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Who Let the Economists Loose in Educational Research?

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The Ascendency of Neo-liberal Educational Research[1]

Over the last 30 years, as neo-liberalism has established itself as the meta-narrative through which all aspects of human endeavour are to be described, it is perhaps not surprising that educational research is now considered to be the preserve of economists.

As summed up by Harvey, neo-liberalism can be described as:

> *…in the first instance a theory of political economic practices that proposes that human well-being can be best advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterised by strong private property rights, free markets, and free trade. The role of the state is to create and preserve an institutional framework appropriate to such practices.*[2]

As such one of the principal aims of neo-liberalism is to bring all human action into the domain of the market. Harvey and others refer to this as "the commodification of everything".[3]

> *To presume that markets and market signals can best determine all allocative decisions is to presume that everything can in principle be treated as a commodity.*[4]

Neo-liberal theory holds that the elimination of social ills can be secured through the market. With this comes a refutation of the concept of social injustice, or the contention that inequities need to be addressed through government intervention, in favour of the imposition of market disciplines in areas in which they had previously not existed. Such a worldview attributes individual success or failure within a market system to personal virtues rather than systemic properties. The denial of the importance of socio-economic factors as an explanation of educational inequity in favour of "teacher quality" that has characterised much recent educational debate in Australia can be understood from this perspective.

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[1] Some parts of this section of this paper (dealing with neo-liberalism) are based on Job, P. (2009) *National Benchmark Testing, League Tables and Media Reporting of Schools*, unpublished Master Thesis, Monash University.
[2] Harvey, D. (2005). *A Brief History of Neoliberalism.* Oxford: Oxford University Press. p. 2.
[3] *Ibid*, p.80.
[4] *Ibid*, p. 165.

A benchmark-testing, league-tables regime of school performance is accordingly based on the contention that educational improvement will come through competition and the application of market forces through parental choice, along with business management performance accountability mechanisms. Doecke, Howie and Sawyer[5] have shown how this view is aligned in practice with a "back to basics" movement calling for a return to more supposedly traditional approaches to education.

US academics Nichols and Berliner note that one of the major impetuses towards testing and league tables has been the increasing prominence given to business accountability models throughout society.[6] Such models seek ways in which to monitor and increase productivity without spending more money. The application of such a "productivity" model to the study of educational outcomes accordingly demands supposedly numerically measurable performance outcomes to be measured against financial expenditure. Testing is accorded an important place in such an approach as it produces the most easily measurable data. Such an approach, however, simply does not account for the range of outcomes and diverse factors that contribute to a modern education. It does not measure important qualitative factors that are important to an individual's participation in modern society, her or his ability to acquire the skills necessary to survive in the modern workplace, nor does it sufficiently take into account the complexity of "inputs" involved in diverse student cohorts over time.

Those advocating a neo-liberal model often talk of an evidenced based approach. By this they do not usually mean an approach based on the professional knowledge of teachers or educators, nor the consensus of academic research around the world as to what constitutes effective educational practice. Instead they usually mean often simplistic attempts to measure school and teacher performance through metrics. This leads to the need to test, to measure and compare, to create league tables, to invent value added mechanisms when others are proved inadequate, to produce complex numerical calculations of school and teacher performance. Metrics can deliver a false sense of sophistication, a claim to an "evidence based" scientific methodology, whether or not the validity of such an approach is actually supported by evidence.

Market based accountability models by their nature emphasise competition and judge successes and failures. Such an approach is accompanied by a strong sense of blame accorded to those perceived to be the latter, whether schools, teachers or students, along with the notion, largely developed by non-teaching "experts", that educational improvement can be obtained not through resourcing and support, but by surveillance and performance mechanisms based on supposedly measurable data. The public education system, which teaches the majority of students from underprivileged backgrounds, is particularly seen in this light, and teachers within it are often viewed not as professionals whose opinions should be valued but as underperforming obstacles to change. The political and media vilification of what are frequently described as "underperforming" schools and teachers can be understood from this perspective.

American economists such as Eric Hanushek, Caroline Hoxby and others have produced a wide range of research on matters such as class size reduction, levels and modes of education funding, teacher quality and productivity, student achievement and competition in

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[5] Doecke, B, Howie, M., & Sawyer, W. (2006). Starting Points. In B. Doecke, M. Howie, & W. Sawyer (Eds.), '*Only Connect': English teaching, schooling and community* (pp. 4-24). South Australia: Wakefield Press.
[6] Nichols, S. and Berliner D. (2007) Collateral Damage: How High Stakes Testing Corrupts America's Schools, Cambridge MA: Harvard University Press, p.18.

educational markets.[7] The reported outcomes of this research lend support, so it is claimed, for neo-liberal policy "solutions" to educational "problems", such as increased competition between schools, payment by results for teachers, less government control of and funding for schools.

The research has been criticised as pursuing "positivist rigour" to such an extent as to "preclude the complex, multidimensional, multi-methodological work necessary to produce meaningful and useable research data …"[8] What such research leaves out of consideration is considerable, in particular most of the social and cultural dimensions of schooling.

Despite these criticisms, this type of research by economists in education has been enormously influential. Laitsch, Heilman and Shaker (2002) note that:

> *The policy success of pro-market education advocates is significantly enhanced by the interconnectedness of their efforts with the efforts of like-minded groups and individuals.*[9]

Aside from the usual academic practices of developing networks of like-minded researchers and cross-citing each others' work, American academic education economists have links with a number of university-based and private research centres and think-tanks and importantly to wealthy "charitable" foundations established by big business. These foundations provide funding. In 2000, for example, Hanushek received $199,613 from the Smith Richardson Foundation (which supports free-market causes) to establish the Center for Research on Education Outcomes (which has published research highly supportive of "Teach for America") and an additional $300,387 to create a policy evaluation unit at the University of Rochester (where he was then based).[10] The research centres and think tanks include these academics on advisory or editorial boards and actively promote their work with considerable success in the American mass media and with politicians in both mainstream parties.

For education unions, the ascendency of educational research by neo-liberal economists is not merely a matter of academic interest. The educational policy directions pursued by governments influenced by this policy work have clear and sometimes dramatic implications for the working lives of our members.

Neo-liberal Economics in Australian Education Research: The Work of Leigh and Ryan

The work of American education economists is influential in Australia as well. Hanushek's work, for example, has been cited approvingly in Federal Treasury and Education

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[7] Examples of work by Hanushek and Hoxby include: Hanushek, E.A. (1996) "School Resources and Student Performance" in Burtless, G. (ed.) *Does Money Matter? The Effect of School Resources on Student Achievement and Adult Success*, Washington DC: Brookings Institution Press; Hanushek, E.A. (1997) "Assessing the Effects of School Resources on Student Performance: An Update", *Educational Evaluation and Policy Analysis* 19(2), pp. 141-164; Hanushek, E.A. & Kimko, D.D. (2000) Schooling, Labor-Force Quality, and the Growth of Nations, *American Economic Review*, 90(5), pp. 1184-1208; Hoxby, C.M. (2000) "Does Competition Among Pubic Schools Benefit Students and Taxpayers?" *American Economic Review* 90(5), pp. 1209-1238; Hoxby, C.M. (2000) "The Effects of Class Size on Student Achievement: New Evidence from Population Variation", *Quarterly Journal of Economics*, 115(4), pp. 1239-1285; Hoxby, C.M. (2003) *The Economics of School Choice*, Chicago: University of Chicago Press.

[8] McLaren, P and Kincheloe, JL (2007) *Critical Pedagogy: Where are We Now?*, New York, Peter Lang.

[9] Laitsch, D. Heilman, E. & Shaker, P. (2002) "Teacher Education, Pro-Market Policy and Advocacy Research", *Teaching Education*, 13 (3).

[10] *Ibid.*

Department (currently known as DEEWR) documents and by Liberal and Labor politicians. Andrew Leigh and Chris Ryan, two economists from Australian National University, have published papers on schooling that acknowledge a debt to Hanushek, Hoxby and other American economists and that have received widespread media coverage.[11]

One article by Leigh and two articles by Leigh and Ryan are considered here.

- "Estimating Teacher Effectiveness from Two-Year Changes in Students' Tests Scores", Leigh, 2009.[12]
- "Teacher Quality: How and Why Has Teacher Quality Changed in Australia", Leigh and Ryan, 2006.[13]
- "How Has School Productivity Changed in Australia?", Leigh and Ryan, 2008. [14]

Estimating Teacher Effectiveness[15]

The original version of the Leigh article was published as a report for the Commonwealth Department of Education, Science and Training (as it was then known) in 2007. It received a good deal of media attention at the time.

Leigh's study was widely reported as providing evidence that supported proposals for "performance pay" for teachers. As will be shown, however, the outcomes of the Leigh's research are unremarkable and fall well short of evidence that could be used to support the case for performance pay. In fact, if anything, they provide some evidence to the contrary.

Leigh used data from the Year 3, 5 and 7 literacy and numeracy tests in Queensland to track individual student performances at each year level. To eliminate the effects of socio-economic or home factors, Leigh uses each student's Year 3 result as the base and focuses on the extent to which performance on the subsequent tests improves relative to the "average" performance of the student's age cohort. Leigh is able to match students with the teachers that they had at each year level. He then assigns the change in relative performance (or lack thereof) to the effects of teaching, specifically to the classroom instruction provided by the teacher the student had at the time of the test. He is then able to calculate the correlation between improved test performance and various factors associated with the teacher (e.g. gender, age, years of experience, possession of a post-graduate qualification, Departmental S-rating).

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[11] Leigh studied under Hoxby in the United States and co-authored a paper with her: Hoxby, C.M. & Leigh, A. (2004) "Pulled Away or Pushed Out: Explaining the Decline of Teacher Quality in the United States" *American Economic Review*, 94(2): pp 141-164. This work obviously provided the model for Leigh's Australian work on teacher quality and productivity.

[12] Leigh, A. (2009) Estimating Teacher Effectiveness From Two-Year Changes in Students' Test Scores, *Economics of Education Review*, http://econrsss.anu.edu.au/%7Ealeigh/pdf/TQPanel.pdf.

[13] Leigh, A. & Ryan, C (2006) "Teacher Quality: How and Why Has Teacher Quality Changed in Australia", *Teacher*, December, pp. 14-19

[14] Leigh, A. & Ryan, C. 2008. "How Has School Productivity Changed in Australia?" *Andrew Leigh website.* http://econrsss.anu.edu.au/~aleigh/pdf/SchoolProductivity.pdf

[15] This section of the paper (relating to Leigh, 2009) is drawn substantially from Martin, R. & McCollow, J. (2007) Estimating Teacher Effectiveness?" Australian Education Union, http://www.aeufederal.org.au/Publications/Estteacheff.pdf. The Martin & McCollow paper was a critique of an earlier version of Leigh's paper.

Leigh found that there was significant variation in the "effectiveness" of teachers as measured by the improvements in test scores of their students. There was also a positive correlation between "effectiveness" as measured by student literacy results and student numeracy results. Of the factors for which correlation was calculated, teacher "experience has the strongest effect" (p.1), though "most of the differences between teachers are due to factors not captured in the payroll database" (p.4).

There are a number of limitations and problems with the Leigh research. Leigh defines teacher effectiveness in terms of the performance of their students on literacy and numeracy tests. This is a relatively limited and crude measure. Furthermore, because the tests were administered at two year intervals in August, students will have experienced classroom instruction under at least three teachers in the intervening period between the tests. Leigh assigns the improvement either entirely to the instruction of the teacher at the time of the relevant test or "splits" it 50/50 between that teacher and the teacher in the previous year.

All student test results are attributed to teacher instruction – no other factors are considered (e.g. personal, family, school, community circumstances). While Leigh attempts to control for socio-economic and family factors by using each student's own Year 3 result as the base, this only works if one assumes these factors have no effect on learning rates – a highly contestable assumption.

Finally, because teacher effectiveness is measured in terms of how their students perform relative to the average performance of their year-level cohort, any improvements in student scores that align with overall improvements for the cohort are not picked up as "value-added".

Leigh's research finds that not all teachers are equally effective in terms of the results achieved by their students on literacy and numeracy tests. This can hardly be considered a startlingly new insight. In fact, as Leigh himself admits on his web log:

> *For what it's worth, I don't think this dispersion is wider than what one would find among plumbers, dentists, architects or bricklayers. But it does indicate that - at least as measured by test score gains - all teachers are not created equal.*

Similarly, while Leigh's research purports to show a limited connection between factors identified on a payroll database and teacher effectiveness, he identifies and tests no alternative factors that correlate more highly. The factor identified as having the greatest effect (experience) actually argues against an approach to remuneration based on performance pay.

Leigh is prone to some remarkably simplistic statements. For example, although Leigh's study did not examine the time taken by teachers to prepare their students for the tests he states that "a teacher at the 90th percentile can achieve in half a year what a teacher at the 10th percentile can achieve in a full year" (p.13). This sort of hyperbole is clearly aimed for media consumption rather than as a contribution to scholarly debate.

The principle thing this research "proves" is that if one uses a very crude measure, it is possible to identify those teachers who have most "value added". However, in order for this to be linked to a system of performance pay it would be necessary to:

- vastly increase the frequency of tests (really, it would be necessary to test on entry and exit from each year, and presumably every time there was a change of teacher);

- increase the range of tests to anything that was valued in teaching and learning (or at least to recognised subjects).

(Of course, the problems for secondary schools would be even greater).

Besides being incredibly intrusive and time consuming, this would distort the process of schooling to an incredible degree, demanding high stakes testing, high curriculum definition and low teacher trust to become the whole basis of schooling. Evidence cited by curriculum and assessment experts such as Allan Luke[16] and Nichols and Berliner[17] strongly indicates that this would actually be counter productive. Experience in the USA and UK shows the deleterious effects on schools and teaching of an over-reliance on standardised tests. Some of the most successful countries (Finland and Canada) in terms of educational outcomes have low stakes testing, low definition curriculum and high levels of teacher trust.

To express scepticism about this particular piece of research is not to argue for the status quo. Improving teacher effectiveness and recognising teacher professionalism are both worthy and compatible goals. It is important to explore how they might be best achieved and research must play a central role in this endeavour. The effort is best served by approaches that engage directly with the complexity of teaching and learning. It is rather more poorly served by approaches that promote quick fixes that owe more to a market-based ideology, political expediency and self-promotion in the media than to scholarly research.

Teacher Quality[18]

Originally prepared for the Department of Education, Science and Training and released in August 2006, Leigh and Ryan's *How and Why has Teacher Quality Changed in Australia?* was seized by the then Howard Government to advance its argument for "merit" pay for teachers.

Anyone who actually reads the report will find so many caveats that it would require a gigantic leap to conclude, as both the Government and the authors did, that there has been a decline in teacher quality and the answer is "merit" pay.

The evidence for teacher quality comes from data collected in six Longitudinal Surveys of Australian Youth (LSAY) using cohorts that were born in 1961, 1965, 1970 and 1975 and 1998. These surveys included literacy and numeracy tests at age fourteen or year nine as well as data about university course choices and career choices.

The first caveat comes with the researchers' definition of teacher quality. For this they use results that those who entered teacher education courses gained in the LSAY literacy and numeracy tests. They recognise that there is far more to quality teacher than literacy and numeracy results of teachers when they were fourteen, but failing any other measure, that's what they use. They also recognise that measuring literacy and numeracy only might mask aptitudes in other academic areas and that their choice of this measure assumes that aptitudes of individuals do not change over time, thus ignoring the fact that people mature at difference rates.

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[16] Luke, A. (2007) "Does Increased Accountability through High Stakes Testing Improve Student Outcomes?", presentation to ACSA Forum, Brisbane, 30 March.

[17] *Op. cit.*

[18] This section of this paper (related to Leigh and Ryan, 2006) is substantially derived from Currie, W. (2006) "Teacher Quality: Has Teacher Quality in Australia Really Changed?" *Teacher*, December, pp. 20-21.

Because they're comparing the academic ability of teachers over time, they choose to ignore, as they say themselves, any "changes in the average academic ability of the entire cohort".

So what they've done is taken the results within a cohort of students who became teachers and compared this with the results of students in a different cohort that could be up to fifteen years apart. This is their second admitted caveat. Overall literacy rates may have risen in that time, but the researchers don't measure this.

The third caveat occurs because of the nature of the evidence. LSAY only provides information about what these students were doing in the first year after they left school, so anyone who delayed even one year before entering teacher education is not included. Over time there have been increasing numbers of such people entering teaching.

Having decided, on pretty flimsy grounds that teacher quality has declined, the researchers then set about trying to explain this decline. The so-called drop in academic ability – that is, literacy and numeracy skills at age fourteen – uncovered by their research is more evident among women than men.

First, they look at some American research which shows that in the 1960s forty-nine percent of female university graduates became teachers, but by the 1990s only twelve percent did. A fairly basic understanding of women's history might lead one to conclude that the period from the 1960s to the 1990s saw a huge change in the opportunities open to women and that this might explain the difference. But no, the conclusion, reached by a mathematical marvel, is that "the rise in salaries of high-ability women in alternative occupations explains around one-quarter of the teacher quality decline, while approximately three-quarters was due to (union-induced) pay compression in teaching". Leaving aside the union-induced aspect of this assertion, the researchers do not analyse the reasons for this pay compression. Indeed, they are very focussed on individual, monetary motivations, and pay no heed to research into what makes a good teachers and how difficult that is to measure.

They look at trends in teacher pay in Australia to see if this can explain anything. An here comes the next caveat. They don't look at anything else to find an explanation. "We leave for future research the possibility that the decline could be attributed to non-salary factors, though we believe this is less likely". They believe it is less likely? On what grounds?

Ignoring any other possibilities, they ask three possible questions to try and find an explanation for the phenomenon they haven't managed to demonstrate is actually occurring. First, have the "returns to aptitude" in teaching changed over that time? In other words, if you're a teacher with high academic ability – whether this equates to quality teaching, of course, is another matter – will you be paid more than one of lesser ability? The answer is no, this hasn't changed over time, so this cannot be the reason for the change in teacher quality.

Secondly, has the average salary of teachers declined in that time relative to other occupations? The answer is yes, so this could be a reason for the change.

Thirdly, has pay dispersion in other occupations changed in that time? In other words, has there been a change in the possibility that you might be paid more in occupations other than teaching if you're clever? The answer to that, the researchers say, is yes, so this could be a

reason for the so-called decline in teacher quality. What this means is that in their final year at school, it dawned on young people who were academically capable that in other occupations they would be paid more than their not so capable colleagues in the same occupation, so they chose those occupations rather than teaching. Come on! Remember that the subjects of the study are only those who began teacher education immediately after their final year of school. They didn't really have a lot of time to ponder this.

One aspect of the research appears particularly worrying. The researchers needed to be able to determine whether ability and wages are positively correlated in non-teaching occupations. The data they used on wages, however, provided no information about ability, so they made an assumption that wages and ability are positively correlated. One of the rules of the research game is they you can't prove your hypothesis on the basis of assumptions.

In any case, the evidence the researchers used to make this assumption is LSAY data. It shows that for non-teaching occupations for every achievement decile you move up on the literacy and numeracy tests at the age of fourteen, you'll earn a grand total of between fifteen and thirty cents per hour more than your peers as an adult. You'd probably agree that this is not a massive pay differential, yet because of this, the researchers assert, clever young people chose a careers other than teaching.

Maybe what all this shows in the end is that if your lack the hard data to make accurate and testable predictions, then you shouldn't make any predictions at all.

What conclusions are drawn? Firstly, the researchers say that the decline in teacher quality has got nothing to do with returns to aptitude in teachers. This is because there has never been a time with academically-gifted individuals were paid more than others in teachers. And then, for all the statistical manipulations and contortions that went into the research, the researchers make a bold and unsubstantiated claim: "This is perhaps because teachers unions in Australia have consistently rejected merit pay, and have remained industrially powerful throughout the period in question".

There is no attempt to analyse what is meant by "merit" pay, how difficult it might be to define merit in teaching, how merit might be a more slippery concept in teaching that in, for example, manufacturing where you might measure goods produced, or in advertising where you might measure commercially-successful concepts or in banking where you might measure profits.

At least Leigh and Ryan don't advocate using student results to determine teacher merit, but they come pretty close. In fact, the best conclusion to which their methods could lead is that merit pay ought to be based on the results of teachers score on literacy and numeracy tests when they're fourteen. Now that would be merit.

The only really incontestable finding of the research, and the only one with no caveats, is that the relative pay of Australian teachers declined in the period 1983-2003.

Yet they conclude that, "while boosting average teacher pay may be one way of encouraging more able people to enter teaching, it's also possible to increasing the returns to aptitude may be a more cost effective way of raising the quality of the teaching profession", ignoring the fact that they haven't actually proved there has been a decline in the quality of teaching at all.

School Productivity[19]

Leigh and Ryan's report *How Has School Productivity Changed in Australia?*[20] was released in February, 2008. The report, which involved a reinterpretation of data from other studies, received considerable and largely uncritical media attention, including in most of the major newspapers and on "AM" on ABC Radio National. The authors claimed to have demonstrated a small but statistically significant fall in literacy and numeracy in the last few decades.

Employing a business "productivity" model to study educational outcomes, the report makes the following claims:

- A small but statistically significant fall in numeracy has taken place over the period 1964-2003.
- A small but statistically significant fall in both literacy and numeracy has taken place over the period 1975-1998.
- The decline in both is in the order of one-tenth to one-fifth of a standard deviation.
- Factors such as demographic or societal changes are not sufficient to explain these changes.
- During the relevant periods per child expenditure on education increased: by 10 percent over the period 1975-1998, and by 258 percent over the period 1964-2003.
- "Productivity" as measured by output per dollar has therefore fallen over the past 3-4 decades, specifically by 13% with regard to numeracy and 73% with regards to literacy.
- Most of the increased expenditure can be explained by a decrease in class sizes and student teacher ratios. Therefore decreased class sizes have not increased educational "productivity".
- Another possible cause of the decrease may be "falling teacher quality". This may be related to low teaching salaries, the implication (not specifically stated) being that increased salaries could lead to increased "teacher quality".
- The shift to a "whole-language" approach to teaching reading in the 1970s may have also contributed to the decline.

The claims are based on four Longitudinal Surveys of Australian Youth (LSAY) cohorts: the Youth in Transition 1961 and 1975 birth cohorts (YIT 61 and YIT 75), the Longitudinal Surveys of Australian Youth 1995 and 1998 Grade 9 cohorts (LSAY 95 and LSAY 98). The authors also examine numeracy data from the International Association for the Evaluation of Educational Achievement (IEA).

Leigh and Ryan do not engage with, debate or even mention the findings of the LSAY studies from which they draw their data. A reader of the Leigh/Ryan study in isolation would accordingly be completely unaware of the fact that the original studies from which Leigh and Ryan drew their data reach significantly different conclusions.

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[19] This section of this paper (related to Leigh and Ryan, 2008) is substantially derived from a February 2008 Australian Education Union Briefing Paper by Federal Research Officer Peter Job. Parts of the AEU Briefing Paper were also was used, with Peter's permission, in Zyngier (2009), "The Tribulations of Reusing and Repackaging Data: A Review of 'How Has School Productivity Changed in Australia?'", *Australian Educational Researcher, 36(2), pp. 73-92.* Where Zyngier is cited, it is only in relation to those sections of his article not drawn from the Briefing Paper.

[20] Leigh, A. & Ryan, C. 2008. "How Has School Productivity Changed in Australia?" *Andrew Leigh website.* http://econrsss.anu.edu.au/~aleigh/pdf/SchoolProductivity.pdf

The LSAY paper *Achievement in Literacy and Numeracy by Australian 14-year-olds, 1975-1998* in fact states:

> *The results reported here indicate that the achievements of Australian 14-year-olds in reading comprehension and mathematics have remained constant during the period. For some groups, there has been improvement, most notably for students from language backgrounds other than English.*[21]

There are two main factors that have led to this difference in findings.

Leigh and Ryan restricted their study to the group of students who were both fourteen years old *and* in Year 9 at the time of the studies, claiming it is most valid to focus on a common group *"…since both students' ages and grades may affect their performance over time."*[22]

The LSAY report itself rejects this as a group from which to draw valid conclusions. While admitting that among the 14-year-olds in Year 9 there were slight statistically significant decreases in both reading comprehension and mathematics (as opposed to the 14-year-old group as a whole for which there were not) they attribute this to the fact that the group of 14-year-olds in Year 9 in the earlier cohorts may have been of higher ability, because of school-entry and grade retention policies and practices. The decline in scores noted are considered more likely to be a reflection of changing enrolment and promotion practices than of changing achievement levels in reading comprehension and mathematics. They therefore determine that:

> *…the subgroup of 14-year-old students was the most appropriate group to use for the multivariate analyses, because changes in school-entry ages and grade retention practices affected the composition of the subgroup comprising 14-year-olds in Year 9.*[23]

Leigh and Ryan on the other hand claim that while grade repetition rates certainly fell, this was offset by trends towards later school commencement, a fact they claim would have disproportionably affected students of below average ability. They therefore claim that:

> *… the proportion of students 'old' for their grade, given the school commencement rules operating in their jurisdiction, actually increased in the later LSAY cohorts, presumably increasing the average ability of the students observed aged 14 and in year 9 in the data, while in others it did not change.*[24]

Given that Leigh and Ryan provide no evidence for the claim that later commencement would have disproportionably affected students of below average ability, the LSAY decision to use the whole 14-year old group seems sounder.

The other factor that led to a difference of findings concerns that of demographics, specifically the effect of the changing percentage of 14-year-olds from other-language backgrounds attending government schools. The LSAY report documents these students to have more than doubled, from 4.4 per cent to 10.7 per cent.

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[21] Rotham, S. 2003. Achievement in Literacy and Numeracy by Australian 14-year-olds, 1975-1998. *Longitudinal Surveys of Australian Youth (LSAY),* Executive Summary p.ix. http://www.acer.edu.au/documents/LSAY_lsay29.pdf

[22] Leigh & Ryan (2008) p. 6.

[23] Rotham, *Op. Cit*. Executive Summary, p. v.

[24] Leigh & Ryan (2008) p. 7.

The Leigh/Ryan report dismisses any effect from this by pointing to the increase of students with parents with a university degree as an offsetting factor, and by employment of a statistical technique known as the Oaxaca decomposition.[25]

The LSAY report on the other hand draws significantly different conclusions. It states that while students from such backgrounds perform on average measurably below that of students from English language backgrounds, between 1975 and 1998, the magnitude of the difference decreased from –5.005 to –2.599. This is about half, indicating a significant improvement in the scores of students from homes where English is the not the main language spoken relative to the scores of students from homes where English is the main language spoken. The LSAY report sees this in entirely positive terms concluding:

> *This stability shows that schools have been able to maintain standards in reading comprehension while enrolling students from other language backgrounds.* [26]
>
> and:
> *With such dramatic changes in their clientele, schools found it necessary to ensure positive educational outcomes for a wider range of students from language backgrounds other than English. The data presented in this report show that Australian schools have been successful in providing educational opportunities and achieving positive outcomes for many of these students, reducing differences in scores between students from English-language backgrounds and students from other-language backgrounds, as measured at the student level and at the school level.*[27]

In terms of the credibility of their conclusions, the failure of Leigh and Ryan to acknowledge and engage with the findings of the original studies from which they drew their data and discuss the differences of these findings from their own conclusions is a serious failure. It leaves them open to allegations that they have selectively used the data to arrive at predetermined results. It is indicative of the influence of this type of research that it received such uncritical acceptance by the media and politicians.

There are other comments that can be made on the Leigh Ryan report.

- The study employs a business "productivity" model to study educational outcomes, with supposedly numerically measurable performance outcomes calculated against financial inputs. Testing is therefore accorded an important place in such an approach as it produces the most easily measurable data. Such an approach simply does not account for the range of outcomes and diverse factors that contribute to a modern education. It does not measure important qualitative factors that are important to an individual's participation in modern society, or her or his ability to acquire the skills necessary to survive in the modern workplace. Nor does it sufficiently take into account the complexity of "inputs" involved in diverse student cohorts over time.
- A study restricted to literacy and numeracy testing in a narrow context involves only a narrow measure of educational quality and performance. Many other aspects of a broad-ranging education, such as other subject areas, verbal communication, social skills, knowledge of wider society, as well as abilities to actually use both literacy and

[25] Zyngier, *Op Cit.* is highly critical of Leigh and Ryan's use of the Oaxaca technique as well as of their use of demographic data as a whole.
[26] Rotham, *Op. Cit.* p. 32.
[27] Rotham, *Op. Cit,* p. 39. The work of Bracey on the role of "Simpson's Paradox" in the misinterpretation of American National Assessment of Educational Progress (NAEP) scores is also relevant here. See Bracey, G.W. (2009) *Education Hell: Rhetoric vs Reality,* Alexandria VA: Educational Research Services, pp. 79-88.

numeracy skills in a variety of contexts would need to be examined in order to provide a proper examination of overall education effectiveness.

- Many contextual factors that would impact on both educational expenditure and educational outcomes in a particular area are not considered in any depth. Schools curriculums are considerably more diverse today than in 1964 or in 1975. Student populations are more diverse. Society is more complex and arguably more stratified. In this context, the claim that a decrease in class sizes has not led to an increase in educational "productivity" is simply not demonstrated. The complexity of the changes over the periods examined mean that class sizes are simply of one of many factors that should be considered.
- The report is in apparent contradiction to the relatively good results of Australian students on the international PISA and TIMMS tests. The authors answer this by claiming that "…test scores in OECD countries were essentially flat over the period 1970-94…" allowing Australia to maintain a relatively high position despite its lack of "productivity".[28] However, for this claim to be true it would apparently have to indicate that all or most other OECD countries were performing as badly or worse in their educational "productivity". Given that Australia ranks towards the lower end of OECD spending per capita but still manages to perform well in international performance indicators, it is difficult to believe that our educational "productivity" is as bad as the authors claim.

Conclusion

The neo-liberal education agenda – to which the work of Leigh and Ryan and the American economists whose research they emulate contributes – needs to be fiercely contested by all of those with a sincere interest in defending the core values of public education and really improving educational outcomes for all students. We in education unions have taken up the cudgels and we are heartened when our academic colleagues in education faculties dispute the dubious assumptions, inappropriate methodologies, questionable findings, flawed analysis and deleterious effects of neo-liberal research in education.

But the challenge is massive. Neo-liberalism provides the terms of reference, sets the agenda and commands the attention of politicians, the media and perhaps even the public. Even within the ranks of educationalists, there are plenty of "policy entrepreneurs" willing to trade in neo-liberal ideas to get that research grant or promotion or consultancy.

It is easy to be discouraged. But we are teachers and therefore optimistic at heart that people (including even policy-makers) really can be shown what is right and what is wrong, what works and what doesn't work – and can learn.

[28] Leigh & Ryan (2008) p. 18.