

DEVELOPING TEACHING CAPACITY THROUGH PEER-PAIRING IN A LARGE FIRST YEAR SCIENCE UNIT



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TO SUMMARISE

- Nine Graduate Teaching Associates contributed to teaching seminars
- All GTAs participated in the study
- - 5 respondents had > 3 years teaching experience
- - 4 respondents had <1 to 2 years teaching experience
- 10 peer-pairing combinations devised by experienced subject coordinator



CREATING THE PAIRINGS

Two factors were considered when determining pairings.

1 the level of prior teaching experience

2 whether the GTA had prior experience with teaching the unit, or had completed the unit as a student in the last 3 years.



**THE CONTEXT: FIRST YEAR ECOLOGY UNIT, CORE FOR B. SC, B EN.SC, B
PRIM TEACHING**

**850 STUDENTS, 2 CAMPUSES, ONE CHAIR, 9 SESSIONAL STAFF (GRADUATE
TEACHING ASSISTANTS)**

FORTNIGHTLY SEMINARS, 60 STUDENTS PER SESSION

**Goal: to test if co-teaching was one strategy to
support and develop GTAs**

The 10 peer pairings:

- Anthony (>3yrs) with Kate (<1yr), Sam (2yrs but > 10 in secondary), Geoff (> 3yr), Jacob (>3yr) = 4 pairings
- John (> 3yrs) with Jacob (>3yrs) and tricia = 2 pairings
- Geoff with Anthony (>3yr – pairing already counted) and Cam (1yr) = 1 pairing
- Adam (>3yr) with Cam (1 yr) = 1pairing
- Sam (2 yrs but >10 secondary) with Anthony (pairing already counted) and Alona (<1yr) = 1 pairing
- Kate (< 1yr) with Anthony (already counted) and Cam (1yr) = 1 pairing



3 INTERESTING RESEARCH FIELDS

1. Engaging and retaining first year science students (Krause and Coates, 2008; Kift, 2009a: p 9)
2. Supporting sessional teachers in first year science classes (Kift, 2002: p 1; BLASST 2013, Savage and Pollard, 2016)
3. Peer-pairing as a methodology for developing teaching capacity (Cohen and Delois, 2012)



GTAS' PEER-MATCHING EVALUATION OVERVIEW

GTAs completed a questionnaire on

(a) Using Nyquist and Wulff(1995) model for 3 stages of GTA development, GTAs self-identified a stage

Stage 1 - Senior learners

Stage 2 - Colleagues in training

Stage 3 – Junior colleagues

- On a scale of 1-5, where do you identify yourself with respect to each of these stages (1 being low level of identification and 5 being high level of identification).
- And 5 short answer questions about how well the peer-pairing worked for them



NYQUIST AND WULFF RESULTS

- Peers with < 1 year to 2 years teaching experience: identified most strongly with Stage 1
- Peers with > 3 years teaching experience: identified most strongly with Stage 2
- 2 respondents with > 10 years experience identified as Stage 3



With respect to the peers that you were paired with, how beneficial was this pairing for “support with subject content” ?

- Irrespective of level of teaching experience OR whether paired with less/more experienced peer, GTA's identified peer-pairing as beneficial to extremely beneficial

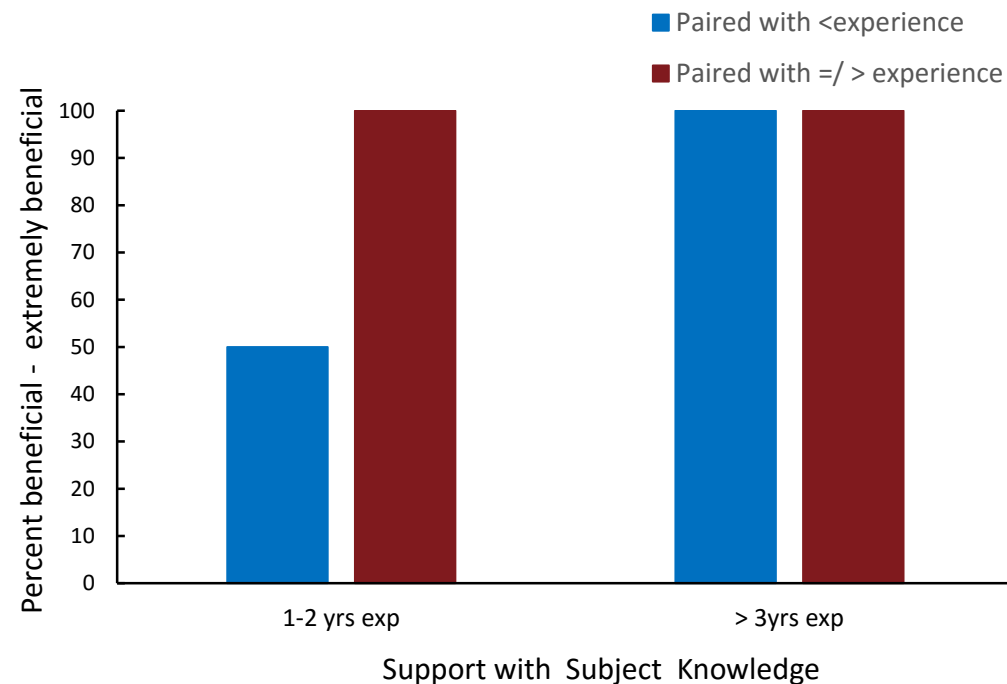


Figure 1. Percentage of responses identifying peer-pairing as beneficial to extremely beneficial for support with subject knowledge

Support with subject content

“Multiple viewpoints from teachers in the classroom can provide contrasting discussions and facilitate deeper exploration of topics, as well as provide a greater breadth of examples regarding various topics”

It gives the students access to a wider knowledge base. More people = more perspectives to challenge and inspire them

Classroom Management Techniques

- **Peers with 1-2 years experience:**
 - pairing only beneficial when paired with peers with > experience
- **Peers with > 3 years experience:**
 - beneficial if paired with =/> experience
 - 67% of responses beneficial with < experienced

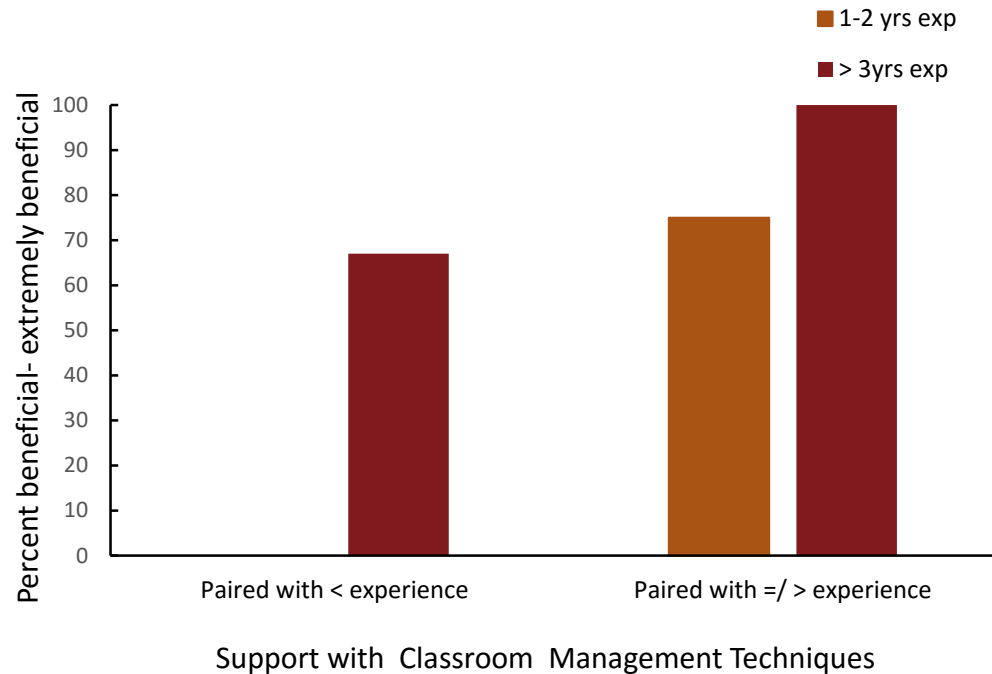


Figure 2. Percentage of responses identifying peer-pairing as beneficial to extremely beneficial for support with classroom management techniques

Classroom Management Techniques

My personal teaching benefitted from working with the more experienced tutor at the beginning of the fortnightly seminars and then being able to apply things learnt to later seminars (over the week) with my other co-tutor. I was directly applying techniques I had learnt

XXX's experience proved very valuable in developing my own classroom management skills. I was very well versed in the subject content, however having an experienced peer boosted my confidence. I learned a lot watching her techniques and approach to engaging the students.



Presentation Skills

- **Paired with < experienced peer:**
 - 50% of GTA's with 1-2 years experience: beneficial
 - 44% of GTA's with > 3 years experience: beneficial
- **Paired with =/> experienced peer:**
 - 100% of GTA's with 1-2 years experience: somewhat to extremely beneficial
 - 100% of GTA's with > 3 years experience: beneficial

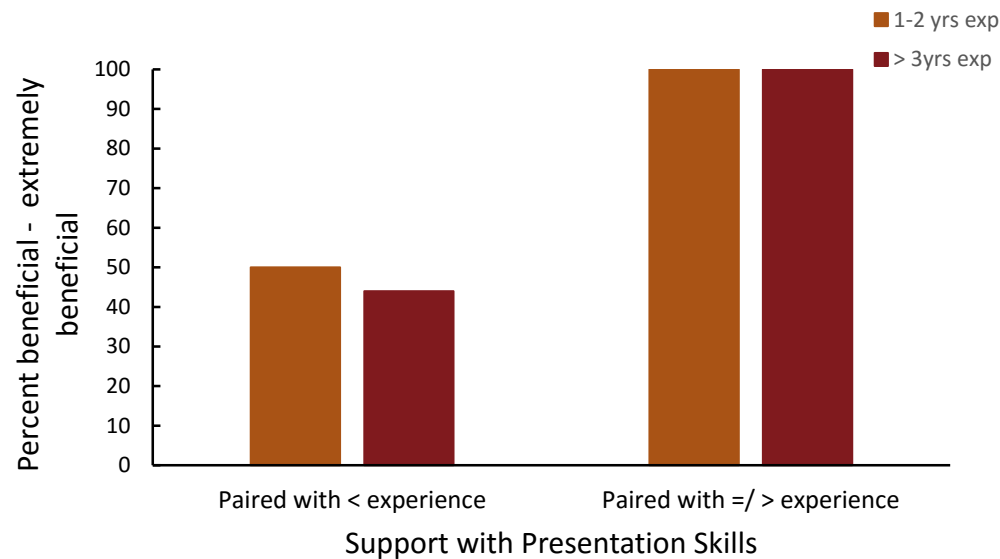


Figure 3. Percentage of responses identifying peer-pairing as somewhat beneficial to extremely beneficial for support with presentation skills

Presentation Skills

Teaching is always a learning experience and it is great to teach alongside others to observe their tricks and processes. Even when you don't necessarily agree with the way another teacher approaches a particular situation/question, it still informs your own teaching (I should do that next time, I think their approach would have been better if they did it like this). Good bad or indifferent, observing the behaviours of others informs your own teaching

Time Management

- **Peers with 1-2 years experience:**
 - 100% identified pairing as beneficial irrespective of whether paired with < or =/> experienced peer
- **Peers with > 3 years experience:**
 - 78% pairing was beneficial when paired with < experienced
 - 100% pairing was beneficial when paired with =/> experienced

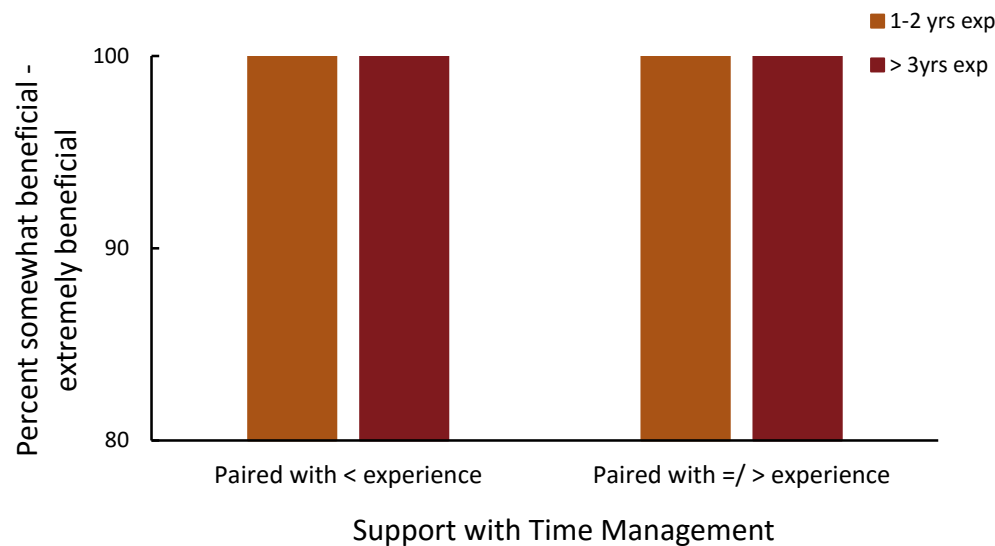


Figure 4. Percentage of responses identifying peer-pairing as somewhat beneficial to extremely beneficial for support with time management

Student engagement techniques

- **Paired with < experienced peer:**
 - 50% of GTA's with 1-2 years experience: beneficial
 - 44% of GTA's with > 3 years experience: beneficial
- **Paired with =/> experienced peer:**
 - 75% of GTA's with 1-2 years experience: beneficial
 - 66% of GTA's with > 3 years experience: beneficial
(somewhat beneficial – extremely beneficial = 100%)

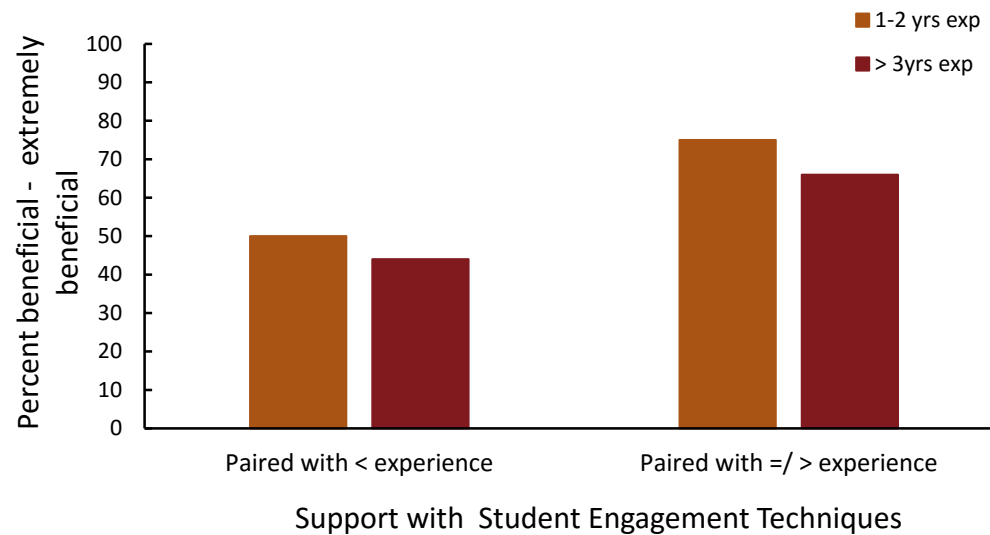


Figure 5. Percentage of responses identifying peer-pairing as beneficial to extremely beneficial for support with student engagement techniques

Student engagement techniques

“Peer-pairing teaching teams immediately double the socialisation of students into ecology as a discipline. There are also more teachers available per student and more expertise in the classroom, meaning there are more resources available to them”.

“Different teaching styles will suit different students, so by putting these in the same class is a big win”.

“By engaging the students in various activities and promoting open discussion, we effectively inspired critical thinking and problem solving. Another benefit to having peer-pairing was allowing students to relate to two different approaches and teaching styles”.



For each of the peer-pairings you identified in qu.5, how would you identify your content knowledge and teaching skills in relation to your peer? L – Less experience; E - equal experience; M –more experience.

- Peers with less than 1 year teaching experience acknowledged their lesser teaching experience than the peers they were paired with, but not necessarily that their content knowledge was lower. More experienced peers also acknowledged that peers with less teaching experience were often equals in terms of content knowledge.

How beneficial was peer-pairing in helping to develop your skills in an enquiry-based learning approach?

- **Paired with < experienced peer:**
 - 75% of GTA's identified peer-pairing as beneficial
- **Paired with =/> experienced peer:**
 - 80% of GTA's identified peer-pairing as beneficial

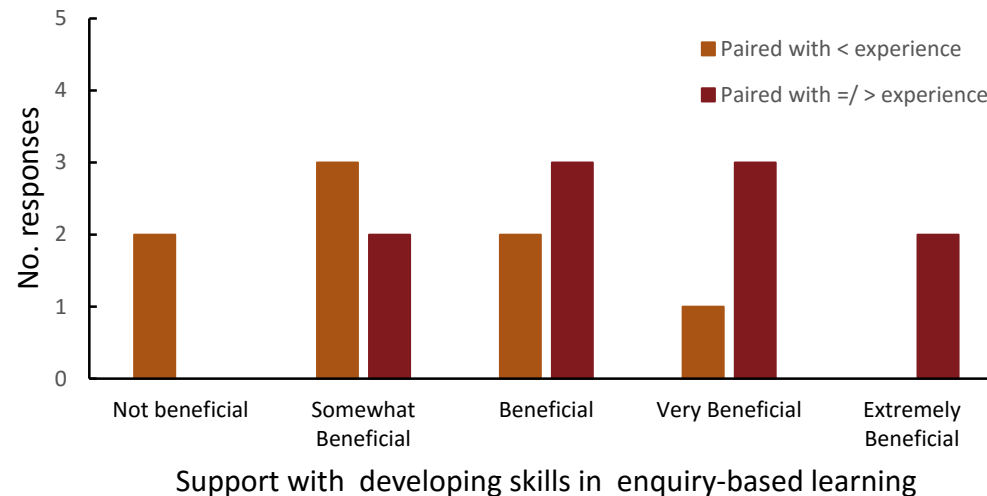


Figure 6. Ranking of peer-pairing for support with developing skills in enquiry-based learning



Enquiry-based learning

‘It provided a dynamic and enjoyable environment directly involving the students in the learning process. By engaging the students in various activities and promoting open discussion, we effectively inspired critical thinking and problem solving’.

Student evaluation of teacher satisfaction

Teacher satisfaction ranged from 72- 95%.

6/10 exceeded School evaluation rates (86%)

5 GTAs above University average (83%)

3 GTAs above 90% satisfaction

Those below Uni average - first time teachers or first time in unit.



“By having two class tutors it made it easier to work more efficiently as there were more teachers for students”

“XX and XX definitely helped me a lot during the semester”

“The worked amazingly together and bounced off each other to answer students questions, and also to communicate the lessons to the class”

“I absolutely loves the tutorials! The staff was super helpful and made them enjoyable to attend”



AS A RESULT OF THE EVALUATION...

We used this feedback from GTA's for T1 2017 to:

1. Limit the number of different pairings and have peers working with each other in multiple sessions
2. Experienced GTAs worked with the same or less experienced GTAs across multiple sessions



REFERENCES

Cohen, M & Delois, K. (2012) Training in Tandem: Cofacilitation and Role Modeling in a Group Work Course. *Social Work in Groups* 24:1, 21-36

Harvey, M (2014) The BLASST Report. Sydney: OLT Australian Govt.

Kift, S. (2002). Assuring Quality in the Casualisation of Teaching, Learning and Assessment. Paper presented 6 Pacific Rim First Year in H.Edn, Christchurch

Kift, S. (2009) Articulating a transition pedagogy, Report ALTC.

Krause, K. & Coates, H. (2008). Student Engagement in First Year University. *Assessment & Evaluation in Higher Ed* 33:5, 493-505

Nyquist J & Wulff, D (1995). Working Effectively with GTAs. Sage: Michigan

Savage, J & Polllard, V (2016) Taking the Long Road: A Faculty Model for Incremental Change Towards a Standards-based Support for Sessional Teachers in Higher Edn. *Journal of University Teaching and Learning Practice* 13:5., M &

