

# What information from PISA is useful for teachers? How can PISA help our students to become more proficient?

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## **Abstract**

A frequent objection to large-scale testing programs, both national and international, is that they are used as an instrument of control, rather than as a means of providing information to effect change. Moreover, concerns about large-scale testing often take the form of objection to the specific characteristics of the assessments as being prescriptive and proscriptive, leading to a narrowing of the curriculum and the spectre of 'teaching to the test' to the exclusion of more important educational content. Taking PISA reading literacy as its focus, this presentation proposes, on the contrary, that a coherent assessment system is valuable in so far as it makes 'teaching to the test' a virtue. With framework, instrument and interpretation transparently connected into a coherent assessment system, the test itself represents something that recognisably ought to be taught, and its framework and the interpretation of its results are tools that can be used to improve the teaching of reading.

## **Introduction**

Collecting, interpreting and using assessment data to inform teaching – the theme for this conference – is not the immediate goal of international achievement surveys like the Organisation for Economic Co-operation and Development's Programme for International Student Achievement (OECD PISA). PISA's primary audience is policy makers, who use its data and interpretation to make wide-reaching decisions about national education that can seem remote from and even irrelevant to day-to-day classroom practice. Moreover, if large-scale tests can provide anything to an Australian classroom teacher, that provision is surely going to be satisfied

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by our own national assessment program. NAPLAN provides an annual snapshot of student achievement at four year levels, the highest of which, Year 9, is close to the target age of the PISA sample (15-year-olds). A teacher might ask then, what can PISA tell me that I can't learn from NAPLAN?

If PISA is to be useful to teachers any information it provides must be additional or different to that provided by the national study. One obvious addition and difference is international comparisons of achievement. A second is the opportunity to compare frameworks: to ask whether those that Australia has adopted are adequate, or better, or in some respect deficient in relation to the PISA framework. The third is to monitor any new areas that PISA is including in its survey of student proficiencies.

In this paper we will explore what PISA has to offer from these three perspectives, with a focus on reading and on teaching in Australia.

## International comparisons

What has PISA told us about Australian 15-year-olds' reading proficiency? The survey has been administered three times so far, with the fourth administration being conducted in Australia right now (July to September 2009). PISA's methodology is to assess each of its three major domains, reading, mathematics and science, as the 'major domain' once every nine years, with the other two sampled as 'minor domains' in the intervening three-yearly surveys. Thus in 2000, reading was the major domain with about 135 reading items included, and the results reported overall (the combined reading scale) and in five subscales based on reading processes and text formats, to give a deep and broad picture of the domain (OECD, 2001, 2002). It was only lightly surveyed

in 2003 and 2006, when mathematics and science respectively had major domain status. So while reading has been assessed three times in PISA, the most detailed information on reading dates back to the reports from the 2000 administration. The picture of Australian 15-year-olds' reading in 2000 was rather encouraging. Only one country – Finland – performed significantly better than Australia on the combined reading scale. Australia was in a group of eight second-ranking countries including Canada, New Zealand and the UK. Generally speaking, the spread of Australian students' results was about the same as the OECD (developed countries) average. The top performing 5 per cent of Australian 15-year-olds performed as well as any other countries' top 5 per cent of students (except New Zealand's) on the combined reading literacy scale. The gender balance was also typical: as in every other country, girls performed better than boys in reading. The difference for Australian girls and boys was close to the OECD average (OECD, 2001).

One not-so-favourable story that appeared in the PISA national report was that Australia performed worse than expected on some types of reading: namely, narrative reading (Lokan, Greenwood & Cresswell, 2001). Australia's performance on the reflecting and evaluating aspect of reading was also weak when compared with that of several other English-testing countries: Canada, the United Kingdom, Ireland and – marginally – New Zealand (Mendelovits, 2002; OECD, 2001). This is one story that could and, we believe, should be noticed by Australian teachers, especially when we look at what has happened to Australia's performance since the year 2000.

In 2003, the second survey of PISA, when reading was a minor domain, the results for reading were very similar to those for PISA 2000. In PISA 2006,

however, Australia's average reading proficiency fell significantly (OECD, 2007). While there was some variation in degree, the fall happened universally across all states and territories (Thomson & De Bortoli, 2008). Results declined for both girls and boys. Because it was a minor sampling of the reading domain, information about performance on the process and text format subscales is not available. We do know, however, that the decline in performance was most marked in the top one-quarter of the population. The potential comfort of attributing this apparent deterioration to a difference in the sample evaporates when we consider that the results for PISA mathematics from 2003 to 2006, administered to the same sample of students as the reading assessment, showed no such significant decline. Moreover, the tasks administered for reading in 2003 and 2006 were identical.

At this point, we need to look more closely at the PISA reading framework. This is related to what we identified earlier as the second way in which an international study might be informative for teachers: comparing the national and the international frameworks to see how close their alignment is and, taking that into account, ascertaining whether what the international study is telling us about our students' proficiency is relevant.

## The PISA reading framework and student proficiency

To represent the range of item difficulty, and to ensure broad coverage of the domain, the PISA framework defines several task characteristics that are used in the construction of all reading literacy tasks. These task characteristics are: situation (personal, public, occupational and educational); medium (print and electronic);

environment (authored and message-based);<sup>1</sup> text format (continuous, non-continuous, mixed and multiple); text type (description, narration, exposition, argumentation and instruction); and aspect (access and retrieve, integrate and interpret, and reflect and evaluate).<sup>2</sup>

Within the aspect variable, while both *access and retrieve and integrate and interpret* items draw on content from within the text, *reflect and evaluate* items draw primarily on outside knowledge, and ask readers to relate this to the text they are reading. The reflect and evaluate aspect is of particular interest for Australia, we have argued, since our national performance on this reading process in 2000 was below expectations. If one compares the PISA framework to the English curriculum profile for Australian schools, the closest match to reflect and evaluate is the sub-strand *contextual understanding*. This strand is defined as 'the understanding about sociocultural and situational contexts that the student brings to bear when composing and comprehending texts' (Curriculum Corporation, 1994). Both the reflect and evaluate aspect and the *contextual understanding* sub-strand deal with the way in which the social and cultural conditions of both the writer and the reader may influence the way the text is written and read. The *reflect and evaluate* aspect is also addressed in items that ask readers to consult their personal experience or knowledge and draw on those elements to compare, contrast or hypothesise about the text. In addition, some *reflect and evaluate* items also include those that ask readers to make a judgement drawing on external standards, relating to either the form or the content of the text.

Thus, while *reflect and evaluate* and *contextual understanding* are in the same conceptual area, the former is a broader construct.

The other area of notable deficit in relation to expected performance in 2006, given the overall strong performance of Australian students in PISA 2000, was in tasks based on narrative texts. Narrative texts are defined in the PISA framework as texts in which 'the information refers to properties of objects in time. Narration typically answers when, or in what sequence, questions' (OECD, 2006). Typical narrative texts are novels, short stories or plays, but this text type could also include, for example, newspaper reports or biographies. The parallel text type in the Australian frameworks is imaginative texts, described in the *Australian Statements of Learning for English* as 'texts that involve the use of language to represent, recreate, shape and explore human experiences in real and imagined worlds. They include, for example, fairytales, anecdotes, novels, plays, poetry, personal letters and illustrated books' (Curriculum Corporation, 2005). Again, it would appear that there is a substantial intersection between PISA's *narrative* text and the Australian *imaginative* text type.

In the NAPLAN Year 9 reading assessment 20–30 per cent of the items address the contextual understanding sub-strand, while in PISA about 25 per cent of the items require students to reflect on and evaluate the text. NAPLAN reading allocates 30 to 40 per cent of the instrument at each year level to imaginative texts, a much larger proportion than that assigned to narration in PISA, which accounts for only 15 per cent of the instrument. Insofar as the weighting of text types within an assessment reflects their emphasis, it does not appear that there is a lack of attention to either 'reflection and evaluation' or to 'narrative' texts

in the Australian curriculum that could explain our relatively poor performance in these parts of PISA.

Putting all these elements together, two hypotheses could explain the relatively weak performance of Australian 15-year-olds. One is that less weight is given to reflective and evaluative reading, and to narrative, in Australian classrooms than the official curriculum and assessment would lead one to suppose. Another is that the particular approach taken to these elements is different to that represented in PISA.

Teachers could explore the second of these hypotheses efficiently by studying examples of PISA's reflecting and evaluating items from narrative texts.<sup>3</sup>

If it is judged that the reading construct described and instantiated in PISA is one that Australian education subscribes to, teachers might think about the following in their classroom practice:

- Reconsidering approaches to reflective and evaluative reading
- Changing the emphasis of what is done with narrative texts
- Making particular efforts to challenge the most able students.

These suggestions have at least an apparent synergy. The higher order thinking that is typically involved in responding to *reflect and evaluate* questions in PISA could usefully be studied and modelled by teachers in all learning areas, but perhaps particularly by English teachers in secondary schools. And narrative, imaginative texts can present the most complex and challenging types of reading and thinking

<sup>1</sup> Note that the environment classification only applies to texts in the electronic medium.

<sup>2</sup> Detailed definitions of each of these task characteristics are given in the PISA framework publications (OECD, 2000, 2006).

<sup>3</sup> See reflect and evaluate items in the units 'The Gift', 'Amanda and the Duchess' and 'A Just Judge' in *Take the test: Sample questions from OECD's PISA assessments* (OECD, 2009)

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that students are exposed to at school, in both primary and secondary years.

The third way in which PISA might play a useful role for Australian teachers lies in its potential to throw new light on elements of reading. A case in point is the expansion of the reading framework, in PISA 2009, to include electronic reading.

## Electronic reading assessment

The PISA electronic reading assessment (ERA) is being administered in 20 countries in 2009, including Australia. The new reading framework for PISA (in press) now includes electronic reading as an integral part of the reading construct. While skills in reading electronic texts are increasingly called upon in many school and non-school activities, PISA ERA represents the first attempt in a large-scale international survey to assess the skills and knowledge required to read in the digital medium.

The way in which electronic reading is defined in PISA recognises that electronic reading is not just reading print text on a computer screen. Three major differences between print and electronic texts are outlined below, each followed by a short description of the way the new PISA reading framework and the ERA instrument have addressed the differences, and a suggestion about how both the framework and items might inform teaching and learning.

1. When compared with print reading, electronic reading is more likely to traverse different kinds of texts from different sources.

The PISA electronic reading framework sketches a classification of text forms found in the digital medium, and represents this diversity in the ERA instrument with mixed and multiple texts that require readers to integrate

information across several sites or pages presenting information in different forms. Teachers could refer to the classification to check that the range of text forms described matches the variety of forms that students are exposed to in classroom activities.

2. There is a greater onus on the reader to evaluate the text. This is because electronic texts have not typically undergone the scrutiny that is involved in the publication of a print-based text.

The implication of the mass of information has major implications for readers' ability to reflect on and evaluate what they read. Readers need to swiftly evaluate the credibility of information; critical thinking therefore gains even more importance in this medium. PISA ERA *reflect and evaluate* items have a strong focus on the probity, relevance and credibility of the stimulus material. Teachers could refer to the framework descriptions and the items that reflect them as models of critical reading in the electronic medium.

3. There is a greater onus on the reader to select and construct the text. In print-based texts, the physical status of the printed text encourages the reader to approach the content of the text in a particular sequence. In contrast, electronic texts have navigation tools and features that make possible and indeed even require that the reader create their own reading sequence.

The PISA framework has extended the definition of the 'access and retrieve' aspect to acknowledge that the vast amount of information available in the electronic medium changes the nature of tasks requiring the retrieval of information. Readers more than ever need to be able to skim and search, and to navigate across oceans of information in a deliberate way.

The ERA items provide examples of tasks that require construction of the reading text using both textual clues and navigation tools such as drop-down menus, embedded links and tabs. Teachers could inspect this range of tasks to help construct a sequence of lessons on classifying and mastering different navigation techniques – both ensuring that students are familiar with relevant technical functions, and developing their skills in the more elusive areas of inference and analysis to predict the most likely pathway to the information that is sought.

The PISA 2009 framework recognises that both navigation and text processing skills are required for electronic reading, though the proportion of each will vary according to the task at hand. The ERA instrument comprises tasks that systematically vary the weighting of these two skills. Teachers may find this conceptualisation of the demands of electronic reading tasks useful, in predicting the difficulty of digital reading tasks that they require their students to complete, and in diagnosing challenges that students encounter when they engage with electronic texts.

## Conclusion

In this paper we have discussed some of the implications for teaching, from both previous PISA results and those that are to come. While the results for PISA 2009 will not be available until the end of 2010, and the Australian national analyses probably some time after that, the new framework for PISA reading, with sample items for both print and electronic reading, will be published later this year. PISA 2009 will, we believe, contribute to educators' understanding of both print and electronic reading, and continue to give indicators to Australian teachers of some ways in which we can help our students to develop as critical, reflective and astute readers.

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