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Education and Social Cohesion

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Professor McGaw 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.

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He is a Fellow of the Academy of the Social Sciences in Australia, the Australian Psychological Society and the Australian College of Educators. He has been President of the Australian Association for Research in Education, the Australian Psychological Society, the Australian College of Educators and the International Association for Educational Assessment.

Professor McGaw received an Australian Centenary Medal in 2003 and was appointed an Officer in the Order of Australia in 2004. He has been honoured by the University of Illinois with a College of Education Distinguished Alumni Award in 2000 and with the university's International Alumni Award for Exceptional Achievement for 2005.





Evidence on educational quality: Performances of 15-year-olds in OECD's Programme for International Student Assessment (PISA).

The evidence on the quality of the outcomes of education systems is drawn from the OECD's Programme for International Student Assessment (PISA) for which details are available on <u>www.pisa.oecd.org</u>. Alternatively, a search using Google with 'pisa' as the search term will yield this website as the first item, ahead of the website for the Leaning Tower of Pisa!

PISA provides direct, internationally comparable evidence of the quality of national education systems with its assessments of the achievements of 15-year-olds. The population assessed is 15-year-olds in schools of any type but it excludes 15-year-olds who are not 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 are being assessed, with science as the main domain.

PISA does not assess whether students have learned the specific content of their curricula but rather their capacity to use the knowledge and skills they have acquired. Both openended and multiple-choice questions are used. In the PISA 2003 mathematics assessments, for example, there were 85 items, 17 of them simple multiple choice, 11 complex multiple choice and 57 items that required students to construct their response. Sample items, illustrating the content and form of assessment, are provided on the PISA website, given above.

All assessment tasks are provided in both English and French and countries using other languages are required to produce two independent translations into their own language(s), one from the English and one from the French, and then to compare them in producing their final draft which is then independently checked by an external translator.

All potential assessment materials are first reviewed in all participating countries for *prima facie* evidence of cultural bias, with doubtful items being removed. All material that survives is then used in an internationally controlled trial in all participating countries a year before the actual PISA assessment. The performances of students on the trial material provide empirical evidence on whether tasks work consistently in all countries. Tasks that do not are removed from the pool of tasks from which those to be used in the final tests are selected.



The figure above shows the mean performances of OECD 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-yearolds in the country. The results reveal marked variations in performance levels among the 27 OECD countries – ranging from Finland, significantly better than all others at the top, to Mexico, significantly worse than all others at the bottom.

The size of a box reflects the precision with which a country's mean is estimated, the least precise in PISA 2000 being that for the United States. 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.)

Australia ranked in 4th place but its mean is not significantly different from those of Canada and New Zealand ranking above it or Ireland, Korea, the United Kingdom and Japan ranking below it. It is, therefore, appropriate to say that Australia ranked between 2nd and 8th or that Australia tied in 2nd place with six other countries.

	Reading PISA 2000	Mathematics PISA 2003	Problem solving PISA 2003
Behind	Finland	Finland Korea Netherlands Japan Canada	Korea Finland Japan
Rank	2 nd	6 th	4 th
Tied with	Canada New Zealand Ireland Korea United Kingdom Japan	Belgium Switzerland New Zealand Czech Republic	New Zealand Canada Belgium

In summary:

In summary: In reading in PISA 2000, Australia ranked in 2nd place, behind Finland and tied with Canada, New Zealand, Ireland, Korea, the United Kingdom and Japan. In mathematics in PISA 2003, Australia ranked 6th behind Finland, Korea, the Netherlands, Japan and Canada and tied with Belgium, Switzerland, New Zealand and the Czech Republic.

In problem solving in PISA 2003, Australia ranked in 4th place behind Korea, Finland and Japan and tied with New Zealand, Canada and Belgium.

DIE UNIVERSITY OF MELBOURNE	Storyline so far
	There are marked performance differences among countries. Australia is a relatively high performer, on average, among OECD countries.
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Average performances give only a partial picture of the quality of education systems. They do not give any indication of the equity with which education systems produce their student performances. PISA data speak to the question of equity as well as the question of quality.

ourne Education Research Institute	<u>Evidence on educational equity</u> : Relationships between the achievements and social backgrounds of 15-year-olds in OECD's PISA.	
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An important indicator of the equity of educational achievements in a country is the strength of the relationship between students' achievements and their social background.



The 15-year-olds involved in PISA complete a questionnaire that collects information important for the interpretation and analysis of 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 artefacts 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 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 six countries. The lines for Finland and Korea 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 the United Kingdom, Australia, the United States and Germany are all significantly steeper than the one for the OECD as a whole. 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 five lines at the left-hand end are substantial. Socially disadvantaged students do very much worse in some of these countries (most notably Germany but also the US and the UK) than in the other two. The gap in educational achievement between socially disadvantaged students in Germany and similarly socially disadvantaged students in Finland and Korea represents around three years of schooling.

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 in which the locations and slopes of the lines for all OECD countries are represented.

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 most 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 least 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 UNIVERSITY OF MELBOURNE	Storyline so far
	There are marked performance differences among countries. Australia is a relatively high performer, on average, among OECD countries.
Melbourne Education Research Institute	Students' social backgrounds are more strongly related to achievement in Australia than in countries such as Canada, Finland and Korea.
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Evidence on educational equity: Sources of variation among students and schools in performances of 15-year-olds in OECD's PISA.

A further way in which to examine the equity of educational outcomes is to investigate the sources of variation in student performances.



The figure above divides the variation 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. 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 per cent of the overall variation is between-schools. In Korea, 42 per cent is between schools. In Australia, 20 per cent is between schools.

For Poland, in PISA 2000, 63 per cent of the variation in reading was betweenschools 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 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 students in the schools; and (c) variation that cannot be accounted for in terms of the social backgrounds 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 per cent of the variation between-schools can be accounted for in terms of differences between schools in the social background of their students – 40 per cent individual social background and 30 per cent 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).





The story so far has paid considerable attention to equity in educational outcomes on the grounds that it can contribute substantially to social cohesion. Educational inequity in the sense considered here involves a relatively strong relationship between educational outcomes and social background, with the implication that the education system is consistently conferring privilege on those who already have it and denying it to those who do not.

In all countries, the socially privileged do have an advantage educationally. The reasons, no doubt, lie in a complex mix of genetic and environmental factors. If it were the same in all countries, we might conclude that there is an inevitability about this that no education system might challenge. It is, however, not the same in all countries as the analyses have shown. Some countries do effectively ameliorate the impact of social background to a greater extent than others. They include countries that might be thought to be relatively homogeneous but also Canada, which is rather like Australia in its social mix.

We turn now to consideration of more direct ways in which education systems might contribute to the development of social cohesion.



When the OECD convened the chief executives of the national education ministries for the first time in February 2003, they were invited first to nominate the major policy issues with which they expected to deal over the following 3-5 years. They identified continuing work on issues of quality and efficiency which had already been elevated in OECD's work program on education with the implementation of PISA. They added, however, work on the contribution that education might make to the development of social cohesion.

In many OECD countries, the education systems had long been engaged in dealing with increasingly diverse student cohorts as a consequence of demographic changes produced by immigration but that was more reactive than the position that the chief executives had in mind.

The OECD Directorate for Education, through its Centre for Educational Research and Innovation, had already undertaken work on social capital in which it had reviewed evidence on the impact of social capital on human well-being, in health and education as well as on economic development (*The Well-being of Nations*, Paris: OECD, 2001). One of the consultants for this work was Robert Putnam whose work on social capital had become well-known and influential following the publication of his book *Bowling Alone: The Collapse and Revival of American Community*, New York: Simon & Schuster, 2000.

Social capital is defined as "networks and norms of reciprocity and trust". It is important to the effective functioning of societies and the well-being of individuals. Just as physical capital and human capital can enhance productivity, so can social capital.



It is often claimed that many of the experiences that used to be shared by young people growing up are no longer available. Various clubs and other social organisations of which young people, and sometimes their families, were members have either substantially declined or disappeared altogether

In this context, it is then often said that school is the one common experience building shared understandings. In fact, it is schooling, not school, that is the common experience. Schools frequently divide on the basis of gender, faith, social background, wealth, geography and so on. Schools are, therefore, well placed to build bonding social capital within their constituencies but the important question is whether they can build bridging social capital.

From an Australian perspective, we can note that our schools clearly divide each cohort of students on all of the dimensions just mentioned. We need to ask whether their practices reinforce the divisions or whether they work in any way effectively to bridge them.

Given the growth of the non-government sector, we need specifically to consider whether that development, in the name of choice and, with government funding, in the name of fiscal fairness, has positive or negative effects on education outcomes and on bridging social capital and, ultimately, social cohesion.



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-hand 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 per cent 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.







While we do not know the real effects of the differentiation of the Australian education system, it is now well-established. Can we organise schools which are differentiated and collaborating?

Co-location of government and non-government schools is one strategy. An example from the late 1980s in South Australia, is Golden Grove where there are three secondary schools, on one site: government, Catholic and joint Anglican/Uniting Church. They share a library, senior science facilities and home economics and manual arts facilities. The offer different specialist courses, including in languages other than English which they timetable at the same time. Students can move between schools for their courses and have a wider range of choice than any one school could provide. Funds change hands but the net flows are not large. There is one choir and one annual musical production for the three schools together.

There is now growing experience with this kind of co-location but not much systematic evidence about its impact on social capital or, indeed, social cohesion.

If one begins by thinking of services and later facilities, the learning needs of all in a community and not only those of school-age could be taken into account. In Caroline Springs in Victoria, when it was discovered that there were already more than 100 homebased businesses, a former office and sales facility was converted to provide space for meetings with clients or other business owners, virtual office services and training courses offered by the University of Ballarat. In Mawson Lakes in South Australia, a government primary school, a Lutheran secondary school and a campus of the University of South Australia are essentially jointly located around the newly constructed Mawson Centre. The university is a majority owner of the Centre but the primary school and the City of Salisbury are joint minority owners. The Centre houses the primary school principal, the university Pro Vice-Chancellor and the city manager for the community and the school uses its elaborately equipped lecture theatre for its assemblies and other activities. The school and community libraries and their staff are integrated in a single facility in the Centre. The school principal has the formal, but not official title, Director of Learning for the Mawson Community, and seeks to play a role in meeting the needs of all learners, not just those of school age.

In NSW, a job assistance centre has been established in one community and co-location of some schooling with training providers is being considered.



I have used Delfin Lend Lease examples in the foregoing since I know them best. I have been back in Australia only for six months and have only a limited overall picture at this stage. I am currently engaged by Delfin Lend Lease as a consultant for 3-4 days per month to help with the further development of the education model for their communities. I have chosen to do that because I think their developments offer an interesting and potentially very valuable, on-the-ground strategy for enhancing social capital and, through attention to the learning needs of people of all ages in the communities, also for enhancing human capital generally. The have established an eminent persons panel to work with me and it includes Allan Fels, former head of the Australian Competition and Consumer Commission and now Dean of the Australian and New Zealand School of Government, Hugh Mackay the social analyst and author and Rob Hunt, Group Managing Director of Bendigo Bank because of his extensive experience with community banking.

Among the issues to be addressed, scope is relatively straightforward in principle, if not practice. It is that the needs of all learners should be addressed. Governance is more complicated. Community bank boards provide only a partial model. In banking government is essentially only a regulator. In education, it is regulator, partial funder of private providers and a provider. An important question is how a community might govern its education providers. Sustainability is also an issue if we expect collaborative arrangements to persist beyond the involvement of the founders. The bases of ongoing collaboration need to be well defined and documented in ways that bind participants while providing for sufficient flexibility to change as needs change.

New opportunities on a much larger scale are now emerging. In February 2006, the Council of Australian Governments (COAG) acknowledged that its 'human capital agenda ... represents an ambitious partnership' and agreed that the next step would be 'to translate the broad reform agenda agreed to ... into clear measurable outcome and concrete actions'. More collaboration between different levels of governments was envisaged. It will be interesting to see what today's COAG meeting delivers.

We could be moving into exciting times. I am pleased to have come back to Australia at a time when I might share them with many of you.

DHE UNIVERSITY OF MELBOURNE	Storyline to the end
	There are marked performance differences among countries. Australia is a relatively high performer, on average, among OECD countries.
tion Research Institute	Students' social backgrounds are more strongly related to achievement in Australia than in countries such as Canada, Finland and Korea.
	Schools differ little in some countries; where they do, much of the difference can be explained by the social backgrounds of individual students and those whose company they keep. The negative effects of poor company may be much greater than any positive effect of good company.
ne Educa	Could social cohesion be threatened by a system that tends to confer privilege where it exists and so actively reproduces the status quo?
Melbourn	Social cohesion depends on building bridging social capital but what roles can schools play in building it?
	Could co-location and other forms of collaboration between schools in different sectors and other public and private providers help to build bridging social capital and to increase the cohesiveness of communities? ₂₆

