THE UNIVERSITY OF NEWCASTLE AUSTRALIA

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The Science and Engineering Challenge

Impact and Effectiveness

science and engineering challenge

www.newcastle.edu.au/challenge

Objectives of the Challenge

1. Change student perceptions and encourage more students into science and engineering careers;

2. Raise awareness of science, engineering and technology in the community;

3. Provide a vehicle for the local community to be involved in an innovative program that promotes science and engineering;

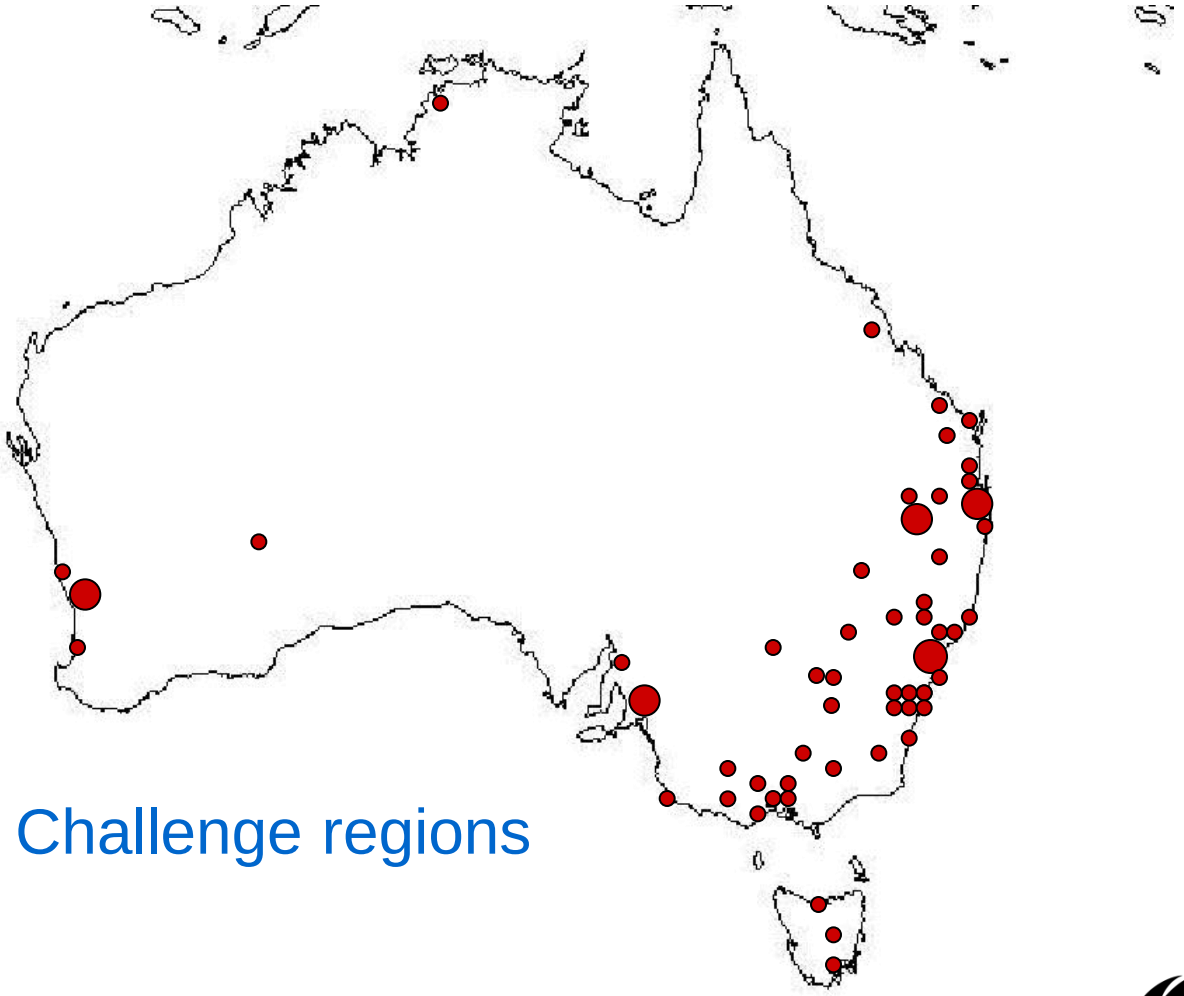
4. Increase participation rates in HSC science and mathematics studies.

The Science and Engineering Challenge:

- Shows that science and engineering involves, indeed requires:
  - Creativity
  - Innovation
  - Problem solving
  - Team work

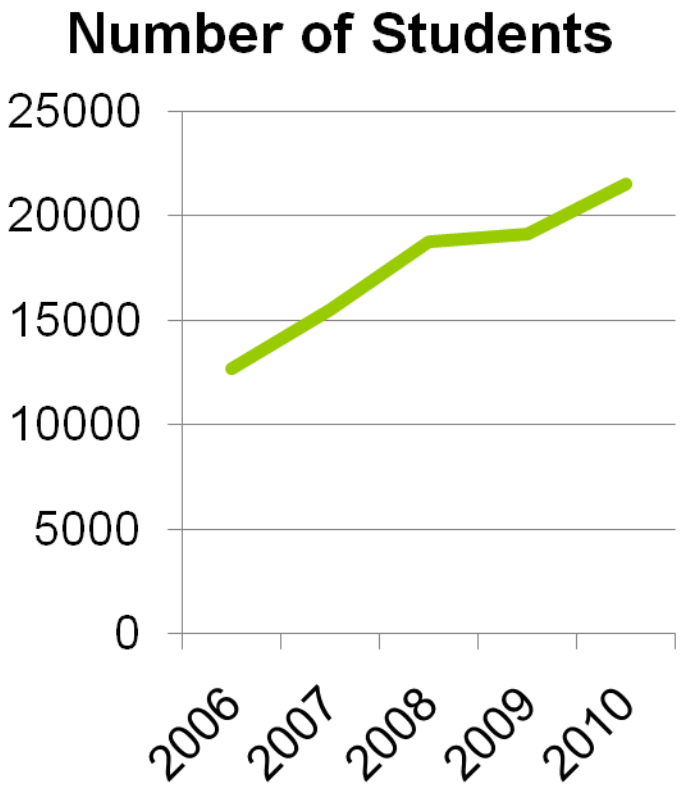
- Provides a different experience in science and engineering;
- Captures the students' imagination;
- Generates enthusiasm for the sciences and engineering;
- Highlights the relevance of science and engineering in modern society.

Challenges conducted in 2012

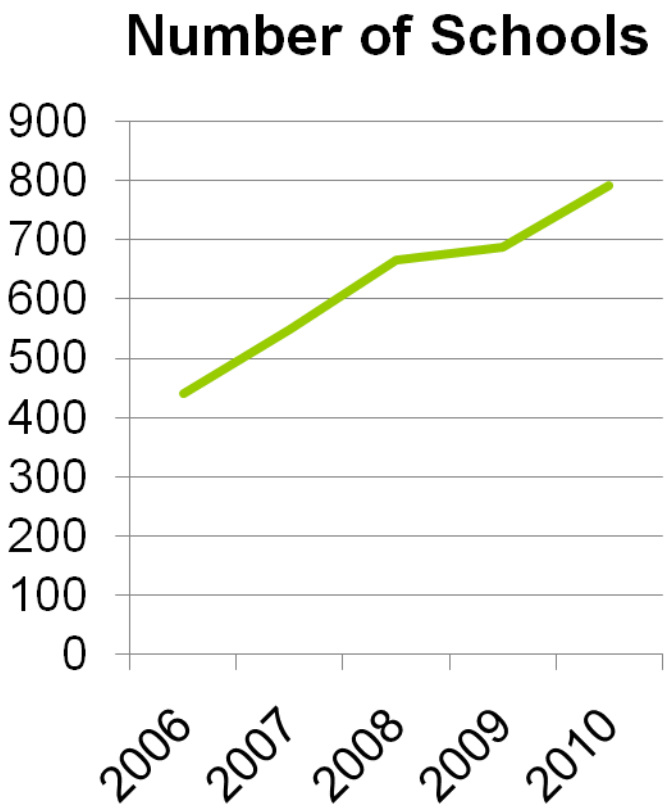


60 Challenge regions

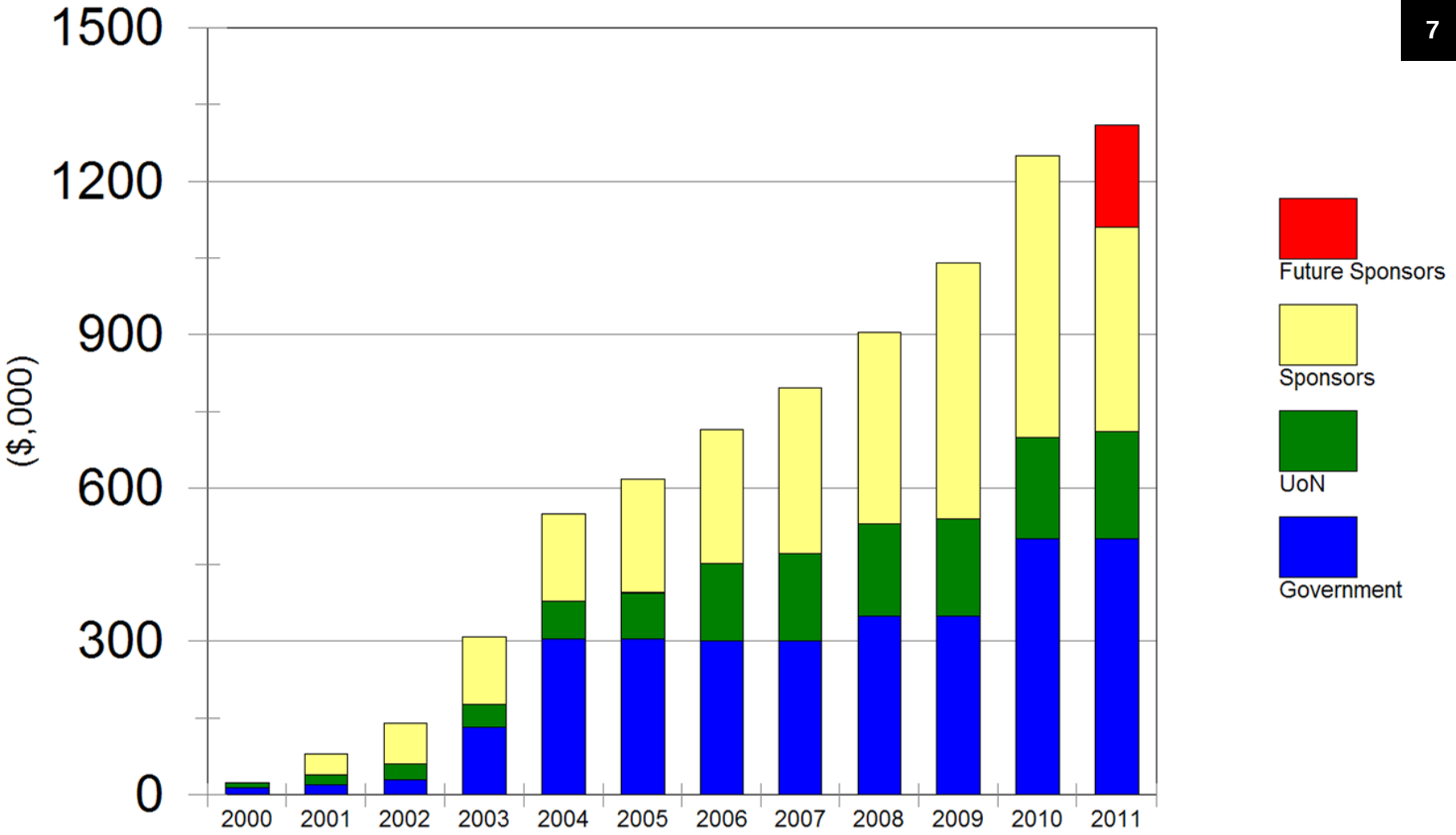
Student participation



School participation



Financial Support



Thirty participating Universities

- Adelaide
- ANU
- Ballarat
- Central Queensland
- Charles Darwin
- Charles Sturt
- Curtin
- Deakin
- Edith Cowan
- Flinders
- Griffith
- James Cook
- La Trobe
- Macquarie
- Murdoch
- QUT
- Southern Cross
- New England
- New South Wales
- Newcastle
- Queensland
- South Australia
- Southern Queensland
- Sunshine Coast
- Sydney
- Tasmania
- Western Australia
- Western Sydney
- Wollongong
- Victoria

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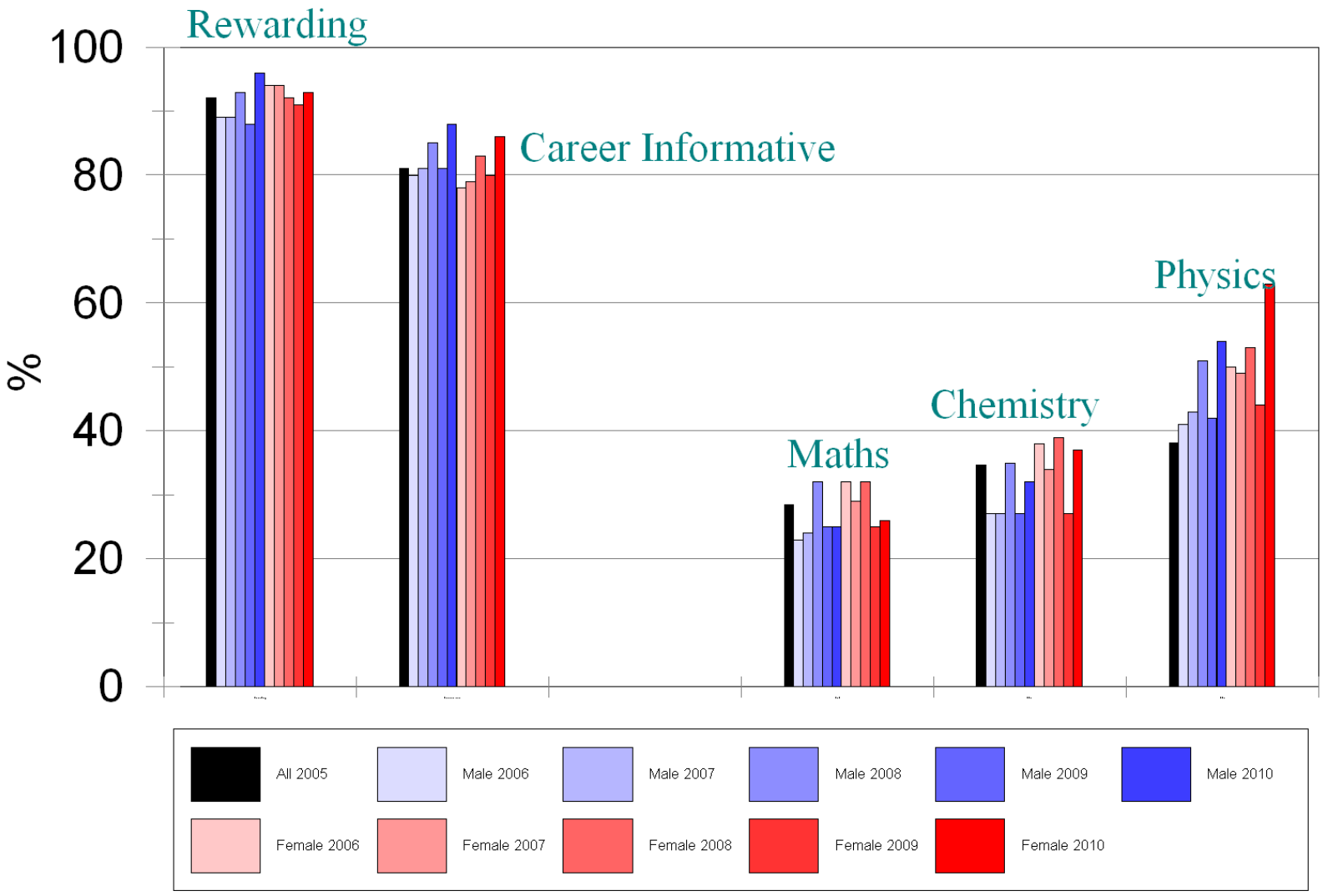
Increased participation rates in HSC science and mathematics

- Evaluation is undertaken 12 months after events;
- Generally impact is greater on female students;
- Impact seen in Chemistry even though there are no events involving chemistry.

Effects on participants



From a 2009 survey of the 1st year UoN students in the faculties of science and engineering:

The Challenge had a positive influence on them:

pursuing a University degree	42%
attending the UoN	30%
pursuing their particular current degree	32%

Participating in Outreach Programs including the Challenge:

improved their teamwork ability*	80%
increased their self confidence*	54%
increased their interest in engineering*	64%
increased their interest in science*	75%
increased their awareness of science and engineering careers*	50%
influenced their decision to study science in years 11 & 12*	34%
influenced their decision to study maths in years 11 & 12*	14%
influenced them to attend the UoN*	23%
influenced them to pursue their particular current degree	27%

* 31% of the students also participated in outreach programs other than the Science and Engineering Challenge. Questions were asked in the format of “participating in *these outreach programs* ….had this impact”

Summary of research findings

Participation in the Science and Engineering Challenge:

- **Increases the students awareness** of careers in science and engineering and demonstrates that there is an opportunity for them to participate in these careers;
- **Increases their interest** in Science and Engineering;
- **Influences their decision** to undertake science and maths in senior high school;
- **Dramatically improves their teamwork**;
- **Increases their self confidence**