

Paul Williams - Analytic Report: Factors contributing to and ways of improving Australia's educational performance.

This paper initially examines Australia's Educational performance in the international context. What do international studies tell us and just how reliable are they? It then explores national testing and its impact on curriculum both here and overseas. Finally the issue of 'carrots and sticks' and how policy makers can improve educational outcomes through quality teaching is examined.

Micklewright & Schnepf (2004) examined four international tests designed to measure learning achievement by examining functional literacy in a range of areas including reading, literacy, science and mathematics.¹ From the outset they made it clear that there were challenges in making valid performance comparisons between countries. Which achievement test to use? They each test something different and they also apply to particular age groups and/or curriculum stages. Given the variances of cultural and language differences, data-gathering models and question types, they concluded; *"there seems ample reason for comparing results across the different surveys rather than relying on a single source"* (p.4). Subsequently they compared educational achievement across and within six English-speaking countries' (ESC) achievement levels.²

Of the six, Canada followed by Australia performed consistently above the OECD averages with regard to both achievement and equity measures.³ Masters' (2005) analysis of PISA and TIMMS results revealed Australian 15 year olds; *"have a level of reading, mathematical and scientific literacy among the best in the world ... well above OECD averages"* in all domains and literacy subscales (p.8). Particular strengths lay in *"careful reading, logical thinking and application of reading skills and mathematical and scientific understandings to everyday problems"* (p.9).

Nevertheless Micklewright & Schnepf found; *"there are very large differences in achievement among children within one grade of compulsory school in all countries"* (p.11). ACER's (2003) analysis of the PISA results revealed further disparities that challenge the 'equity' results. Although our high achievers consistently outperformed the top 10% in the higher performing countries, our bottom 10% were consistently lower than these same countries. The low performance of boys in reading, especially those from lower SES backgrounds and the low performance of indigenous students were noted. Masters affirmed these and additional trends, including the relative disadvantage of students living in remote localities. Australia's performance in TIMMS also revealed a relative lack of progress since the previous test (1994/5), particularly the Year 4 cohort, who now perform *"less well in school mathematics and science than they did a decade ago"* (p.10), despite significant investment in new state curriculums, standards frameworks and system-wide testing programs to monitor student and school achievement.⁴

Lamb, et al's (2004) analysis of Australia's performance also noted the slip in equity: *"Large gaps in achievement in Australia ... highlight the fact that the strong mean achievement levels in key curriculum areas conceal continuing inequalities, which promote educational disadvantage"* (pp. 36-7). Furthermore these gaps broaden as students progress through their schooling (p.59),

¹ International tests examined included: PISA (programme of International Student Assessment); TIMMS (Trends in International Maths and Science Study); PIRLS (Programme of International Reading Literacy Study) and; IALS (International Adult Literacy Survey).

² The six ESC were US, Canada, Australia, New Zealand, UK and Ireland.

³ Micklewright, J. & Schnepf, S. V. (2004) – see figure 1 (p.22); figure 3 (p.26)

⁴ It must be noted that Year 8 Australian students performed significantly higher than the TIMMS OECD average in mathematics and approximately on the OECD average in science for Years 4 and 8. It was the relative lack of improvement and in the case of Year 4 mathematics, the decline in performance, that was of concern.

particularly for indigenous students.⁵

Even closer analyses of the tests themselves throw up other observations. Mendlovits (2003) for instance examined reading literacy in PISA by breaking up the results into three domains – Retrieving, Interpreting and Reflecting. While Australia was first and second among the ESC in the first two domains, we significantly underachieved in the reflective domain, particular in the area of critical evaluation. They noted that the two high performing countries (UK and Canada) had a literature-based English syllabus which deepened critical thinking as opposed to Australia's thematic and issues based syllabi. They also noted the need for Australian educational policy makers to reevaluate what and how literacy standards are defined and measured.

What factors are responsible for Australia's performance?

Micklewright & Schnepf identified a range of factors responsible for variance in achievement, including family background – which incorporated family structure, SES, parents' educational attainment, gender, migrant status, locality – along with pupil teacher ratios and principals' perceptions. Not surprisingly, there were consistently positive correlations between these factors and national performance for all countries. Australian differences did not stand out in the PISA reading performance and confirmed the OECD averages.⁶

With regard to national expenditure on education the OECD reported in 2001: “*as expenditure per student on educational institutions increases, so also does a country's mean performance, expenditure ... explaining 17 percent of the variation between countries in mean performance.*” However Micklewright & Schnepf argue that when certain factors, such as Mexico's non-participation in TIMMs are taken into account, “*the regression collapses ... the expenditure variable remains insignificant*” (p.15). So who are we to believe? Surely educational outcomes are significantly affected by public expenditure and investment in schooling. However Ireland invests \$US35,000 per head in comparison to the US's \$70,000 per head, yet outperforms the US. Korea outperforms all the English-speaking countries (ESC), yet spends 30% less than the OECD average. How that money is allocated and used and where it is invested, whether into salaries, staff time, class sizes, infrastructure, TPL and other inputs, is more to the point.

What was most significant was the lower performance variance between Australian schools compared with other ESC. This may have well been attributable to the finding that they were least affected by family background.⁷ However there was a higher performance variance within schools in Australia⁸, suggesting that the teacher's role in driving student achievement is proportionately more significant.

However, McGuinness (2004) has serious doubts regarding the efficacy and ethics of the whole international testing regime. He cites political pressure and non-compliance with mechanisms designed to maintain the consistency of the sample and thus the data. The compliance rate of 85% was largely ignored and no ESC met the standard, including Australia. Given the apparent lack of control over sampling sizes and sources in PISA and PIRLS, he concludes: “*International testing has become an exercise in futility. It is an enormous waste of time and resources, and proves nothing*” (p.353). Nagy (1996) also offers words of caution regarding the difficulties of measuring

⁵ Indigenous students:

- (i) Literacy - 23% below minimum achievement levels in Year 3. However this figure balloons out to 38% by Year 5.
- (ii) Numeracy – 26% below minimum achievement levels in Year 3 - to 37% by Year 5. (Lamb et al, p.60)

⁶ Edwards (2002) also noted that Australian achievement in PISA was affected by a variety of social and demographic factors, including: “*sex, location, cultural and family background, personality, learning style and school attended.*” (p.114).

⁷ Ibid. Figure A1, p.34

⁸ Ibid. Figure 7, p.33

student achievement across widely divergent curriculums, cultures, contexts and systems and the agenda of the various media organisations, researchers and politicians who follow agendas that are not altogether altruistic.

Improving Australia's Educational Outcomes through Quality Teaching

Scott, et al (2001) sound warnings with their right and left hand analogy⁹ and the relative decline in the value placed on the work of the left hand measured by salaries, professional status and low trust. The practice and educational outcomes of schools are increasingly audited in order to direct, monitor, measure and regulate. The British OFSTED and the US NCLB¹⁰ for instance have intentions of linking teachers' promotion and pay to student performance. Such measures may lift international and national standards test results and make TPL more focused and 'relevant', however as Scott et al observe, overall occupational satisfaction, professional status and independence are diminished in the process. They conclude, no matter the change or reform, the policy domain must acknowledge and understand the social context of schools and teaching and what motivates teachers to become teachers – altruism and a desire to improve the life opportunities of young citizens. There must be opportunities for deep and sustained satisfaction in the job we do.

However, the Australian federal government's agenda is the formation of a national curriculum. Donnelly's DEST funded report (2005) reflects this agenda. The research, much of it based on performance indicators from national testing and TIMSS, called for a curriculum that included essential learning; was clear, rigorous and concise; placed more emphasis on 'whole-class' teaching; ensured less disruption to core content; had a greater focus on teacher-directed activities; incorporated regular testing in order to stream students into appropriate achievement and developmental cohorts, and; favoured a centrally controlled curriculum and assessment regime in preference to school-based curriculum initiatives. He rejects the 'constructivist' approaches adopted by state curriculum documents: "*Unlike a syllabus or standards approach, where there is more emphasis on direct instruction and explicit teaching, the OBE approach adopts classroom strategies like: group learning, individualised project work and enquiry learning.*" (p.31), in favour of direct instruction and the traditionalist view of curriculum and pedagogy. He makes reference to the research of Hirsch who stated: "*intelligently directed and repeated practice, leading to fast, automatic recall of math facts, and facility in computation and algebraic manipulation can lead one to effective real-world problem solving.*" (p.32).

Leigh (2005) also portrays a 'crisis' in Australian educational outcomes, but from an economic rationalist perspective, claiming a longitudinal study of literacy and numeracy data over the past thirty years has revealed: "*declining outputs despite rising inputs*" and a concomitant decline in teacher quality (p.3). He proposes 'healthy competition' between schools by providing parents with more information on school performance to open schools to market forces combined with targeted incentives including access from other professions and pay based on performance and locality. Leigh argues there has been a decline in teacher aptitude and the quality of their preparation due to declining relative pay yet argues against across-the-board pay rises to address the problem. The 'carrot' he offers is effectively a 'stick'.

Scott and Dinham (2002) examine this 'crisis' and the impact of 'solutions' that claim to address this low quality via auditing teacher performance and educational outcomes in a standards framework. They argue that the 'stick' of low trust management is counter-productive and leads to decline in occupational satisfaction - a crucial element in quality teaching. There are fundamental disagreements regarding the purpose of education, so if anything it is a genuine crisis in how the

⁹ Scott, C., et al (2001). This analogy likens the right hand of the educational landscape as representing the political, financial and economic institutions, whereas the left hand is represented by the service domain and institutions and organizations that serve the public interest.

¹⁰ OFSTED – British Office for Standards in Education

US NCLB – No Child Left Behind

curriculum is perceived. Labaree argues that where the model of private good gains the upper hand as an educational imperative; *“the attainment of common education standards will receive no support”* (p.20). The detractors of standards testing argue that teachers teach to the test at the expense of citizenship, critical thinking, authentic and deeper learning. The rise of the auditing process and marketing values has led to diminishing occupational satisfaction.

There is mounting evidence suggesting accountability and control measures, combined with ‘carrots and sticks’ approaches to teacher motivation and practice, are counter-productive. The NCLB goal demands “adequate yearly progress” or face sanctions and intervention - it is punitive in nature and intent. Such measures force schools to focus on those areas of the curriculum that are tested, thereby narrowing the curriculum. The schools perform better in tests, however there is a cost: higher student drop out and exclusion rates; less depth in the curriculum; teaching to the test, and; less time for diagnostic (formative) assessment which assists differentiation. Rustique-Forrester’s (2005) study¹¹ found that the constraints of the BNC turned teachers into ‘dilemma managers’ balancing competing paradigms: independent learning versus standardization; equality versus excellence, and; student-centred learning versus mandated subject material. Teachers found reduced choice and flexibility, content-driven pedagogy, thus making it harder to differentiate the curriculum to fit individual learning needs. It was frustrating for all stakeholders because of the discouragement of deeper exploration, risk-taking, creativity and the social aspects of schooling and isolated lower achieving students. Not surprisingly, high capacity, lower exclusion schools practiced behaviours that focused on students’ individual needs and inclusiveness and the engagement of all stakeholders. High internal agreement was a defining feature of these schools. However, higher exclusion schools demonstrated a *“lack of collaboration and communication between teachers, staff distrust and cynicism towards the schools’ leadership and a lowered tolerance and capacity to help students who were struggling in school”* (p.26).

When examining rewards and incentives Scott and Dinham (2002) argue that *“carrots are sticks”* as rewards undermine intrinsic motivation (p.25). ‘Merit’ based rewards are control mechanisms and imply failure for those who don’t ‘measure up’. Furthermore efficacy is eroded by poor morale, inadequate salaries, low status, lack of recognition and excessive role demands (p.27). They cite research (Ayres - 2000) that notes teamwork, faculty collaboration, a climate of high expectations and professionalism and notably an absence of professional jealousy as essential ingredients in effective schools. Teachers prefer working with and for colleagues and dislike policies and processes that reward ambition over service or turn colleagues into competitors. They assert that the effective schools movement is a powerful argument against standards testing and audit measures in driving improved educational outcomes. It is the quality of the teaching rather than the quality of the teacher that is paramount. Thus *“recognising and improving teacher practice and professionalism through the formulation and adoption of professional teaching standards”* should be the priority (p.27). They frame a teaching profession that is focused on improving teaching practice; is accountable *and* autonomous; owned and reliant on – not the carrots and sticks of external control – but on professional self-regulation. Schools and teachers need to: espouse high expectations; differentiate the curriculum; establish a learning organization in a data rich environment that engages in action learning¹²; engage in TPL that is authentic, negotiated and

¹¹ Rustique-Forrester’s (2005) study of the British National Curriculum (BNC) examined the consequences of the curriculum reform of the BNC’s national testing and performance targets and ranking on teacher practice and student engagement – measured by student exclusion rates (read disengagement). School and teacher response to the policies was a crucial part of the study – the effect on planning, collegiality and collaboration and the impact of policy on practice.

¹² McLaughlin et al (2000) argue, the curriculum is far richer and more complex than any single test research project; *“just because it’s happening doesn’t mean it’s working”* (p. 1). Reflective practice (Smith – 2005) driven by action research through a raft of methodologies¹², authentic pedagogy and assessment has far more meaning than standards-based testing and is a powerful tool for decision making and school curriculum, thus becomes a part of the enacted curriculum. As Cook (2006) posits, the data must talk to teachers about their students, lessons and programs. Axworthy

contextual; work collaboratively, and; recognise and celebrate their achievements.

Cumming and Jasman (2003) articulate the difference between teacher and teaching standards. They argue teaching standards are more concerned with building capacity and enhancing the profession. Any reforms in education must enter the classroom, thus teacher quality is central to their success. The higher order measures of professional practice are much harder to quantify, evaluate and judge.

At this point we arrive at the model of Professional Teaching Standards that have recently emerged in state education systems in Australia. The PTS articulate teachers' knowledge and capacity over time with the expectation that both will improve. They have emerged from a knowledge and research base founded on best theory and practice and provide a scaffold of knowledge and competencies for each stage of professional experience and expertise, along a continuum from graduate to leader. At the same time they are contextual and deeply connected to subject area and workplace. PTS are not nor intended to be used as a 'stick' – they "*recognise that teaching is a complex profession in which not everything can be measured, categorized and quantified*" (p.16). They provide a structure for teachers to guide and monitor their own professional learning and development as members of a learning community and to support career development. O'Brien and Goddard's (2006) research confirms the need for explicit support for teachers, especially those entering the profession. They discovered that a third of Queensland teacher graduates were seriously considering resigning in their first two years of service (p. 29). Hattie's (2003) expert teachers establish their roots in the rich terra firma of supportive school cultures where structured, consistent and ongoing support and supervision, in tandem with quality in-servicing, mentoring and networking, is provided for beginning teachers.

Sachs (2001) goes further and calls for an activist and participatory teacher professionalism. She warns of standards and certification processes that are used to control and limit teachers' conception of their work – that are regulatory rather than developmental. There are two pivotal areas of tension. Firstly, who monitors and controls the standards – regulatory bodies or the profession? Secondly, is the end result 'standardization' of practice or "*development of standards that can have wide applicability across various contexts and settings or even improve the level of standards achieved.*"? (p.3).

These findings not only provide warnings to Australian policy makers, but also models of pedagogy, curriculum design and school structures whereby Australian schools can lift the educational outcomes for lower achieving students by attracting, retaining and developing quality teachers. Such mechanisms and structures are being implemented in various education systems in the Australian context - the NSW DET's Institute of Teachers being one such example.¹³

As Hattie (2003) says, teachers do make a difference. He criticises the 'idiot-proofing' of national testing movements, which he asserts; "*ensure teachers teach the right stuff, concentrate on the right set of processes (those to pass pencil and paper tests), and then use the best set of teaching activities to maximize the narrow form of achievement (i.e. lots of worksheets of mock multiple choice exams)*" (p. 1). Similarly Hayes et al (2006) criticise what they term the 'new reductionist

(2006) articulates the nexus between Hattie's research on the teacher's impact on student learning and the significance of turning data into information to improve learning; "*we need to ensure that student performance data reaches teachers in a way that informs their approach to teaching practices*" (p. 12).

¹³ The NSW DET's Institute of Teachers' Framework of Professional Teaching Standards provides a common reference point to describe and support the complex and varied nature of teachers' work. The Professional Teaching Standards describe what teachers need to know, understand and be able to do as well as providing direction and structure to support the preparation and development of teachers.

approaches' to curriculum and assessment which are linked to accountability (p. 80). They call for an education system that trusts and supports teachers and schools and the nurturing of learning organisations that are reflective and inclusive communities of practice.

Hattie's research demonstrated; "*It is what teachers know, do, and care about which is very powerful in this learning equation*". He makes it abundantly evident that the key to unlocking the content and intent of the curriculum is the teacher; "*the person who puts into place the end effects of so many policies, who interprets these policies, and who is alone with students during their 15,000 hours of schooling*" (pp. 2-3).

Cullingford (2002) articulates the teacher's relationship with and their view of the curriculum and the student and "*whether they view the curriculum as a means to an end, as a tool which children must learn to use, or as concerned with the development of the whole child*" (p.187). The same dichotomy could be applied to the policy domain. As MacNeill and Silcox (2006) dramatically conclude, there are two major forces at work on teacher and school accountability. They refer to the 'forces of darkness', the testers and cynics who are predisposed to mistrust teachers, thus 'teacher-proof' the curriculum. On the other side stand, what they term, 'the forces of light': "*Those who see teaching as a noble profession predicated on a professional teaching work-force that has the skills and ability to develop each student to his/her full potential*" (p. 13).

It is appropriate to conclude with Avenell's (2006) assessment of how quality educational outcomes can be achieved. His observations of the reasons for Finland's achievements¹⁴ serve as a template for much that has been argued in this paper:

"Their system sets high standards for allowing teachers into the profession, awards high pay, and bestows high status to those who enter teaching, provides rigorous and extensive professional development for the teachers, and depends on trusting relationships to improve academic achievement" (pp. 35 & 47).

For the sake of the profession and the students that we are charged with educating, we can only hope that the policy makers listen.

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