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Snapshots issue 3: Equity and effectiveness

Sue Thomson

ACER, sue.thomson@acer.edu.au

Kylie Hillman

ACER, kylie.hillman@acer.edu.au

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SNAPSHOTS

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by Sue Thomson
& Kylie Hillman

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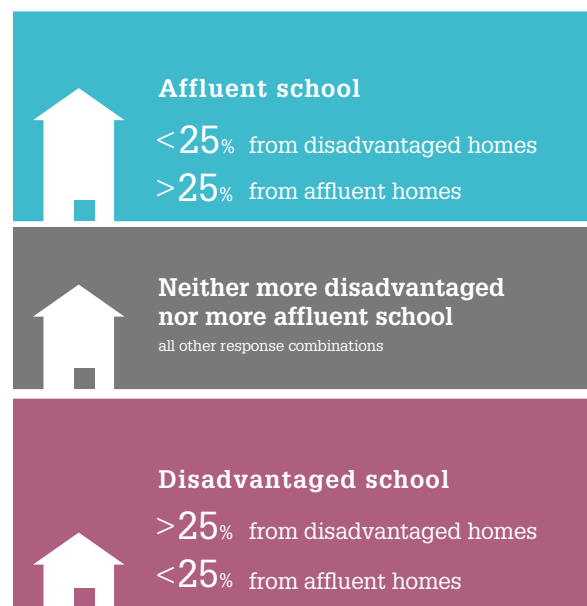
Equity and effectiveness

A key message from the most recent OECD PISA report released by ACER in December 2013 is that high-performing countries tend to allocate resources more equitably across socioeconomically advantaged and disadvantaged schools. This issue of Snapshots looks to the data from the Progress in International Reading Literacy Study (PIRLS) and the Trends in International Mathematics and Science Study (TIMSS), to examine whether this is the case for Australia.

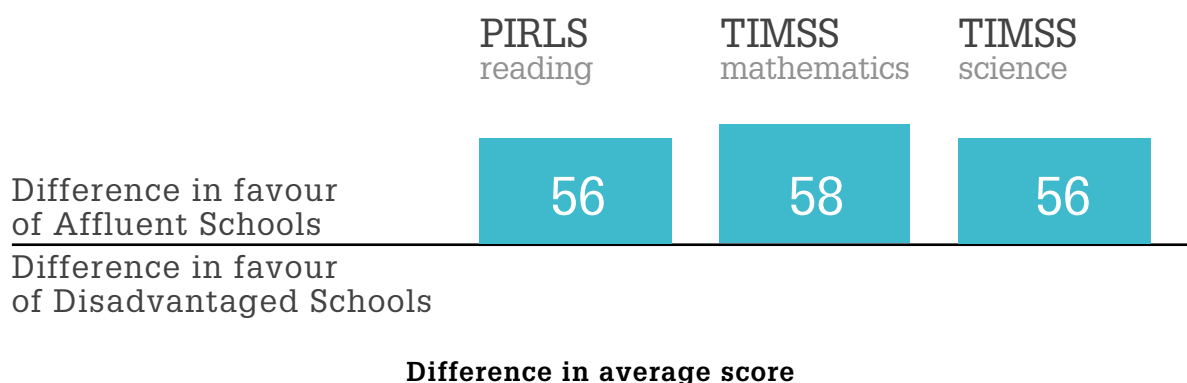
- Research has identified a number of characteristics that help schools to be 'effective' in encouraging high performance from all students, including having adequate facilities and equipment; having well-prepared teachers; providing a safe and orderly environment; and supporting academic success.
- In Australia, students in more disadvantaged schools (those with more than 25 per cent of students from disadvantaged backgrounds and less than 25 per cent of students from affluent backgrounds) score lower on average in Year 4 reading, mathematics and science than students in more affluent schools.
- Disadvantaged schools also tend to report more problems with resourcing and student discipline; have fewer confident teachers; and have less of an emphasis on academic success – all of which are also associated with lower performance in reading, mathematics and science.

We know that students from disadvantaged homes tend to perform lower, on average, in formal assessments of student achievement than students from more affluent homes. We also know that students in schools with higher proportions of students from disadvantaged backgrounds (disadvantaged schools) tend to score lower on these assessments than students in schools with more affluent students (affluent schools).

As discussed in the previous edition of Snapshots, there are substantial differences in the average scores of students who attend 'affluent' or 'disadvantaged' schools. In Australia, there is an average difference of 56 score points in reading at Year 4 level, 58 points in mathematics and 56 points in science.



Affluent and Disadvantaged definition



The data presented here are drawn from PIRLS 2011 and TIMSS 2011, which together with the Programme for International Student Assessment (PISA) form the suite of international comparative education studies in which Australian students participate as part of Australia's National Assessment Program. Further information about Australia's participation in TIMSS, PIRLS and PISA can be found at www.timss.acer.edu.au and www.acer.edu.au/ozpisa

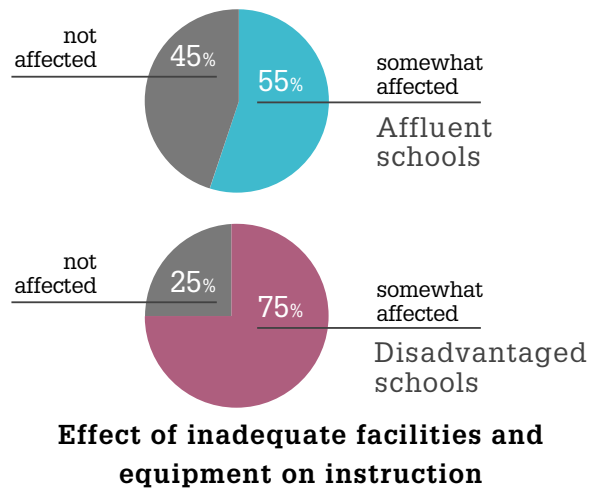
In the most recent cycles of PIRLS and TIMSS, school principals responded to questions about the environment of their schools, including a group of questions that focused on resourcing and other supports for learning. Disadvantaged and affluent schools in Australia are compared here on a number of these questions.

Adequate facilities and equipment

Principals were asked to indicate the extent to which instruction was affected by a variety of resource shortages, like:

- ▶ instructional materials
- ▶ school buildings and grounds
- ▶ instructional space
- ▶ technologically competent staff.

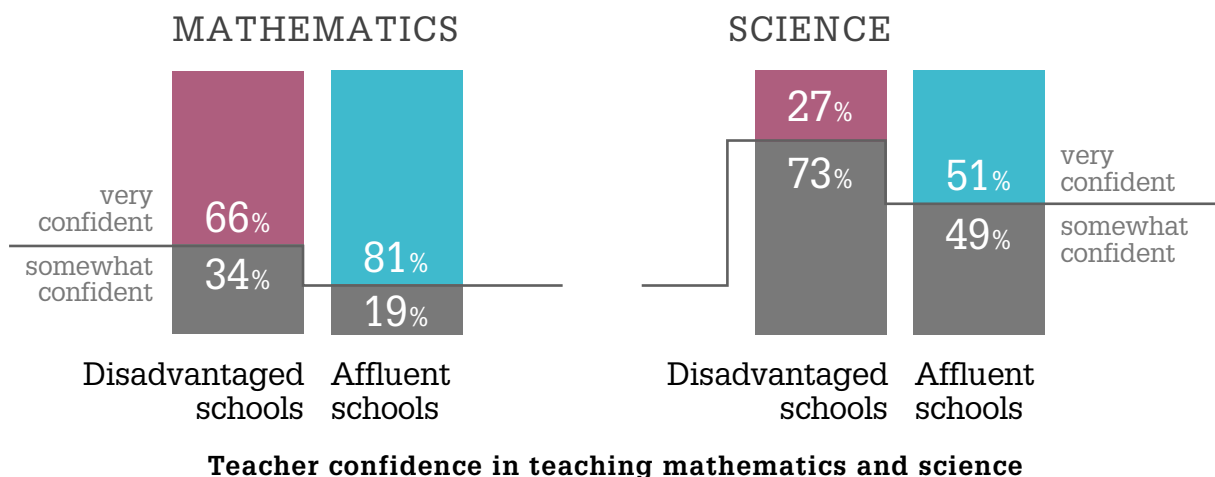
Students in disadvantaged schools were affected by general resource shortages to a greater extent than students in affluent schools, with three-quarters being 'somewhat affected', according to their principals.



Teacher confidence

Teachers are obviously a key resource when it comes to providing a high-quality education to all students. Along with issues such as qualifications and training, teachers' confidence in their ability to teach can be an important factor to consider. School teachers were asked how confident they were in teaching mathematics and/or science to their students. The results indicate that there is quite a difference between teachers in affluent and disadvantaged schools.

Disadvantaged schools appeared to have more issues with teacher confidence in the areas of mathematics and science than did affluent schools. A greater proportion of teachers in disadvantaged schools were less confident in their own abilities, particularly in teaching science.



Research by Ina Mullis and Michael Martin has identified a number of characteristics that are associated with higher student performance, regardless of students' own characteristics, such as socioeconomic background. According to this research, effective schools:

- ▶ are safe and orderly
- ▶ have adequate facilities and equipment
- ▶ support academic success
- ▶ are staffed with well-prepared teachers
- ▶ provide effective instruction.

Safe and orderly schools

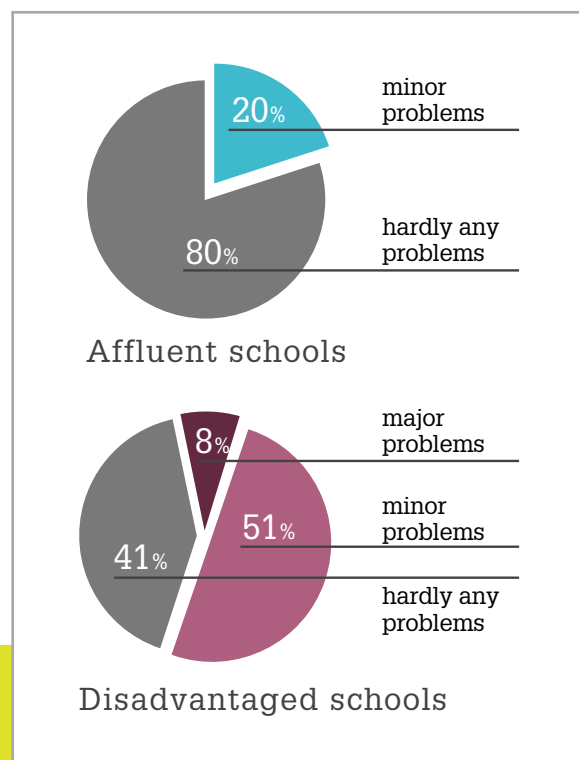
TIMSS and PIRLS collected information about school climate, including perceptions of safety and orderliness and support for academic success.

Principals were asked whether their schools had problems in the following areas:

- ▶ students arriving late at school
- ▶ student absenteeism
- ▶ classroom disturbances
- ▶ cheating
- ▶ profanity
- ▶ vandalism
- ▶ theft
- ▶ intimidation or verbal abuse among students
- ▶ physical fights among students
- ▶ intimidation or verbal abuse of teachers or staff.

Safe and orderly schools

For students in disadvantaged schools, issues of safety and orderliness are more likely than for students in affluent schools, with almost 10 per cent being in schools with major problems with safety and orderliness.



ASK YOURSELF

What factors might be impacting on disadvantaged students at your school? Do some factors affect these students more than other students? What can be done about it?

DID YOU KNOW?

Australian students in schools with 'hardly any problems' scored higher on average in reading and science in TIMSS and PIRLS 2011 than students in schools with minor problems.

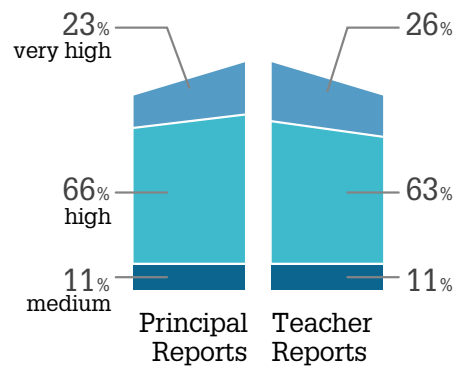
School emphasis on academic success

Teachers and principals were asked to rate their schools on five aspects of academic emphasis:

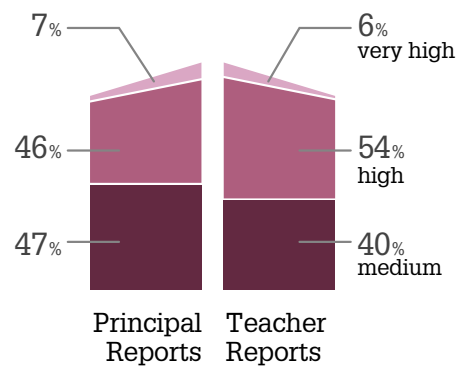
- teachers' understanding of curricular goals
- teachers' degree of success in implementing the curriculum
- teachers' expectation for student achievement
- parental support for student achievement
- students' desire to do well at school.

According to school principals and teachers, affluent schools tended to have higher emphasis on academic success than disadvantaged schools – around one quarter of students in affluent schools had principals and teachers that indicated that there was a very high emphasis on success at their school, compared to less than 10 per cent of students in disadvantaged schools.

The proportion of students from disadvantaged schools whose teachers and principals rated the school as having only a medium emphasis on academic success was much higher than the corresponding proportion of students in affluent schools.



Affluent schools



Disadvantaged schools

Academic emphasis according to Principal and Teacher reports

DID YOU KNOW?

Average student achievement in reading, mathematics and science was higher in schools with a very high emphasis on academic success than in schools with a high or only medium emphasis.

References

- Mullis, I.V.S. & Martin, M.O. (2013). TIMSS and PIRLS 2011: A Cross-country Analysis of Relative School Effectiveness of Reading, Mathematics, and Science at the Fourth Grade. Keynote Address, 5th IEA International Research Conference Singapore, June 26-28, 2013. Available from: http://www.iea.nl/fileadmin/user_upload/IRC/IRC_2013/Papers/IRC-2013_Mullis_Martin.pdf