



MONASH University

Science

# Where to for Teaching Associates in 21<sup>st</sup> century undergraduate science?

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## What is the TA role?

- Questioner (socratic, techniques)
- Expert consultant – tech skills etc
- Salvage agent – problem solver
- Professional model
- Person of responsibility
- Team member – communicate / liaise
- Time manager

So, why the hell do we still call them demos?



## How important are they?

The ‘lab climate’ or nature of the hands-on learning and the environment in which it is being conducted have a significant impact on student retention – O’ Neal et al. 2007.

TAs crucial in generating a ‘lab climate’ conducive to learning.



## How the role has changed...

Over the last decade, TAs in Australian Unis have taken an increased responsibility for undergrad education

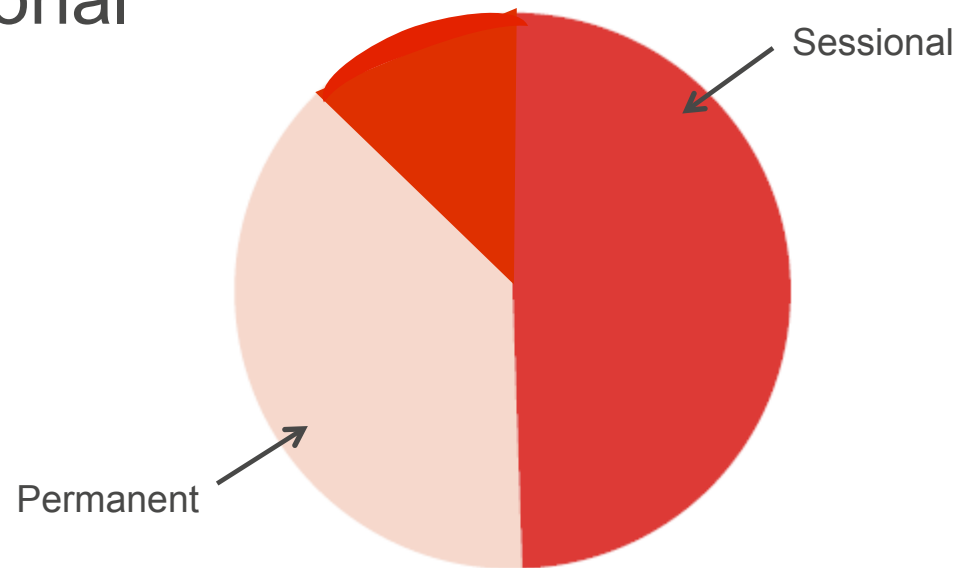
..... but they probably don't know it

e.g. The 'RED Resource' 2008, Percy *et al.*

# Who is teaching our undergraduates?

Proportion of teaching by permanent and sessional staff at a G08.. 2008

...and in 2013?





## The RED resource - summary

Sessional TAs make a *significant* but largely *invisible* contribution to quality of T&L in higher education.

..quantitative and qualitative dimensions of their contribution *need to be investigated* and accounted for at an institutional level if risk management and quality enhancement policy and practice are to be effective.

So, 5 years on... Recognition? Enhancement?  
Development?



## International perspectives

“In North America, the GTA is a recognized position, with its own *status* and *niche* within the higher education system” (Park, 2004)

Do you think Australian science TAs (aka ‘demonstrators’) have the same recognition and status in our institutions / HE system?



## TAs are probably more important than before, but...

Are current undergrads less prepared than 2 decades ago?

Why? Massification? The secondary system?  
Other factors?

Increased reliance on recipe-based pracs to cope with increasing #s, diversity and *capability* of students.



# The problem persists...

TERTIARY SCIENCE EDUCATION  
in the 21st Century

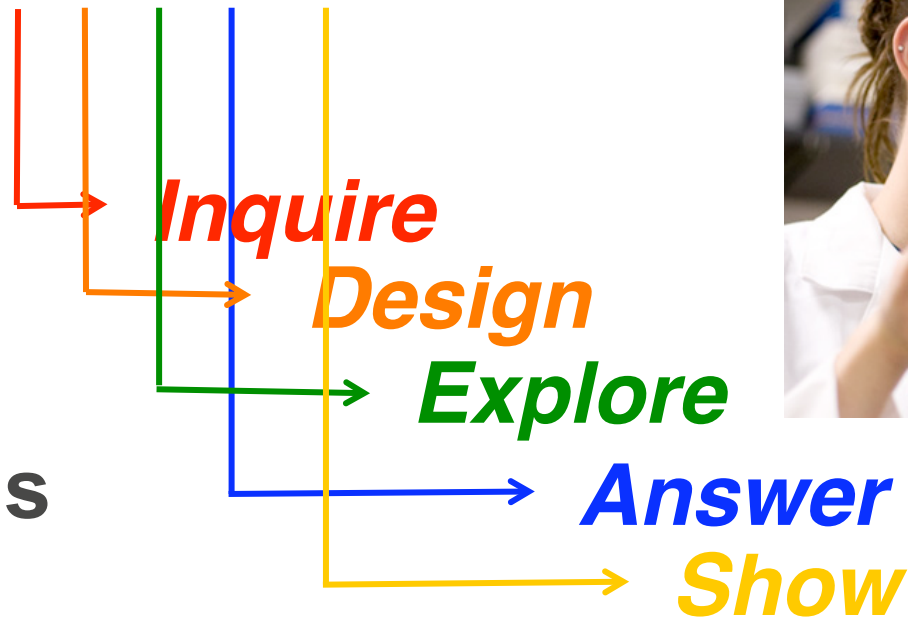


“laboratory students are usually graduate students and in most faculties little or no induction or training...

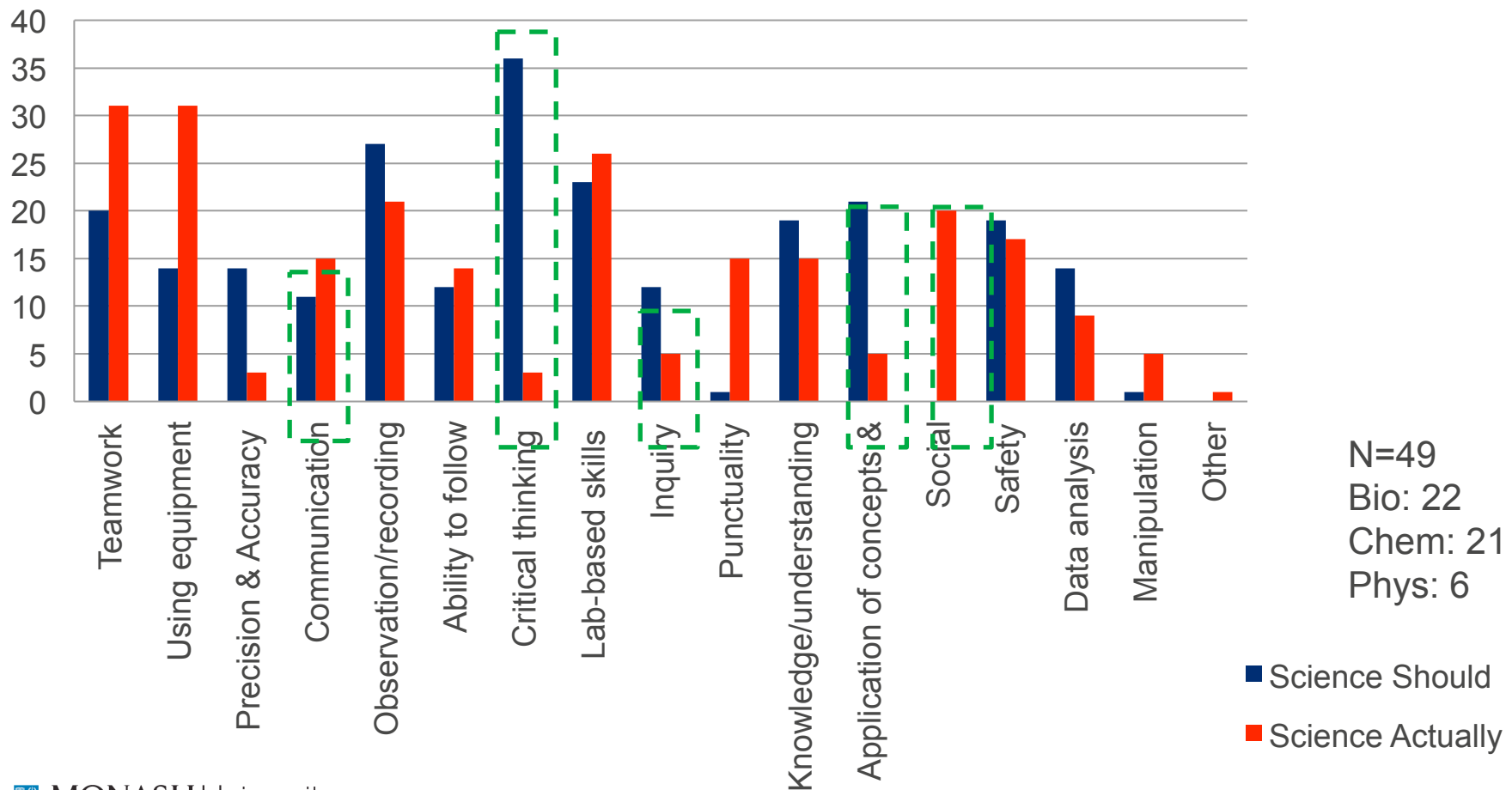
..predisposes laboratory teaching to a transmission model influenced by the demonstrator’s career choice”

# Context for change

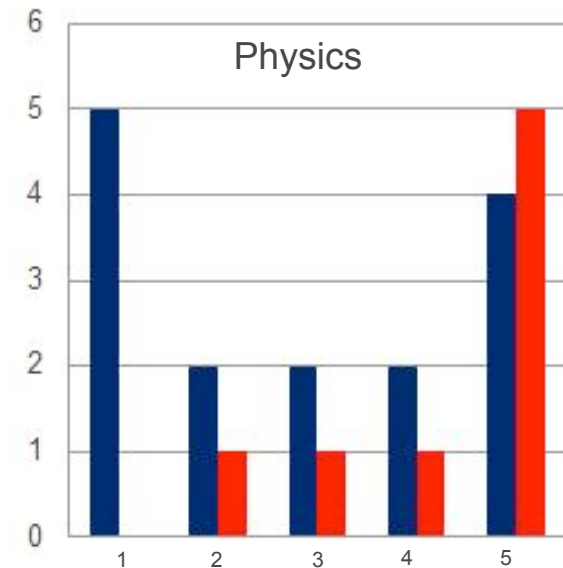
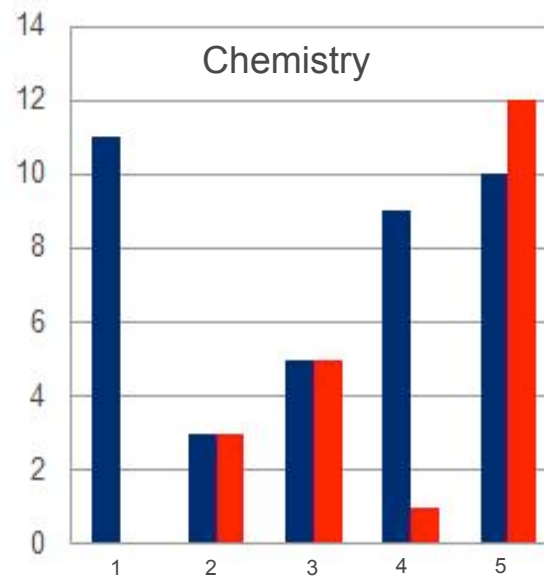
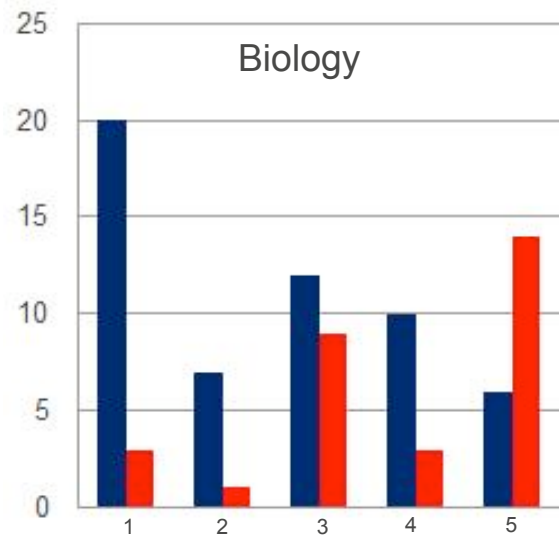
**'IDEAS'**  
practicals



# TAs – the 5 most important skills students SHOULD / ACTUALLY gain from a practical program.



## 5 skills most strongly associated with 'inquiry'



1. Critical thinking
2. Inquiry
3. Knowledge/understanding of concepts
4. Application of concepts & theories
5. Teamwork

# The traditional TA model

Traditionally, TAs have been graduate students – the ‘GTA model’

## Problems:

- turnover
- changing nature of the PhD ..e.g. coursework
- lack of training and enthusiasm
- lack of pedagogical knowledge / practice
- they teach how they were taught



# Who *should* be teaching?

There remains a focus on content knowledge rather than teaching expertise.

Pike – “The tyranny of failing to privilege teaching expertise at least at the same level as content expertise for all categories of faculty is still more widespread than it should be.”

Running a business does not qualify someone to teach any more than doing / having a new PhD (with lots of research experience) prepares one to face students in a lab.

# What is the best mix for a TA team?

Require TAs with a passion for teaching and a commitment to work as a team, share understanding, methods and skills and provide mentorship to others

Paradox / irony is that fewer academic positions mean greater demand for sessional work.. and....

...an assumption that they can walk into an undergrad teaching lab and teach effectively

# TA training '1'

Engage staff with a passion for excellence

- a. Mixed model – GTAs and ‘professional’ TAs
- b. Develop a community of practice
- c. Smaller student : TA ratios...but....
- d. Mentorship
- e. Encouragement – tell them they are valued
- f. Professional development – but....
- g. Engage them in SoTL



## TA training '2'

A uniform training model *may* not as effective as TA training in each discipline

e.g. TLOs overlap in many areas but there are differences

Interestingly....we recognise the value and need for TLOs, but if a high proportion of T&R staff are unfamiliar with them, what about TAs?

## TA training '2'

Iterated TA PD through workshops conducted in conjunction with centres for T&L

TAs keen to attend relevant PD courses / training

TAs would welcome a teaching observation.

Find ways to balance the books – tensions between ratios, PD and budgets

Do we ever ask TAs to reflect on what they teach, how they teach, and its effectiveness?



## TA training '3'

- Develop a national policy on TA training!
- Endorsement by Deans and Heads of School
- Examples of best practice

# TA training....1+2+3

TA support and development:

- will improve teaching, learning and graduate skills / attributes;
- is multi-faceted and must be coupled with other institutional advancement strategies;
- will provide impetus in advancing knowledge and skills → institutional vitality.

# Or maybe we should just do this.....

Nature “Education online: The virtual lab”



CHRIS RYAN/NATURE

.....17 July 2013