ReMSTEP

RECONCEPTUALISING
MATHEMATICS
AND SCIENCE
TEACHER EDUCATION PROGRAMS

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CONFERENCE

13 NOV 2015

THE UNIVERSITY OF MELBOURNE

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Australian Government

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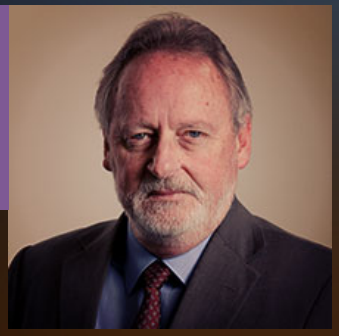
OPENING ADDRESS



Prof Stephen Dinham, The University of Melbourne

Reconceptualising Mathematics and Science Teacher Education Programs through collaborative partnerships between scientists and educators

3 years – 2014-2017

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One of 5 projects within OLT program:

Australian Government | Office for Learning & Teaching

Enhancing the Training of Mathematics and Science Teachers (ETMST)

http://www.olt.gov.au/maths-and-science-teachers

A CYCLE THAT NEEDS TO BE BROKEN

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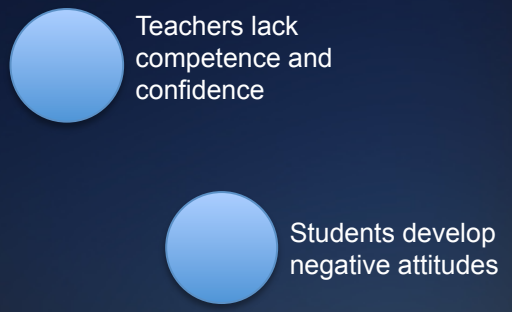
Some primary teachers report lack of competence and confidence in teaching maths and science

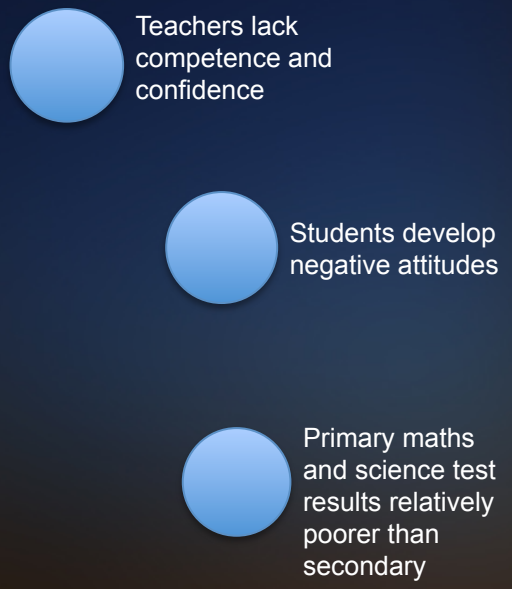
A CYCLE THAT NEEDS TO BE BROKEN



Primary students develop negative attitudes towards maths and science

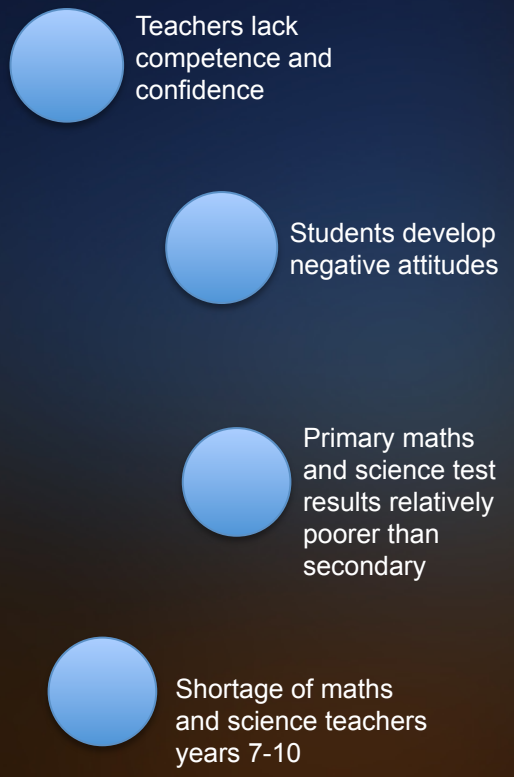
A CYCLE THAT NEEDS TO BE BROKEN

Primary maths and science test results relatively poorer than secondary



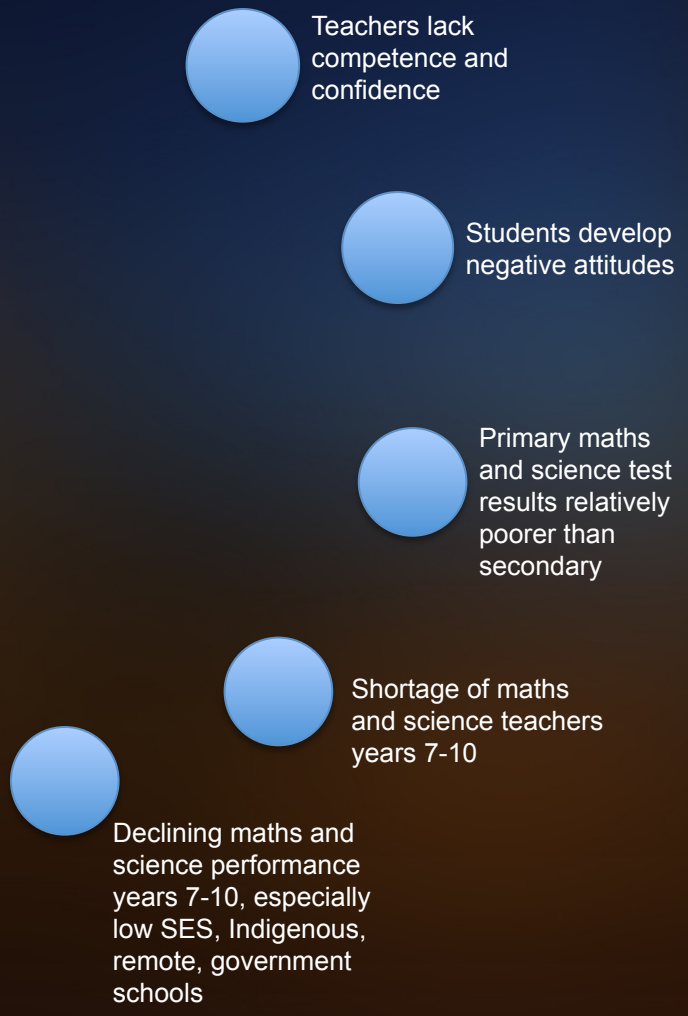
A CYCLE THAT NEEDS TO BE BROKEN

Shortage of maths and science teachers 7-10



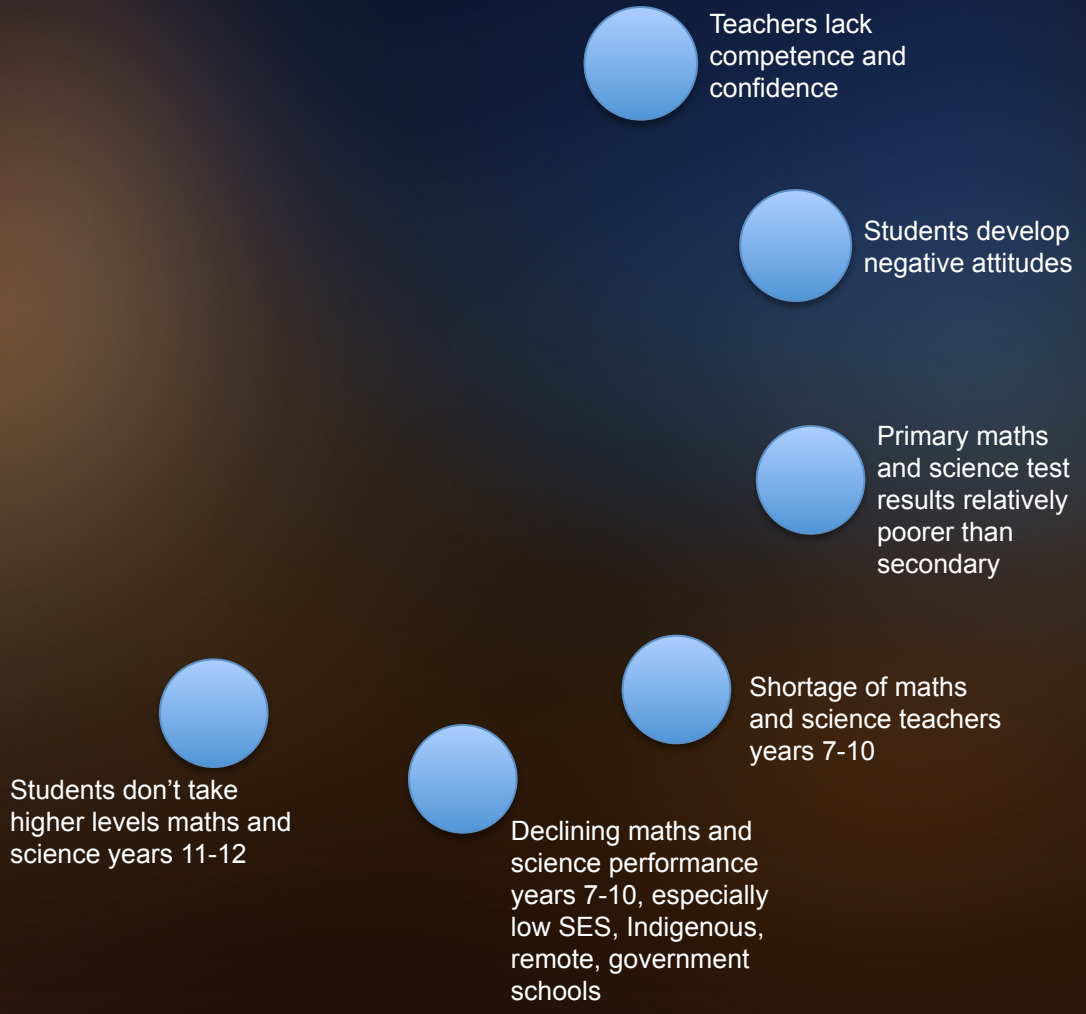
A CYCLE THAT NEEDS TO BE BROKEN

Declining maths and science performance 7-10, especially low SES, Indigenous, remote, government schools



A CYCLE THAT NEEDS TO BE BROKEN

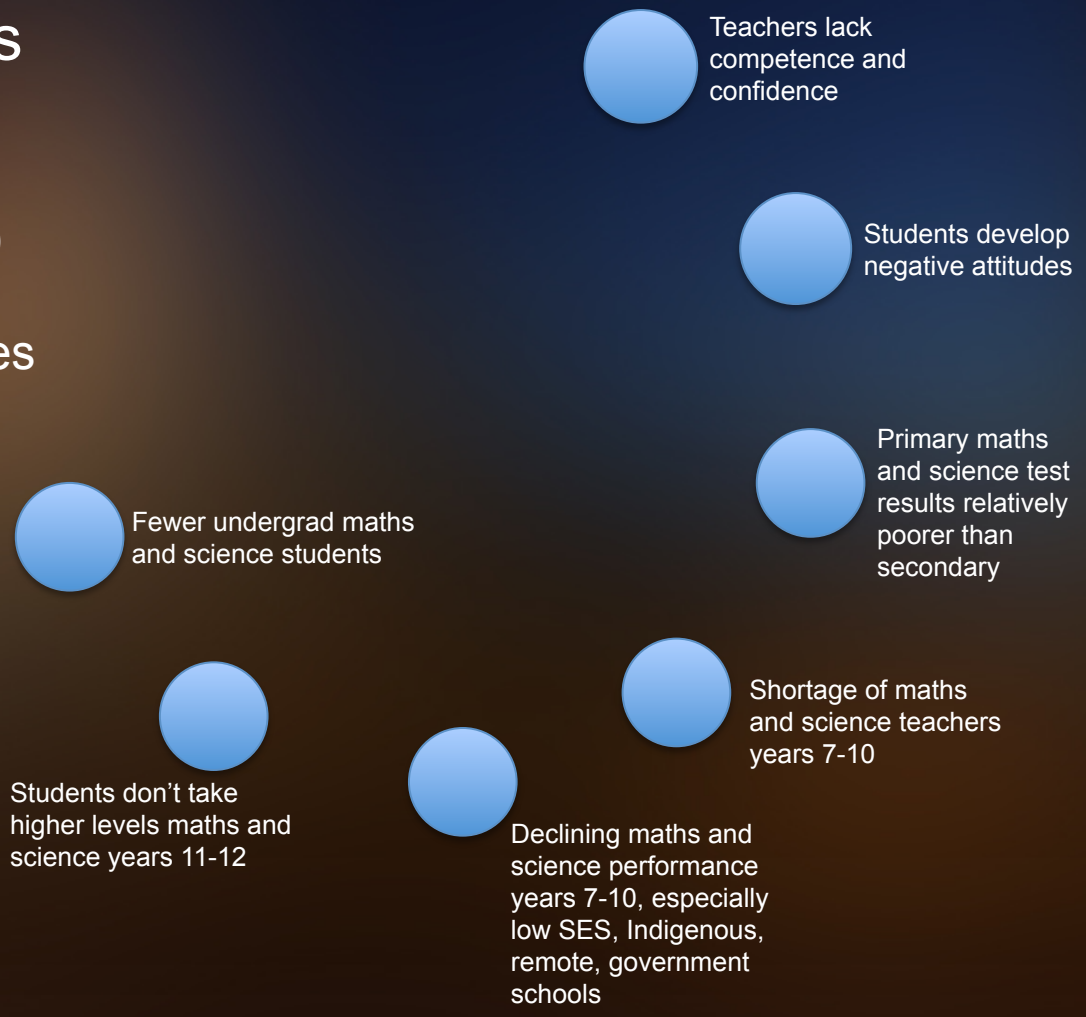
Students don’t take higher levels maths and science years 11-12



A CYCLE THAT NEEDS TO BE BROKEN

Fewer undergrad maths and science students

- Shortage of ITE maths and science (physics, chemistry) candidates
- Some ITE primary candidates struggle with maths and science because of background/attitudes



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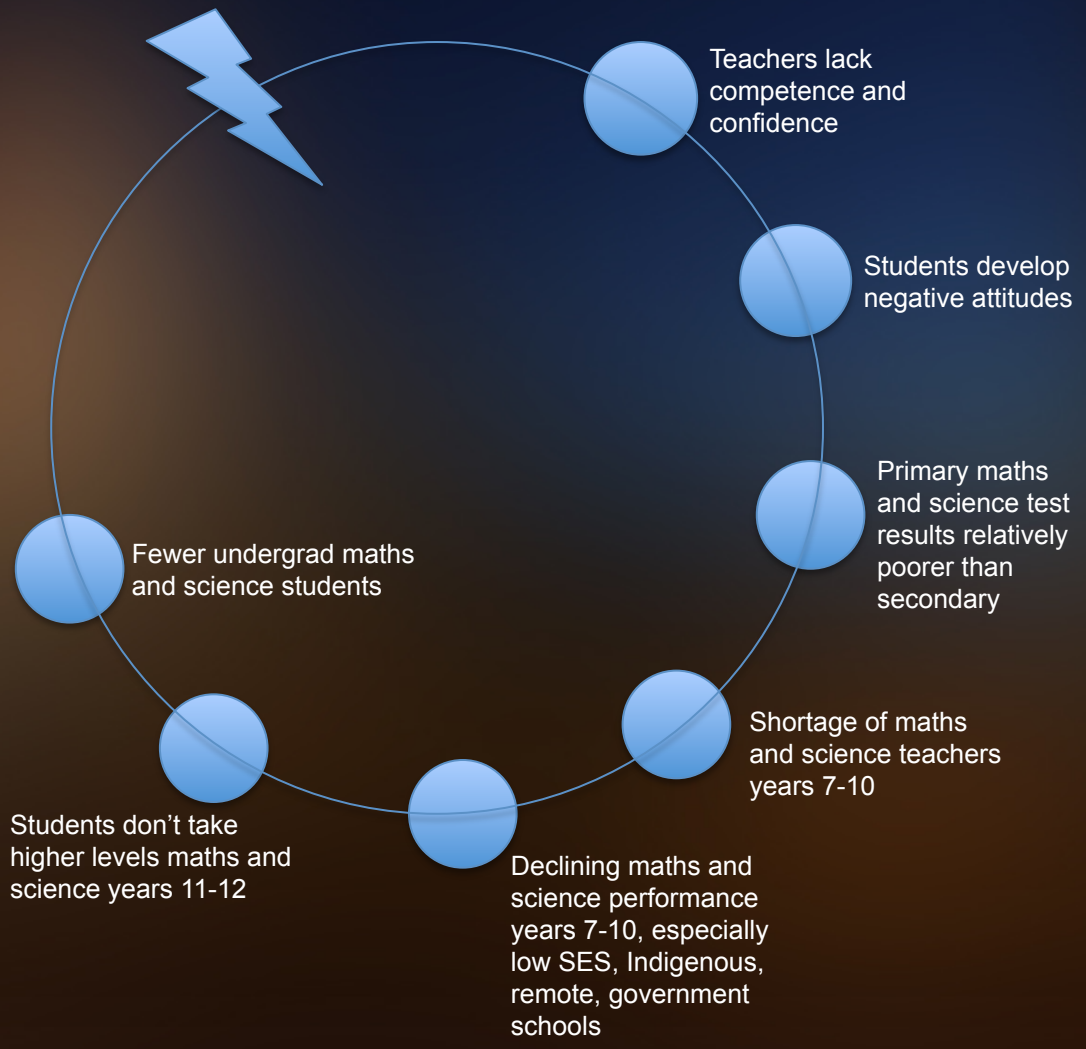

AUSTRALIA'S PERFORMANCE ON PISA

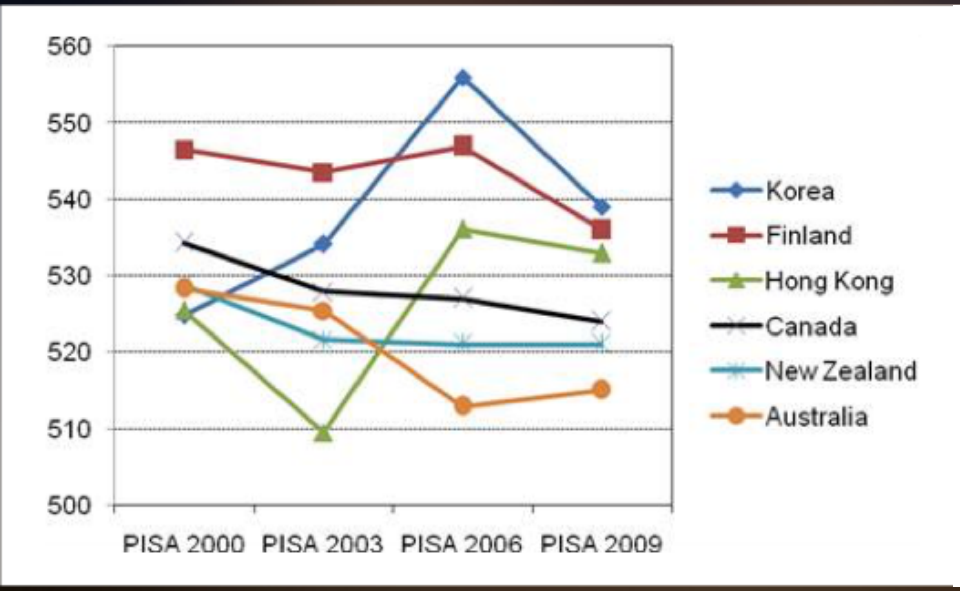

FIGURE 1:
Mean reading scores in OECD/PISA

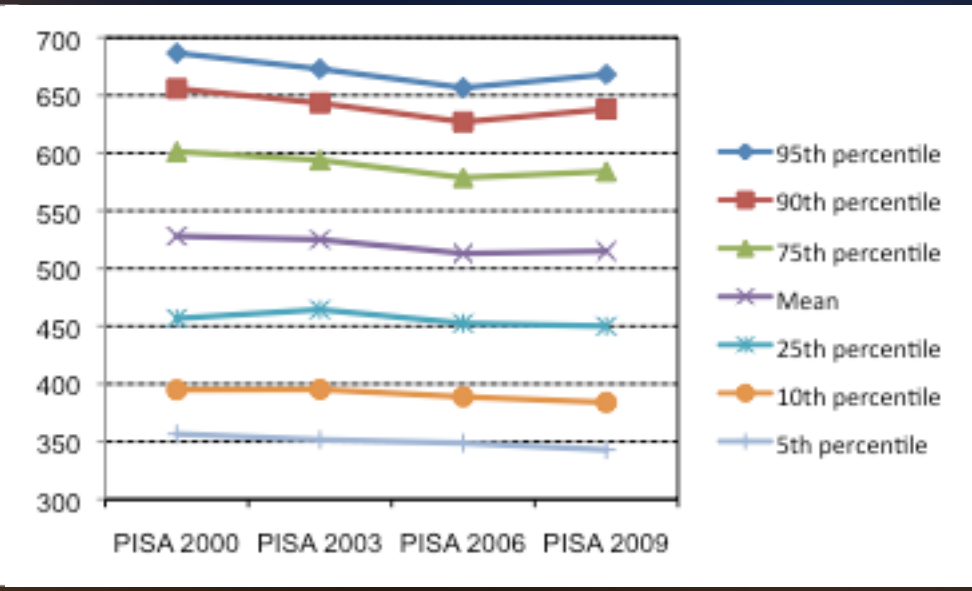

FIGURE 2:
Trends in Australian students' reading performances

INTERNATIONAL TEST RESULTS (2012)

- TIMSS (*Trends in International Mathematics and Science Study*)
  - Year 4 Maths: 18th out of 50 countries
  - Year 4 Science: 25th out of 50 countries
  - Year 8 Maths & Science: 12th out of 42 countries
- PIRLS (*Progress in International Reading Literacy Study*)
  - Year 4 Reading: 27th out of 45 countries
- PISA (*Programme for International Student Assessment*)
  - [15 year olds]
    - Reading Literacy: =13th out of 52 countries.
    - Mathematical Literacy: 19th out of 53
    - Scientific Literacy: =16th out of 55
    - Computer-based Mathematical Literacy and Digital Reading literacy: 13th out of 32