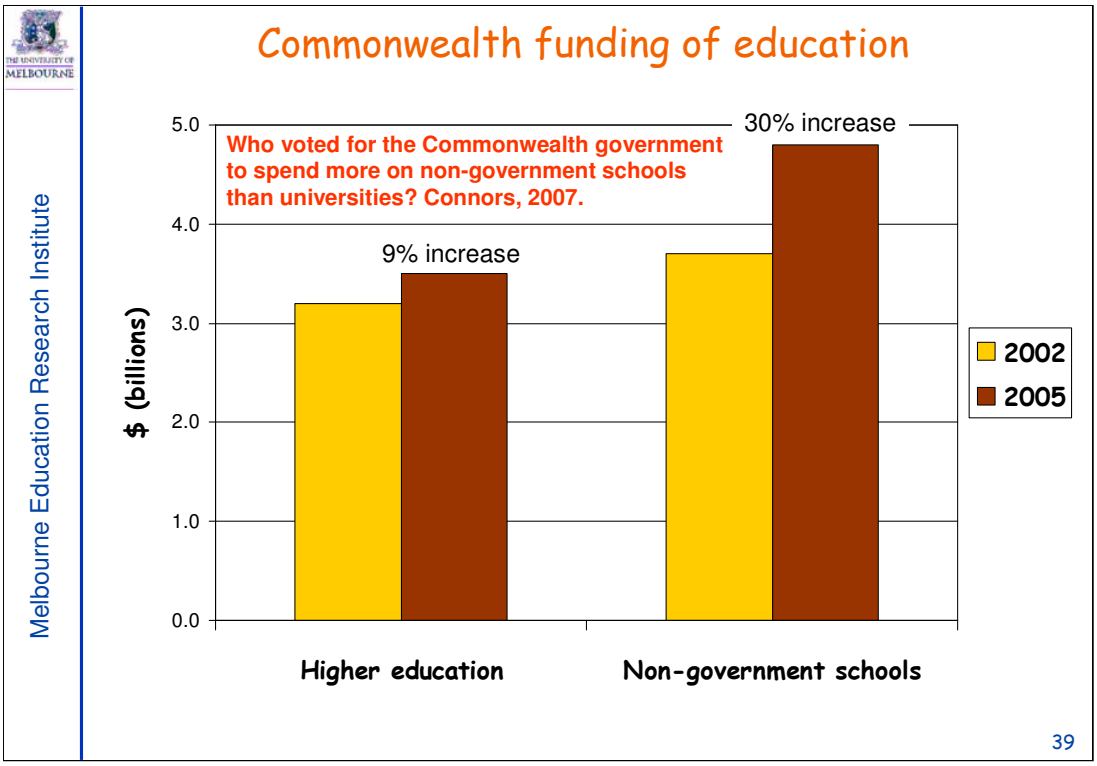


The effect of the change in the basis of Australian government funding for non-government schools from the Education Resources Index to the Socio-economic Status Model has resulted in remarkable increases in funding as the figures for some of the best resourced schools in Victoria in the graph above show.

Australian government funding for the schools shown has increased in the seven years by between 82% and 503%. Since the enrolments in the schools have altered it is more appropriate to consider the increase in per-student funding; it has been between 59% and 305%.

Despite the substantial increase in government support, fees have also been raised by between 30% and 54% for Year 12 students.

A good analysis of the nature and extent of funding by both the Australia and State governments for government and non-government schools is provided by Connors, L. (2007) *Too Smart by Half*, http://cpd.org.au/too-smart-by-half.



One consequence of the substantial increase in Australian government funds for non-government schools is that the government now provides more funding for non-government schools than it does for universities and this gap has been widening as the graph above shows.

As Lyndsay Connors asks, “Who voted for the Commonwealth government to spend more on non-government schools than universities?”

I use these data and those in the previous slide on non-government school funding not to argue for their resource levels to be reduced but to argue for the resource levels of government schools to be substantially raised. This is not the politics of envy. It is the politics of fairness in a country that often loudly proclaims a commitment to a ‘fair-go’ as one of its central values.

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Improving equity

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      [funding based on relative need, considering fees income]
    - Since 2001: Socio-economic Status model
      [based on status of communities students come from not the students]
  - Government schools
    - Suffer the cost penalties of providing for all
    - Their average costs drive the funding for non-govt schools
- Schools provide no common experience
  - Schools divide – on gender, faith, social background
  - Diversity offers choice, but choice is not available to all
  - Consider the Netherlands
  - Consider Delfin-Lend Lease model for collaboration

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It is often claimed that schools are the only agency that provides common experiences for young people growing up in modern societies that can, in turn, build shared understandings. In fact, schools frequently divide on the basis of gender, faith, social background, wealth, geography and so on. it is schooling, not school, that is the common experience. Diversity offers choice, though choice is by no means available to all, particularly those who have no choice other than an under-funded and poorly resourced local government school.

The Netherlands provides an interesting contrast to Australia. In the Netherlands, 70% of students attend non-government schools but all schools are funded by the government at the same level. Non-government schools are not distinguished from government ones by their resources levels since a condition of the government funding is that they may not charge fees.

In the Australian context, we need to explore ways in which schools of a different kind might collaborate. Inter-faith dialogue among students from Christian, Jewish and Islamic schools is being held in a number of Victorian non-government schools. Co-location of government and non-government schools to facilitate collaboration was pioneered in the 1980s by the South Australian property developer, Delfin. In Golden Grove, three secondary schools on one site have shared use of a library and science and other facilities for more than 15 years and now timetable foreign language teaching at the same time to offer more languages together than any could alone.

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- increase equity in our outcomes.

To improve quality we should:
- identify individuals with problems early and intervene early,
- set high expectations, expressed in a curriculum that gives schools responsibility,
- recruit, educate and deploy teachers differently and pay them more.

To improve equity we must:
- deal with the poor funding of government schools – the majority provider,
- seek new ways to build social capital in a school system that otherwise divides.

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The story on Australian school education is that there is no crisis in quality but there is room for improvement if we set ourselves the goal of being number 1.

There are problems of equity, less to do with our poorer performers being left too far behind than with level of influence on school achievement of differences in students' social backgrounds. We should aim to be high-equity as well as high-quality.

We also need to increase the completion rate of upper secondary education, as the Council of Australian Governments has recognised.

We need to improve the quality of our teaching force by granting them through higher salaries the higher status we declare we wish to give them. We should explore ways of achieving this through a radical restructuring of the workforce in schools. We should also ensure that professional practice in teaching is more firmly grounded in a research base that provides evidence on what works.

Finally, we must reduce the resource disparities between schools by raising the resource levels of the most poorly resourced which are predominantly government schools.

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Thank-you

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