

Australian Council for Educational Research (ACER)

From the Selected Works of Ross Turner

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Lessons from PISA for mathematical literacy

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Available at: https://works.bepress.com/ross_turner/24/



Improving Learning


Australian Council *for* Educational Research



Lessons from PISA for Mathematical Literacy

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The story so far ...

- ACER's 2010 conference
 - The 'Mathematics Terror Index' introduced 
 - Australia's performance on a selection of PISA items was presented
 - Performance of Australian students strong in some areas, but overall not good enough (in absolute terms)
 - The blame for the negative aspects was sheeted home to ...
 - Student inability to **activate** relevant mathematical knowledge
 - Absence of focus on certain **mathematical capabilities**
 - communication; mathematising; representation; reasoning and argument; strategic thinking; using symbolic, formal and technical language and operations

My take on the implications?

If students are unable or unwilling to see their world through mathematical lenses,

If students have little experience grappling with real-world situations and problems,

If students can apply mathematical procedures only when problems are packaged in very familiar ways,

... then

Why would we expect our adult workforce to do any better?

And now ... ?

- PISA 2012 major headline findings:
 - Australian student performance in mathematics has declined in absolute terms
 - Australian students have slipped relative to other countries
 - More Australian students performing at the lowest levels, fewer performing at the highest levels
 - Wider gap for girls, and for Indigenous students
[comparisons are with PISA 2003]

My lessons ... more questions

- How do we encourage our students to see their world through mathematical lenses?
 - Using mathematical knowledge to deal with work and other life challenges
 - What will it take to increase our students' experience grappling with real-world situations and problems?
- In particular, how can we ensure our students grapple with
 - unusual problems, that are
 - ill-formulated, and that
 - require the problem solver to transform the problem into a form amenable to mathematical treatment?