# Growing an Indigenous professional workforce: the national agenda for change

**Aboriginal and Torres Strait Islander Mathematics Alliance National Conference 10 November 2014**

*Professor Ian Anderson*
*Co-Chair*
*Aboriginal and Torres Strait Islander*
*Higher Education Advisory Council*

# Aboriginal and Torres Strait Islander Higher Education Advisory Council

**ATSIHEAC policy development framework**

1. Broadening access across the disciplines
2. Whole of University Strategy
3. Academic Workforce
4. Sustainable financing
5. System level performance monitoring

## Broadening participation across the disciplines

- 11% of Indigenous people are employed in professional occupations, compared to 20% of non-Indigenous people

- Most common occupation group for employed people:
  - For Indigenous people - Labourer (24%)
  - For non-Indigenous people - Professional (20%)

*Drawn from Census data 2006 and 2011*

# Indigenous enrolments in STEM disciplines

| Field of education | Indigenous enrolments 2013 | Growth since 2005 | Proportion of total enrolments in this field | Parity target |
|---|---|---|---|---|
| **Natural & Physical Sciences** | 719 | 116% | 0.67% | 2,896 |
| **Information Technology** | 197 | 49% | 0.38% | 1,411 |
| **Engineering & Related Technologies** | 362 | 160% | 0.37% | 2,641 |
| **Mathematical Sciences** | 24 | 300% | 0.55% | 119 |

# Indigenous completions in STEM disciplines

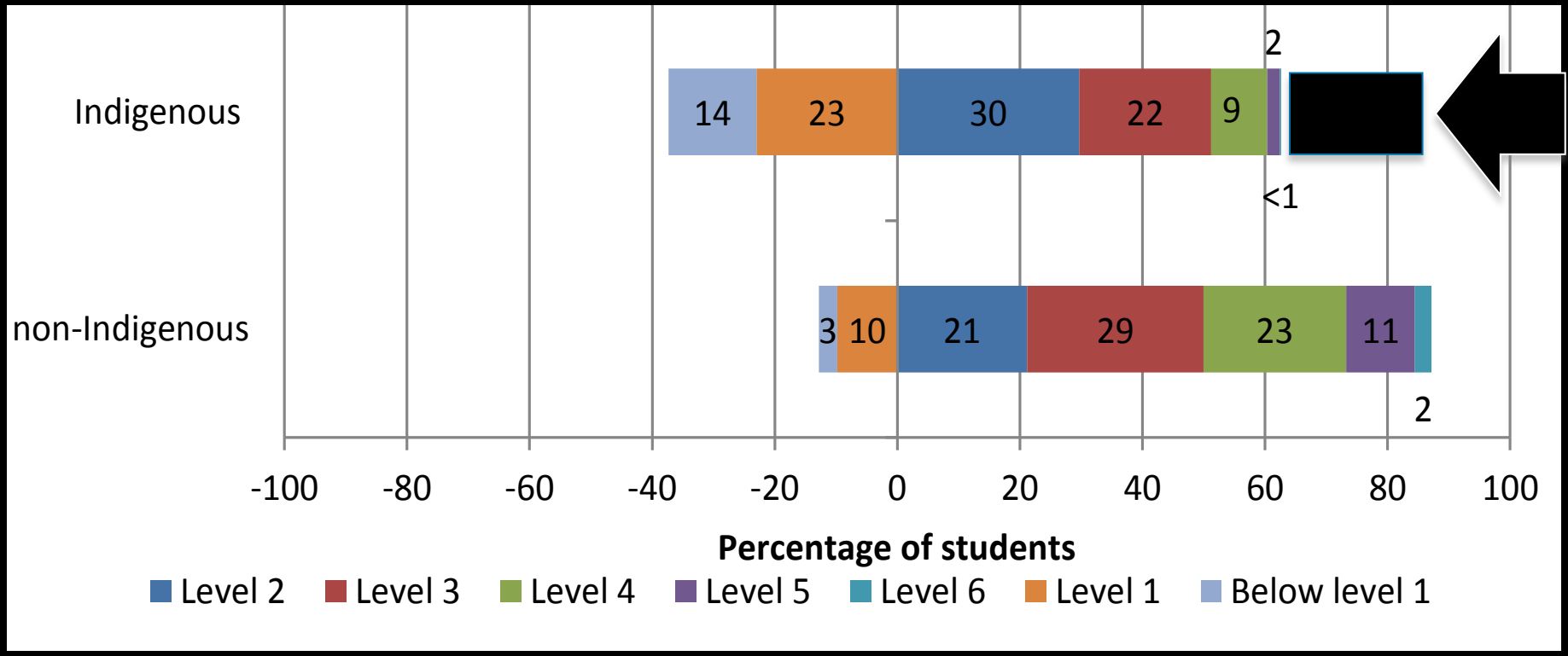
| Field of education | Indigenous completions 2013 | Growth since 2005 | Proportion of total completions in this field | Parity target |
|---|---|---|---|---|
| **Natural & Physical Sciences** | 85 | 70% | 0.39% | 593 |
| **Information Technology** | 22 | 144% | 0.19% | 314 |
| **Engineering & Related Technologies** | 35 | 84% | 0.19% | 494 |
| **Mathematical Sciences** | <5 | 50% | 0.32% | 25 |

# Student performance on standardised tests

- Standardised tests: PISA, TIMMS, PIRLS, NAPLAN
- Indigenous students achieve well below non-Indigenous (by between 1.5 and 1.0 standard deviations)
- Little change in the gap over time
- Differences evident in Year 3 & remain until Year 9 or age 15

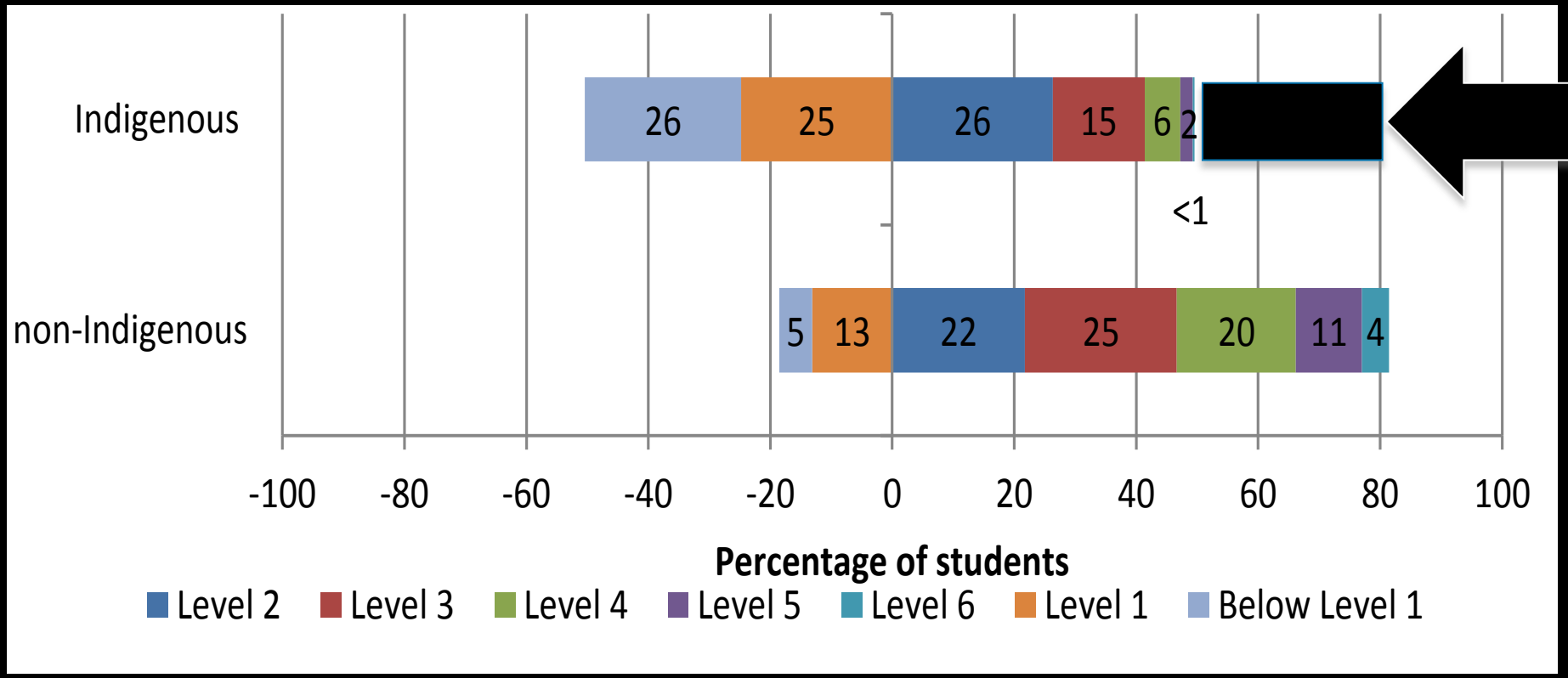
*Source: Thomson, S. et al 2014, Indigenous Student Performance on Standardised Tests, (draft report to ATSIHEAC)*

# PISA 2012 science literacy proficiency




*Source: Thomson, S. et al 2014, Indigenous Student Performance on Standardised Tests, (draft report to ATSIHEAC)*

# PISA 2012 mathematical literacy proficiency




*Source: Thomson, S. et al 2014, Indigenous Student Performance on Standardised Tests, (draft report to ATSIHEAC)*

# NAPLAN Numeracy proficiency 2008 - 2013

- No change in % of Indigenous students at or above national minimum standard in Years 3, 5 & 7, decrease in Year 9
- Some positive change in mean scores for all students in Years 3 & 5 in jurisdictions with higher proportion Indigenous students, but not significant for Indigenous students.
- Indigenous students made gains from Year 3 to Year 7 & from Year 5 to Year 9 similar to non-Indigenous students.

*Source: Thomson, S. et al 2014, Indigenous Student Performance on Standardised Tests, (draft report to ATSIHEAC)*

# TIMSS mathematics proficiency 1995 to 2011

**Year 4**

- Over 50% of Indigenous students didn't reach Intermediate benchmark
- 28% of Indigenous students didn't reach Low benchmark

**Year 8**

- **1% of** Indigenous students achieved Advanced benchmark
- 9% of non-Indigenous students achieved Advanced benchmark

- 32% of Indigenous students didn't reach Low benchmark
- 9% of non-Indigenous students didn't reach Low benchmark

- No change in Indigenous student performance 1995 to 2011

*Source: Thomson, S. et al 2014, Indigenous Student Performance on Standardised Tests, (draft report to ATSIHEAC)*

# The national challenge

- The gap in STEM proficiency & participation persists over time
- Better school retention & general performance are not sufficient to effect real change on their own
- A national approach to Indigenous STEM is required

# A national Indigenous STEM agenda

- ATSIHEAC STEM Roundtable:
  - Collaborate with Deans of STEM
  - Leverage the national policy agenda
- Chief Scientist's push for a sensible debate on the future
- Incremental change is not sufficient for Indigenous Australia
- Building a national approach to Indigenous STEM