

Australia's PISA Numeracy and NAPLAN results – evidence of improvement?

Alexander Young, RFD, FACEL, says feedback improves results

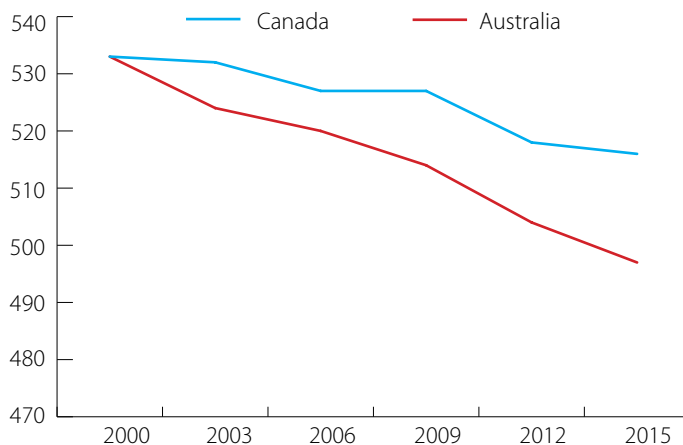


Figure 1: PISA Numeracy Results Australia and Canada

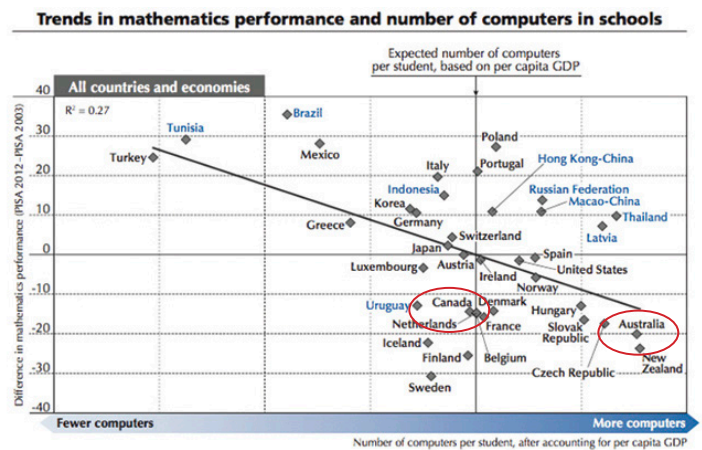


Figure 2: Slightly worse than a comparable country in Canada

The media often remind us of Australia's declining results in PISA as is evidenced by Figure 1.

Canada's reduction in outcomes has been slower than ours. Is this due to a lower density of computers in Canadian schools than in Australian schools? (Figure 2).

Knowing that increased spending on education (<http://www.oecd.org/education/students-computers-and-learning-9789264239555-en.htm>) doesn't necessarily improve students' outcomes, the author was determined to assist teachers to improve their understanding of students' learning needs while reducing their workload at the same time. He developed readily affordable software (AutoMarque). It enables teachers to have their data input and much of their marking carried out by their school photocopier in scan mode. Although this was the first step in the process, teachers were also encouraged to work in teams to develop assessment instruments for units of work

in the context of pre-test/post-testing.

When we look at Australia's NAPLAN results most schools appear to be flat lining. However, when we look at schools using AutoMarque we notice that in most cases the schools outcomes are improving year after year. An example of this is illustrated in Figure 3. The reader can see how a licensee, ICSEA 1020, improved their results compared with non-licences schools with higher ICSEA status.

You may well ask. How is it possible that a school can improve its students' outcomes year after year?

Preparation

In preparing an end of unit assessment the teacher needs to include the following types of questions.

- 1 At least five questions per strand of learning.
- 2 A group of questions which teachers expect all students to achieve, to confirm they are ready for the next building blocks of learning.
- 3 Questions addressing the new ma-

terial you propose to teach. This will include extension questions for the most talented students.

In effect the teacher/s prepares a test which meets these three features and is used as both a pre-test and a post-test.

The power of forensic feedback

The author contends that the insights into the 'learning needs' of students provided by AutoMarque are forensic compared with conventional practice, enabling teachers to instantly obtain the following feedback by simply clicking on appropriate icons.

- 1 Results per strand of learning within an assessment - how each strand of learning was handled by the teaching group.
 - 2 Automatic ranking of the students' success within a single strand. 'Learning Needs Analysis.'
 - 3 Automatic ranking, by success, questions within that single strand.
 - 4 The nature of student flawed thinking. (Figure 4)
- Enabling the concentration on a single strand of learning at a time improves

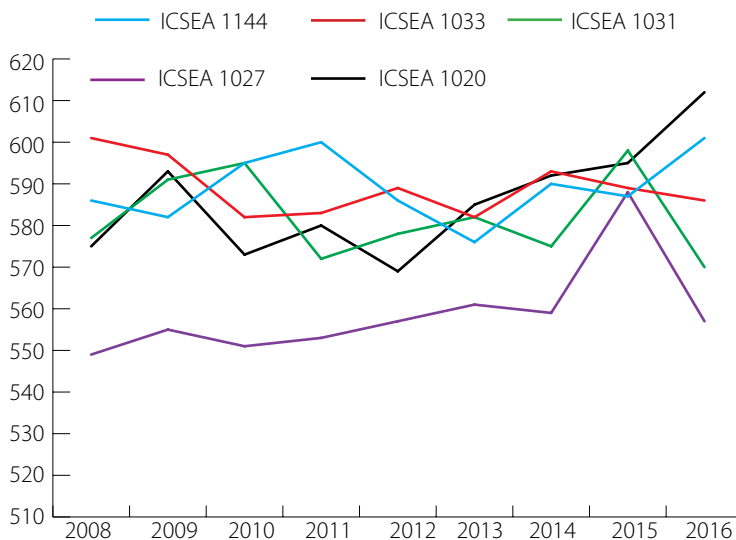


Figure 3: NAPLAN Grade 9 Numeracy 2008 to 2016 of four schools compared with an AutoMarque licensee with ICSEA 1020

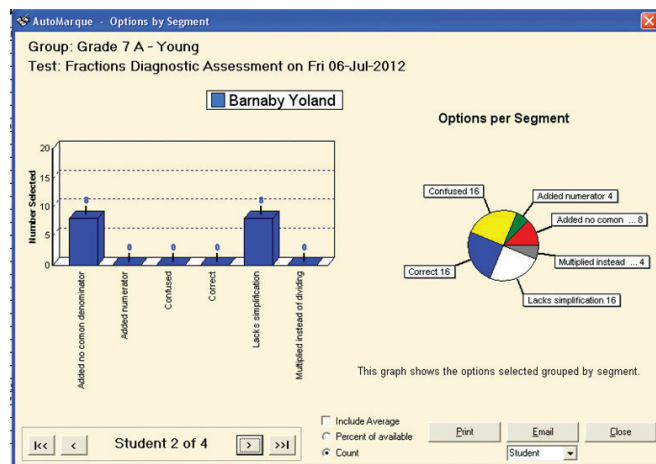


Figure 4: Grade 7 - Fractions Diagnostic Test Illustrating student flawed thinking

the rate of learning of each student and helps improve each teacher’s effectiveness. These aspects alone put a different face on differentiated instruction. When the teacher can quickly see the nature of student flawed thinking, it puts a spotlight on student learning in new ways.

On completing this process with each strand of learning a post test is conducted. This provides the ‘Index of Educational Growth’ of each student and the ‘Effect Size’ of the teaching that has taken place. Student pre-test/post-test results are delivered as a graphic, encouraging each student’s personal best rather than being compared with peers. Both forms of feedback empower the recipients (students

and teacher) to strive for better outcomes.

We understand that most schools traditionally treat all questions as of equal value, be they written, multiple choice or practical. AutoMarque, however provides ‘Item Analysis’ and the ‘Weighting’ of questions based on the level of difficulty of each question. This provides an improved scoring system, where the more difficult questions receive a better score than easy questions.

Discussion

It is the author’s view that the teaching profession has been encouraged to take on numerous changes, too often for change sake, rather than changes which

help improve student learning outcomes.

Two lady teachers from one of our users of AutoMarque approached the author, grabbing him by the upper arm exclaiming, “You have changed our lives! AutoMarque saves us so much time and provides such powerful feedback”

“Students in my school learn at twice the average rate of the nation and at twice the usual depth of learning due to regular use of pre-test/post-test analysis across the school.” Deputy Principal, Government School Victoria, speaking at the 2012 ACEL Brisbane conference.

You and your students can similarly benefit from the power of AutoMarque, if you wish.

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