

## **‘Bridging Divides’**

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#### **‘International Supports for Building Bridges to Improved Achievement for Students’**

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This paper gives an overview of international literacy assessments and discusses what can be learnt from the information produced from these assessments to inform and assist classroom teachers and school leaders in Australian schools. The paper identifies what is included in the concept of literacy in the international context, as well as the difficulties involved with comparing assessment results from diverse populations. Reference is also made to national assessments. The meaning of ‘high quality / high equity’ education systems is addressed, as is what this means for practitioners in Australia.

#### **International Assessments**

The IEA (International Association for the Evaluation of Educational Achievement) and the OECD (Organisation for Economic Co-operation and Development) are currently the foremost players in the field of international assessments. They are responsible for the three major programs that gather data specifically on education outcomes in terms of student achievement and aspects connected with them: TIMSS - Trends in International Mathematics and Science Study (IEA); PISA - Programme for International Student Assessment (OECD) and PIRLS - Progress in International Reading and Literacy Study (IEA).

The IEA is based in Boston USA. The IEA conducted its first international study of student achievement in 1964 with twelve countries taking part in the First International Mathematics Study (FIMS). The founders of the IEA were a mixture of scholars, educational psychologists, sociologists and psychometricians and included researchers from the USA, Belgium, Sweden, France, England, Germany, Finland and Scotland (IEA, 2009). International and interdisciplinary collaboration enabled the development of easier and more valid comparative data collection and analysis using a more scientific approach involving the use of statistical analysis, model theory and systems analysis (Keeves 2009, p. 150).

The OECD is an intergovernmental organization based in Paris, France, founded in 1961, and which currently has 30 member countries and ‘cooperative relations’ with 70 others (OECD, 2009). Although

its basic concern is economic policy, education has become a major part of the mandate of the OECD. This has happened through the influence of projects such as PISA, the ensuing reviews and publications the OECD undertakes including the various PISA reports, reviews at the national and international level, and the annual *Education at a Glance* (OECD, 2009b).

TIMSS began in 1995 and takes place every four years. It assesses the mathematics and science achievement of students in the fourth and eighth grades and collects data on related contextual aspects such as mathematics and science curricula, and classroom practices across countries. TIMSS involves the administration of student, teacher and school questionnaires for students in 4th and 8th grades. As well as developing reports on curricular achievement, TIMSS provides information on: performance and gender differences; trends and gender differences; performance of indigenous students; trends for indigenous students; how well prepared do teachers feel they are to teach maths and science; how safe and orderly are schools. Thirty-six countries at 4<sup>th</sup> grade and 48 countries at 8<sup>th</sup> grade participated in TIMSS 2007, including 17 countries that are members of the OECD one of which is Australia (IEA, 2009a).

PISA began in 2000 and is carried out every three years. It provides internationally comparative information on the reading, mathematics and science literacy of students in the upper years of school at an age that, for most countries, is near the end of compulsory schooling. The objective of PISA is to measure the 'yield' of education systems, or, the skills and competencies students have acquired and can apply in these subjects to real-world contexts by age 15. It involves the administration of student tests, student questionnaires and school questionnaires. Apart from attainment in reading, maths and science, PISA gives information about: student engagement; quality and equity in the performance of students in schools; school and system characteristics and student performance. PISA 2006 reported scores for 57 countries and subnational jurisdictions, including all 30 OECD countries (OECD, 2009a). There were 356 schools and 14,170 students from Australia involved in the last PISA (Thomson, 2008, p. i).

PIRLS involves only primary school children. Beginning in 2001, it is planned to be a regular assessment of 4th grade reading achievement on a five yearly cycle. Conducted now in 40 countries, it provides information about reading achievement and the home, school, and classroom environment for the teaching and learning of reading (Kennedy, 2007). Australia will take part for the first time in 2011.

TIMSS, PIRLS and PISA are sample-based assessments meaning that each program administers the assessment to a sample of students in such a way that the results can be generalized to the larger population.

## **National Assessments**

There are many countries that have some kind of national testing although, as will be alluded to later in the article, such a testing regime does not seem to contribute to higher student achievement.

In Australia we had the first NAPLAN (National Assessment Program Literacy and Numeracy) tests in 2008, replacing similar but various benchmarking assessments that have taken place in each State since at least 2001. The NAPLAN tests include pen and paper individual timed tests of reading, writing, spelling, grammar and punctuation (Freeman, 2008). All students in Australian schools in Years 3, 5, 7 and 9 are required to undertake these tests as opposed to the sample-based international assessments. Also in contrast to the international assessments, there are no school, teacher or parent questionnaires to provide contextual information for the student assessments, although some of this information is available from other statistics collected by government departments from schools.

## **Definitions of Literacy**

PISA defines literacy as:

The ability to understand, reflect on and use written texts, in order to achieve one's goals and participate effectively in society. (IRA, 2009)

However, it is important to remember that the nature of the assessment restricts students mainly to exhibiting their reading comprehension skills. The term 'literacy' is also applied by PISA to science and mathematics as 'the OECD considers that mathematics, science and technology are so pervasive in modern life that it is important for students to be 'literate' in these areas as well' (Thomson, 2008, p. ii).

Using this argument, TIMMS could also be included in a discussion about literacy, however, most of the findings discussed here are from PISA and PIRLS both of which are more particularly concerned with levels of literacy achievement.

PIRLS definition of literacy is:

The ability to understand and use those written language forms required by society and/or valued by the individual. Young readers can construct meaning from a variety of texts. They read to learn, to participate in communities of readers in school and everyday life, and for enjoyment (IRA, 2009).

Although there is no specific definition of literacy on the NAPLAN website, the aspects of literacy are described as the language conventions of spelling, punctuation and grammar as well as reading and writing.

## **Information from International Assessments**

Many reports are generated from the data collected by PISA and PIRLS both by the IEA and the OECD, but also by a myriad of other agencies and individuals. The purpose of this paper is not to describe in detail and analyse the results of Australian students and schools in international assessments, as this has been done in many other places in great depth (Thomson, 2008; McGaw, 2007; ACER, 2009a). Rather, it is to consider the difficulties inherent in these international comparisons, some of which also apply to national assessments, and to highlight aspects of the results that are particularly relevant to school and classroom practitioners.

## **Comparability issues and other dangers**

Although international assessments and the information from them appear to be gaining in popularity, if judged by the number of countries becoming involved, the problems of comparability are continually put forward. Schleicher suggests (2009, p. 216) two categories of problems - education systems (meaning both the diversity of the systems as well as differences in the structure of the governance of education) and data.

Some of the problems in the first category of differences between education systems are:

- Financing of education – who pays, and what personal expense to parents and students is required
- Starting age
- Progression through school e.g. policies of repeating grades
- Structures of schools - preschool, primary, middle, secondary, higher education, vocational education etc.
- System structures – forms of governance - centralization, role of local authorities, stratification and standardisation of education
- Definitions - education, special education, adult education, full-time, part-time, preschool, child care etc.
- Political situation - philosophy, stability
- Diversity and distribution of population – geographic, age, cultures, languages,
- Culture / multiculturalism - ethnic, religious
- Status and equality of public and private schools
- GDP spending on education
- Compulsory age of schooling
- Transition points - e.g. between preschool and primary etc.
- Participation in work force and relation to education level
- Levels of education – participation in education – leaving age
- Equality or otherwise of public and private schools – financing, curriculum, SES.

A separate essay could be written on any of the above points, especially if one takes into account the historical context of each of them. However, this list gives some indication of the complexity of trying to compare different systems. Rotberg is one of the writers who consider the task almost impossible:

The problem is, international test score comparisons are virtually impossible to interpret, not only because of enormous differences among nations in poverty rates and in societal values and objectives, but also because of major sampling problems, which make it difficult to ensure that comparable samples of students, schools, and regions are being tested across countries. (Rotberg, 2006)

Problems with regard to the data itself are also considerable and many of them beyond the understanding of someone without a background in statistics or psychometrics. Some of them are:

- Samples - age, random, honesty
- Analysis - appropriate theories and models
- Linguistic / translation issues
- Diversity and distribution of population
- Stratification and standardisation of education.

Bonnet says more about the difficulty of obtaining the valid analysis and interpretation of data:

[there is an] ... assumption that there exists for each individual tested a skill level ... which can be reduced to a single value on the corresponding scale and on which test performance depends (Bonnet, 2002, p. 389)

Goldstein (2004, p. 321) challenges the data from a more technical perspective by questioning some of the statistical methods used.

Berliner (1993) identifies six major issues that he claims lie at the heart of the difficulties with comparing student performance in different countries and cultures:

- Visions of childhood: cultures vary in their attitudes to freedom, duty and achievement required from the young.
- Relationship between time at school and achievement: there is a great variance in the number of days at school with the US very low, some Asian countries very high, and many in between.
- Sampling problems: because retention rates vary, some countries have many students still at school who would have left school in other countries.
- Opportunity to learn: curriculum content: partly connected to the kinds of students still at school, and the mix of abilities in classes, curriculum content varies which means that some of what is tested internationally has not been covered in equal depth.
- Motivation: Berliner tells the story of Asian students being applauded on their way to do academic battle for their country in the international assessments. This is unlikely to occur in many countries.
- Poverty and violence: poverty, violence and social emotional factors are certainly an issue in some countries more than others.

Berliner argues that international comparisons of educational achievement can inform the important debate that must take place about the quality of schooling, and reinforce what should be already obvious - that there are differences between nations. He believes, however, that information from the international assessments is not capable of allowing judgement about what is, or is not, a successful school system and that careful scrutiny of the assessments is required before they are allowed to impact on educational policy. Bonnet also argues for the European concept of education to be retained with its concern for social cohesion, personal fulfilment and cultural development (2002, p. 393)

In addition to difficulties with the collection and analysis of data, there are distinct dangers with how the results are used. Data can be misinterpreted, or used selectively to provide the rationale for inappropriate practices, or simply distract from the obvious as mentioned by Rotberg:

A focus on playing with data takes the focus off the universal and ongoing relationship between socioeconomic status and educational achievement. (Rotberg, 2006)

Since the 1970s and the move to empirical, large-scale research, attention has been drawn to the danger of ignoring those things crucial to education that cannot be easily measured:

In drawing upon the quantitative techniques of economists, psychologists, sociologists, anthropologists, and political scientists, researchers run the risk of becoming distracted from those topics that are more central to educational studies: curriculum, teaching methodology, and classroom and school organization. (Eckstein, 1975, p. 4.)

Lingard and Grek also warn that the focus on pragmatic 'core skills' that can be measured can also take too much attention from the less easily measurable values such as democratic participation and artistic talents (2009, p. 16).

The indicators around which the comparisons are structured, in turn shape the policy of nations in a way that is leading to 'a degree of policy convergence across the globe'. (Lingard and Grek, 2009, p. 11) The question is, is such policy convergence necessarily a bad thing? Those who see this development as 'a new thinned out version of comparative education reincarnated as a form of governance' would say yes (Lingard & Grek, 2009, p. 12).

There is a school of thought that is mystified at the power that numbers have gained in the development of educational thought and policy. The fact that 30% of the budget of the OECD's Education Directorate, which became a separate and permanent Directorate in 2002, is dedicated to PISA (Lingard and Grek, 2009, p. 6, 23) indicates the value given to it.

A number of writers (Lingard, 2009, p. 3; Grek, 2007)) have identified this as a policy, or governing, by numbers approach. Grek (2007) refers to PISA as 'the OECD's platform for policy construction, mediation and diffusion at a global level'.

The media attention now given to PISA results promotes an irresistible response, even though it varies between countries, as described by Novoa and Yariv-Marshall:

Such research produces a set of conclusions, definitions of 'good' and 'bad' educational systems, and required solutions. Moreover, the mass media are keen to diffuse the results of these studies, in such a manner that reinforces a need for urgent decision, following lines of action that seem undisputed and uncontested, largely due to the fact that they have been internationally asserted. (2003, p. 425)

This has also been referred to as the 'mediatization' of education policy processes (Lingard and Grek, 2009, p. 25). Grek also argues that 'the references to 'world situations' enables policy-makers to make the case for education reforms at home that would otherwise be contested.'(2007). Another fear of many is that we are moving towards a standardised global curriculum which will also standardise aspects of local cultures (Spring, 2008)

Some of the problems with international assessments can also be applied to national assessments such as NAPLAN. These include, though perhaps to a lesser degree, the differences between education systems across the country as well as contextual issues such as cultural settings and the pressure for standardisation.

A major concern is with the use of the data generated. The following comment from the NAPLAN website is an example of how this kind of assessment can take on an importance beyond its value:

What does it mean if a student is in the lowest band (below the national minimum standard)?  
Students whose results are in the lowest band for the year level have not achieved what they should for that year, and need focused intervention and additional support to help them achieve the skills they require to fully participate in schooling. Parents should discuss this with their child's teacher.  
(NAPLAN, 2009)

Although the information given to parents states clearly that the results of the tests are only one aspect of the assessment and reporting process, and 'does not replace the more extensive and informed judgments made about your child by teachers' (NAPLAN 2009a), comments such as that above certainly give the impression that the NAPLAN results are conclusive rather than one of many indicators. We are all aware of the many factors that can contribute to a child not exhibiting their usual level of achievement on a one-off assessment task.

The intention of NAPLAN to provide information that can help 'School systems use results to review programs and support offered to schools' is, of course, commendable but we are well aware of how these results can be misused to provide unhelpful 'League tables' at the national, state and regional level and the battles that continually rage about this (O'Keeffe, 2009).

Despite the concerns about comparability and the validity of the data produced, the information from international assessments, particularly PISA, is being widely used to inform discussion about equity. Allan Luke, while acknowledging the limitations of PISA, is positive about its contribution in this area:

This said, the analysis of the PISA results provides three very interesting insights on the impacts of curriculum reform on equity.

- The standard deviations give us some evidence of the “tops” and “tails” of achievement, with some systems having extremely large differentials between their best and worst achievers.
- PISA allows the disaggregated analysis of results for migrants and indigenous groups, indicating that some systems (e.g., Canada and Australia) do an excellent job of bootstrapping migrant and second-language performance.
- Most important, PISA provides important data on the relative impacts of socioeconomic background on achievement. The results indicate that systems needn’t trade off “quality” for “equity.” In fact, many systems, including Finland and Canada, are “high quality/high equity.” (Luke, 2009)

According to the Australian Council for Education Research (ACER), Australia can also be included in the ‘high quality/high equity’ group.

### **‘High quality / high equity’ Education Systems**

ACER defines a high quality / high equity education system as one in which there is a weak relationship between test performances and socioeconomic backgrounds (ACER, 2009). PISA 2006 indicates that Australia is high quality / high equity in reading, scientific and mathematical literacy showing improvements since 2000 in reading. However, at the State and regional level this is not always the case and there is room for improvement.

It can be seen that, according to these interpretations, Australian schools are serving their students quite well. However, when we think of these statistics as indicative of individual students who are struggling, there is significant work to be done to enable all students to reach their potential.

### **At the chalkface in Australian schools**

In 1975 Max Eckstein identified two essential conditions for international comparisons in education to be considered worthwhile and useful:

First, the findings should have some relevance to decision making in education (whether at the national policy level or in the school or classroom in particular pedagogical terms), and, second, the subtleties of human interaction in the teaching-learning process should not be neglected by undue emphasis upon easily quantifiable and more generally conventional dimensions of education. (1975, p. 4)

It is therefore essential, if international assessments are to have any value, to consider what they can tell us about improving schools and classrooms.

There are a number of geographic, political and cultural reasons why it is not appropriate to compare ourselves to the PISA star, Finland, the country whose students consistently achieve the highest test results in international assessments. However, let us look at some of the attributes of Finnish schools

and classrooms to which Finnish commentators attribute their success and ask what relevance it could have for Australia:

- Educational equality – the same education is available for all students regardless of socio-economic status.
- The comprehensive basic education consists of nine years of schooling built around national core curricula.
- There is continuous curriculum development consolidating basic values rather than searching for short-term solutions.
- There is widespread political support for the system.
- Finnish school teachers are highly qualified both in pedagogy and subject content.
- School is focused on deep learning, not testing 'which makes the atmosphere fear-free and relieves students from unnecessary stress because they do not have to face externally standardized tests'.
- A nationally positive attitude to education.

Factors specifically affecting literacy achievement that were identified included a high interest in reading, particularly non-fiction such as newspapers and magazines, and the widespread use of local libraries which are well resourced (Centre for Educational Assessment, 2009).

The International Reading Association (IRA) has developed Professional Development resources which are available on their website and they provide some further headings which we could consider with regard to the Australian school and classroom (IRA, 2009). School factors are discussed under the following headings:

- Transitions: average reading achievement is highest amongst those students who attended preschool for more than two years. Of course, what constitutes preschool varies considerably.
- Management and Leadership: Students in schools with a more positive school climate have higher levels of reading achievement. Countries with higher levels of school autonomy and greater teacher involvement in decision-making about courses, course content, and materials seem to perform better in reading.
- Physical Infrastructure, Resources, and School System Structure: Although a high standard of physical infrastructure and resources does not guarantee high performance, it does contribute to a positive learning environment.
- School systems with fewer types of schools, and less selection of pupils, are associated with higher performance and fewer differences in student outcomes.

Classroom factors are identified as:

- Teachers: those with better qualifications are associated with higher achievement of students. Excessive prescription of teaching practices does not appear to raise standards and may have the converse effect.
- Students: strategic self-management of learning is associated with higher achievement.
- Resources and their use: student performance is higher where good use is made of resources such as the library, computers, and the internet.
- Formative assessment is associated with higher achievement.

Based on information from international assessments, the International Reading Association has concluded that an over-emphasis on external summative testing impacts negatively on results.

Schleicher (2009) also identifies school leadership as crucial to high achievement of students. Leadership includes providing 'supporting, evaluating and developing teacher quality' and claiming autonomy in the implementation of curricula and instruction. Collaborative work cultures, goal setting and the effective management of resources in their alignment with pedagogical purposes are also important factors in school effectiveness. Building networks with local schools and into the community were also identified as helpful.

Other aspects particularly relevant to the Australian context are the low performance of many Indigenous students and students in remote schools. Students in schools in low socio-economic areas also achieve at a lower level than the average (Thomson, 2008, p. xiii) but teachers can take heart from the fact that student engagement can overcome other disadvantages such as lower socioeconomic status (IRA, 2009a).

## **Conclusions**

International assessments can be seen as supports for building bridges to improved achievement for students because analysis of their findings provides school and classroom practitioners with confirmation of many things that they already know through intuition and experience. These include the fact that there are specific groups of students that need extra support to achieve at an acceptable level – indigenous students, students in remote and country schools, and students from low socio-economic backgrounds. Information from the assessments also indicates that the best way to improve achievement for all students is to provide comprehensive school systems in which there is strong autonomous school leadership working with highly qualified teachers who are supported both personally and professionally in a well-resourced school environment. Factors that do not seem to improve achievement are prescriptive centralized curricula and extensive external testing regimes.

Although talking about the USA, Allan Luke refers to the positive use of the power of international assessments, as represented by PISA, that educators can exercise in the service of their students:

So for those of us committed to redistributive social justice and universal access to literacy, PISA has provided us with an important “talking stick” around equity that goes beyond the very crude, technically naïve, and politically motivated approaches to testing, reporting, and policy formation currently used in many states (Luke, 2009).

If we are to effectively use this ‘talking stick’, it is important that educators both arm themselves with the information available, and use that information in all the forums available to them, in order to claim their professional voice and to influence both policy and practice. It is only by harnessing the ‘power of numbers’ increasingly exerted by international, as well as national, assessments and using that power for the purpose of supporting the teaching profession, and therefore our students, that we can include all students in the high quality / high equity quadrant of achievement and build bridges from disadvantage to success.

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