Save Our Schools

Australia Has High Quality But Mixed School Outcomes

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1. School outcomes prior to national reporting

Prior to the introduction of reporting the results of standardized literacy and numeracy tests in the 1990s there was little information available on student outcomes in Australia.

The Australian Studies of Student Performance carried out by the Australian Council for Educational Research (ACER) in 1975 and 1980 provided the first detailed evidence about levels of literacy achievement by Australian students [see Masters 1993]. It was based on samples of 10 and 14 year old students. It showed that about 90 per cent of students could complete simple reading tasks and supply the personal details necessary to complete forms. About 70 per cent of students in both age groups could correctly answer questions on reading comprehension. Both age groups were proficient at writing personal letters, but only half of the 10-year olds could write adequate letters requesting information and about half of the 14 year olds could write employment application letters.

In reviewing the results of the 1980 survey, a Commonwealth Government committee concluded that the great majority of students were successful in performing given tasks and the proportion of successful students was very high for many tasks [Quality of Education Review Committee 1985: 28]. It found that, in comparison with the 1975 survey, students had the same or a higher level of performance in 1980 at both age levels. It stated that in no case at either age level did performance decline between 1975 and 1980. It noted broadly comparable findings in tests of students conducted by the Queensland and Tasmanian Departments of Education during the 1970s.

A study of the literacy performance of Year 5 and Year 9 students in Victoria between 1975 and 1988 found no evidence of a decline in literacy achievement. It concluded:

> *Compared with 1975, there are indications of improvement in the reading ability of 14-year old female students. The males at that level, and for 10-year-old males and females, levels of achievement in reading remain at the same levels as they were in 1975 and 1980. This is despite an increase in the number of students from non-English speaking backgrounds. [*McGaw et.al.1989: 60]

An Australian Parliament committee report in 1993 concluded that about 10-20 per cent of children finish primary school with literacy problems and that about 25 per cent of children were at risk in many education districts [House of Representatives 1993: v, 3]. These estimates were based on extrapolations from a study of adult literacy [Wickert 1989], submissions to the committee and anecdotal evidence.

These claims were challenged by the Australian Language and Literacy Council and the Schools Council of the National Board of Education, Employment and Training. The Councils stated that there was no actual evidence available that such large numbers of primary school graduates had serious literacy problems and accused the report of "carelessness in the use of statistics" [Australian Language and Literacy Council & Schools Council 1994: 132-137; see also Brock 1997: 5].[1]

A report prepared for the Commonwealth Government in 1994 reviewed the findings of the available studies of the literacy abilities of school-age children [Hill & Russell 1994: 71-78]. It concluded as a "conservative guess" that some 10-15 per cent of Australian children in the compulsory years have literacy skills below the minimum level deemed adequate for their year level and that a further 5-10 per cent have some difficulties in literacy which need attention if their school work is not to be hampered. It noted that making firm conclusions about literacy levels in Australia was hampered by a range of factors such as inadequate data,

[1] The Councils also noted that a subsequent report by the Economic Planning Advisory Council translated the conclusions of the Parliamentary report into an erroneous statement that "around 25 per cent of children beginning secondary schooling are not able to read and write properly". [see Clare & Johnston 1993: 42]

different test instruments, different definitions of literacy and different sampling methodologies.

An ACER study of reading comprehension in junior secondary school between 1975 and 1995 found that there was no substantial change in mean scores or the proportion of 14-year old students who attained mastery of reading comprehension [Marks & Ainley 1997].[2] This study was based on several sample surveys of junior secondary students conducted over the period. An update of the study found there was little change in the average level of achievement between 1975 and 1998 for 14-year olds [Rothman 2002]. Mean scores had remained stable and there was little change in the distribution of scores.

The initial study showed that in 1995, 70 per cent of 14-year olds had mastered the 'basic skill' of reading comprehension necessary to effective function in adult society. That is, 30 per cent of students had not achieved mastery of the reading comprehension ability needed to function effectively in adult society.

The results of the 1998 study were similar to those reported in the 1995 study. The later study did not attempt to measure the proportion of students who achieved "mastery" in reading comprehension. However, the results on scaled score ranges showed a slight reduction in the proportion of students in the two lowest score ranges.

State-based standardised tests for students were introduced in all jurisdictions except the ACT by the early 1990s. Tasmania began standardised testing of reading and numeracy for 10 and 14 year olds in 1976. NSW introduced its Basic Skills Test for literacy and numeracy in Years 3, 5 and 6 in 1989. Queensland's Assessment and Performance Program introduced in 1990 measured student results in reading, writing, mathematics and science from a sample of students in Years 5, 7, 9 and 10. The Western Australian Monitoring Standards in Education tested a sample of students in Years 3, 7 and 10 in reading and writing from 1990 and system wide testing of reading and mathematics in Years 5 and 7 was introduced in the Northern Territory in 1990. Testing of all students in literacy and numeracy in Years 3 and 5 in Victoria and South Australia began in 1995. The results from these tests were not comparable between jurisdictions.

Overall, the results within each system remained fairly stable with some small improvements and declines in some Year levels in some subjects [SCRGSP 1995, 1999].

The National School English Literacy Survey was the first national survey of a broad range of literacy achievements of Years 3 and 5 students in public and private schools for reading, writing, speaking, listening and viewing. The survey was conducted in 1996 and the results were published in 1997 [Management Committee for the National School English Literacy Survey 1997]. The results were reported against achievement scales and the English curriculum profile levels. For example, it reported the proportion of Years 3 and 5 students who achieved at each profile level from 1 to 5, each one covering about 18-24 months of schooling.

One of the aims of the survey was to inform the establishment of national benchmarks in literacy, which were then in the process of being developed. The survey was designed and conducted prior to the development of draft national benchmarks in literacy. As a result, there were difficulties in establishing relationships between the survey results and the draft benchmarks. The report did not establish a precise benchmark but selected an indicative range of student achievement in which the draft benchmark could be considered to lie. It reported the benchmark results in an Appendix and urged that they be interpreted with caution.

The main overall results of the survey were as follows:

[2] Mastery was defined as competency in basic skills necessary for active participation in adult society.

- there was a wide range of literacy achievement among Year 3 and 5 students, with the top 10 per cent in each year achieving at about 5 year levels ahead of the bottom 10 per cent of students;
- the large majority of students in Years 3 and 5 were achieving within the range, or above, the level estimated to contain the draft national benchmarks;
- a significant proportion of Year 3 and Year 5 students were achieving very high levels of literacy achievement. For example:
- 12 per cent of Year 3 students were achieving at, or above, the highest profile level for reading and writing;
- 12 per cent of Year 5 students were achieving at, or above, the highest profile level for reading and 5 per cent were at, or above, the highest writing profile level;
- a very small proportion of Year 3 students were achieving below the range of achievement estimated to contain the draft national benchmarks:
- four per cent were below the estimated range in reading and 6 per cent were below the writing range;
- a large proportion of Year 5 students were achieving below the range of achievement estimated to contain the draft national benchmarks:
- 21 per cent of Year 5 students were below the estimated range in reading and 15 per cent were below the writing range.

A further report prepared by ACER at the request of the Federal Minister for Schools, Dr. David Kemp, was published by the Australian Government in 1997 [Masters & Forster 1997]. This report provided a more precise estimate of the proportion of students at or below the draft national benchmarks. These estimates were determined on the advice of professional judgments by literacy specialists involved in drafting the benchmarks. The main findings of this report were:

- 27 per cent of Year 3 students were below the performance standard for reading at that year level and 28 per cent were below the writing standard;
- 29 per cent of Year 5 students were below the reading performance standard for that year and 33 per cent were below the writing standard.

These findings were the subject of much controversy because the draft national benchmarks had not been subject to consultation or finalized. State and Territory education ministers criticized the performance standards used as “arbitrary and invalid” and “inappropriate and incorrect” [State & Territory Ministers 1997]. A co-author of the report stated that the draft literacy standard used in the report was arbitrary and had not yet been finalized through national consultations [Messina 1997; Mitchell 1997]. He and another senior member of the ACER also stated that the findings of the Commonwealth report were made without explicit reference to the draft benchmarks, based solely on the judgment of an adequate standard by those who interpreted the national literacy survey and were highly problematic [Gordon & Harbutt 1997].

The national benchmarks that were subsequently agreed by national education ministers showed a much lower proportion of students not achieving the expected performance standard [Chart 1].

2. National test results

A system of national testing and reporting was introduced in 1999 whereby the achievement of students in Years 3 and 5 was measured against agreed national benchmarks for reading. A nationally agreed procedure was developed to equate the results from existing state and territory tests and to ensure that reporting of student achievement data against the benchmarks was comparable. Testing of numeracy in Years 3 and 5 began in 2000. In 2001,

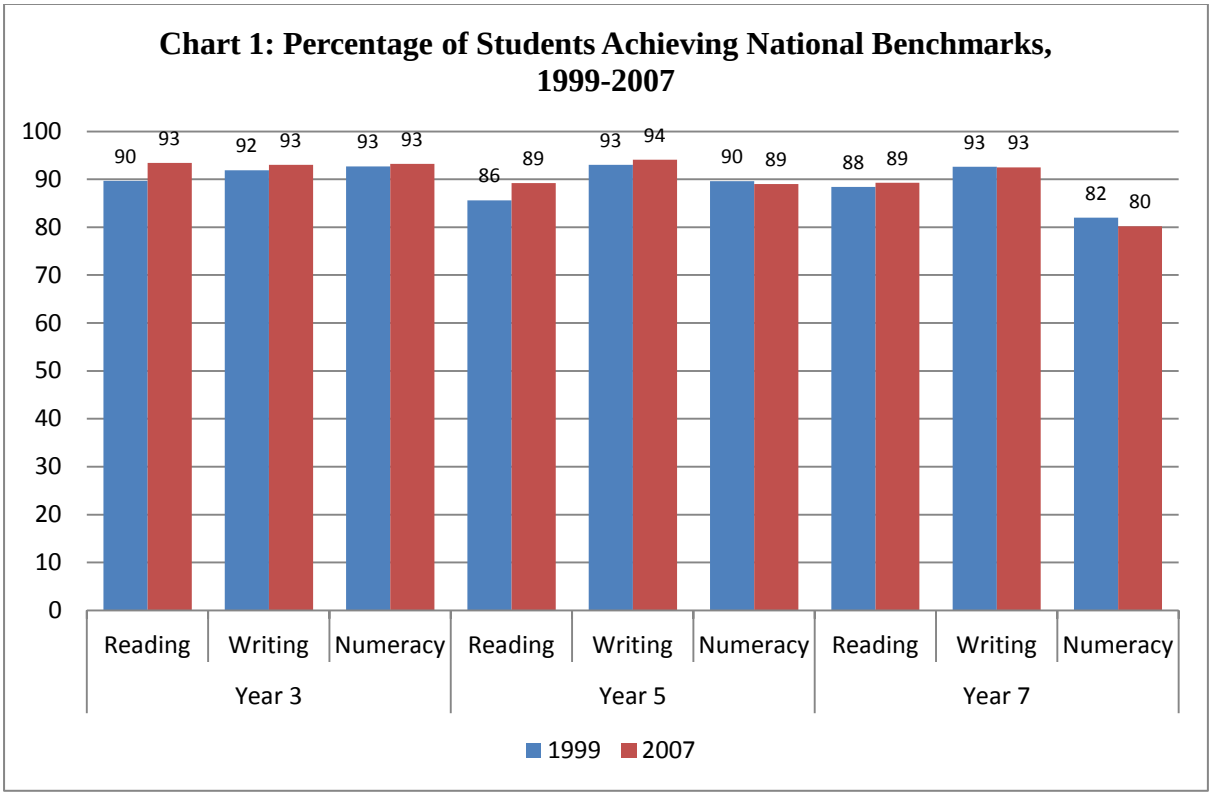
testing was extended to Year 7 and to include writing at all Year levels tested. All public schools participated in the national benchmark program but not all private schools.

In 2008, the separate state and territory tests were replaced by national tests. The National Assessment Program – Literacy and Numeracy (NAPLAN) tests are conducted for Years 3, 5, 7 and 9 students in public and private schools for reading, writing, language conventions (spelling, grammar and punctuation) and numeracy. The results of the national benchmark tests and NAPLAN are not comparable.

2.1 National benchmarks

In 2007, 93 per cent of Year 3 students achieved the reading, writing and numeracy benchmarks while 89 per cent of Year 5 students achieved the reading and numeracy benchmarks and 94 per cent achieved the writing benchmark [Chart 1]. Eighty-nine per cent of Year 7 students achieved the reading benchmark and 93 per cent achieved the writing benchmark. However, only 80 per cent achieved the numeracy benchmark.

Chart 1: Percentage of Students Achieving National Benchmarks, 1999-2007



Note: The Year 7 results are for 2001 and 2007
Source: MCEETYA 2007

There was little change in the percentage of students achieving the national benchmarks between 1999 and 2007. The percentage achieving the reading benchmark in Years 3 and 5 increased and the percentage achieving the Year 9 numeracy benchmark declined slightly but the other changes were not statistically significant.

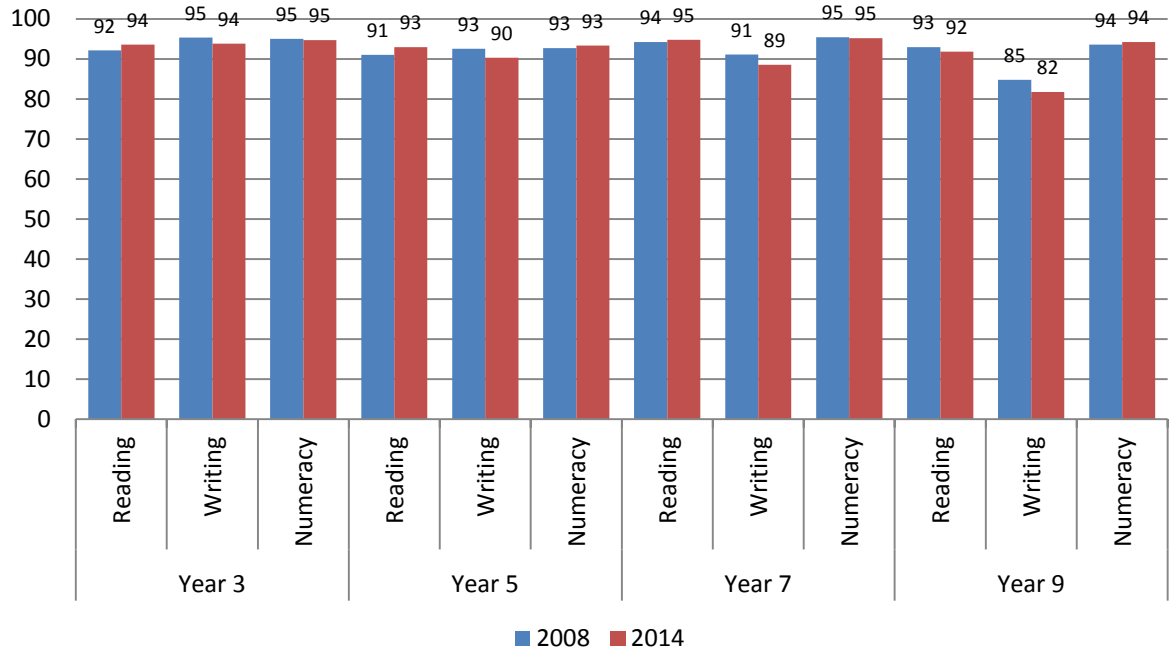
2.2 NAPLAN

In 2014, 94-95 per cent of Year 3 students achieved the NAPLAN minimum standards in reading, writing and numeracy while 90-93 per cent achieved the Year 5 standards [Chart 2]. In Year 7, 95 per cent of students achieved the reading and numeracy standards but only 89

per cent achieved the writing standard. In Year 9, 92 and 94 per cent achieved the reading and numeracy standards respectively while only 82 per cent achieved the writing standard.

There was little improvement in NAPLAN results between 2008 and 2014. The percentage of students at or above the national minimum standards was largely unchanged and average results were generally stable across the period. The changes in the percentage of students achieving the national minimum standards in reading, writing and numeracy were not statistically significant [Chart 2].[3]

Chart 2: Percentage of Students Achieving National Minimum Standards, 2008-2014



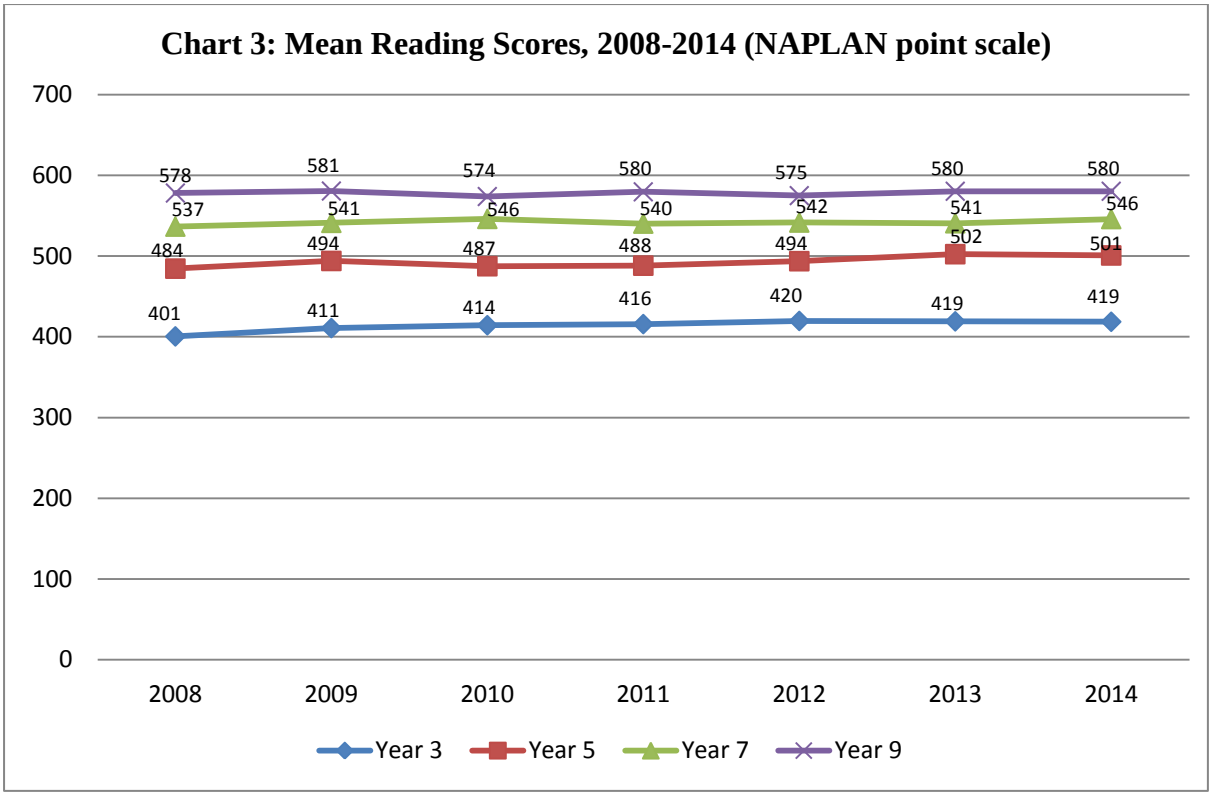
Note: The **w**riting results are for persuasive writing 2011-2014. The results for the earlier years are not comparable.
Source: ACARA 2014a

Average reading scores increased in Years 3 & 5 between 2008 and 2014, but writing scores have declined and numeracy scores have not improved. There were statistically significant improvements in Years 3 and 5 reading of 16 and 17 points respectively, which is equivalent to nearly half a year of learning at these levels [Chart 3]. The small improvement in Year 7 reading was not statistically significant, and Year 9 reading did not improve.

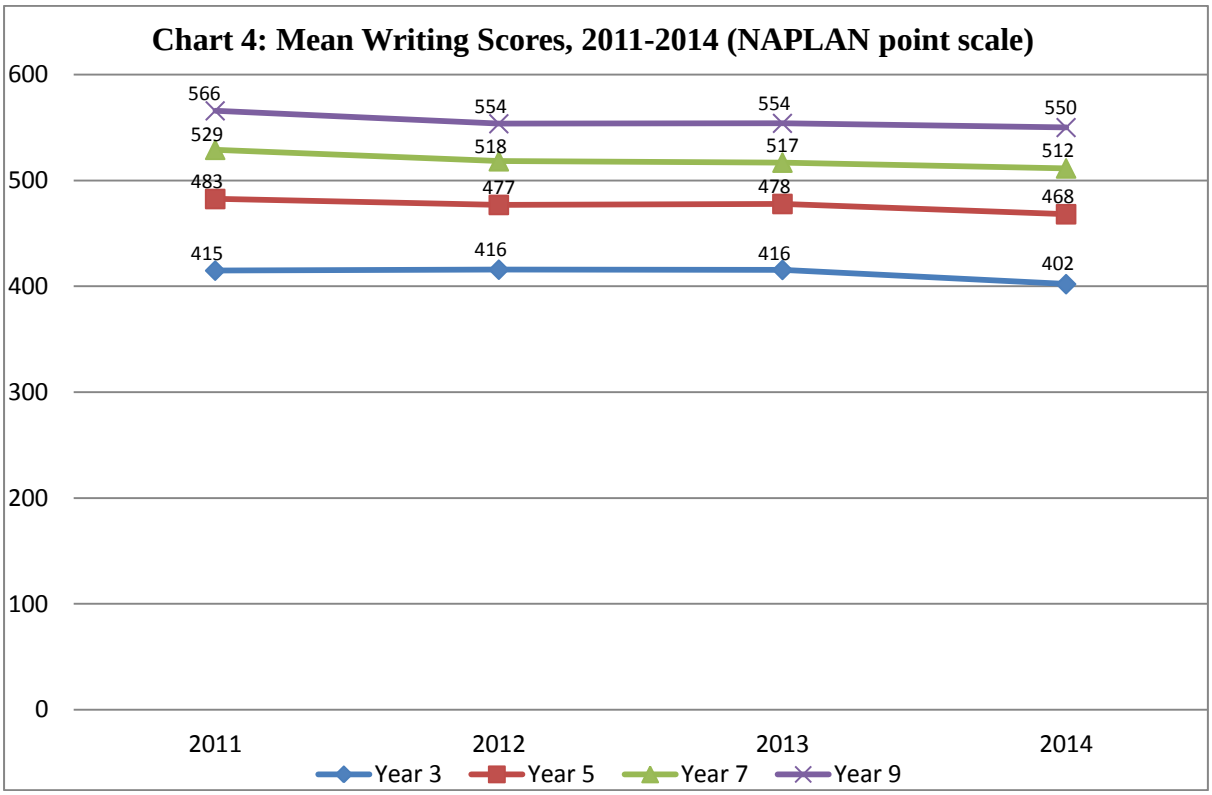
In contrast, writing scores declined significantly at all Year levels between 2011 and 2014. The Year 3 and 5 scores fell by 13 and 14 points respectively, which is equivalent to less than half a year of learning at these levels. The declines were statistically significant. The Year 7 score fell by 17 points, which is equivalent to nearly a year of learning, while the decline in Year 9 was not statistically significant.

Average numeracy scores are largely unchanged since 2008, with no statistically significant increase or decrease.

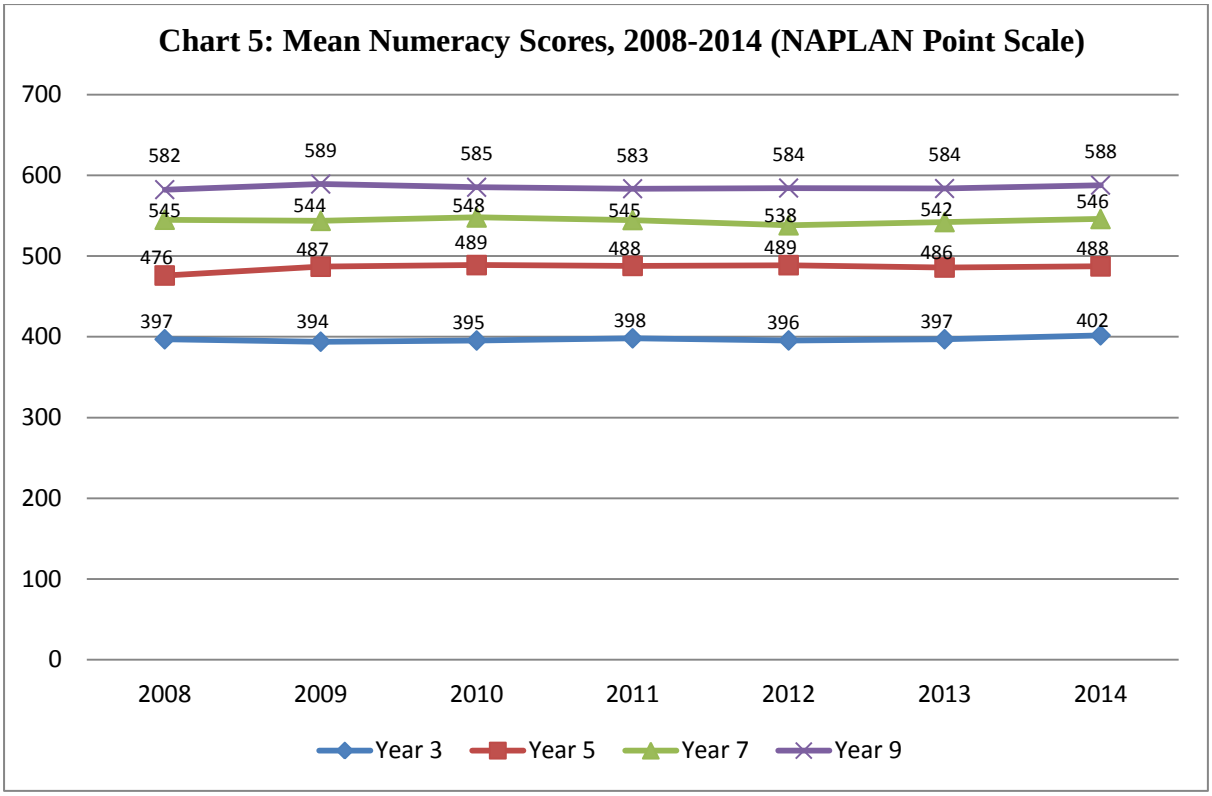
[3] Estimates of the statistical significance of differences in the percentage of students achieving national minimum standards and average NAPLAN scores for 2008 (2011) and 2014 are provided in the attachment tables in the 2015 Report on Government Services.



Source: ACARA 2014a



Source: ACARA 2014a



Source: ACARA 2014a

3. International test results

Australia participates in several international test programs. It has participated in the OECD's Programme for International Student Assessment (PISA) for 15 year old students since its introduction in 2000. It has participated in the Trends in International Mathematics and Science Study (TIMSS) for Year 4 and 8 students since 1995. However, Australia did not meet the required sample participation rates in the 1995 survey. Australia participated in the Progress in International Reading Literacy Study (PIRLS) for Year 4 students for the first time in 2011.

Despite periodic claims that there is a crisis in Australian education, Australian education results are high by international standards. Australia is one of the top performing countries in the OECD.

3.1 PISA

Australia is one of the higher performing countries on the PISA tests. It achieves high average results, but there have been significant declines in reading and mathematics since 2000 and 2003. A very high proportion of students achieve the expected proficiency standards.[4]

In 2012, 65 countries and cities participated in the PISA tests and Australia was outperformed by only nine countries/cities in reading, 16 in mathematics and seven in science [OECD 2013a]. In 2009, it was outperformed by six countries/cities in reading, 12 in mathematics and six countries in science [OECD 2010d]. Of 34 OECD countries, Australia was outperformed by only five countries in reading, ten in mathematics and four in science.

[4] In PISA, Level 2 is defined as the baseline level of proficiency that is required participate fully in modern society [OECD, 2013, p. 254; see also Thomson et.al. 2013, p. xxxiv]. However, the national ministers' council has set the proficiency standard at Level 3 [SCSEEC 2012, p. 5].

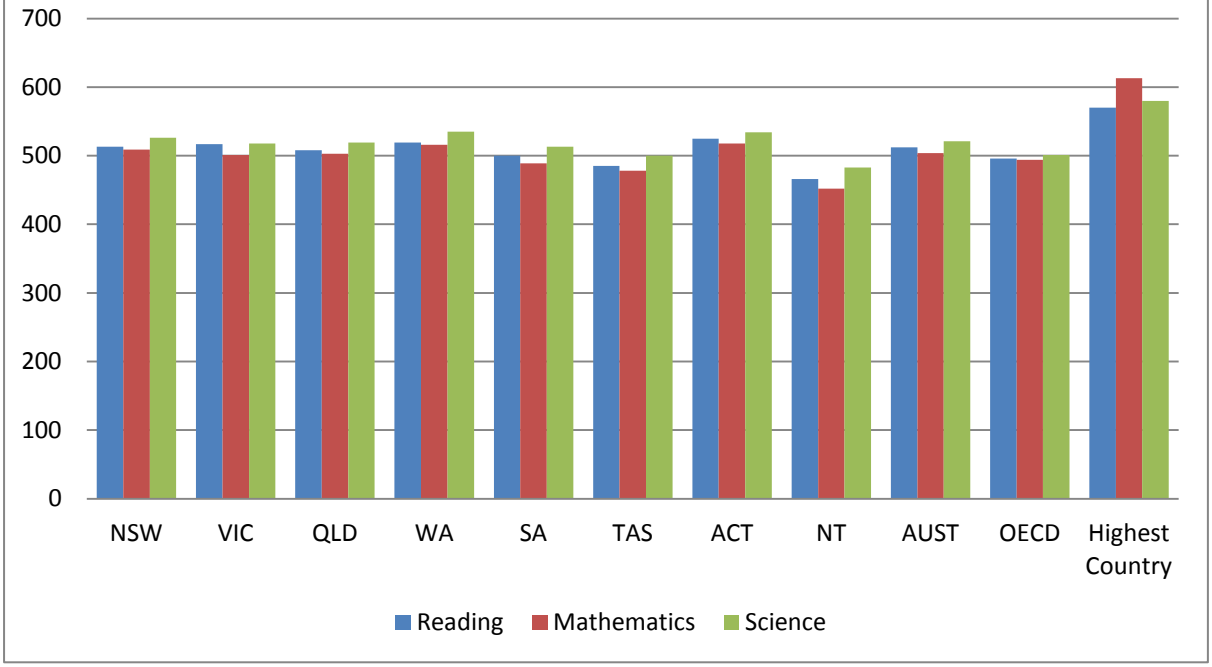
A relatively high proportion of Australian students achieved the international baseline proficiency level (Level 2) which defines the level of achievement on the PISA scale at which students demonstrate competencies that will enable them to actively participate in real-life situations. Eighty-six per cent of students achieved at least Level 2 proficiency in reading and science compared to the OECD averages of 82 per cent. Sixteen countries/cities had higher percentages of students at Level 2 or above in reading than Australia and 19 countries had a higher percentage in science. Eighty per cent of students achieved at least Level 2 proficiency in mathematics compared to the OECD average of 77 per cent while 20 countries/cities had higher percentages of students at this level or above.

Australia is in the top league of all-round student performance. Its school system is one of very few that produces top performing students in all subjects (all-rounders). Only six other countries/cities have a higher proportion of students who achieved at the two highest proficiency levels in reading, mathematics and science. In 2012, it had 7.6 per cent of students at the highest proficiency levels in all three subjects [OECD 2013a, Table 1.2.29]. The Australian proportion is similar to Finland (7.4 per cent), New Zealand (8.0 per cent), and Korea (8.1 per cent). Only Shanghai (19.6 per cent), Singapore (16.4 per cent), Japan (11.3 per cent) and Hong Kong (10.9 per cent) have higher proportions. Across the OECD, only 4.4 per cent of students are all-rounders.

Australia had the fourth highest percentage (51 per cent) of top performers in mathematics who were also top performers in reading and science. Only Ireland (54 per cent), New Zealand (54 per cent) and the United States (53 per cent) had higher percentages. Across the OECD, only 33 per cent of the top performers in mathematics were also top performers in reading and science.

Within Australia, the ACT and Western Australia had higher mean scores in reading, mathematics and science than other jurisdictions in 2012 [Chart 6]. The ACT and Western Australia were not statistically significantly different from one another.

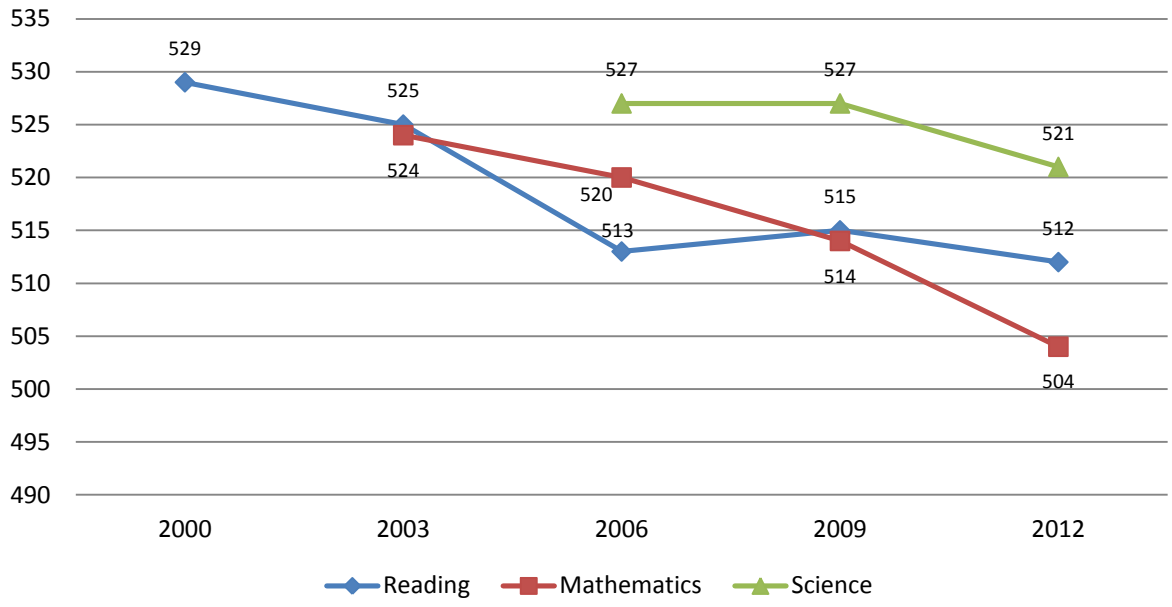
Chart 6: Mean Scores for 15 Year-Old Students, PISA 2012



Source: Thomson et.al. 2013

Despite its high performance status, significant declines have occurred in reading and mathematics in Australia. The mean reading score declined by 17 points between 2000 and 2012 which is equivalent to about half a school year in learning [Chart 7]. The decline occurred between 2000 and 2006; since then the mean score has been stable. Australia was one of only five countries out of 39 that participated in the reading test in 2000 to have a statistically significant decline in reading. Twelve countries had a statistically significant increase and 21 there was no significant change in 21.

Chart 7: Mean Scores for 15 Year-Old Students, Australia, PISA 2000-2012



Source: OECD 2013a, Tables 1.2.3b, 1.4.3b, 1.5.3b

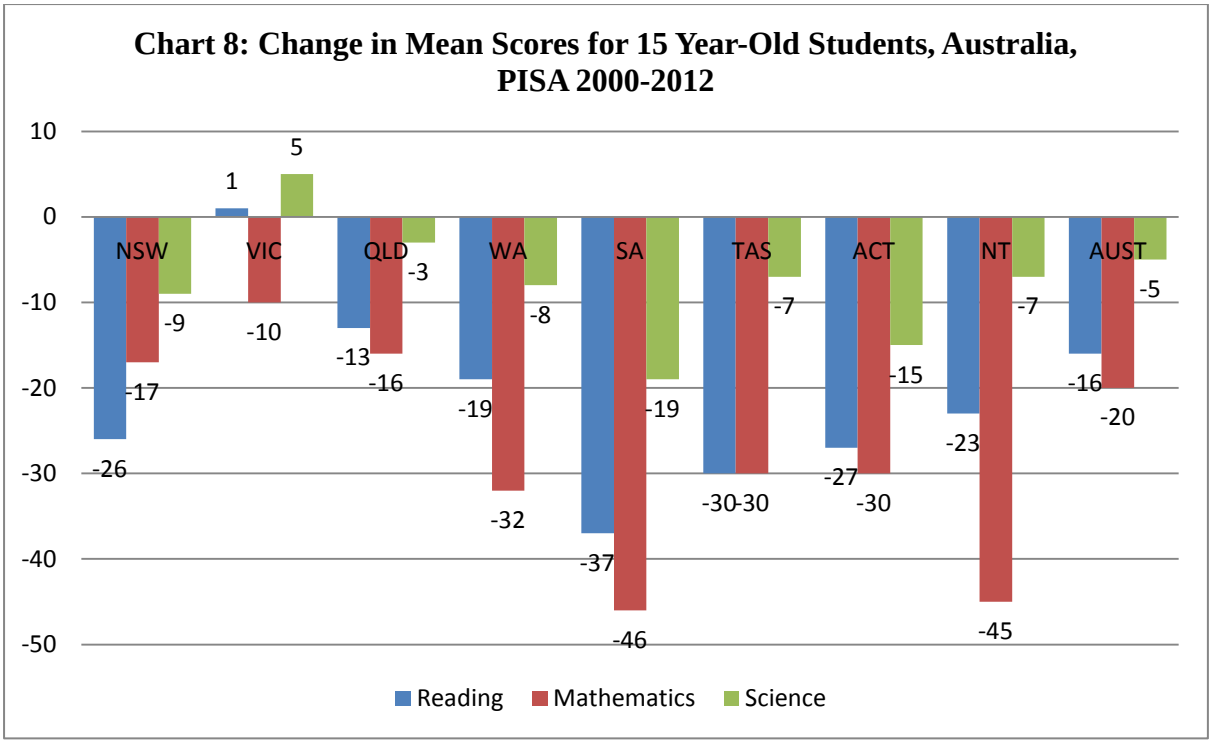
There was a continuous decline in mathematics since 2003. The mean score declined by 20 points which is equivalent to about half a school year. Australia was one of 14 countries that experienced a significant decline in mathematics. Twelve countries had a significant increase and there was no significant change in 12 other countries.

There was a small decline of six points in science between 2006 and 2012, all of which occurred between 2009 and 2012. The decline was not statistically significant. Significant declines occurred in eight countries and increases in 17 countries.

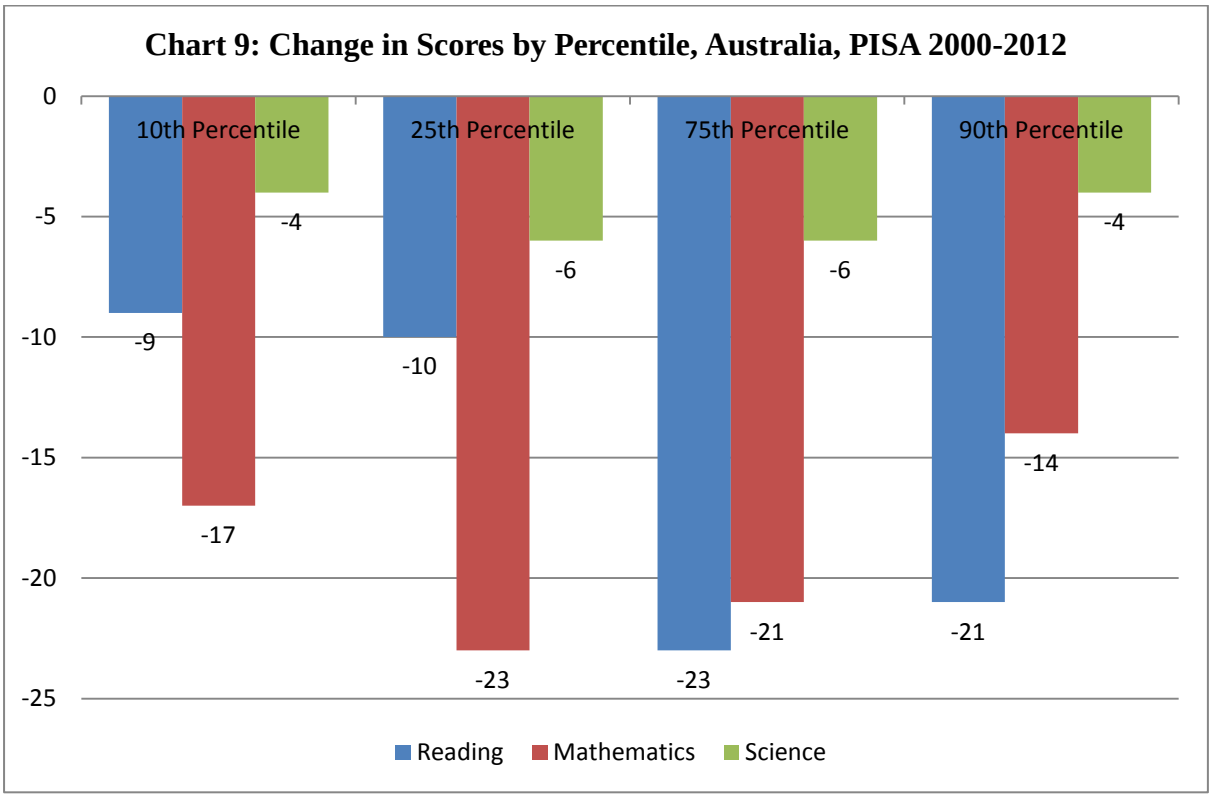
Large declines in reading and mathematics occurred in all states and territories, except Victoria [Chart 8]. There were very large declines in mathematics in Western Australia, South Australia, Tasmania, ACT and Northern Territory.

There were significant declines in reading at the top levels between 2000 and 2012 and smaller declines at the lower levels [Chart 9]. Reading scores at the 75th and 90th percentiles fell by 23 and 21 points respectively. These changes were statistically significant. Scores at the 10th and 25th percentiles fell by 9 and 10 points respectively but were not statistically significant.

Average results declined by similar amounts at all levels of achievement in mathematics between 2003 and 2012. Scores at the 10th and 25th percentiles declined by 17 and 23 points respectively, while the decline for the 75th and 90th percentiles was 21 and 14 points respectively. All the falls were statistically significant. Science scores fell by small amounts at all achievement levels between 2006 and 2012, but were not statistically significant.



Note: Change for Mathematics is from 2003 and for Science from 2006
Source: Thomson et.al. 2013

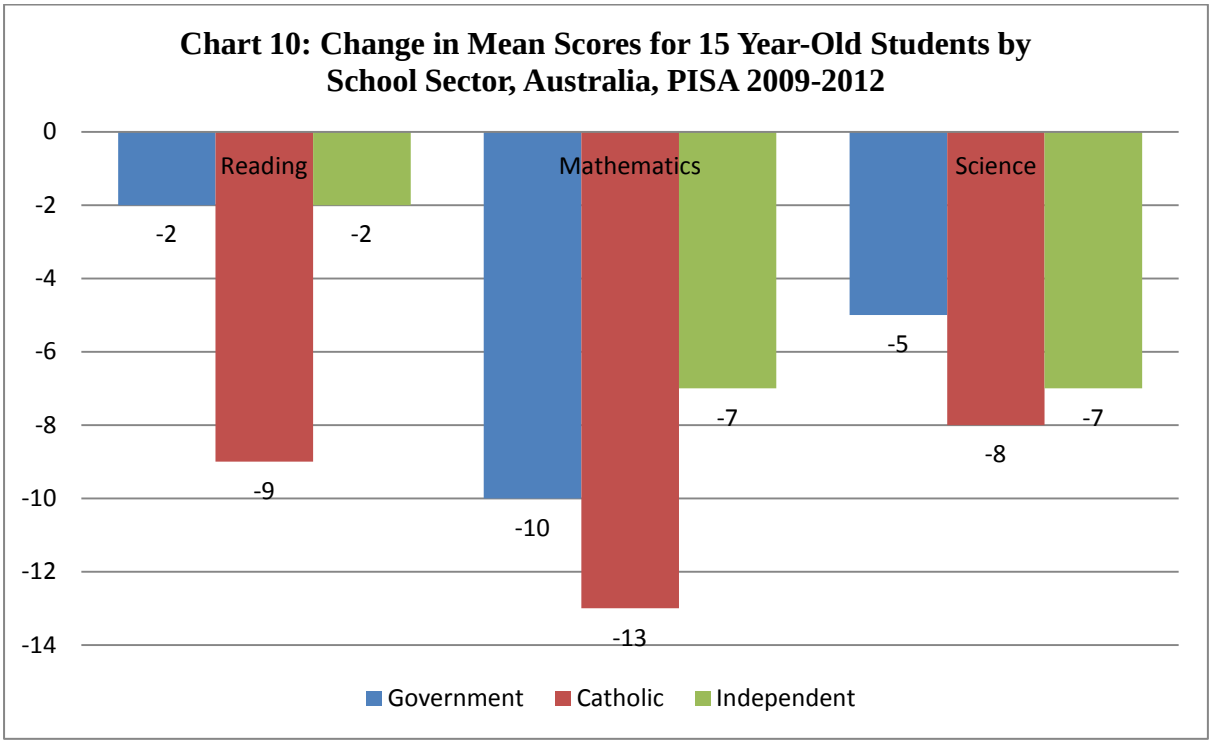


Source: OECD 2013a, Tables 1.2.3d, 1.4.3d, 1.5.3d

The results from PISA 2012 show that Catholic schools had the largest declines of any school sector in reading, mathematics and science between 2009 and 2012 [Chart 10]. Government schools had the lowest average decline across reading, mathematics and science. All sectors experienced significant declines in mathematics. The decline in reading in government

schools was marginal and similar to that in Independent schools. The decline in mathematics in government schools was larger than in Independent schools, but smaller in the case of science. A study by the Melbourne Institute for Applied Economic and Social Research has shown that falling results in private schools largely contributed to the decline in reading and mathematics results between 2003 and 2009:

> At the school level, the declines in performance of schools have not been associated with many of their observed characteristics, other than that the declines appear to have been concentrated among private schools. Where private schools once generated better outcomes than public schools, given the compositions of their student bodies, this was not the case after 2003. [Ryan 2013: 237]



Source: Thomson et.al. 2013, Thomson et.al. 2010

3.2 TIMSS & PIRLS

The TIMSS[5] tests provide an international perspective on Australia's school outcomes for mathematics and science in Years 4 and 8 while PIRLS tests reading in Year 4.

Australia was in the middle group of countries in Year 4 reading in 2011, with 21 other countries having significantly higher mean scores and 17 countries significantly below. Australia's score was statistically similar to six other countries. Australia had one of the lowest percentages of students performing above the low international benchmark of any OECD or East Asian country (76 per cent). Only Spain, Norway and Belgium had significantly lower percentages at these levels. The percentage at the advanced reading level was similar to many higher performing countries (ten per cent), but lower than in many.

Australia's mean score in Year 4 mathematics was significantly higher than for 27 other countries but significantly lower than in 17 other countries. Australia's score was statistically similar to that of five countries. Australia had one of the lowest percentages of students

[5] The focus of PISA and TIMSS is different. PISA focuses on the ability of students to apply their knowledge and skills to real-life problems and situations. TIMSS focuses on student learning of the curriculum [Thomson 2010]. Unlike PISA, the TIMSS study does not set an international proficiency standard. However, the national ministers' council has set the Intermediate level as the minimum proficient standard [SCSEEC 2012, p. 5].

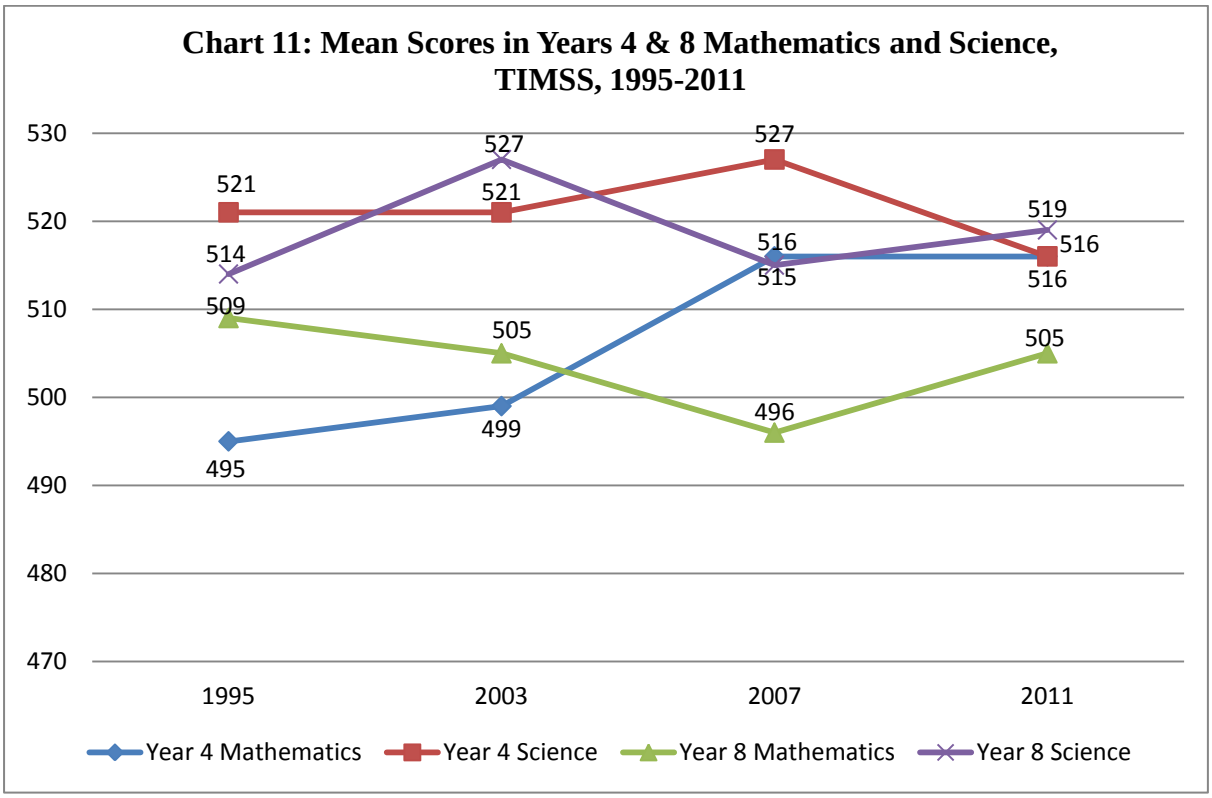
performing above the low international benchmark of any OECD or East Asian country (70 per cent). Only Norway, Poland, Spain and New Zealand had significantly lower proportions at these levels. The proportion at the advanced level was similar to many higher performing countries (ten per cent, but it was also lower than in many countries.

Australia's mean score in Year 4 science was significantly higher than that of 23 other countries and significantly lower than in 18 countries. Several countries had a statistically similar score to Australia. Australia had one of the lowest percentages of students performing above the low international benchmark of any OECD or East Asian country (29 per cent). Only New Zealand, Norway, Poland and Spain had significantly lower proportions at these levels. The proportion at the advanced level was similar to many higher performing countries (seven per cent), but it was also lower than in many countries.

Australia's results in Year 8 relative to other countries were much better than for Year 4. Only six countries had a significantly higher mean mathematics score than Australia in 2011. Australia scored significantly higher than 27 countries and statistically similar to eight countries. The proportion of students performing above the low international benchmark in Australia (63 per cent) was similar to many other OECD countries. However, it was much lower than in the high performing East Asian countries where the proportion ranged from 87 to 93 per cent. The proportion at the advanced level (nine per cent) was higher than in many Western countries including Finland (four per cent), but well below that of the East Asian countries where it ranged from 27 to 48 per cent.

Only nine countries outperformed Australia in science. Australia's mean score was statistically higher than 26 countries and similar to six other countries. Seventy per cent of students were performing at above the low international benchmark. This was similar to many other OECD countries, but much lower than in the high performing East Asian countries where the proportion ranged from 80 to 87 per cent. Eleven per cent of Australian students were at the advanced level and this was higher than in many Western countries, but well below that of the Korea, Taiwan and Singapore where it ranged from 20 to 40 per cent.

Chart 11: Mean Scores in Years 4 & 8 Mathematics and Science, TIMSS, 1995-2011



Source: Thomson et.al. 2012a, 2012b

Test scores in 2011 were mostly little different from those in 1995, although there were fluctuations over the testing cycle [Chart 11]. Australia's average Year 4 mathematics score in TIMSS 2011 was not significantly different to that in TIMSS 2007, but the 2011 score was a significant 21 points higher than in TIMSS 1995. The average Year 4 science score in 2011 was significantly lower than that in 2007, but was not significantly different to the score in 1995.

Australia's average Year 8 mathematics score in TIMSS 2011 was not significantly different to that in 1995. The average score declined between 1995 and 2007, but recovered in 2011. The average Year 8 science score in 2011 was not significantly different to that in 1995, although there have been some fluctuations over the whole period.

In summary, the results from TIMSS show a different trend than the PISA results. Year 4 mathematics has improved significantly since 1995 (and since 2003) while there was no significant change in Year 4 science since 1995 or 2003. Year 8 mathematics has recovered to its 1995 and 2003 levels after a small decline in 2007 and there was no change in Year 8 science since 1995, although it has declined after reaching a peak in 2003.

4. Year 12 Results

4.1 Completion and retention rates

Completion of Year 12 or an equivalent is regarded as a key education outcome. Those with Year 12 have a greater likelihood of continuing with further study and participating in the workforce. The Council of Australian Governments (COAG) has set a target of 90 per cent of young people (20–24 year olds) having attained Year 12 or equivalent or Certificate II by 2015 and a target of 90 per cent for Certificate III by 2020 [ACARA 2011]. Certificate III is recognised as the international standard of equivalence of upper secondary education [ABS 2011a: 3].

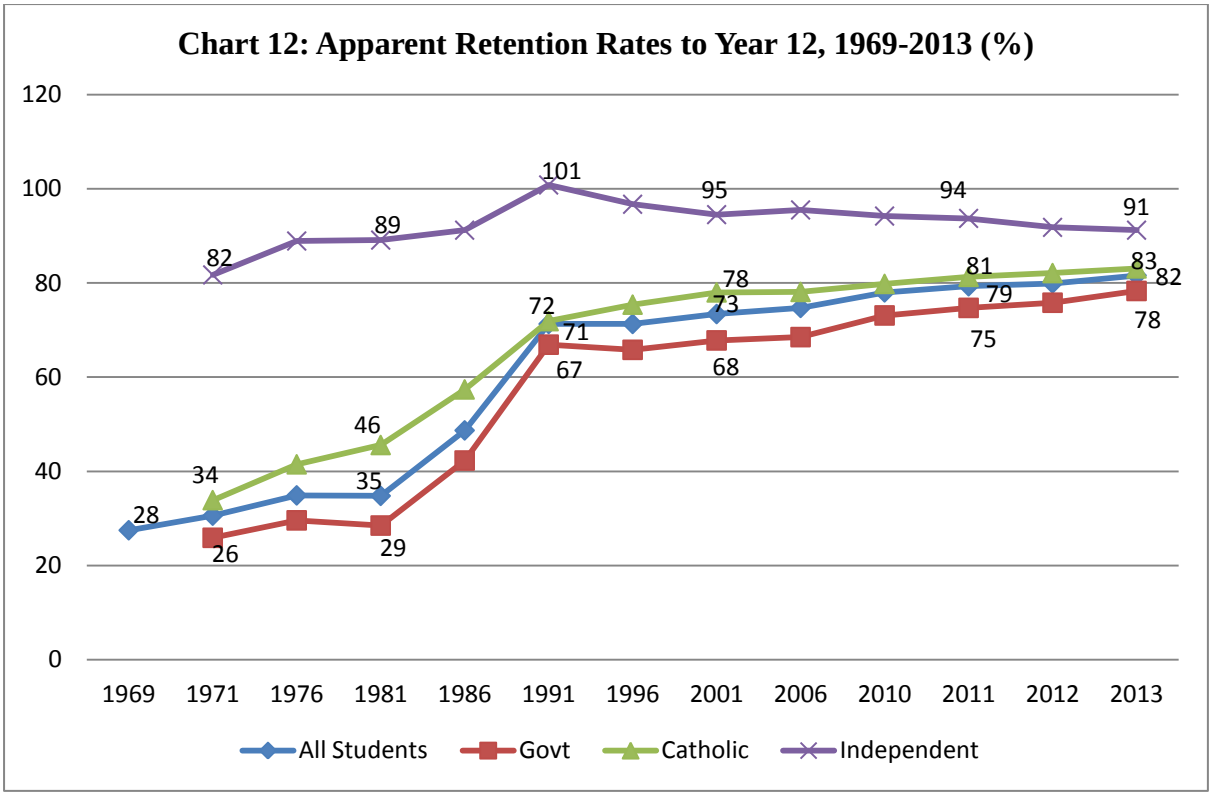
Generally, Year 12 or equivalent outcomes have improved over the last decade or so with a significant increase in the percentage of students attaining Year 12 or Certificate II and III. In 2014, 86 per cent of young people attained Year 12 or equivalent or Certificate II, up from 79 per cent in 2001, while 85 per cent attained Year 12 or equivalent or Certificate III compared to 77 per cent in 2001 [ABS 2014c, ABS 2011b].

The apparent retention rate to Year 12 and the Year 12 completion rate are additional ways to measure the outcome of school education. In 2013, the apparent retention rate from Year 7/8 to Year 12 for all students was 82 per cent compared to 73 per cent in 2001.

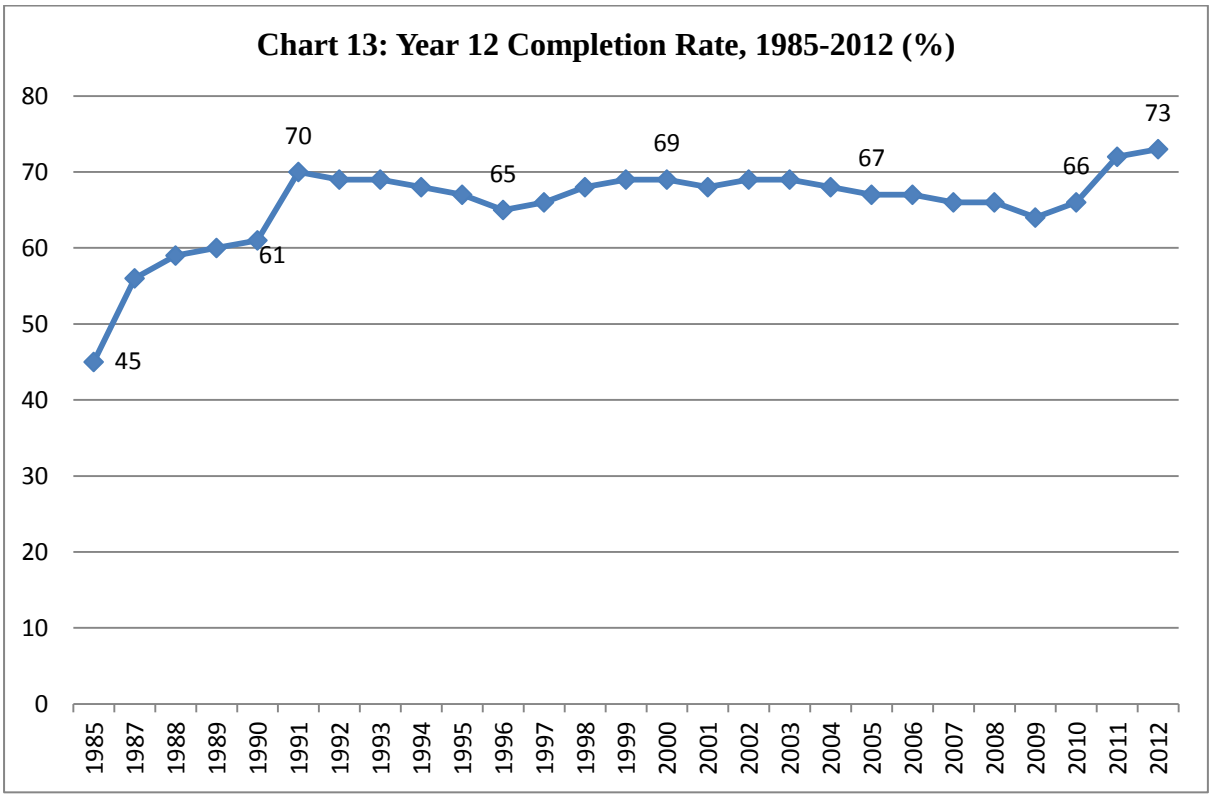
There was considerable variation between school sectors. The retention rate for government schools in 2013 was 78 per cent compared to 83 per cent for Catholic schools and 91 per cent for Independent schools [Chart 12].

Retention rates to Year 12 have increased massively since 1969, especially in government and Catholic schools. The rate for government schools increased by three times between 1971 and 2013 and that of Catholic schools more than doubled.

The retention rate for all schools increased from 27.5 per cent in 1969 to 81.6 per cent in 2013; the government school rate increased from 26 in 1971 to 78 in 2013 while that for Catholic schools increased from 34 to 83. There was steady improvement in both sectors since 1991. The retention rate in Independent schools has been high since 1971, but increased from 82 to 91 over the period. However, the Independent school rate has declined since 1991, from 101 to 91.



Sources: ABS, Schools Australia and associated publications; National Report on Schooling in Australia; DEET, Schooling in Australia: Statistical Profile No. 2, 1989.

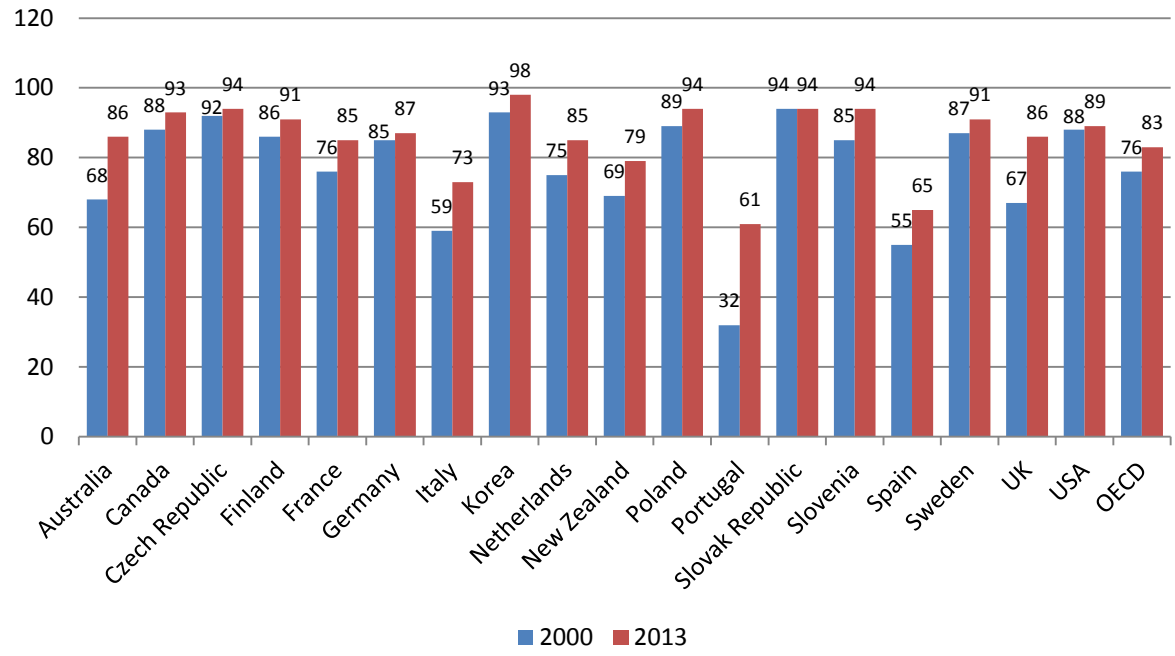


Source: National Report on Schooling in Australia, Report on Government Services, various issues

In 2012, 73 per cent of all eligible students completed Year 12 [Chart 13].[6] The completion rate declined a little after 2003, but has increased since 2009. There was a large increase between 1985 and 1991 from 45 to 70 per cent.

Achievement of upper secondary education in Australia is slightly higher than the average for OECD countries. In 2012, 86 per cent of Australians in the 25-34 age group had achieved at least an upper secondary education compared to 83 per cent across the OECD [OECD 2015a, Table 1.4]. In nine OECD countries, 90 per cent or more of this age group had achieved this level of education. Australia had a large increase in the percentage of 25-34 age group achieving upper secondary education from 68 per cent in 2000 to 86 per cent in 2012 [Chart 14]. This was the largest increase of all OECD countries except for Portugal and Turkey and was similar to the increase in the UK.

Chart 14: Attainment of Upper Secondary Education, Selected OECD Countries, 2000-2013 (% of 25-34 Year Olds)



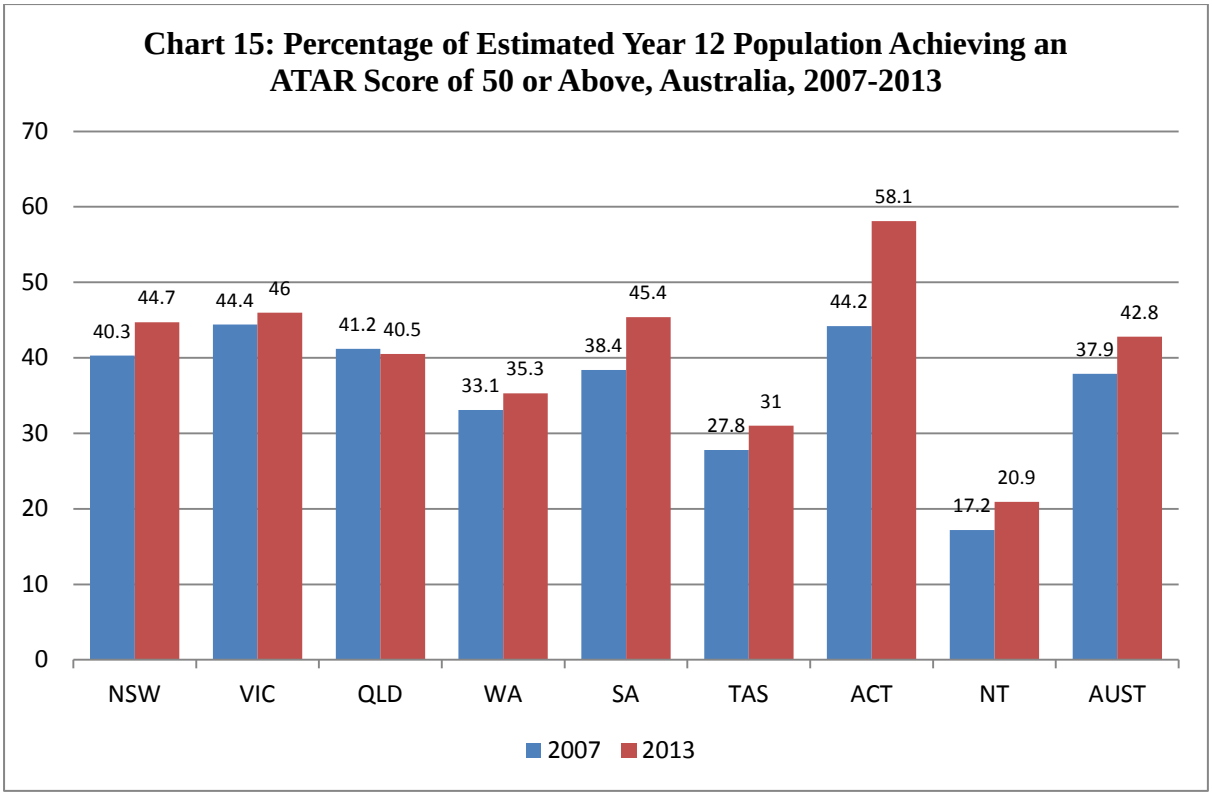
Source: OECD 2015

4.2 ATAR rates

In 2013, 43 per cent of the estimated potential Year 12 population achieved an Australian Tertiary Admission Rank (ATAR) of 50 or above [Chart 15].[7] Nearly 60 per cent of the Year 12 potential population in the ACT achieved an ATAR rank of 50 or above compared to 44-46 per cent in NSW, Victoria and South Australia. Only 21 per cent achieved this rank in the Northern Territory and 31 per cent in Tasmania.

The average for Australia was up from 38 per cent in 2007. The largest increases were in the ACT (14 percentage points), South Australia (seven percentage points) and NSW (four percentage points).

[6] Completion rates are estimated by calculating the number of students who meet the requirement of a year12 certificate or equivalent expressed as a percentage of the potential year 12 population.
[7] At a minimum, an ATAR of 50 or above is usually be required for entry into university.



Source: SCRGSP 2014a

5. Public and private school outcomes

There are widespread perceptions that private schools achieve better results for students than public schools. These perceptions are generally based on simple comparisons of results such as league tables of NAPLAN and Year 12 results published in newspapers and on websites. The top 50 rankings in league tables of school results are disproportionately dominated by private schools as seen, for example, in the rankings for NAPLAN results on The Australian's Your School website[8], rankings for ATAR scores on the Better Education website[9] and rankings on other Year 12 success measures in NSW[10] and Victoria [The Age 2014].

The 2012 PISA study shows that school outcomes for public schools are significantly below those of Catholic and Independent schools. For example, students in independent schools scored, on average, 52 score points higher than students in public schools and 27 score points higher than students in Catholic schools [Thomson et.al. 2010: xvi]. Students in Catholic schools scored, on average, 25 points higher than in public schools. Similar differences are apparent in reading and science.

Retention rates to Year 12 also show considerable differences between school sectors. The retention rate for government schools in 2013 was 78 per cent compared to 83 per cent for Catholic schools and 91 per cent for Independent schools [ABS 2014a].

Such comparisons create a perception of superior private school quality. However, comparing the raw scores of students in different school sectors gives a misleading impression of school quality because public schools enrol the vast proportion of students from low socio-economic, Indigenous, remote area and disability backgrounds who, on average, have much lower results than students from higher socio-economic status families

[8] http://www.theaustralian.com.au/national-affairs/in-depth/schools/interactive
[9] http://bettereducation.com.au/SchoolRanking.aspx
[10] https://www.matrix.edu.au/2013-high-school-rankings/

(see Chapter 3). Fairer comparisons of school results are based on adjustment for differences in student and school SES and other background factors.

5.1 NAPLAN results for similar SES schools

A simple way to adjust for differences in the socio-economic composition of school sectors is to use My School data to classify schools according to different ranges of the Index of Community Socio-Educational Advantage (ICSEA) constructed by ACARA to compare achievement in schools [ACARA 2014b]. A value on the index corresponds to the average level of educational advantage of the school's student population, relative to those of other schools.[11] The following charts compare the average Year 9 reading results of public, Catholic and Independent schools in metropolitan areas for high, medium and low ICSEA values in all jurisdictions except the Northern Territory.[12]

Medium ICSEA schools

The large majority of schools in Australia are in the medium range of ICSEA values, that is, from 950 to 1099. About 60-70 per cent of metropolitan secondary schools are in the medium ICSEA range in all jurisdictions except the ACT, which has a lower proportion.

Apart from a few exceptions, the performance of public, Catholic and Independent schools in the medium range of ICSEA values is very similar in NSW, Victoria, Queensland, Western Australia and South Australia [Chart 16]. There are only very minor differences in average results within each ICSEA sub-group of the medium range. The differences are likely to be within the statistical margin of error, indicating no statistically significant difference between the results of schools in the three sectors.

The exceptions are mainly within the 950-999 ICSEA value range where the sector with the highest performance varies between states. In NSW, Catholic schools within this range have a higher average score than Independent schools while Queensland public schools have a significantly higher average than Catholic and Independent schools. In Western Australia, public and Catholic schools have significantly higher results than Independent schools. In South Australian, Catholic schools have an advantage over public schools within this ICSEA sub-group but there are only a small number of Catholic schools in this range compared to public schools. Although there is a large difference in Tasmania between public and Independent schools in the 950-999 range, the comparison is between six public schools and one small Independent school with few students in Year 9 and an ICSEA value of just below 1000 which is significantly higher than the average ICSEA value of the public schools.

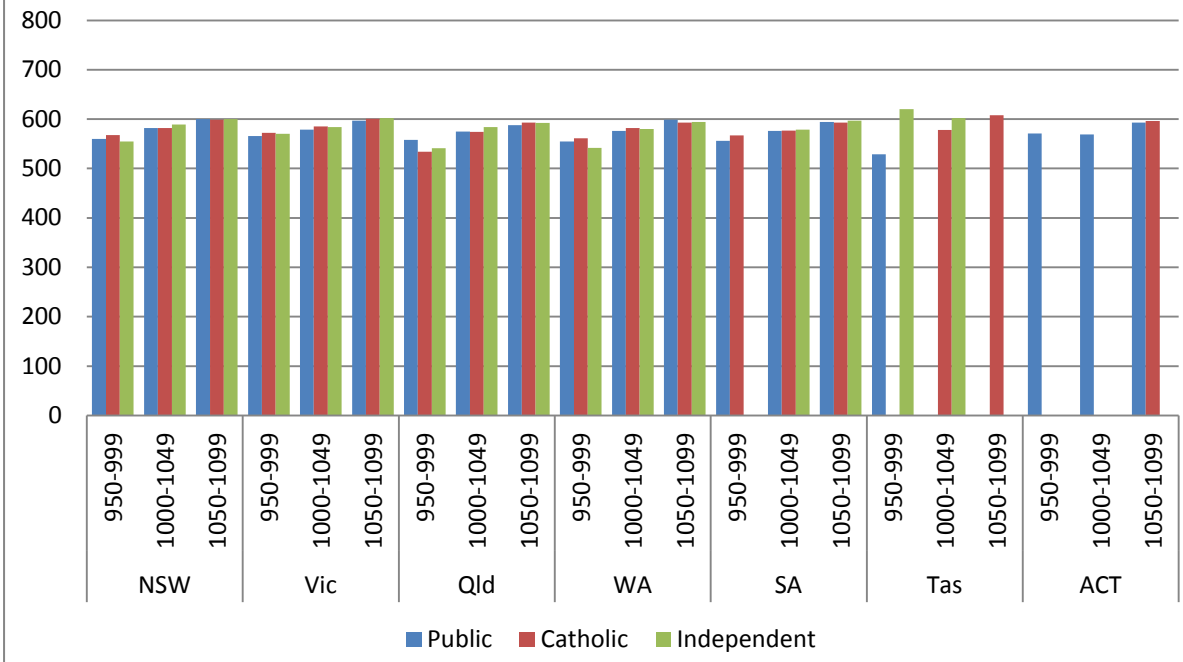
High ICSEA schools

The similarity of performance between public, Catholic and Independent schools is also apparent in the lower sub-group (1100-1149) of the high ICSEA range in NSW, Victoria, Queensland, Western Australia and the ACT [Chart 17]. Once again there are only minor differences that are unlikely to be statistically significant. The only exceptions are that public schools in South Australia outperform Catholic and Independent schools, while Independent schools in Tasmania outperform public and Catholic schools.

[11] ICSEA is constructed from data on parent education and occupation, the geographical location of schools and the proportion of Indigenous enrolments [ACARA 2014]. ICSEA values are calculated on a scale which has a median of 1000.

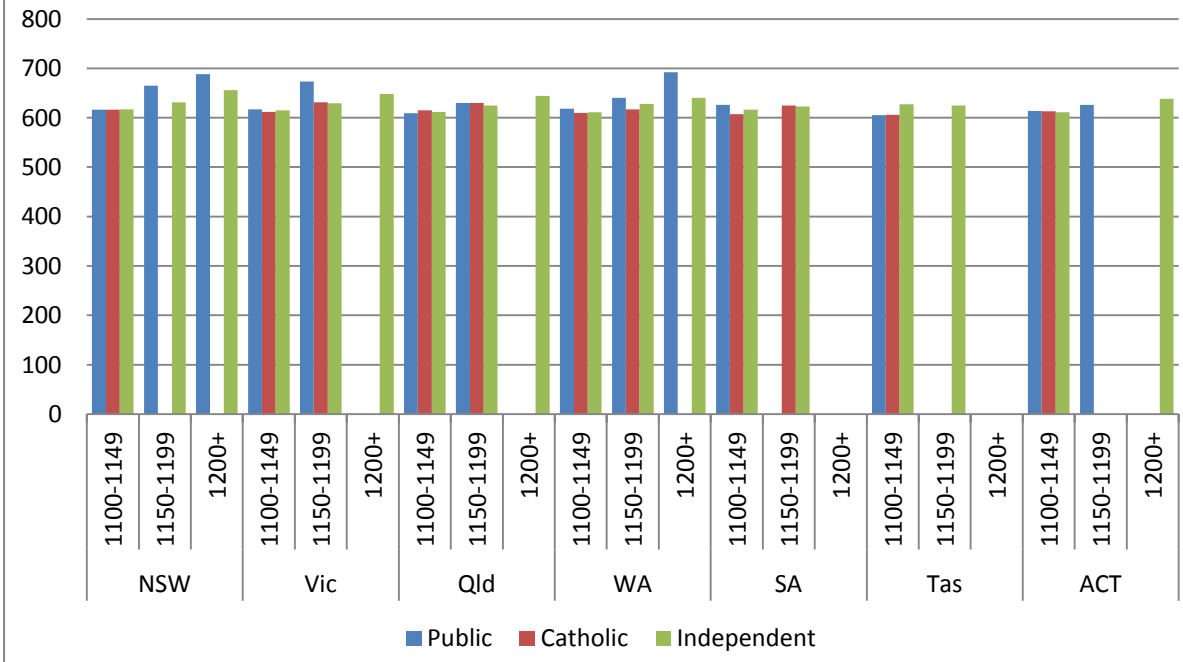
[12] Schools classified as metropolitan by My School include schools in what are commonly regarded as provincial cities. All schools in the Northern Territory are classified as provincial.

Chart 16: Average Year 9 NAPLAN Reading Scores in Medium ICSEA Schools, 2013



Source: My School

Chart 17: Average Year 9 NAPLAN Reading Scores in High ICSEA Schools, 2013



Source: My School

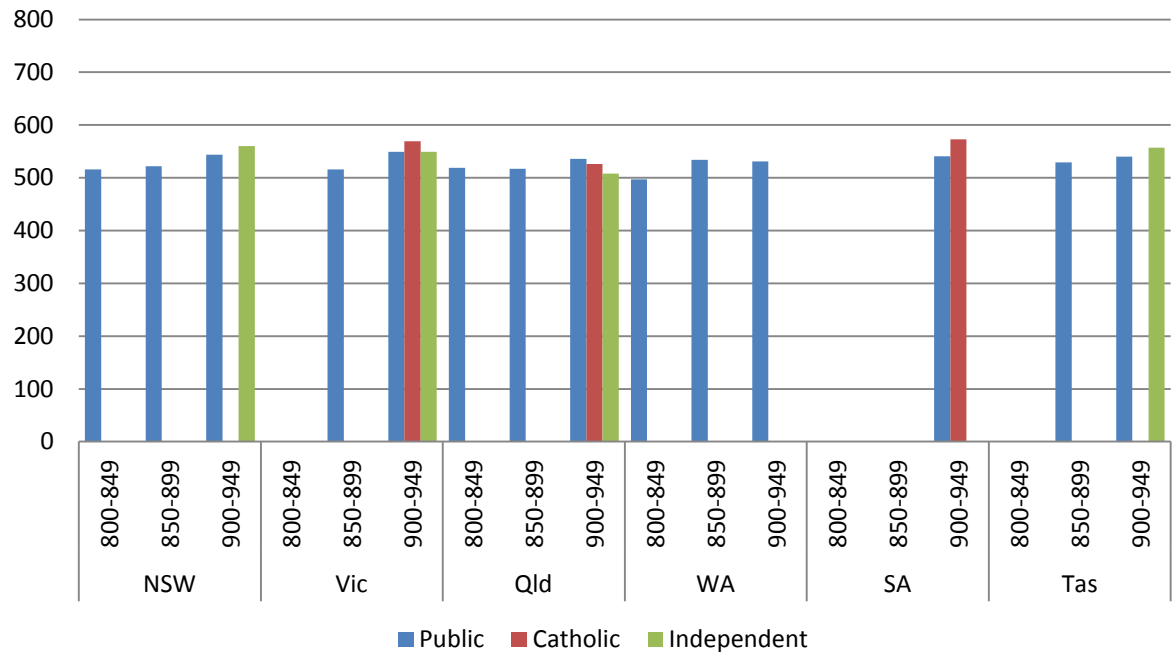
Public schools with ICSEA values of 1150 and above have significantly higher results than Catholic and Independent schools in NSW, Victoria and Western Australia[13]. There is little difference in results in Queensland and comparisons between public and private schools are not possible for schools with these ICSEA values in South Australia, Tasmania and the ACT.

Low ICSEA schools

Only limited comparisons between school sectors at low ICSEA values are available because there are very few Catholic and Independent schools with ICSEA values below 950. It is public schools that largely serve this population. There are no Catholic or Independent secondary schools in metropolitan areas with an ICSEA value below 900 for which data is available.

In NSW and Tasmania, Independent schools in the ICSEA range 900-949 have a significantly higher average than public schools [Chart 18]. In Victoria, public schools have similar results to Independent schools in this ICSEA range while Catholic schools have higher results than both. In Queensland, public schools outperform Catholic and Independent schools and in South Australia, Catholic schools have higher results than public schools.

Chart 18: Average Year 9 NAPLAN Reading Scores in Low ICSEA Schools, 2013



Note: There are no secondary schools in the ACT with an ICSEA value below 950.
Source: My School

However, these comparisons are of dubious value because only a few private schools exist in this ICSEA range. For example, there are 57 public secondary schools in metropolitan cities in NSW with an ICSEA value in this range compared to only two Independent schools and no Catholic schools. Similarly, in Victoria, Catholic schools have a significantly higher average than public schools, but there are 41 public secondary schools in this range compared to only four Catholic schools. In South Australian the comparison is between 12 public schools and

[13] There is only one public school and three Independent schools in Western Australia with ICSEA values of 1200+ .

only one Catholic school. In Tasmania, the comparison is between one public school and one Independent school and the Independent school is a very small school with few students in Year 9.

5.2 Research studies of school and university outcomes in Australia

Statistical methods are also used to adjust for differences in a range of non-school and school factors and compare the performance of public, Catholic and private schools. The analyses assess the contribution of different factors to observed differences in student outcomes in the different school sectors in attempting to isolate the effect of attending a school in different sectors. Nearly 30 such studies have been undertaken in Australia over the past 15 years. These studies have focused on several different measures of school outcomes: PISA and NAPLAN test scores, Year 12 results, university outcomes, and labour market outcomes.

In summary, the studies show no significant differences between the results of students from public, Catholic and Independent schools in national and international tests and in university completion rates. Public school students appear to achieve higher university grades than private school students despite the latter achieving higher university entrance scores. There is mixed evidence for Year 12 completion and workforce earnings.

Studies of standardised test results

One group of studies has used PISA or NAPLAN test results as the outcome measure. The weight of evidence from these studies is that there are no statistically significant differences between public, Catholic and Independent schools. Seven such studies have been carried out in the last five years and six show no difference in results between school sectors. For example, the most recent national PISA report shows that there was no statistically significant difference between the results of public, Catholic and Independent schools in mathematics, reading and science after adjustment is made for student and school socio-economic background [Thomson et.al. 2013: 35, 144, 183; see also Thomson et.al. 2010]. The report states:

> In other words, students in the Catholic or independent school sectors bring with them an advantage from their socioeconomic background that is not as strongly characteristic of students in the government school sector. In previous cycles of PISA, the OECD has noted that the differences between public and private schools disappear once similar adjustments are made in most OECD countries. [35]

A more recent study using PISA 2009 results concluded:

> It is the indirect impact of SES that drives the higher observed scores of the average private school against the lower observed scores of the average public school, and not any intrinsic higher quality in education provision by the private school sector.
>
> ....what seems to be driving the (raw data) observation that non-Government schools achieve higher scores than Government ones, is not the result of an inherent higher quality of non-Government schools. It is rather the result of the more privileged high socio economic status students self-selecting into non-Government schools and taking their existing advantage with them to these schools. [Mahuteau & Mavromaras 2014: 16]

Another recent study analysed PISA reading and mathematics results since 2003 and found that while Catholic and Independent schools had generated better outcomes than public schools in 2003 this was not the case in 2006 and 2009 [Ryan 2013]. In the later PISA cycles, there was no difference in results between the school sectors.

Two other recent studies have used data from the Longitudinal Study of Australian Children (LSAC) and NAPLAN tests to compare the results of public and private schools.

Both studies found no significant difference in results between school sectors after accounting for student background characteristics. Moran et.al. [2014] analysed Year 3 and 5 NAPLAN results in reading, writing, spelling, grammar and numeracy of nearly 5000 children in public, Catholic and Independent schools. After controlling for student background characteristics and applying two different statistical techniques it found no statistically significant difference in the results between school sectors.

> Overall, no consistent evidence of Catholic or Independent school effects was found. That is, the estimates of several techniques generally indicated no significant difference in academic performance between school sectors once accounting for student background characteristics. These findings challenge existing theories of Private school efficiency. [1]

A similar study of cognitive and non-cognitive outcomes in primary schools that adjusted for family background characteristics obtained from the LSAC also contradicted the conventional wisdom of private school superiority [Nghiem et.al. 2013]. It used data from the NAPLAN test results in Years 3 and 5 for all domains tested, but included analysis of additional measures of cognitive and non-cognitive skills as well. It found that sending children to Catholic or Independent schools has no significant effect on their NAPLAN test scores compared to public schools after controlling for a range of non-school factors or on other comparative cognitive and non-cognitive skills.

The one exception to these findings found that average NAPLAN scores in Catholic and Independent schools were higher than in public schools [Miller & Voon 2012; see also Miller & Voon 2011]. However, these results are likely to be biased because it did not take account of student/family SES and it used a flawed measure of school SES that has since been jettisoned by ACARA because it was unreliable.

Studies of Year 12 outcomes

Several other studies have considered the impact of school sector attendance on school completion and university entrance scores at the end of Year 12.[14]

Three studies of Year 12 completion in recent years show mixed results. A recent study found that Catholic and Independent school students were more likely to reach Year 12 than public school students after controlling for SES and other factors [Marks 2014]. It found that the odds of students attending Catholic and Independent schools reaching Year 12 were 1.6 and 1.2 times the comparable odds of students attending public schools, after controlling for student SES, prior achievement in Year 9 and other school factors. The study did not include a measure of school SES which, as noted above, has a significant effect on student outcomes. It is likely that inclusion of school SES would reduce what the study says is a "modest" school sector effect [345].

A previous study by the same author found a positive effect on Year 12 completion by attendance at Independent schools compared to public schools but no difference between Catholic and public schools [Marks 2007b].

Another recent study utilised data from the Longitudinal Survey of Australian Youth (LSAY) 1998 Year 9 cohort to compare public and Catholic school effects on Year 12 completion and university commencement and completion [Cardak & Vecci 2013]. It took account of differences in family background including socio-economic status of families and English speaking or not as well as student motivation and effort. It found that the effects of attending Catholic schools compared to public schools for completing high school ranged between -4.76 and 5.42 per cent. These results imply that the Catholic school effect is at best slightly positive but could be zero or even negative.

[14] Studies such as Vella [1999], Le & Miller [2003], Evans [2004] and Kelley [2004] that used data from before the 1990s are not included in this review.

Two earlier studies also found significant positive effects of attendance at Catholic and Independent schools on participation in Year 12 and university after controlling for family background [Marks et.al. 2000, Fullarton et.al. 2003]. Both noted a large decline in the advantage of Independent schools for completion of Year 12 over the period 1980 to 2001.

Six studies have estimated the impact of attendance at public and private schools on university entrance scores in the last 15 years. Four found a small advantage for Catholic and Independent schools. One study used the LSAY 2003 cohort to examine university entrance scores of students in public, Catholic and Independent schools [Marks 2009]. After controlling for socioeconomic background and prior achievement, it found a difference of six points between Independent and public school students and three points between Catholic and public school students. The study did not include a measure of school SES and this may account for the remaining small difference between sectors.

A study that analysed the relationship between SES background and university participation also estimated the effects on university entrance scores of attendance in different school sectors and also found a small advantage for Catholic and Independent schools [Cardak & Ryan 2009]. No measure of school SES was included in the analysis.

Two earlier studies also found a very small advantage for Catholic and Independent schools in university entrance scores after taking account of student SES and prior achievement [[Marks et.al. 2001, Marks 2004]. Two other studies found a small advantage for Independent schools over public schools, but not for Catholic schools [Ryan 2014, Ryan & Watson 2009]. The differences in adjusted scores are very small in all these studies and may be over-stated because a measure of school SES was not included in any of the analyses.

Studies of university outcomes

Six studies have analysed the impact of school sector attendance on first year university grades in the last ten years and all found that students from public schools achieved higher grades than students from Catholic and Independent schools.

The most recent of these found that attendance at private schools does not provide any advantage in terms of academic performance at university [Li & Dockery 2014]. It found that students from public schools performed just as well as students from Catholic and Independent schools in their first year of study at the university. The study linked schools data from My School to first-year undergraduate data from 2011 to 2013 at an unnamed Australian university.

A study of all full time students enrolled in the Bachelor of Health Science at the University of Western Australia between 2000 and 2005 found that students who attended public secondary schools had higher marks in first year than students who attended Catholic or Independent secondary schools after taking account of a range of background factors [Mills et.al. 2009].

Three studies of first year students at the University of Western Australia in different years in the early 2000s mean found that the mean achievement of students from Catholic and Independent schools was less than that for students who had attended public schools [Birch & Miller 2007, Birch & Miller 2006, Win & Miller 2003]. Dobson and Skuja [2005] made the same finding from a study of first year students at Monash University between 2000 and 2003.

Three studies have attributed the contrast between the advantage of private school attendance on university entrance scores at the end of Year 12 and the disadvantage in first year university to private schools artificially boosting university entrance scores to improve access to university [Li & Dockery 2013, Win & Miller 2005, Dobson & Skuja 2005].

Three studies have compared university completion rates for students from different sectors. Cardak & Vecci [2013] estimated that the Catholic school effect ranged from slightly

negative to slightly positive compared to public schools depending on assumptions made, while the other two found no significant differences in completion rates between students from public, Catholic and Independent schools [Marks 2007a, McMillan 2005].

Labour market outcomes

There is mixed evidence from two studies of the effect of school sector attendance on later earnings in the work force. Jha & Polidano [2013] found a small earnings gap favouring Catholic school students over public school students while Chesters [2014] found no significant difference in weekly earnings between public, Catholic and Independent school students.

6. East Asia is not a benchmark of education success

The standout feature of international test results is the dominance of East Asian countries/cities at the top. Hong Kong, Japan, Korea, Shanghai and Singapore are the top achieving countries in the PISA reading, mathematics and science tests. Taiwan is also a top performer in mathematics. With the exception of Shanghai, these countries also top the TIMSS mathematics tests for Years 4 & 8 and are amongst the top performing countries in science.[15]

Australia's results are much lower than these countries. For example, 15 year old Shanghai students are about 18 months ahead of Australia students in reading and science and about three years behind in mathematics. The disparity is significantly less in the case of the other East Asian countries; for example, Australian students are about a year or less behind Hong Kong, Japan, Korea and Singapore in reading and one to two years behind in mathematics.

These disparities have led to calls for Australia to emulate the success of East Asia. Prime Minister Julia Gillard noted the disparity in school outcomes between Australia and East Asia and set a target for Australia to be in the top five countries of the world by 2025 [Gillard 2012a, Australian Government 2012: 164-165]. Others called for Australia to look to East Asian countries for ways to improve its school outcomes [Jensen 2012a]. Jensen argued that the success of East Asian countries is due to better teacher training and mentoring. He dismissed cultural differences as a factor in the relative gaps in performance, saying success is not necessarily culturally determined [Walker 2012, Ferrari 2012]. Instead, he attributed their success to "an unerring focus on teacher performance" [Walker 2012].

Discounting the influence of cultural factors in East Asian success is highly questionable as there is strong evidence that they are very significant. The results of students of East Asian parents in Australia are much higher than for students of Australian born parents and are similar to and, in some cases, even higher than those in East Asian countries. This suggests that differences in teaching are not a critical factor.

A study from the Institute of Education at the University of London compared the PISA 2012 results of children born in Australia of parents from China, Hong Kong, Japan, Korea, Singapore and Taiwan with those of Australian students with both parents born in Australia [Jerrim 2014]. It found that Australian students with East Asian parents outperform their native Australian peers in mathematics by an average of more than 100 PISA test points (equivalent to nearly three years of schooling). The average score for students of East Asian heritage in 2012 was 605 compared to 499 for students of parents born in Australia.

[15] Shanghai does not participate in TIMSS.

The results of students of East Asian heritage in Australia were statistically similar to the average score of Shanghai students (613) and significantly higher than in Hong Kong (561), Japan (536), Korea (554), Singapore (573) and Taiwan (560).

Moreover, while average PISA mathematics scores of students of Australian born parents declined substantially between 2003 and 2012, the scores of students with East Asian heritage increased significantly over the period.

The study adjusted for differences in family background and schools to allow for the possibility that second-generation East Asian immigrants in Australian may be a more selective group in terms of demographic characteristics. It found that children with East Asian parents remained about one school year ahead of students with Australian born parents, even when they have the same demographic characteristics and attend similar schools.

It also compared the results with those of second-generation immigrants from India, the United Kingdom and other (not high-performing) East Asian countries to determine whether the higher scores may reflect other potentially important characteristics of immigrant families such as drive, determination, and aspirations. It found that these students also achieve higher average scores than students with Australian born parents. However, the differences in these cases are largely explained by differences in observed family background characteristics; that is, no significant differences were found between the results of these students and those of Australian born parents after adjusting for family background factors.

These results suggest that some common non-school factors are associated with the higher performance of students of East Asian heritage in Australia. They succeed at least as well as their home country peers without access to their home country teachers. This suggests that teaching quality in Australia is no worse than in East Asian countries and that other factors account for the success of East Asian students. Nor is it credible to suggest that somehow these students are getting privileged access to Australia's best teachers. There is no evidence of this, and if it were the case it would be a national scandal of huge proportions. Other factors must be important to their success.

The study found that hours spent in out-of-school tuition and family attitudes towards education are significant factors in the higher results of students with East Asian parents compared to students of Australian parents. These are also factors behind the similarity of results between students of East Asian parents in Australia and students in East Asian countries. East Asian parents, both in their homeland and elsewhere, place a very high value on educational achievement. Consequently, this finding:

> ....brings into question whether it really is the schooling system (and associated teaching methods) in these countries that are responsible for their dominance of the PISA and TIMSS rankings. Indeed, my results suggest that making changes to the schooling system and teaching practices alone may be insufficient for Western countries to catch the top-performing East Asian nations. [Jerrim 2014: 23]

Consequently, the author says, Western policymakers should not expect there to be an easy way to replicate East Asian students "extraordinary educational success" [6].

Another study based on the PISA 2009 results also found that Chinese immigrant students in Australia and New Zealand achieve similar mathematics scores to students in Shanghai. After accounting for differences in socio-economic status and home resources in the three countries, it found that Chinese students who live in Australia achieved similar scores to those of students who live in Shanghai and much higher scores than non-Chinese Australian students. It concluded that cultural attitudes to education appear to have been more important than national policies in the success of East Asian students:

> ....cultural background appears to be more consequential for the educational attainment of Chinese immigrant students than exposure to the educational systems of Australia or New Zealand. [Feniger & Lefstein 2014: 845]

East Asian schools owe their success, in large part, to a culture that places a high value on education. Young children receive the message from parents and society that they must excel in school to succeed in life. As a result, children begin intensive studies at a young age, supplementing regular school with cram schools for tutoring outside school hours (such as 'hagwons' in South Korea and 'juku' in Japan). The following observation from one commentator about education in South Korea typifies the obsession with education success in East Asian countries:

> It's hard to exaggerate the premium South Korea places on education. This is a society in which you have to get into the right kindergarten, so that you can get into the right elementary school, then into the right middle school and high school, and finally into the right college. Which, of course, gets you the right job and scores you the right spouse. [Fifield 2014]

East Asian children do a double shift at school. They go to normal classes and then spend long hours outside school studying either at home or with private tutors. Data from PISA 2012 show that 65 to 70 per cent of 15 year-old students in Shanghai, Japan, Korea and Singapore participate in after school tutoring in mathematics compared to 27 per cent in Australia [OECD 2013d, Table IV.3.25: 355]. In Korea, 26 per cent of students spend four or more hours per week in after-school mathematics classes, in addition to individual homework and study, compared to four per cent in Australia. In Shanghai, Japan and Singapore the percentage ranges between 14 and 18 per cent.

About 40 to 58 per cent of East Asian students also participate in after-school tutoring in their own language and science and 50 to 70 per cent participate in other subjects compared to Australia where only 15 per cent participate in science tutoring, 20 per cent in language and 26 per cent in other subjects.

Schools in Shanghai and Singapore also appear to set significantly more homework or other study than Australian schools. In Shanghai, students spend almost 14 hours per week on homework or other study in all subjects, and in Singapore it is nine hours, compared to six in Australia [OECD 2013d, Table IV.3.27: 356].

There is growing concern in many of these countries that the focus on testing and examination success emphasises rote learning over thinking and creativity. For example, a former minister for education in South Korea has said that all the after-school study leads to problems in enhancing their other skills, like character, creativity and critical thinking [Fifield 2014]. He said that "hagwon is all about rote learning and memorization". In China, students are often trained to focus only on test scores, memorizing endless lists of textbook answers instead of developing a sense of independent and innovative thinking [Yin Pumin 2015]. The examination system is being reformed to give more emphasis to the all-round development of students.

The obsession with education success in East Asian countries and the long hours of study it involves has brought a huge toll. It dominates the lives of children from a young age to the detriment of their all-round development. The 2012 OECD economic survey of Korea found that:

> ...private tutoring tends to unduly dominate children's lives and restricts their leisure activities in ways that are detrimental to their well-rounded development. [OECD 2012b: 135]

An OECD report has noted that in Japan:

> The Juku also unduly dominates children's lives and restricts their leisure activities in ways that may be detrimental to their well-rounded development. [OECD 2012a: 202]

The Prime Minister of Singapore used a national day rally speech in 2012 to rail against the pressure being placed on children to achieve education success in his country:

> Please let your children have their childhood! ...Education experts, child development specialists, they warn against over teaching pre-school children. You do harm, you turn the kid off, you make

> his life miserable. Instead of growing up balanced and happy, he grows up narrow and neurotic. No homework is not a bad thing. It is good for young children to play and to learn through play. So please, I have heard of parents who sent their children to two kindergartens. I read of parents, who send their kindergarten age children to tuition, please do not do that. [Lee Hsien Loong 2012]

Social inequalities have also been exacerbated because less well-off families cannot afford private tutoring. An OECD report on PISA 2012 found that supplementary education in East Asian countries is "especially pernicious" because it exacerbates socio-economic inequalities and deteriorates students' well-being [OECD 2014b: 92]. An earlier analysis of Japan's 2009 PISA results said that "...the Juku system creates and perpetuates inequality, given that the high cost limits use by low-income families" [OECD 2012a: 202].

A report published by the Asian Development Bank said that what is called "shadow education" is dominating the lives of young people and their families, reinforcing poor education practice, exacerbating social inequalities and creating inefficiencies in education systems [Bray & Lykins 2012].

An under-reported impact is on the health of children. The long hours indoors studying from an early age have led to an epidemic of myopia in East Asia [Morgan & Rose 2013]. The prevalence of myopia is now exceptionally high in East Asia where 70 per cent or more of children completing secondary schooling are myopic, with around 20 per cent affected by high myopia which can lead to irreversible loss of vision or even blindness later in life. For example, about 90 per cent of children completing secondary school in Korea are short-sighted and need glasses compared to about 30 per cent in Australia. Around 20 per cent of Korean students have high myopia. It presages a major long-term health problem in these countries.

Research studies show that children who spend more time outdoors are less likely to be myopic due to the effect of brighter light on the retina [Rose et.al. 2008a, Rose et.al. 2008b, Morgan et.al. 2012]. The lower incidence of myopia in Australia and other high performing countries is attributable to children spending more time outdoors instead of spending long hours inside doing homework and study.

> ...it is clear that, while East and Southeast Asian countries have become deservedly famous internationally for the quality of their educational outcomes, other countries have achieved similarly high outcomes without generating an epidemic of myopia. [Morgan & Rose 2013: 335]

While Australia must be willing to learn from other countries, it also has to careful in setting East Asian countries as the benchmark of education success and uncritically adopting policies and approaches of these countries. Claims of higher teacher quality in these countries are based on anecdotal evidence while research studies suggest the strong influence of cultural factors.

> While it may be politically attractive and expedient to attempt to imitate the educational policies and structures of high-attaining systems, our analysis reinforces the argument that such cross-national policy borrowing will be ineffective without attending to the historical and cultural contexts in which those policies operate. [Feniger & Lefstein 2014: 850]

Moreover, pursuing the high results of East Asian countries is likely to bring many undesirable and unwanted costs associated with their success. The pressure placed on students to achieve education success has severe social and health costs and tends to undermine the all-round development of children.

7. Summary

Australia has a high quality education system. It has high average results in reading, mathematics and science by international standards and it ranks consistently amongst the top

performing countries. Australia is one of the top performers in all-round results. However, Australia's international test results have largely stagnated or declined over the past 15 years. Australia is one of few countries whose PISA results for 15 year old students have declined in the last decade. National test results have largely stagnated over the past fifteen years, although there have been improvements in some areas. Australia's Year 12 completion rates are average by international standards, but they have improved significantly over the past decade.

Medium and high SES public, Catholic and Independent secondary schools in metropolitan regions achieve similar NAPLAN test results while valid comparisons for low SES schools cannot be made because there are too few Catholic and Independent schools of this type. Research studies show no significant differences between the results of students from public, Catholic and Independent schools in national and international tests and in university completion rates after taking account of student background characteristics. Public school students appear to achieve higher university grades than private school students despite the latter achieving higher university entrance scores. There is mixed evidence for Year 12 completion and workforce earnings.

The biggest challenge facing Australian education is not overall poor performance, but the very large achievement gaps between rich and poor. These are the subject of the next working paper.