Ensuring the sustainability of an annual international conference of Australasian undergraduate research

Final Report 2015

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The project would not have been possible without the support of the Office for Learning and Teaching so we owe a debt of gratitude to them.

List of acronyms used

ACUR   Australasian Council for Undergraduate Research

URNA   Undergraduate Research News Australasia

Executive summary

The project created an organisational framework to ensure that an annual international conference of undergraduate research is held in Australasia on an ongoing basis. The project built on the experience in 2012 of organising the first Australasian conference of undergraduate research which demonstrated a large unmet demand for opportunities for undergraduates to present the research that they do in special research experience programs and within the broader curriculum.

A small project team together with an international consultant established an on-going international steering group with representatives of 32 Australian universities, four New Zealand universities and 14 other organisations worldwide. The project developed the documentation needed to decide on conference hosts and ensure that abstract and paper submissions, marketing and other support needed for conference organisation would be effective.

The importance of undergraduate research was demonstrated through displaying undergraduate research posters in Parliament House, Canberra. Following the project, the Steering Group will be charged with reviewing institutions' applications to host a conference and ensuring that a high quality conference is held annually in different Australasian universities.

Growing interest and practice internationally in engaging undergraduates in research has led to demand from students and academics to provide similar opportunities here in Australia. There is evidence that practice is growing rapidly. Undergraduate research addresses the need to prepare students for professional life when knowledge is uncertain and the future is unclear. It is known to have high impact in engaging students. The benefits to students are now well known and include: personal and professional gains such as increased confidence; and intellectual development including critical thinking and problem solving skills and a more advanced understanding of how scientific knowledge is built. These skills are as important in business and industry as they are to universities.

Outcomes and deliverables

1. Planned and implemented the second and third Australasian Undergraduate Research Conferences at Macquarie University in September 2013 and at
    The Australian National University on 18th - 19th September 2014

2. Arranged for the Fourth Australasian Undergraduate Research Conference to be held at The University of Western Australia in 2015

3. Established the Australasian Council for Undergraduate Research (ACUR) to ensure undergraduate research conferences would be held into the future

4. Established an organisational structure for ACUR including a Chair and a Steering Group with representatives from 32 Australian universities, four New Zealand universities and 14 other organisations worldwide

5. Established, and agreed with the ACUR Steering Group, documentation to enable periodic calls for expressions of interest to host future conferences

6. Established a dedicated website for information about ACUR (at http://www.acur.org.au) including conference hosting documentation, information about the Steering Group, sponsorship information and proceedings of specific conferences and other events

7. Held a 'Posters in Parliament: exhibition and celebration of undergraduate research' in Parliament House, Canberra, which was attended by a number of Members of Parliament and senators as well as key figures in Australian higher education

8. *Publicised activities of ACUR, undergraduate research initiatives, activities and events in the newsletter: Undergraduate Research News Australasia (URNA).*

Recommendations

On the basis of experience with this SEED Project, the following are recommended:

1. Continued support for ACUR be made available so that Australasian Undergraduate Research Conferences can be assured in perpetuity. This might be through investigating the extent to which universities would be willing to contribute

2. Posters in Parliament celebrations and exhibitions of undergraduate research events continue to be held periodically in Parliament House, Canberra, and funding is made available for this purpose. Given the interest and support of institutions for this event, institutional subscriptions might be a way forward for this

3. Opportunities for academics from all universities to come together to discuss undergraduate research initiatives, perhaps in a second summit on integrating teaching and research. This could be through work that extends Angela Brew's Australian Learning and Teaching Council (ALTC) National Teaching Fellowship *Enhancing undergraduate engagement through research and inquiry*

4. Support for continued hosting of the ACUR website be provided. This could be through subscriptions as mentioned above

5. Support for the continued production of the *Undergraduate Research News Australasia* newsletter should also be provided. This also could be through subscriptions as mentioned above.

Chapter 1 Introduction

Growing interest and practice internationally in engaging undergraduates in research and inquiry has been accompanied in Australia over the past ten years by an expansion in undergraduate research provision.

In this context, this project aimed to create an organisational framework, appropriate documentation and other necessary support to ensure that an Australasian conference of undergraduate research was held each year in different universities on an ongoing basis; and to encourage national investment in undergraduate research by raising its profile nationally.

As an OLT Seed Project it was designed to create the organisational framework needed to establish a sustainable annual international conference of undergraduate research in Australia, building on the experience in 2012 of organising the First Australasian Conference of Undergraduate Research at Macquarie University. This had demonstrated a large unmet demand for opportunities for undergraduates to present the research that they do in special research experience programs and within the broader curriculum.

A small project team together with an international consultant was charged with establishing an on-going international steering group, developing appropriate documentation and specifying the technical expertise needed to manage abstract and paper submissions, marketing and other support needed for conference organisation. The ACUR Steering Group was to be charged with reviewing institutions' applications to host a conference and ensuring that a high quality conference would be likely to be held annually in different Australasian universities.

Recognising a lack of public awareness of the existence of undergraduate research within the community as evidenced in its absence in reports on higher education, the SEED project also set out to bring undergraduate research to public attention by presenting undergraduate research posters in Parliament House, Canberra.

Importance

The importance of the project was foreshadowed in a communiqué addressed to key higher education leaders and politicians at the conclusion of the ALTC National Teaching Fellowship of Angela Brew. It stated:

 "Australia needs creative ideas and a research-minded population to become an innovative knowledge society. Further, the undergraduate experience is arguably the most important in shaping the future career trajectories of students. A critical part of this experience is the vital connection between teaching and research. … Engaging undergraduate students in research and inquiry contributes to strengthening world class research and is in line with best practice in other countries. It provides a way for higher education to address the needs of a 21$_{st}$ century workforce through developing important graduate attributes, including the skills of

critical enquiry …. It engages students' meaningfully in higher education and prepares them for a 21st century world of work in which knowing how to create, inquire and critically evaluate knowledge is of increasing importance. …It goes to the heart of our future competitiveness as an innovative country, is critical to retention of the brightest and best students, and to reversing the alarming decline of Australian students entering PhD programs."(Brew, 2010, P. 15)

A survey of undergraduate research experience programs in Australian universities in 2009 (carried out as part of the ALTC National Teaching Fellowship of Angela Brew) identified that 32 of the 39 Australian universities had special programs for undergraduates to pursue research and demonstrated that the number of students in such programs was growing (Jewell & Brew, 2010). Commitment to undergraduate research training was also evident in the introduction and spread of research degrees at the undergraduate level, as for example, the PhB at ANU and the BPhil degree at UWA. Since that time, many universities have invested in substantial programs to engage undergraduates in research related activities, such as the UQ Advantage program at The University of Queensland, the La Trobe Hallmark Program, the Macquarie University Merit Scholars Program, the Matariki Network involving The University of Western Australia and Otago University and in 2012 Durham, UK and in 2013 Queen's University, Canada, and the ICUR initiative involving Monash University (including campuses in Malaysia and South Africa), the University of Warwick, The University of Western Australia, Singapore Management University, and Nanyang Technological University. There have also been a growing number of ways that undergraduates can disseminate their research (Spronken-Smith, et al., 2013). These include undergraduate research conferences which have, for example, been a feature of academic life in the USA for over 30 years and in the UK for four years. Indeed a number of Australian universities now hold their own annual undergraduate research conferences.

Such developments have been echoed in the establishment of a significant number of undergraduate research and inquiry projects funded by the ALTC and OLT on which this SEED project built. They include: the TREASURE project (Reid, Howitt et al., ANU); the creativity project (Wood et al UNISA); The enquiry-based learning in science Fellowship of Les Kirkup (UTS); the Research Skills Development Program (Willison et al, Adelaide); and the Apprenticeship Learning in Undergraduate Research Experiences project at UQ (Rowland et al).

These developments are not surprising since such practices are known to have high impact in engaging students (Kuh, 2008). Some 15 years ago in an influential report of the Carnegie Foundation, research-intensive universities were exhorted to take the integration of research into the curriculum very seriously (Boyer Commission, 1999). Further, the benefits to students of engaging in research have also been well known for some time. They include: personal and professional gains such as increased confidence; and intellectual development including critical thinking and problem solving skills and a more advanced understanding of how scientific knowledge is built (see for example, John & Creighton, 2011; Laursen, Hunter, Seymour, Thiry & Melton, 2010; Lopatto, 2009). It is worth noting that many Nobel prize-winners engaged in research during their undergraduate years.

However, in spite of the developments noted above, in Australia, a national survey of

undergraduate research program coordinators in 2012, found that there was a need to provide further opportunities for students to pursue and present their work since there was large unmet demand for research experiences amongst undergraduate students (Freer, 2012).

In the international context, presenting high quality undergraduate research to parliament has been viewed as a way of raising its profile, attracting publicity and support at a national level. For example, Posters on the Hill is held in the US Congress annually and 'Posters in Parliament' is held in the UK. The need for such an event in Australia was highlighted in the 2009 Communiqué, as unlike in the USA and some other countries, e.g. Canada, where there is national governmental support and indeed funding for undergraduate research, Australian funding agencies have appeared reluctant to acknowledge the contribution of undergraduate research to the nation's research effort. The project team felt that there were opportunities to raise the awareness of policy-makers and leaders of higher education at the national level to the existence and growth of undergraduate research and the contribution it could make to the country.

Theoretical background

The theoretical background for the project is expressed by Brew in *Research and Teaching: Beyond the Divide* (2006, p.32) where she argued that universities should develop as inclusive scholarly knowledge-building communities where there is respect and mutual engagement in a joint enterprise. This aspiration echoed some of the key priority issues of the Seed Projects. In particular: inclusivity; the promotion of interdisciplinary programs; reshaping discipline-based courses to include more research experiences; and the revision of assessment. Feedback from both students and academic supervisors confirms that such undergraduate research conferences go a long way to achieving these aspirations.

Chapter 2: Process

The Project Team

The project team was comprised of people from different universities with a particular interest in the aims of the project. All of them had a strategic role in their institutions to encourage undergraduate research. The project team comprised:

1. Professor Angela Brew, Learning and Teaching Centre, Macquarie University (Project Leader)

2. Ms Lilia Mantai, Learning and Teaching Centre, Macquarie University (Project Administrator)

3. Associate Professor Jenna Mead, Academic Co-ordinator, BPhil (Hons), University of Western Australia. (Project team member)

4. Associate Professor Paula Newitt, Dean of Students, Program Convenor: Bachelor of Philosophy (Honours), Australian National University (Project team member)

5. Professor Stuart Hampton-Reeves, Director of the Centre for Research-informed Teaching and Head of the Graduate Research School, University of Central Lancashire, UK (International Consultant)

6. Professor Rachel Spronken-Smith, Dean of the Graduate Research School, The University of Otago, New Zealand (External Evaluator)

The project team was charged with:
1. meeting to define the scope, explore initial ideas and hear from the external consultant;

2. determining the organisational structure for annual Australasian Conferences of Undergraduate Research during and beyond the life of the project;

3. establishing an international Steering Group to take responsibility and carry the agenda forward beyond the life of the project and to ensure consistency of quality of future conferences;

4. drawing up criteria and guidelines for institutions wishing to host an undergraduate research conference for feedback from colleagues and discussion in the steering group;

5. calling for expressions of interest from institutions to host the 2014 and 2015 conferences and establish the hosts for the 2014 conference;

6. providing guidance to the chosen 2014 and 2015 conference organising institutions and revise documentation in light of their experiences;

7. creating a conference website to house the proceedings of all of the conferences;

8. finalising and publicising the guidelines, establishing the website, which may include a submission system and database, and updating the mailing lists.

9. designing a sponsorship strategy for future conferences;

10. seeking sponsorship for future research and conferences including holding a "Posters in Parliament" event in Canberra;

11. designing and implementing a dissemination strategy including preparing a publicity booklet; and

12. implementing an evaluation strategy and report.

The project team met in September 2013 prior to the 2nd Australasian Undergraduate Research Conference in order to define the scope, explore initial ideas and hear from the external consultant. At that meeting an organisational structure was created for annual Australasian conferences of undergraduate research during and beyond the life of the project (see Chapter 2). The team meeting was organised to coincide with the 2nd Undergraduate Research Conference held at Macquarie University in September 2013 (see Chapter 4), so that the team members could gain first-hand experience of such a conference.

Owing to the distances involved, thereafter, the team communicated electronically. As the ACUR structure evolved, they acted as a sounding board, and executive decision-making body assisting the Project Leader and project administrator in carrying out the decisions the Project team had made.

In November 2013, the Project Leader met the 2014 Conference organising team at the ANU for preliminary discussions. As plans for the 2014 conference evolved, regular telephone meetings were held between the 2014 Conference Chair, Associate Professor Paula Newitt and the Project Leader.

Professor Stuart Hampton-Reeves, who had been instrumental in setting up the framework for undergraduate research conferences in the UK with the British Conference of Undergraduate Research and had also organised a Posters in Parliament event in the House of Commons, London, in 2013 acted as the external consultant on the project. The Project Leader met with him in the UK in July 2013 before the commencement of the project and again in July 2014 after he had implemented a second Posters in Parliament event at the Houses of Commons in the UK and prior to Posters in Parliament in Canberra.

Professor Hampton-Reeves also attended and gave a keynote address at the 2013 Australasian Undergraduate Research Conference and was present at the team meeting just prior to that event. His expertise has been invaluable in thinking through the many issues that arose, including: criteria for eligibility to present at the conference (i.e. definition of "undergraduate"), criteria for deciding the suitability of institutions to host the conference, setting up an international steering committee, conference funding issues, sponsorship and support for students, institutional and parliamentary liaison, archiving and publication of conference presentations, the management of social networking and the creation of interdisciplinary panels as well as guidance on invitations to Posters in Parliament.

Professor Rachel Spronken Smith, Dean of the Graduate Research School at the University of Otago, New Zealand has been the project evaluator. In this capacity she has acted as a critical friend throughout the project and provided interim and final evaluation reports. Professor Spronken-Smith attended the team meeting in September 2013 and presented closing reflections at the 2013 ACUR conference.

Progress

While the process followed the key tasks of the project plan, some aspects took longer than originally envisaged. This necessitated an adjustment in the original timetable for the project. A project extension was therefore negotiated with the OLT for two major reasons:

1. Establishing the ACUR Steering Group took much more time than originally planned because it was important to identify the senior person in each university who would be supportive. This involved a good deal of negotiation with existing contacts and researchers in the field, with OLT Fellows, and people with related OLT projects.

2. It also became clear that the Posters in Parliament exhibition would require considerable liaison with universities through Steering Group members and this would also take time. In addition it was essential that Posters in Parliament should be scheduled for a parliamentary sitting day and also, to ensure a sufficient supply of students it was decided to link Posters in Parliament with the 2014 conference. This took it beyond the original timeline of the project.

As a SEED project, the idea is that its outcomes should be sustainable, so work continues, for example, to:
1. continue to establish Steering Group members in the Australian and New Zealand universities not yet represented;
2. continue to liaise with the 2015 conference hosts
3. continue to publicise ACUR events and activities in *Undergraduate Research News Australasia (URNA)*
4. continue to publicise the outcomes of Posters in Parliament
5. updating the ACUR website
6. seek 2016 conference hosts

Chapter 3: Establishing ACUR

Organisation

The Australasian Council for Undergraduate Research (ACUR) was established as an outcome of the SEED project to ensure that a high quality international conference of undergraduate research would be held in Australasia annually. The aims of ACUR are to support different institutions in hosting the conference and to gain support for the conference in the wider higher and tertiary education community.

 ACUR has been organised to have a chairperson and an international steering group with responsibility to ensure consistency of quality of future conferences. The OLT project team has played a role in guiding the Steering Group and this suggests that a small core committee may be needed in the future. It was decided that the Chairperson role would be a rotating one, and that when a new chairperson is appointed the retiring one would operate in the background for continuity. In the first instance, Associate Professor Paula Newitt was elected by the team as Chairperson for the two year period 2014-2015. Associate Professor Paula Newitt was also designated to be the 2014 Conference Chairperson. Therefore, in order to share the workload, Angela Brew acted as Inaugural Chair during 2014. In future, the Chairperson will be elected every two years by the ACUR Steering Group.

The ACUR organisation will:
1. decide on the hosts and venue for the annual conference;

2. permit the conference to be branded as the official Australasian Conference of Undergraduate Research and use its logos and website;

3. make no claim on any profits arising from the conference itself;

4. undertake to lobby for funding for student delegates;

5. undertake to ensure a breadth of representation across the higher and tertiary education sector on the Steering Group;

6. advertise the conference through the acur.org.au website and through social media; and

7. advise and help the host institution team as appropriate.

ACUR will achieve these objectives through the work of its Steering Group

ACUR Steering Group

The duties of the Steering Group are to:

1. make major decisions regarding the ongoing reputation and progress of ACUR;

2. establish, maintain and publicise criteria and guidelines for institutions wishing to host an undergraduate research conference;

3. call for expressions of interest from institutions to host future conferences and make decisions in the light of the criteria for hosting;

4. provide guidance to the chosen conference organising institutions and revise documentation in the light of their experiences;

5. provide practical help to conference organisers as requested such as documentation, spreadsheets, pro-formas, publicity etc.;

6. monitor conference organisation by representation on conference organising committees;

7. maintain a conference website to include a submission system and database and to house the proceedings of all of the conferences;

8. maintain and update mailing lists;

9. assist institutions in gaining sponsorship for future conferences;

10. design and implement a dissemination strategy including preparing a publicity booklet;

11. evaluate its own activities; and

12. assist in choosing best posters for Posters in Parliament when appropriate.

The ACUR Steering Group consists of individuals who have influence in their institutions in terms of gaining support and funding for undergraduates to attend and present at ACUR conferences, as well as individuals who are researching, implementing or leading projects to engage undergraduates in research and inquiry (See Appendix D). The ACUR Steering Group includes representatives from 32 Australian universities, four New Zealand universities and 14 other organisations worldwide. A large, inclusive, steering group ensures information is spread widely across institutions and ensures no particular individual is burdened with work.

Institutions represented on the ACUR Steering Group

Australian institutions

Australian Catholic University
Charles Sturt University
Curtin University
Deakin University
Flinders University
Griffith University
James Cook University
La Trobe University
Macquarie University
Monash University
Murdoch University
Queensland University of Technology
RMIT University
Swinburne University of Technology
The Australian National University
The University of Adelaide

The University of Melbourne
The University of New South Wales
The University of Newcastle
The University of Queensland
The University of Sydney
The University of Western Australia
University of Canberra
University of Central Queensland
University of New England
University of South Australia
University of Tasmania
University of Technology, Sydney
University of the Sunshine Coast
University of Western Sydney
University of Wollongong
Victoria University

Overseas institutions

University of Leuven, Belgium
Oldenburg University, Germany
University College Cork, Ireland
Leiden University, Netherlands
Canterbury University, New Zealand
University of Auckland, New Zealand
University of Otago, New Zealand
Victoria University, New Zealand
Lincoln University, UK

Northumbria University, UK
Oxford Brookes University, UK
University of Central Lancashire, UK
University of Sterling, UK
Council on Undergraduate Research, USA
Project Kaleidescope, USA
St. Mary's, Maryland, USA, USA
University of Arizona (Tucson), USA
University of Colorado Boulder, USA

Establishing the ACUR Steering Group took a considerable amount of time because it was considered important to identify the senior person in each university who would be supportive. This involved a good deal of negotiation with existing contacts and researchers in the field, with OLT Fellows, and people with related OLT projects. The idea was to have a large group to ensure that there is representation from as many Australian and New Zealand universities as possible and that the ACUR Steering Group would have an international reach.

The ACUR Steering Group has worked electronically to collectively agree the conference guidelines and criteria and conference hosting rules. In their institutions, members of the Steering Group have actively participated in disseminating information about the 2014 conference and have taken responsibility for deciding their institution's nominations for student presenters at Posters in Parliament. Some ACUR Steering Group members met at

the 2014 conference and a further group met at Posters in Parliament.

Steering Group Representatives at Posters in Parliament

ACUR Documentation

The ACUR Steering Group has agreed a set of documents that will eventually become the ACUR Handbook. The documents provide guidance to potential future conference organising institutions and will be revised in the light of the experiences of the 2015 Conference Organising Committee.

The documents include:

1. information about ACUR;

2. the definition of an undergraduate research conference;

3. criteria for an Australasian Conference of Undergraduate Research (ACUR Conference);

4. responsibilities of ACUR;

5. the nature of the ACUR Steering Group and its responsibilities;

6. the nature of the host institution;

7. the process of applying to host the conference;

8. the responsibilities of hosting including organisation, budgetary arrangements, and risk management; and

9. the host's responsibility in terms of the quality of the academic and social program and work presented at the conference.

These documents are included in Appendix A.

Sponsorship strategy

Funding, possibly through sponsorship, is important for the continued development of ACUR. Small amounts of funding may come from the ACUR conferences, but by and large sponsorship is important not only to the development of ACUR but also as a way of demonstrating community support. In 2013 ACUR attracted $7000 in sponsorship money for the ACUR conference. The ACUR Steering Group considered developing a sponsorship strategy and in late 2013 some initial ideas were recorded. Then it became necessary to concentrate efforts on finding some sponsors for the 2014 conference. It is clear that each conference needs to attract local support for prizes

Various options for obtaining sponsorship more generally are:

1. Approaches to committed individuals and disciplinary organisations that are already funding undergraduate research projects in Australian universities. These were accessed in 2013 and 2014 from the database developed during Angela Brew's Fellowship in 2009. However, this database now needs updating;

2. ACUR Steering group members have a responsibility to raise the profile of the conferences in their institution and to ensure that some students are funded to attend the ACUR conference each year.

3. ACUR Steering Group members also provide a pool of senior people who may be approached for institutional sponsorship more widely.

4. The Project Team has been compiling a list of other possible sponsors including: the university that hosts the conference; publishers of study skills books; Coop bookshop; companies that promote postgraduate opportunities; universities advertising postgraduate programs; corporate sponsorship looking for a good cause to associate themselves with. Inducements include: having a stall at the conference; advertising in the conference program and on the conference website; possibly a graduate fair at the conference; sponsored reception / prizes.

5. The Posters in Parliament event attracts public and private sector sponsorship in the longer term.

Future sponsorship

For the future, the database needs to be updated. This can be done through the ACUR Steering Group investigating which organisations are currently funding undergraduate research in their institutions so that these can be added to the database.

Existing sponsors need to be kept informed of developments throughout the year, not just in the run-up to conferences.

ACUR in the future

ACUR has been established with the idea that its work will continue after the end of the SEED project. Indeed, at the time of writing this report, work is still going on to:

1. finalise arrangements for the 2015 conference

2. solicit hosts for the 2016 conference

3. prepare documentation to record the 2014 conference and Posters in Parliament

4. update the website

5. prepare publicity material, e.g. URNA

At a minimum, these activities will continue into the future. They require good will and small amounts of funding. However, a broader vision for ACUR sees it becoming a peek body possibly with funds for undergraduate research scholarships, organising large and small events for supervisors and institutional leaders in order to disseminate information and ideas on undergraduate research and research-based learning. ACUR could become a centre for the exchange of information about research scholarships available to Australasian undergraduates. This broader vision would only be possible with considerable funding support and/or sponsorship.

Chapter 4: Conferences

During the period of this OLT Seed grant, two ACUR undergraduate research conferences have been held in 2013 and 2014 and the location and initial planning of the 2015 conference has been organised. In addition, mechanisms have been put in place to ensure the continuation of Australasian conferences of undergraduate research into the future.

The definition of an undergraduate research conference as agreed by the ACUR Steering Group is:

An undergraduate research conference is just like any other academic conference but each presentation is delivered by undergraduate students including Honours students presenting work they have done either as part of their course or as part of an internship. As a multi-disciplinary conference, undergraduates have the opportunity to network with other undergraduate researchers from their own disciplines, and also to learn about how other disciplines approach research problems. An undergraduate research conference provides a great opportunity to meet students from other universities and share their research.

The following criteria have been agreed by the ACUR Steering Group

An ACUR conference is a conference which meets the following criteria:

1. is open to all undergraduate and Honours students and recent graduates including Honours students (within 12 months of graduation) to present research conducted during or before undergraduate studies including extra-curricular research;

2. adopts an inclusive approach to undergraduate research which encourages participation from all disciplines, all levels of study and all types of higher and tertiary education institutions;

3. involves an academic peer review process for abstracts which allows students to resubmit where appropriate;

4. is primarily a face to face conference, but may include virtual conference elements (e.g. electronic networking, webinars, Skype discussions);

5. offers a range of conventional and unconventional opportunities for students to disseminate research (for example, through posters, oral presentations, workshops, performances etc.);

6. is cost-effective to ensure that the conference fee for student delegates is affordable;

7. has a social program to give students the opportunity to mix and debate outside of the formal presentations;

8. involves undergraduate students in the running of the conference; and

9. includes a session or sessions for attending staff members including the ACUR Steering Group to discuss the implementation and management of undergraduate research.

Note: An Australasian Conference of Undergraduate Research (ACUR) is designed to complement and not compete with undergraduate research provision at institutional and state-wide levels.

2013 Conference

The 2013 ACUR conference was the second Australasian Conference of Undergraduate Research. It built on the first one-day conference held at Macquarie University in 2012. The second conference was held at Macquarie University on September 19th-20th 2013. Students submitted abstracts and these were reviewed by a team of some 30 academics and post-doctoral students in different disciplines.

Approximately 55 Undergraduate, Honours and Master of Research students from all over Australia and New Zealand presented their research, either as a spoken or a poster presentation. One hundred and fifty visitors came to hear and be stimulated by the wide variety of presentations on offer each day. Research presented covered diverse topics ranging across all disciplines, from "Big History" and "Web 2.0 technologies" to "Green Energy" and "The Meaning of Life".

The conference attracted some $7,000 in prize money. Macquarie's Vice-Chancellor, Professor Bruce Dowton, presented the prizes.

2013 Sponsors

Emeritus Professor Adrian Lee: $1000 Prize for the Best Presentation and Paper won by Rodney Cross of **Macquarie University** "*Bold as brass: 'brass instruments' in the Roman army*"

PACE, Macquarie University: $1000 Prize for the Best Presentation and Paper on Community-Engaged Research, won by Fiona Ng, **The University of Sydney** for "*Weather and Health: A rural perspective*".

National ICT Australia (NICTA): $500 Prize for the Best Presentation in Computer Science or Electrical Engineering won by Audri Biswas, **Macquarie University** for "*A high technology answer to the question, 'Where am I ?'*

Faculty of Human Sciences, Macquarie University: four $500 travel scholarships for students who have engaged in online education: rural and remote; indigenous; female; and teacher/educator won by
- Patrick Vu, **University of Western Sydney**: "*Online education and its potential impact on international student inflow to Australian universities*";
- Dean Croxon, **Macquarie University**, for "*Fair Go with Web 2.0: Effective strategies for the democratisation of teaching and learning processes using*

Web 2.0 technologies";

- Lauren Brady and Brad Wright , **Charles Sturt University**, for "*Exploring personal development health and physical education HSC teachers' perceptions of the value of NSW HSC online website in preparing students for a high stakes examination*".

Some of the 40 student volunteers at the ACUR2013 Conference

Australian Mathematical Sciences Institute (AMSI): $500 Prize for the Best Presentation in Mathematics or Statistics won by Joseph Bunton, **The University of Queensland** for: "*A Branch and Price Scheme for the Single Track Railway Line Problem*".

Australian Centre for Plant Functional Genomics (ACPFG): $500 Prize for the Best Presentation in Plant Science or Molecular Biology won by the **Macquarie University** iGEM Team: Rani Sharma, Daniel Russell, Kirsten Gadsby, for their presentation "*Towards a new green energy: Production of chlorophyll in E. coli*".

Coop Bookshop, Macquarie University, five $50 book vouchers for prize for the best poster and for the most interesting poster and runners-up to the prize for the best paper.

Macquarie University Library: $20 credit rewards for each of the 40 volunteers without whom the conference would undoubtedly not have run as smoothly.

Keynotes were presented by Professor Stuart Hampton-Reeves (University of Central Lancashire), and Professor Rachel Spronken-Smith (University of Otago). There was a student facilitated interactive research workshop and a BBQ for all ACUR attendees organised by Macquarie's undergraduate research student society (MUURSS) which was an opportunity to socialise and network.

Feedback returned after the conference showed that students appreciated the opportunity to present their research, sharing ideas with others and making valuable connections at a conference like ACUR. For example, one student commented:

> *"I'd like to thank you so very much for organising the ACUR 2013 - I'm so glad to be able to come down to Macquarie University, learn about other people's research, and mingle with like-minded peers."*

And a student who presented also commented:

> *"I gained the understanding that the ability to conduct research is not restricted to academics at university, unlike a common perception that undergraduates only learn coursework and need to wait for higher level study to undertake projects. The great showcase of expertise in differing fields provides a great reason for more undergraduate students to answer their own questions as it is evident that we all are indeed capable of achievement in researching exciting and relevant issues."*

Morning Tea at ACUR 2013

Delegates were invited to write comments on paper "bricks" which were then arranged to make a wall (see picture above). Some of the most common phrases included: "Awesome"; "I am in AWE of this incredible research"; "So informative"; "I love ACUR!"; "A new and interesting experience"; "My first ACUR experience"; "So many nice people all around", etc.

2014 ACUR Conference

The third Australasian Conference of Undergraduate Research, ACUR 2014, was held at The Australian National University on September 18th-19th 2014. Students submitted abstracts and these were reviewed by a team of 25 ANU students and academics. Workshops were held at ANU to develop abstract writing and reviewing skills in students prior to their participation in the conference review process. Workshop materials form part of the package of materials to be provided to the ACUR 2015 team.

Advertising for conference submissions focussed on encouraging students from all universities across Australia and New Zealand to attend. In particular, academic leaders were contacted in disciplines traditionally underrepresented in conferences showcasing undergraduate research. The aim was to encourage a breadth of participation in practice based research as well as the more traditional areas of Science, Technology, Engineering and Mathematics (STEM) and arts/social sciences.

This was the first ACUR conference held away from Macquarie University. This was also the first conference to impose a registration fee ($125) as part of the development of a sustainable basis for the annual conference.

Break during the ACUR 2014 conference

Building upon past successes the conference continued to grow, attracting 110 student presenters from 20 universities across Australia. One hundred and forty individuals attended the conference. Vice Chancellors from all Australian universities were contacted with a request for each university to fund two students to the conference. Some students who were accepted to present at the conference ultimately declined due to the lack of financial support. This is an area of development into the future.

The research topics covered were across a dizzying array of disciplines, from astrophysics to neuroscience, ancient history to music, business studies to law, and much in between. All sessions were exceedingly well attended and question times were distinguished by the quality of the questions. A workshop: *Publishing your Research* was held as part of the conference program. The highlight of the social program was the conference dinner, attended by 120 conference participants.

Student volunteers at the ACUR 2014 Conference

2014 Prizes and Sponsors

Award for Best Presentation and Paper – $1000 (*donated by Emeritus Prof. Adrian Lee, UNSW*) to Hannah Louise Phelps,**The University of New South Wales (Canberra),** for "*A Mathematical Model for Heat Transfer in Fire Fighting Suits Containing Phase Change Materials*".

2014 Jury Prize for Presentation and Paper- $500 (*donated by the conference host institution, ANU*) to Chi Yhun Lo, **Macquarie University**, for "*Evaluation of headphone effects on performance in the LiSN & Learn auditory training software*".

Runner-up Best Presentation and Paper - HERDSA Student Membership (*donated by HERDSA*) to April Strong, **University of the Sunshine Coast**, for "*The role of neurohormones in aquatic parasitic host-finding behaviours*".

Award for Best Poster Presentation - $500 (*donated by HERDSA*) to See Weng Leong, **The University of Adelaide**, for "*Is section 105.4 of the Criminal Code Act 1995 (Cth) constitutionally valid?*"

Runners-up for Best Poster Presentation – Book prizes (*donated by HERDSA*) to Fabien Lean, **The University of Queensland**, for "*A retrospective study of 111 canine prostatic samples: clinic-pathological aspects and classification* and Amy-Lee Sesel, **Macquarie University**, for "*Remembering Together*".

All participants of ACUR 2014 were invited to participate in a follow up online survey. The feedback peaked around positive comment that ACUR was seen as an opportunity to

practise presenting research. Student comments included many remarks such as:

"Coming to ACUR has encouraged me to continue down the path of research, and hopefully present at many more conferences!"

"The best part of the conference was meeting people and the confidence of knowing that I can present at a conference!"

"ANU was an awesome place to have experienced. I love Canberra and the grounds at ANU. The workshop on publishing was interesting for me. I'd like to publish something one day or be involved with a journal."

Feedback from attending academics was just as positive as that of their students:

"As a staff member it was fantastic to see the breadth of research being undertaken, and the quality of the research. Very exciting."

2015 ACUR Conference

The University of Western Australia has agreed to host the ACUR 2015 Conference. The UWA is a strong advocate for undergraduate research, and has supported many undergraduate students to attend ACUR over the past two years. The conference will take place on 29th-30th September 2015.

In 2014, UWA was one of the participating universities in an international undergraduate research conference (known as ICUR). This was a global, 24-hour event linked by cutting-edge video conferencing technology where undergraduate students across disciplines at universities in different parts of the world were invited to showcase their research through oral presentations or posters.

In 2015 ACUR will be held on the same two days as the ICUR 2015 event and alongside it. This is an interesting development as it will extend the opportunities for interaction face to face and electronically not only across Australasia but also across the world. This is in line with the ACUR conference criterion as primarily a face to face conference, but which may include virtual conference elements (e.g. electronic networking, webinars, Skype discussions).

Both events will be held at UWA in the one venue and probably at the new Harry Perkins Institute for Medical Research. It is planned to use one of the seminar rooms for the ICUR event and two rooms for the ACUR event. ICUR 2015 will be open and publicised only to UWA students. ACUR 2015 will be open to all undergraduate students. There will be one program advertising the parallel sessions.

There will be a fee charged for registration. The exact amount is yet to be determined but will probably be about $50.

The organising committee will consist of Professor Sally Sandover, Dr Lee Partridge and Dr Paula Newitt and administrative support will be supervised by Ms Andrea Fraser, Project Officer within the Educational Strategies Office at UWA. The committee will be supported by the UWA Centre for Advancement of Teaching and Learning.

Future ACUR Conferences

The ACUR Steering Group set out rules to determine conference hosts in the future. They agreed that the host institution will be a university or other higher or tertiary education institute in Australia, New Zealand or nearby territories.

Institutions wishing to host a conference

In the first instance, potential hosts are advised to submit to the ACUR Chair an Expression of Interest. A signed proposal is then required. A copy of the form to be filled in by potential hosts is included in Appendix B.

The host institution

The host institution must detail how their institution will meet the ACUR criteria. This has to include details of administrative support and the facilities available for the conference. An indicative budget has to be provided, together with a signed letter from a senior officer, i.e. VC or DVC indicating their agreement to host the conference and including a statement that the institution will carry any risks associated with hosting it.

The responsibilities of the host institution are to:
1. create an internal conference organising committee and take responsibility for the front-line management of the conference;

2. fully underwrite the conference and take full responsibility for the administration and financial management of the conference; administration and use of fees;

3. retain any profit arising from the conference with the expectation that this will be used to further undergraduate research;

4. meet any losses incurred;

5. take legal responsibility for all risk management issues associated with the conference, including insurance and security, IP issues/ creative commons etc.;

6. set the fees to be charged to delegates in collaboration with the ACUR Steering Group;

7. maintain the focus on students, based on ACUR guidelines;

8. use the ACUR logo and advertise the ACUR website in all publicity relating to the event;

9. keep the ACUR steering group updated about the progress of conference organisation;

10. include one external member of the ACUR steering group on the organising committee in order to maintain contact;

11. encourage academics to send students to present and participate;

12. identify and advertise low cost accommodation options including staying with local students including graduate students, and/or local colleges of residence, hotels etc.;

13. evaluate the conference and report to the ACUR Steering Group;

14. Adhere to ACUR conference criteria; and

15. Invite hosts of the following year's conference to have a dialogue and a discussion, and give a brief invitation to delegates at the final conference session in order to stimulate excitement and ensure a sense of continuation.

The conference program

The host institution must take responsibility for managing the quality of the academic and social program and work presented at the conference. This must include:

1. conducting a submissions review process, [recommendation for host to have a review/programming committee and organising committee];

2. providing an opportunity for students to re-submit where appropriate;

3. including workshops, meetings or pre-conference sessions on undergraduate research for academic staff;

4. social activities such as: break out groups, speed networking, BBQs, dinners;

5. designating nominations for prizes and managing the prizes process;

6. disseminating the program and a record of the event on the ACUR website (www.acur.org.au); and

7. giving consideration to publication of the best papers in a local or other undergraduate research journal.

Chapter 5: Posters in Parliament

On Monday 22nd September 2014, 38 students from 17 different universities across Australia presented their research in the Mural Hall at Parliament House, Canberra. Student posters displayed research from a broad range of disciplines: from cell biology to language development, higher education teaching and learning to climate change; anthropology to biochemistry; philosophy to neuroscience (see list below).

Visitors included: The Hon. Robert French AC (Chief Justice, Federal Court of Australia), Mr John Alexander OAM MP (member for Bennelong, NSW), Mr Andrew Broad MP (member for Mallee VIC) The Hon. Mal Brough MP , (member for Fisher, QLD), Ms Sharon Claydon MP (member for Newcastle, NSW), Mrs Jane Prentice MP (member for Ryan, QLD), Mr Ken Wyatt AM MP (member for Hasluck WA), Senator Glen Lazarus (QLD), Senator the Hon. Kate Lundy (ACT), Senator Bridget McKenzie (VIC), Senator The Hon. Scott Ryan (VIC), Senator The Hon. Penny Wong (Leader of the Opposition in Senate), Mr Warren Mundine (Chair of the Indigenous Advisory Council) and other senators and members of Parliament, as well as key high education leaders and members of the ACUR Steering Group.

Undergraduate students who presented their research at Parliament House

Rationale

The idea of hosting an exhibition of undergraduate student research in parliament initially came from the USA where "Posters on the Hill" has been a feature of parliamentary life for many years. The aim is to demonstrate to key individuals including members of parliament and senators the quality and range of undergraduate research that is being carried out by showcasing some of the best research through an exhibition of scientific posters displayed

in a venue where parliamentarians and others can readily access them.

Posters in Parliament aimed to raise the profile of research within the Australian community. Undergraduate research engages the brightest and best of our young people to produce new knowledge during their undergraduate years. It attracts the most capable students and engages them in doing exceptional things within their normal courses of study. A key aim of this OLT Seed Project, was to encourage investment in undergraduate research by raising its profile nationally. *Posters in Parliament: Celebrating Undergraduate Research* was the vehicle chosen to do this within the scope of the project.

Planning

The project's external consultant, Professor Stuart Hampton Reeves, who had recently introduced Posters in Parliament in the UK, provided useful advice both in the early and the later stages of planning. It became clear in discussions that the Posters in Parliament exhibition would require considerable liaison with universities through ACUR Steering Group members and that there may be restrictions in gaining space in Parliament House.

In the event, the venue of Mural Hall was reserved, a large space in a secure area of Parliament House near to members' and senators' dining areas, so very convenient for them to pass by and view. Monday 22nd September was chosen as the date because it was a sitting day for both Houses of Parliament.

An invitation leaflet was prepared and was sent by post with an accompanying invitation letter to all members of the House of Representatives and senators. It was also sent by email to all Vice-Chancellors of Australian universities, all members of the ACUR Steering Group, all supervisors of the nominated students, and leading individuals from key organisations (See Appendix E and F). In all an approximate total of 500 people were invited.

Steering Group members and students were asked to personally write to their local MP and a number took up this opportunity. In the event, this was perhaps the most successful invitation strategy as a number of MPs came looking for the particular student who had invited them.

Invitation leaflet cover

In order to ensure a high quality of student posters and presentations, ACUR Steering Group members were invited to nominate students. Where there was more than one ACUR Steering Group member in an institution, groups were invited to set up a process for nominating students.

ACUR Steering Group members were informed of the names of any students who had been accepted to present at the 2014 conference at the ANU which was being held on the Thursday and Friday prior to Posters in Parliament. In a few cases where there were no Steering Group members, requests to send students was made as a result of the letters to Vice-Chancellors.

Mechanisms for choosing students varied. In some cases mini exhibitions of students presenting at the conference were held. In others ACUR Steering Group representatives at the same institution collaborated to nominate their university's student representatives. ACUR Steering Group members were advised that not only should the posters be informative and well presented, the students needed to be articulate because they would have to explain their research to very experienced people.

Logistics

Prior to the event invitations were printed in colourful leaflets (see image above) to be included in invitations and as handouts at the event. Banners were designed and printed, including sponsor logos. Poster boards were hired through an external company well in advance. Their delivery and pick up had to be strictly coordinated via a secured loading dock at Parliament House. Catering (afternoon tea and a non-alcoholic drinks reception with canapés) and floral arrangements were arranged by in-house services. A guest list had to be passed on to the coordinator so security could run background checks and prepare access passes prior to the event. Name badges were prepared for all guests who confirmed their attendance.

To ensure Posters in Parliament ran smoothly, Lilia Mantai liaised with the Parliament House event coordinator and kept up regular communication over four months leading up to the event. The event had to strictly follow the schedule that had been discussed with the coordinator, eg. use of space, set-up time, access time and location, catering style, security. As Posters in Parliament took place in a secured and non-public venue (Mural Hall), the strict schedule ensured all event participants and guests were escorted by security between public and event venues.

As the time schedule on the event day was tight, e.g. only one hour was available for the room and poster set-up, a strict plan had to be followed and quick decisions made. Students were advised to arrive early to help with setting up the poster boards and poster display. As the event organisers had not previously seen the room and its layout, the arrangement of boards had to be done on site. Students and staff worked together in an exemplary manner to ensure everything was arranged for the event to begin on time. A reception desk was placed at the venue entrance to greet visitors, assign name badges where appropriate, distribute the program and list of presentations. Visitors were encouraged to leave comments in a guest book. A professional photographer was hired for 1.5 hours to
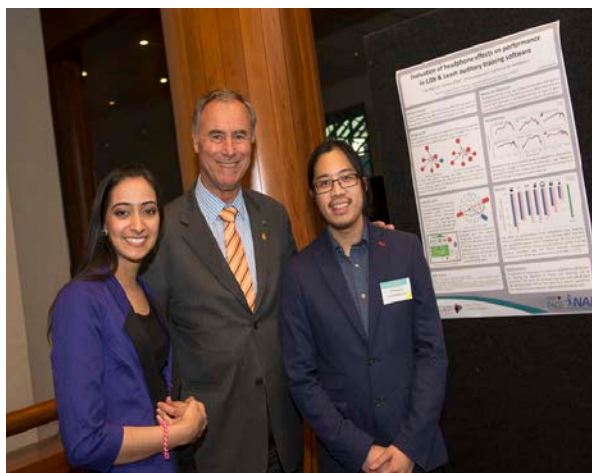
document the event.

Reflections on the event itself

In order to give a flavour of the event, we have chosen to include some reflections by student presenters and some photos that were taken.

Macquarie University nominated Linguistics students Chi Yhun Lo and Caroline Valim to present their research at Posters in Parliament. In his reflection Chi writes:

Chi Yhun Lo and Caroline Valim with Hon John Alexander MP

"I was selected to be a poster presenter at the inaugural Posters in Parliament session and was fortunate enough to present my work to the Hon. John Alexander and the Hon. Ken Wyatt - the first Aboriginal person to be elected to the Australian House of Representatives.

Both showed great interest in my project, as both had a personal connection with hearing impairment, and were aware of how greatly it affects the wider community. In particular, Ken Wyatt impressed me greatly, as his knowledge of hearing was superb, even using the scientific term of 'otitis media' to describe ear infections! In general, hearing impairments affect aboriginal communities disproportionately, and Ken Wyatt was very receptive to the potential improvements with accessibility to LiSN & Learn as a result of my research study. He was incredibly encouraging, and adamant that I send him a copy of my published paper as soon as I can. In all, I hope the event will continue in the future, as it will help draw further connections, interactions, and initiatives between students, universities, politicians, and the government. Both ACUR 2014 (Australasian Conference of Undergraduate Research 2014 on 18-19 September) and Posters in Parliament were a resounding success. These first few steps into the world of research have given me a boost in confidence, and has furthered my drive to continue down what I hope will be a long and fruitful career as an auditory research scientist. I have seen first-hand the benefit of undergraduate research programs, and I hope that both ACUR and Posters in Parliament continue well into the future, growing larger, and ever more ambitious!"

Christian Inglis of the University of the Sunshine Coast presented his poster "*Paternal Mental Health Following a traumatic childbirth*". He writes:

"After timidly placing my poster up on my assigned board in the Mural Hall in Parliament House, an onslaught of questions quickly ensued: why this research? Cut to the chase, what were your findings? How will this benefit the everyday person? What good can come from this project? Can you explain to me exactly why it is you decided to study the mental health of fathers after experiencing a traumatic childbirth?? … Another element of the Posters in Parliament conference worth noting was speaking with my local member of parliament, Mal Brough on the Sunshine Coast. It is comforting to know our local leaders support with full fervour of heart, undergraduate research. His partnership with the University of the Sunshine Coast is what helps fuel these types of events. I look forward to having a continued partnership with my local leaders in the future, and this event has taught me how. … The University of the Sunshine Coast was ecstatic that I won the prize for best poster as chosen by ACUR at the Posters in Parliament event. I have recently had a media interview that should be released shortly, and they spoke of the possibility of having television, radio, and newspaper interviews about my *research, and about promoting undergraduate research. A great result here for the Sunshine Coast!*
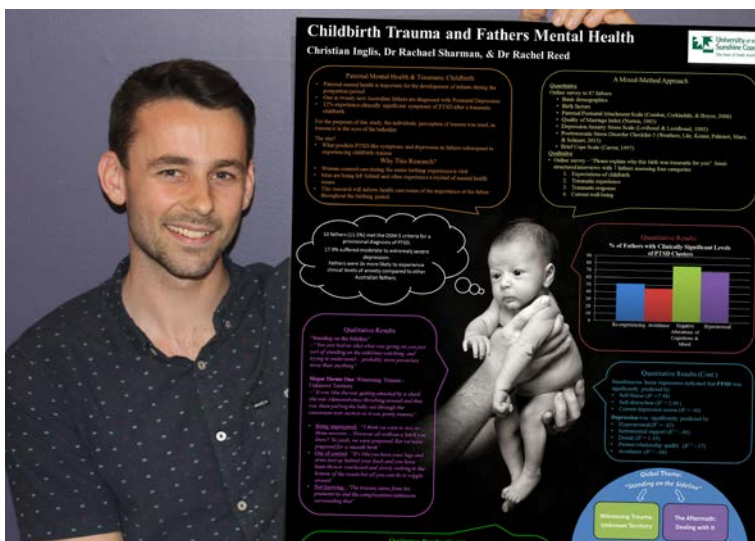
Christian Inglis and his poster

Mitchell Blincoe was chosen by RMIT University to present has poster "*Is pink the new green? Understanding 'pinkwashing in communications*". He writes:

"Wow! What an experience. At the beginning of my studies I never thought I would have been given the opportunity to present my own original research in Parliament House. As a public relations student at RMIT University in Melbourne, it's not the norm to be given such opportunities. I was proud to represent media and communications at *Posters in Parliament* and be among some impressive university students from all around Australia. … I found researching the effects of communication campaigns on the Gay Lesbian Bisexual Transgender and Intersex (GLBTI) community to be both interesting and rewarding. This is an issue I am passionate about and feel needs to be addressed more as a whole within our country. This research was part of a subject I completed in the first semester of this year called 'PR in Society', a research based course unique to public relations studies at RMIT. … Presenting my work was such a rewarding experience, whether it be to MPs, members of ACUR, education leaders or my fellow students, I felt truly inspired to be in such an environment. … Before I attended *Posters in Parliament,* I had a clear plan on what I wanted to do after I completed my undergraduate qualification at the end of this year. I planned to

enter full-time work at a consumer PR agency and learn on the job – which is what most from my course will do. However, after participating in *posters in parliament* I honestly feel my outlook has changed. Why not pursue something that interested me so greatly further? Why not delve further into the research of GLBTI issues? This is a relatively under-explored topic and I now have the confidence and the desire to perhaps one day pave the way in this area. I now plan to continue studying and feel inspired to complete an honours year as an extension of this project. And from there who knows? Anything is possible."

Chris Silvester, a mature student from La Trobe University presented his poster: "*Identifying Aboriginal hearths in late Quaternary Northwest Victoria: an experimental study to replicate the production of 'clay ball' and calcium nodule heat retainers*"

'Your name has been put forward for consideration to represent La Trobe University to present a poster at the Posters in Parliament event as part of The Australasian Conference of Undergraduate Research 2014....' Or so the email went. Me? I guess so.. Why not? Good chance to illustrate what our team is doing at Neds Corner Station, west of Mildura. … So off to Canberra we went, and what an experience! … I had never been inside the new Parliament House – quite a majestic building, and everything on a grand scale. We were taken through security, past some recognisable MP faces in the cafe to the Mural Hall to set up our posters, and then we started. … We all had an opportunity to explain our undergraduate research in plain language to others outside our field. Being able to translate your research to someone who has no background in your sphere is an important skill. In addition, you pick up some great ideas through presenting, lateral thinking and networking. Amongst others, I did get to meet the local member in the electorate where we undertake our surveys, Mr Andrew Broad, MP, Federal Member for Mallee (see picture). It was refreshing to explain how we were assisting in an ARC and RFA-funded project under Dr Jillian Garvey to more fully understand human occupation of the Murray River region, which we think is longer than the currently documented 15,000 years. I explained how our piece of undergraduate research arose from a simple observation of whether a piece of burnt ground represented an Aboriginal cooking hearth or burnt ground from a lightning strike. We discussed the making of clay heat retainers (or heat beads) to cook food in a fire pit, and how by replicating this, we were able to more accurately identify archaeological sites, and from this, the broader ramifications of a much older human occupation of the area. So I came home inspired from meeting other students with bright and refreshing ideas and what's more, keen for others to have the opportunity to gain similar experiences at The Australasian Conference of Undergraduate Research 2015".

Visitors were invited to write comments in a Guest Book and some took the opportunity to do so. Here is what they wrote:

- "Outstanding examples of inspired brilliance"
- "Impressive work by the undergraduate students"
- "A wonderful feast for the inquiring mind"
- "Good range of different topics"
- "Wonderful idea – students were impressive – well done organisers!"
- "Great to see politicians talking to the next generation of researchers!"
- "Excellent event – great enthusiasm and professionalism from students"
- "Fabulous, inspiring futures"
- "Congratulations on the poster presentations a great initiative with many collateral benefits"
- "Inspiring – it is a great showcase of young talent!!"
- "I am inspired by such talent and think this is a terrific event!"

Universities represented

The following universities were represented at the Parliament House exhibition

1. Flinders University
2. Griffith University
3. La Trobe University
4. Macquarie University
5. Monash University
6. RMIT University
7. The Australian National University
8. The University of Adelaide
9. The University of New South Wales
10. The University of Newcastle
11. The University of Newcastle
12. The University of Queensland
13. The University of Sydney
14. The University of Western Australia
15. University of New England
16. University of Tasmania
17. University of the Sunshine Coast
18. Cornell University
19. National University of Singapore

Posters and presenters (Alphabetical order)

Understanding the fragmentation of dying white blood cells
> Georgia Atkin-Smith, La Trobe University

Crystallise your thoughts
> Vincey Au, Rowena Kok, Rosemary Menzies, Laura Sayers, Safat Sufian, The University of Sydney

Is Ubc9 expression restricted to specific tissues during murine embryogenesis?
> Yi Aw, The Australian National University

EM1 goes walkabout: Atlantic vs. Pacific and the true geochemical essence of enriched mantle one
> Nicholas Badullovich, The Australian National University

International faculty versus local faculty: Why Singapore should not discount the value of international staff
> Purnima Balraju, The University of Western Australia and National University of Singapore

Iron and brain disease
> Brianna Bassett, The University of Newcastle

Is pink the new green? Understanding 'pinkwashing' in communications
> Mitchell Blincoe, RMIT University

Macquarie marshes modelling mayhem
> Rebecca Borwell, The University of Newcastle

Climate change: Bridging the gap between environmental induced phenotypic change, population dynamics, and long-term evolution
> Thomas Botterill-James, The University of Tasmania

Objective and subjective measures of affective response to different properties of music
> James Brown, The University of Newcastle

Physiognomy and the cult of Beethoven's genius
> Rachel Campbell, University of New England

Learning lessons from fires: A study of post-disaster inquiries in the 2003 Canberra fires
> Ignatious Cha Yong Sing, The Australian National University

CollabEdit: Collaborative text editing through lock transformation
> Nicholas Crouch, Flinders University

Paternal mental health following a traumatic childbirth
> Christian Inglis, University of the Sunshine Coast

Evaluation of headphone effects on performance in LiSN & Learn auditory training software
> Chi Yhun Lo, Macquarie University

Investigation of SfM derived orientation values: performance, accuracy, constraints
> Damian Macrae , The University of Tasmania

'The effect of cow urine on pasture grass and the implications for nitrogen leaching to waterways'
> Amanda D. Neilen, Griffith University

Comparisons of Landsat and MODIS Fire Scar Products: A case study in Northern Queensland, Australia
> Van Minh Ngo, The University of Queensland

Compartmentalisation and method of determination for Mereenie oil and gas field
    Tu Nguyen, Truc Nguyen, Jieyand Wang, The University of Adelaide
Power and Judgment in Arendt and Kant
    Alexandra Pearl Cain, Monash University
A mathematical model for heat transfer in fire fighting suits containing phase change materials
    Hannah Phelps, The University of New South Wales
Would multiple reserve currencies provide stability to the international monetary system?
    Jae Jung Shin, The University of New South Wales
Identifying Aboriginal hearths in Late Quaternary Northwest Victoria: an experimental study to replicate the production of 'clay ball' and calcium nodule heat retainers
    Christopher Silvester, La Trobe University
Theories of schizophrenia aetiology: A neural network modeling approach
    Jesse Shapiro, Monash University
Toward a new method of analysis for vocal timbre in popular song: Exploring how vocal timbre contributes to emotional meaning through the vocal timbre-lyric priming model
    Kristal Spreadborough, University of New England
The role of neurohormones in aquatic parasitic host-finding behaviours
    April Strong, University of the Sunshine Coast
Plasma pretreatments for PTMS corrosion protection coatings on magnesium and aluminium surfaces
    Jade Taylor, Flinders University
Judicial review of ombudsman reports: Advantages, disadvantages, and the legal position
    Jonathon Tsianikas, The University of Adelaide
Government public relations and media portrayal of asylum seekers in Australia
    Rebecca van Essen, RMIT University
Language development in preschool children pre and post stimulation period
    Caroline Valim, Macquarie University
Student perceptions of globalization: How do they influence actions and motivation?
    Anya Vorster, The University of Western Australia
Study abroad: A quantitative analysis of global citizenship at an Australian university
    Rachel Webb, The University of Western Australia
Immune cell involvement in the human AMD retina
    John Yek, The Australian National University
Thrombotic potential of canine haemangiosarcoma: Role of tissue factor
    Fabian Lean Zhi Xiang, The University of Queensland and Cornell University

After Posters in Parliament

Every poster presenter received a certificate of achievement after the event. Two book vouchers were awarded to the students whose posters were chosen to be the best either by the ACUR Steering Group representatives or by their peers. Student presenters were invited to write a 500 word piece on their experience and impressions. They were also encouraged to write a thank you note to their local MPs who attended the event, where applicable.
All event publicity has been published on the Undergraduate Research Australia website:

<www.mq.edu.au/ltc/altc/ug_research/>. It includes a gallery of all posters presented at the event, a photo gallery, and several media mentions and press releases across Australia.

Twitter turned out to be a useful medium to promote and capture the live experience of the event. Presenters used #postersinparliament to contact and invite guests, including MPs, share their excitement, things they learned and general impressions as the event unfolded in various 140 character messages and photos.

There is still work to be done to follow up Posters in Parliament with letters and information about the event to vice-chancellors and politicians many of whom wrote to wish the event success. Issue 9 of *Undergraduate Research News Australasia* (URNA) features longer reflections by students on their experiences and further photographs.

Posters in Parliament in the future

The high cost of organising Posters in Parliament means that unless considerable sponsorship resources are forthcoming it is unlikely to be possible to hold such an event on an annual basis. There is an important job for ACUR still to do in documenting the processes that were used, the many letters of invitation that were written, the correspondence and the databases and the strategies for nominating presenters that were used. This should help to cut down on the administrative costs associated with planning such an event in the future. In view of the success of Posters in Parliament, however, it is recommended that the necessary funding should be sought so that it can be repeated perhaps every other year.

Preliminary inquiries about the possibility of holding Posters in Parliament (or in the 'Beehive') in New Zealand have been very positive, with support from a Member of Parliament, and a process being followed to establish such an event. It may therefore be possible for ACUR to host such an event in Wellington, New Zealand, possibly every other year should appropriate resources be found to do so.

Chapter 6: Publicity

The main media for publicity have been a range of formal and informal networks that have been established, the website and the newsletter. In addition Facebook and Twitter have been used in a variety of ways.

Networks

Informal networks include the Steering Group of 90 individuals which reaches into the 50 organisations represented both in Australia and overseas, and the Undergraduate Research Australia network established during the ALTC National Teaching Fellowship of Angela Brew which has some 350 names and addresses. In addition, networks of students include conference presenters and attendees, Posters in Parliament Presenters, Facebook and Twitter groups, and Macquarie University Undergraduate Research Student Society (MUURSS).

Information has also been disseminated through university networks via the ACUR Steering Group representatives and through the network of actual and potential ACUR sponsors.

Facebook and Twitter

The first Facebook group "The Australasian Conference of Undergraduate Research (ACUR)" was set up leading to the ACUR 2012 conference to connect presenters coming from far and wide, so they could get to know each other and exchange accommodation tips. The group was later used to announce the next conference, promote publications of best conference papers as a result of the conference. The group was taken up by ACUR2013 conference users to establish connections prior to the conference. The ANU created its own Facebook group "ACUR Conference 2014 Attendees" for the ACUR 2014 conference, which shows high activity and popularity amongst students.

Twitter hashtag #postersinparliament was created for poster event presenters and attendees and turned out to be an efficient tool to capture emotions, impressions and photos of the day.

Website <www.acur.org.au>

A licence to use the <acur.org.au> domain name has been secured and the website established. In 2014, the website has principally been used to host information about the ACUR2014 conference. Information about ACUR and documentation that has been produced is published on the website, and this website is still in development. Further work to update the website is planned.

Information about ACUR events is also currently available on the <undergraduateresearchAustralia.com> website. This currently includes information about the ALTC Fellowship of Angela Brew as well as information, photographs and abstracts from

the 2012 and 2013 conferences. Funding permitting, the plan is to migrate the ACUR information that is on this website to the "official" ACUR website (<acur.org.au>).

Undergraduate Research News Australasia (URNA)

URNA was established in 2009 during the ALTC Fellowship of Angela Brew. Eight issues have been produced periodically in the intervening 5 years. The aim has been to produce two issues per year. Issues 7 and 8 were produced during the period of this Seed Project.

In December 2013, Issue 7 focused on:

1. The Undergraduate Learning and Teaching Research Internship Scheme from The University of Western Australia that gained an OLT National Teaching Award for programs that enhance learning;
2. Reports of the 2013 ACUR conference;
3. information about this OLT Seed Project;
4. announcing the ACUR conference for 2014;
5. research studentships at Macquarie University;
6. an article on the extent to which research was mentioned in course unit outlines;
7. The University of Queensland undergraduate summer and winter undergraduate research programs; and
8. a section on news from overseas.

In May 2014, Issue 8 focused on

1. information about the upcoming conference;
2. an article on Posters in Parliament;
3. Updated information about ACUR;
4. Macquarie University merit scholars program;
5. Providing an opportunity to make Undergraduate Research visible in an undergraduate research journal at the ANU;
6. Gaining support for students to attend conferences;
7. An undergraduate research project at James Cook University
8. Overseas news; and
9. Upcoming events.

Issue 9, focuses principally on reporting on the ACUR 2914 conference and Posters in Parliament.

Chapter 7: Evaluation

The project evaluator, Prof Rachel Spronken Smith, has acted as a critical friend throughout the period of the project. She has attended the project team face to face meeting in September 2013 and has participated in email exchanges throughout. She has prepared an interim evaluation report and a final report which is included as Appendix H.

The final evaluation report of the external evaluator Professor Rachel Spronken-Smith concludes:

"I have been impressed by the leadership of Professor Brew and the dedication and commitment of the project team to have the foresight and skills to develop and implement an ambitious initiative. Establishing an Australasian Council of Undergraduate Research and associated events such as the conferences and Posters in Parliament has been a major undertaking that should not be underestimated. The project team has gone about their tasks in a very thoughtful way, with the aim of creating a framework that is sustainable. As a critical friend to the project team, my suggestions (and those of others) have been carefully considered and adopted where appropriate. I am confident that the structures and processes are now in place so that the future of ACUR is looking both solid and bright! I congratulate the project team for such an endeavour and the collegial manner in which the project has been conducted."

Further evaluation strategies

In addition to the work of the external evaluator, as mentioned in her report, efforts have been made throughout the project to gauge participant involvement and the success of particular events and to feed that back into subsequent developments. Data has been gathered through:

1. Conference participant exit surveys each year. In order to provide comparative data, the same basic questions have been asked of conference participants (See Appendix 1). The data obtained has been used to make improvements the following year. Some of the students' comments have been mentioned in the reports for each conference. Further details are on the ACUR and the Undergraduate Research Australia websites

2. 2013 in-conference commenting "bricks". At the second ACUR conference held at Macquarie University in September 2013, delegates were invited to write comments on paper "bricks" which were then arranged to make a wall (see picture page 36). These summarised the most common responses to the conference. "Awesome"; "I am in AWE of this incredible research"; "So informative"; "I love ACUR!"; "A new and interesting experience"; "My first ACUR experience"; "So many nice people all around", etc.

3. Posters in Parliament "guest book". Some guests took the opportunity to write comments and these are included in Chapter 5 above

4. Posters in Parliament letters and emails of support. In addition to the members of parliament and senators who attended, we received 12 emails wishing us success with the event from senior politicians in both major parties. This included the Office of the Prime Minister, Deputy Prime Minister, Leader of the Opposition, and Deputy Leader of the Opposition, as well as the Speaker of the House of Representatives, the Treasurer and others. Eighteen Vice-Chancellors wrote wishing the event success. It was clear that Posters in Parliament struck a chord

5. Participant reflections on Twitter and Facebook, and requested for URNA. Many of these have appeared in the newsletter *Undergraduate Research News Australasia (URNA).* Extracts from four student reflections are included in Chapter 5.

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Appendix A: ACUR Documentation

ACUR | *Australasian Council for Undergraduate Research*

CONFERENCE GUIDELINES

ABOUT ACUR

The Australasian Council for Undergraduate Research (ACUR) exists to ensure that a high quality international conference of undergraduate research is held in Australasia annually. It aims to support different institutions in hosting the conference and to gain support for the conference in the wider higher and tertiary education community. ACUR consists of a Chair and an International Steering Group with responsibility to ensure consistency of quality of future conferences.

Definition of an undergraduate research conference

An undergraduate research conference is just like any other academic conference but each presentation is delivered by undergraduate students including Honours students presenting work they have done either as part of their course or as part of an internship. As a multi-disciplinary conference, undergraduates have the opportunity to network with other undergraduate researchers from their own disciplines, and also to learn about how other disciplines approach research problems. An undergraduate research conference provides a great opportunity to meet students from other universities and share their research.

Why undergraduate research?

Growing interest and practice internationally in engaging undergraduates in research has led to demand from students and academics to provide similar opportunities here in Australia. There is evidence that practice is growing rapidly. Undergraduate research addresses the need to prepare students for professional life when knowledge is uncertain and the future is unclear. It is known to have high impact in engaging students. The benefits to students are now well known and include: personal and professional gains such as increased confidence; and intellectual development including critical thinking and problem

1

CRITERIA FOR AN AUSTRALASIAN CONFERENCE OF UNDERGRADUATE RESEARCH

An ACUR conference is a conference which meets the following criteria:

1. is open to all undergraduate and Honours students and recent graduates including Honours students (within 12 months of graduation) to present research conducted during or before undergraduate studies including extra-curricular research;
2. adopts an inclusive approach to undergraduate research which encourages participation from all disciplines, all levels of study and all types of higher and tertiary education institutions;
3. involves an academic peer review process for abstracts which allows students to resubmit where appropriate;
4. is primarily a face to face conference, but may include virtual conference elements (e.g. electronic networking, webinars, Skype discussions);
5. offers a range of conventional and unconventional opportunities for students to disseminate research (for example, through posters, oral presentations, workshops, performances etc.);
6. is cost-effective to ensure that the conference fee for student delegates is affordable;
7. has a social program to give students the opportunity to mix and debate outside of the formal presentations;
8. involves undergraduate students in the running of the conference;
9. includes a session or sessions for attending staff members including the ACUR Steering Group to discuss the implementation and management of undergraduate research.

The ACUR organisation through its Steering Group will:

1. decide on the hosts and venue for the annual conference;
2. permit the conference to be branded as the official Australasian Conference of Undergraduate Research and use its logos and website;
3. make no claim on any profits arising from the conference itself;
4. undertake to lobby for funding for student delegates;
5. undertake to ensure a breadth of representation across the higher and tertiary education sector on the steering group;
6. advertise the conference through the acur.org.au website and through social media;
7. advise and help the host institution team as appropriate;

4

Note: An Australasian Conference of Undergraduate Research (ACUR) is designed to complement and not compete with undergraduate research provision at institutional and state-wide levels.

THE HOST INSTITUTION

The host institution will be a university or other higher or tertiary education institute in Australia, New Zealand or nearby territories.

Applying to host the conference

In the first instance, potential hosts are advised to submit to the ACUR Chair an Expression of Interest. A signed proposal will then be required.

The host institution will detail how their institution will meet the ACUR criteria. This will include details of administrative support and the facilities available for the conference, and an indicative budget, together with a signed letter from a senior officer, i.e. VC or DVC indicating their agreement to host the conference and including a statement that the institution will carry any risks associated with hosting it.

Responsibilities of the host institution

The host institution will:

1. create an internal conference organising committee and take responsibility for the front-line management of the conference;
2. fully underwrite the conference and take full responsibility for the administration and financial management of the conference; administration and use of fees;
3. retain any profit arising from the conference with the expectation that this will be used to further undergraduate research;
4. meet any losses incurred;
5. take legal responsibility for all risk management issues associated with the conference, including insurance and security, IP issues/ creative commons etc.;
6. set the fees to be charged to delegates in collaboration with the ACUR Steering Group;
7. maintain the focus on students, based on ACUR guidelines;
8. use the ACUR logo and advertise the ACUR website in all publicity relating to the event;
9. keep the ACUR steering group updated about the progress of conference organisation;
10. include one external member of the ACUR steering group on the organising committee in order to maintain contact;
11. encourage academics to send students to present and participate;

5

12. identify and advertise low cost accommodation options including staying with local students including graduate students, and/or local colleges of residence, hotels etc.;
13. evaluate the conference and report to the ACUR Steering Group;
14. Adhere to ACUR conference criteria;
15. Invite hosts of the following year's conference to have a dialogue and a discussion, and give a brief invitation to delegates at the final conference session in order to stimulate excitement and ensure a sense of continuation.

The conference program

The host institution will take responsibility for managing the quality of the academic and social program and work presented at the conference. This will include:
1. conducting a submissions review process, [recommendation for host to have a review/programming committee and organizing committee];
2. providing an opportunity for students to re-submit where appropriate;
3. including workshops, meetings or pre-conference sessions on undergraduate research by and for academic staff;
4. social activities such as: break out groups, speed networking, BBQs, dinners;
5. designating nominations for prizes and managing the prizes process;
6. disseminating the program and a record of the event on the ACUR website (www.acur.org.au);
7. giving consideration to publication of the best papers in a local or other undergraduate research journal.

ACUR Steering Group

June 2014

Appendix B: Hosting proposal

ACUR | Australasian Council for Undergraduate Research

Proposal to host an
Australasian Conference of Undergraduate Research

Institution	
Proposer's name;	
Contact details	
Proposed conference dates	
Anticipated delegate fee	
Proposal	
In 500 -1000 words please detail how your institution will meet the ACUR hosting criteria. Please include details of your administrative support and the facilities available for the conference, and an indicative budget, together with a signed letter from a senior officer, i.e. VC or DVC indicating their agreement to host the conference and including a statement that the institution will carry any risks associated with hosting it.	

Criteria

The host institution which will be a university or other higher or tertiary education institute will offer a conference which:

1. is open to all undergraduate and Honours students and recent graduates including Honours students (within 12 months of graduation) to present research conducted during or before undergraduate studies including extra-curricular research;
2. adopts an inclusive approach to undergraduate research which encourages participation from all disciplines, all levels of study and all types of higher and tertiary education institutions;
3. involves an academic peer review process for abstracts which allows students to resubmit where appropriate;
4. is primarily a face to face conference, but may include virtual conference elements (e.g. electronic networking, webinars, Skype discussions);
5. offers a range of conventional and unconventional opportunities for students to disseminate research (for example, through posters, oral presentations, workshops, performances etc.);
6. is cost-effective to ensure that the conference fee for student delegates is affordable;

7. has a social program to give students the opportunity to mix and debate outside of the formal presentations;
8. involves undergraduate students in the running of the conference;
9. includes a session or sessions for attending staff members including the ACUR Steering Group to discuss the implementation and management of undergraduate research.

The host institution will:

1. create an internal conference organising committee and take responsibility for the front-line management of the conference;
2. fully underwrite the conference and take full responsibility for the administration and financial management of the conference; administration and use of fees;
3. retain any profit arising from the conference with the expectation that this will be used to further undergraduate research;
4. meet any losses incurred;
5. take legal responsibility for all risk management issues associated with the conference, including insurance and security, IP issues/ creative commons etc.;
6. set the fees to be charged to delegates in collaboration with the ACUR Steering Group;
7. maintain the focus on students, based on ACUR guidelines;
8. use the ACUR logo and advertise the ACUR website in all publicity relating to the event;
9. keep the ACUR steering group updated about the progress of conference organisation;
10. include one external member of the ACUR steering group on the organising committee in order to maintain contact;
11. encourage academics to send students to present and participate;
12. identify and advertise low cost accommodation options including staying with local students including graduate students, and/or local colleges of residence, hotels etc.;
13. evaluate the conference and report to the ACUR Steering Group;
14. Adhere to ACUR conference criteria;
15. Invite hosts of the following year's conference to have a dialogue and a discussion, and give a brief invitation to delegates at the final conference session in order to stimulate excitement and ensure a sense of continuation.

ACUR will:
1. decide on the hosts and venue for the annual conference;
2. permit the conference to be branded as the official Australasian Conference of Undergraduate Research and use its logos and website;
3. make no claim on any profits arising from the conference itself;
4. undertake to lobby for funding for student delegates;
5. undertake to ensure a breadth of representation across the higher and tertiary education sector on the steering group;
6. advertise the conference through the acur.org.au website and through social media;
7. provide practical help to conference organisers as requested such as documentation, spreadsheets, pro-formas, publicity etc.

ACUR Steering Group
June 2014

Appendix C

2015 Conference agreement

THE UNIVERSITY OF
WESTERN AUSTRALIA

OFFICE OF THE VICE-CHANCELLOR

DEPUTY VICE-CHANCELLOR (EDUCATION)

Professor Alec Cameron
BSc BE *Syd.*, DPhil *Oxon.*, MS *NYU.*, FAICD

1 October 2014

ACUR Steering Committee
C/- Professor Angela Brew
Chair ACUR
Learning and Teaching Centre
Macquarie University (C3B) NSW 2109

Dear ACUR Steering Committee,

It gives me great pleasure to accept the offer of hosting ACUR in 2015 on behalf of The University of Western Australia.

ACUR will be held at UWA and while the venue is yet to be decided, it will probably be held at UWA's Harry Perkins Institute of Medical Research. It is planned that ACUR will run concurrently with ICUR.

Specifically, I can confirm that UWA will:

1. fully underwrite the conference and take full responsibility for the administration and financial management of the conference; administration and use of fees;

2. retain any profit arising from the conference with the expectation that this will be used to further undergraduate research;

3. meet any losses incurred;

4. take legal responsibility for all risk management issues associated with the conference, including insurance and security, IP issues/ creative commons etc.;

Kind regards,

Professor Alec Cameron
Deputy Vice Chancellor (Education)

Appendix D

ACUR Steering Group members

Australian members

Prof	Anne	Cummins	Deputy Vice-Chancellor, Students learning and teaching	Australian Catholic University
Prof	Richard	Baker	Pro-Vice-Chancellor Student Experience	The Australian National University
Dr	Elisabeth	Findlay	PhB coordinaor College arts & Soc Sciences/ Assoc Dean (Students)	The Australian National University
Prof	Marnie	Hughes-Warrington	Deputy Vice-Chancellor (Academic)	The Australian National University
A/Prof	Paula	Newitt	Dean of Students	The Australian National University
Prof	Sandra	Wills	Pro-Vice-Chancellor Student Learning	Charles Sturt University
Prof	Dawn	Bennett	Professorial Research Fellow, Faculty of Humanities	Curtin University
Prof	Deborah	Terry	Vice-Chancellor	Curtin University
Ms	Siobhan	Lenihan	Advisor to Deputy Vice-Chancellor	Deakin University
A/Prof	Jamie	Quinton	Associate Dean Teaching & Learning, Associate Professor Nanotechnology/Physics/Chemical Physics	Flinders University
Prof	Sushila	Chang	Dean Academic, Griffith Sciences	Griffith University
Prof	Sally	Kift	Deputy Vice-Chancellor (Academic)	James Cook University
Prof	Jane	Long	Deputy Vice-Chancellor & Vice-President (Academic)	La Trobe University
Dr	Rachael	Pitt	Academic Coordinator (Hallmark Program)	La Trobe University
Dr	Trudy	Ambler	Associate Dean, ArtS Faculty (Quality and Standards)	Macquarie University
Prof	Angela	Brew	Professorial Fellow Learning and Teaching Centre, Chair ACUR)	Macquarie University
Mr	Brian	Hurd	Manager of Scholarships and Prizes	Macquarie University
Ms	Lilia	Mantai	Project Officer, Learning and Teaching Centre	Macquarie University
Dr	Mitch	Parsell	Associate Dean of Learning and Teaching, Human Sciences	Macquarie University
A/Prof	Ian	Solomonides	Director, Learning and Teaching Centre	Macquarie University
Dr	Panos	Vlachopoulos	Senior Lecturer, Learning and Teaching Centre	Macquarie University
A/Prof	Lisa	Wynn	Associate Professor, Department of Anthropology	Macquarie University

A/Prof	Angela	Carbone	Associate Director, Office of Pro-Vice-Chancellor (Learning and Teaching)	Monash University
Prof	Darrell	Evans	Vice-Provost (Learning and Teaching)	Monash University
Ms	Lyn	Torres	Information Research Skills Manager	Monash University
Prof	Sara	deFreitas	Pro-Vice-Chancellor Learning and Teaching	Murdoch University
Prof	Pamela	Rowntree	Health Sciences	Queensland University of Technology
Prof	Denise	Cuthbert	Dean School of Graduate Research	RMIT
Prof	Jennelle	Kyd	Senior Deputy Vice-Chancellor and Provost	Swinburne University of Technology
Ms	Anna	Dearman	Office of the Deputy Vice-Chancellor and Vice-President (Academic)	The University of Adelaide
A/Prof	Kogi	Naidoo	School of Education	The University of Adelaide
Dr	John	Willison	Senior Lecturer, School of Education	The University of Adelaide
A/Prof	Jonathan	Powles	Director of the Teaching and Learning Centre	University of Canberra
Dr	Pam	Roberts	Senior Lecturer, Teaching & Learning Centre	University of Canberra
Prof	Denise	Wood	Professor of Learning, Equity, Access and Participation	University of Central Queensland
Dr	Andrys	Onsman	Centre for the Study of Higher Education	The University of Melbourne
Prof	Ieva	Stupens	Professor of Pharmacy	University of New England
Ms	Jan	McLean	Senior Lecturer	The University of New South Wales
Prof	Liz	Burd	Pro-vice-Chancellor Learning and Teaching	The University of Newcastle
A/Prof	Liz	Milward	School of Biomedical Sciences and Pharmacy	The University of Newcastle
Prof	Caroline	Crosthwaite	Associate Dean Academic Engineering	The University of Queensland
Dr	Jessica	Gallagher	Deputy Director (Global Engagement) UQ International	The University of Queensland
Dr	Gwen	Lawrie	Chemistry and OLT ALURE Project	The University of Queensland
Dr	Paula	Myatt	External Consultant	The University of Queensland
Prof	Sarah	Roberts-Thomson	Associate Dean (Academic), Faculty of Health and Behavioural Sciences	The University of Queensland
Dr	Susan	Rowland	Science Biochemistry (OLT ALURE Project)	The University of Queensland
Dr	Annabelle	Willox	Director UQ Advantage	The University of Queensland
Dr	Jodie	George	Program Director (Writing and Creative Communication	University of South Australia
A/Prof	Adam	Bridgeman	Director of first year Chemistry and Associate Dean for Learning and Teaching	The University of Sydney

Prof	Philippa	Pattison	Deputy Vice Chancellor (Education)		The University of Sydney
Prof	Philip	Poronnik	Professor of Biomedical Sciences (Educational Strategy)		The University of Sydney
A/Prof	Charlotte	Taylor	Director of First Year Biology		The University of Sydney
Prof	Margaret	Britz	Dean of Science, Engineering and Technology		The University of Tasmania
Prof	Sue	Jones	Retired, Zoology		The University of Tasmania
Prof	David	Sadler	Deputy Vice-Chancellor (Students & Education)		The University of Tasmania
Dr	Les	Kirkup	Science		University of Technology Sydney
Prof	Birgit	Lohmann	Deputy Vice-Chancellor		University of the Sunshine Coast
A/Prof	Jenna	Mead	Associate Professor, English and Cultural Studies		The University of Western Australia
A/Prof	Lee	Partridge	Centre for the Advancement of Teaching and Learning		The University of Western Australia
Prof	Sally	Sandover	Educational Strategies Office		The University of Western Australia
Prof	Kerri-Lee	Krause	Deputy Vice-Chancellor		University of Western Sydney
Prof	Patrick	Crookes	Professor in the School of Nursing and Director of the Wollongong Academy for Tertiary Teaching and Learning Excellence (WATTLE)		University of Wollongong
Prof	Tim	McCarthy	Professor of Engineering		University of Wollongong
Dr	Marcus	O'Donnell	Senior Lecturer, School of the Arts English and Media		University of Wollongong
Dr	Dominique	Parrish	Associate Dean (Teaching and Learning)		University of Wollongong
Dr	Efrat	Eilam	Institute of Sustainability and Innovation		Victoria University
A/Prof	Nicolette	Lee	OLT National Senior Teaching Fellow, Capstone curriculum across disciplines		Victoria University

Overseas members

Dr	An	Verburgh	Research unit: Teaching and training	University of Leuven	Belgium
Dr	Susanne	Haberstroh	Project coordinator, Research-Based Learning in Focus	Oldenburg University	Germany
Dr	Jennifer	Murphy	Head of Undergraduate Admissions	University College Cork	Ireland

Prof	David	Ryan	Vice Head, College of Arts, Celtic Studies and Social Sciences & Chair of Modern History	University College Cork	Ireland
Dr	Bettie	Higgs	Co-Director Teaching and Learning; Geology	University of Cork	Ireland
Dr	Roeland	Van der Rijst	Assistant Professor (Graduate School of Teaching)	Leiden University	Netherlands
Prof	Eric	Pawson	Professor of Geography	Canterbury University	New Zealand
Dr	Kevin	Morris	Director of Teaching and Learning	University of Auckland	New Zealand
Prof	Rachel	Spronken-Smith	Dean, Graduate Research School	University of Otago	New Zealand
Prof	Penny	Boumelha	Deputy Vice-Chancellor (Academic)	Victoria University	New Zealand
Prof	Mike	Neary	Senior Pro-Vice-Chancellor	Lincoln University	UK
Prof	Kay	Sambell	National Teaching Fellow	Northumbria University	UK
Prof	Alan	Jenkins	Retired, Geography	Oxford Brookes University	UK
Prof	Stuart	Hampton-Reeves	Head of the Graduate Research School	University of Central Lancashire	UK
Dr	Anna	Wilson	HEA Mike Baker Doctoral Fellow, School of Education	University of Sterling	UK
Prof	Elizabeth	Ambos	Executive Officer of CUR	Council on Undergraduate Research	USA
Dr	Jeanne	Narum	Principal, Learning Spaces Collaboratory	Project Kaleidescope	USA
Prof	Tuajuanda	Jordan	President, St. Mary's College of Maryland	St. Mary's, Maryland, USA	USA
Prof	Carol	Bender	University Distinguished Outreach Professor (and Director of UBRP)	University of Arizona (Tucson)	USA
Prof	Elaine	Seymour	Director Emerita, Ethnography & Evaluation Research; Fellow: Center for Science Learning	University of Colorado Boulder	USA
Prof	Sandra	Laursen	Ethnography & Evaluation Research	University of Colorado Boulder	USA

Appendix E: Invitees to Posters in Parliament

Members of the House of Representatives
Senators
Australian University Vice Chancellors
ACUR Steering Group members
Students nominated to present
Presenting students' supervisors
Chair and members of the Standards Panel
Universities Australia
Group of Eight
Chief Scientist
National Tertiary Education Union (NTEU)
National Union of Students (NUS)
Council of Australian Postgraduate
Associations (CAPA)
Innovative Research Universities (IRU)
Commonwealth Scientific and Industrial
Research Organisation (CSIRO)
Tertiary Education Quality and Standards
Agency (TEQSA)
Australian Research Council (ARC)
National Health and Medical Research Council
(NHMRC)
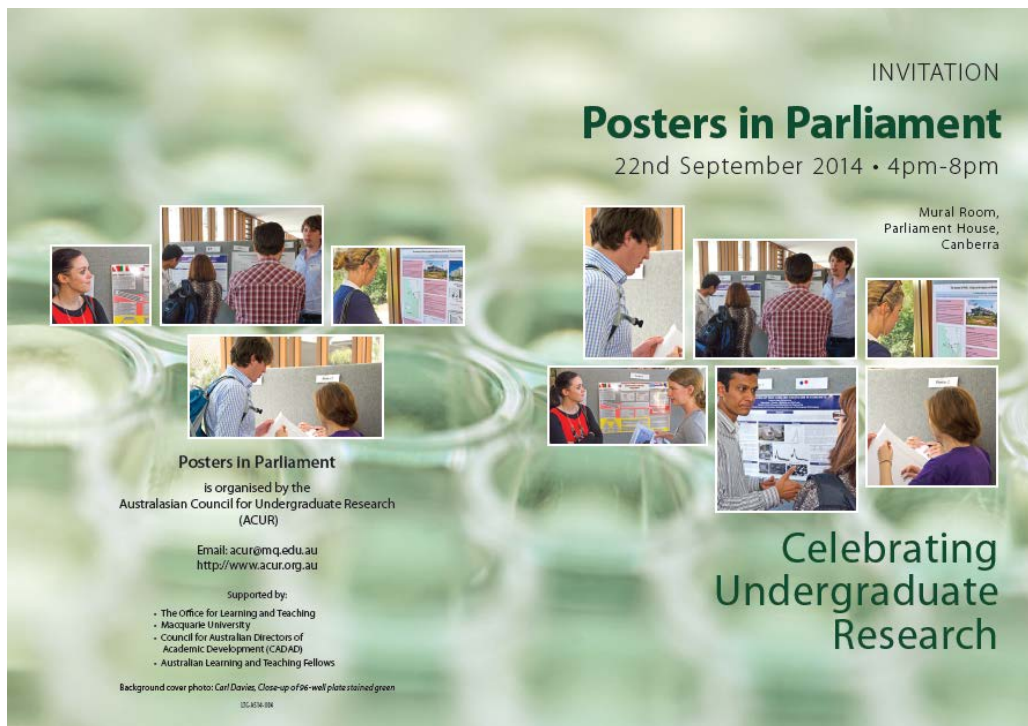
Industry Groups:
    Engineering Australia
    Co-operative Research Centres
    Australian Information Industry Association
    Australian Industry Group
    Veterinary Association
    Australian Medical Association
    Minerals Council of Australia
    Australian Institute of Project Management
    NICTA

Media organisations
    The Australian
    Sydney Morning Herald
    The Age
    Canberra Times
    Courier Mail
    The Advertiser
    The West Australian
    The Mercury
    The Conversation
    HE Supplement
    Campus Review

Conference Sponsors
Higher Education Research and Development
Society of Australasia (HERDSA)
Council of Australian Directors of Academic
Development (CADAD)
Finance Department
Environment Department
Defence Department
Geoscience Australia
National Archives
National Library
Questacon
Portrait Gallery
National Art Gallery
Museum of Australian Democracy
High Court (Chief Justice)
Australia Public Service Commission
ACT Government Chief Minister
Deputy Secretary, Department of Health

Appendix F: Posters in Parliament invitation flyer

INVITATION

Posters in Parliament
22nd September 2014 • 4pm-8pm

Mural Room,
Parliament House,
Canberra

Posters in Parliament
is organised by the
Australasian Council for Undergraduate Research
(ACUR)

Email: acur@mq.edu.au
http://www.acur.org.au

Supported by:
- The Office for Learning and Teaching
- Macquarie University
- Council for Australian Directors of
  Academic Development (CADAD)
- Australian Learning and Teaching Fellows

Background cover photo: Carl Davies, Close-up of 96-well plate stained green

Celebrating Undergraduate Research

Prepare to be Amazed!

Undergraduate research -

- is growing in most Australian universities and in colleges of higher education
- Students do research within courses and in special research experience programs
- Develops important job-ready skills and prepares students for the world of work
- Contributes to national research effort
- Promotes undergraduate student engagement

The Australasian Council for Undergraduate Research (ACUR)

- Established to ensure a high quality conference of undergraduate research is held each year at a different university.
- Funded by the Office of Learning and Teaching and supported by high level representatives from 29 Australian and 4 New Zealand universities and 13 other organisations worldwide.

Posters in Parliament 2014

- Undergraduate research posters from a range of Australian universities are available for viewing in the Mural Room Parliament House from 4pm-8pm on Monday 22nd September.
- Undergraduate student research posters are chosen by participating institutions to represent research being carried out.
- Students are invited to explain their posters to interested visitors.
- Scheduled during a parliamentary sitting day to enable the maximum number of MPs to attend together with key higher education leaders.
- Posters in Parliament mirrors developments internationally (e.g. in the USA and UK) in presenting high quality undergraduate research to members of parliament and the public
- Organised by ACUR (Australasian Council for Undergraduate Research)

ACUR 2014 Conference
Australian National University, Canberra 18th-19th September. Academic peer-reviewed presentations from undergraduate students from all disciplines. Universities will sponsor students to attend. For more information go to www.acur.org.au

Appendix G

ACUR Sponsors

2014 Sponsors

Office for Learning and Teaching support for the establishment of ACUR and organisation of Posters in Parliament

Macquarie University support for the establishment of ACUR and organisation of Posters in Parliament

Australian National University, support for the establishment of ACUR and organisation and hosting of the Third Australasian Conference of Undergraduate Research

Professor Adrian Lee for the $1000 Prize for the Best Presentation and Paper at the Australasian Conference of Undergraduate Research 2014

Higher Education Research and Development Society of Australasia (HERDSA) for the $500 prize for the best poster at the Australasian Conference of Undergraduate Research 2014, a prize of a year's annual subscription to the runner up to the prize for the best paper and two copies Of "Up The Publication Road" for …

Council of Australian Directors of Academic Development (CADAD) for refreshments at Posters in Parliament

Coop Bookshop, Macquarie University, for two $100 book vouchers as prizes for the best posters at Posters in Parliament exhibition and celebration of undergraduate research

2013 Sponsors

Emeritus Professor Adrian Lee for the $1000 Prize for the Best Presentation and Paper at the Australasian Conference of Undergraduate Research 2013

PACE, Macquarie University, for the $1000 Prize for the Best Presentation and Paper on Community-Engaged Research

National ICT Australia (NICTA) for the $500 Prize for the Best Presentation in Computer Science or Electrical Engineering

Faculty of Business and Economics, Macquarie University, for the $500 Prize for the Best Presentation in Business and Economics

Faculty of Human Sciences, Macquarie University, for four $500 Travel Scholarships for students who have engaged in online education: rural and remote; indigenous; female; and teacher/educator

Australian Mathematical Sciences Institute (AMSI) for the $500 Prize for the Best Presentation in Mathematics or Statistics

Australian Centre for Plant Functional Genomics (ACPFG) for the $500 Prize for the Best Presentation in Plant Science or Molecular Biology

Coop Bookshop, Macquarie University, for Five $50 book vouchers

Macquarie Library for $20 credit rewards for each volunteer at ACUR 2013

2012 Sponsors

Emeritus Professor Adrian Lee **$1000 Prize for the Best Presentation and Paper at the Australasian Conference of Undergraduate Research 2013**

National ICT Australia (NICTA) **$500 Prize for the Best Presentation in Computer Science or Electrical Engineering**

Coop Bookshop, Macquarie University, **Five $50 book vouchers**

Macquarie University **administrative support**

Learning and Teaching Centre, Macquarie University administrative support

NetSpot **T-shirts for volunteers and pens for participants**

Appendix H

Project Evaluation

Ensuring the sustainability of an annual international conference of Australasian undergraduate research (SD13-3036)

Professor Rachel Spronken-Smith
University of Otago, New Zealand

Background

This report provides an evaluation of the Office for Learning and Teaching project SD13-3036, which focuses on ensuring the sustainability of an annual international conference of Australasian undergraduate research. The project is led by Professor Angela Brew with the assistance of Lilia Mantai. Other team members include Professor Stuart Hampton-Reeves (external consultant), Associate Professor Jenna Mead (UWA), Dr Paula Newitt (ANU), and myself as evaluator. My role as evaluator was to provide critical feedback to the team throughout the project, as well as provide an evaluation at the end of the project.

The aims of the project were to:

1. Create an organisational framework, appropriate documentation and other necessary support to ensure that an Australasian Conference of Undergraduate Research is held each year in different universities on an ongoing basis.
2. Encourage national investment in undergraduate research by raising its profile nationally.

The deliverables and outcomes were:

1. Well-developed plans for undergraduate research conferences in 2014 and 2015 in universities other than Macquarie.

2. A Steering Group with a clear mandate to call for expressions of interest to host future conferences.

3. A published handbook for institutions thinking of hosting a future conference.

4. A website for conference proceedings.

5. A 'Posters in Parliament' exhibition in Canberra.

6. Project evaluation report and a project report

In this report, progress against each of the outcomes is assessed.

Outcome 1: Plans for 2014 and 2015 conferences

A key project outcome was to have in place well-developed plans for the *Australasian Undergraduate Research Conferences* (ACUR) for 2014 and 2015 in universities other than Macquarie. This project outcome has been met. The 2014 ACUR was held at the Australian

National University on September 18-19 2014 and the 2015 ACUR will be hosted by the University of Western Australia.

The conferences have been fully evaluated, with very positive feedback, and importantly the feedback has been used to inform future events.

Outcome 2: Steering Group formation

To make ACUR sustainable, another key project outcome was the formation of a Steering Group to oversee expressions of interest and selection of hosts, for future conferences. They will also oversee the initiatives regarding posters in parliament in both Australia and New Zealand (see Outcome 5 below). A Steering Group was formulated following the model of the British Undergraduate Research Conferences (BCUR). In this model key contacts from universities throughout the country were recruited and the Steering Group is run through virtual meetings, with a face to face meeting of participants during (or prior to) the annual conference. The Steering Group consists of representatives from 32 Australian universities and four New Zealand universities, as well as representatives from 14 other organisations (some international). There is ongoing recruitment to try and get representatives from more universities.

Outcome 3: Handbook for hosting ACUR

To assist host institutions to implement ACUR, and to ensure an appropriate tenor and approach in successive years, the project team planned to write a handbook. While a handbook has not been produced yet, many documents have been collated (see details in chapter 3) and many are available on the website (see Outcome 4 below). It is rightly recognised that these are 'living' documents that will be revisited by the Steering Group and revised as appropriate.

In my earlier evaluation project (mid-project), I suggested a possible structure for the handbook, with some modification to some of the documents that had been compiled at that stage. The Steering Group has been very responsive to suggested amendments. Indeed, one of the points raised was whether the Steering Group should be for the *Australasian Conference for Undergraduate Research* or an *Australasian Council for Undergraduate Research*, which oversees conferences (ACUR) and other events such as *Posters in Parliament*. This suggestion was adopted and has led to greater clarity about the role of the Council in overseeing a range of undergraduate research initiatives.

Outcome 4: An ACUR website

The project team has developed a website for ACUR (http://www.acur.org.au/). The website is well laid out and has a wealth of information, particularly about the conference that ACUR hosts. It is perhaps slightly confusing that the website uses both forms of ACUR, i.e., the Conference and Council, but I see no easy solution. Importantly the website does provide information about the range of events the Council oversees, so the site is not just about the Conference.

Outcome 5: A '*Posters in Parliament*' event

Considerable effort went into planning a '*Posters in Parliament*' exhibition in Canberra. The first event was held on September 22 2014, with 38 students from 17 different universities presenting. Feedback on the event was overwhelming positive – both from student participants and parliamentary visitors. The organising team are to be commended for implementing this initiative.

It is hoped that there may be a similar event in Wellington, New Zealand, with preliminary inquiries being very positive, garnering support from a Member of Parliament, and a process being followed to establish an event.

Outcome 6: Project report

A comprehensive report has been written that provides an excellent synthesis of the work undertaken throughout the project.

Feedback on ACUR from Steering Group Members

In preparing this evaluation report I sought feedback from members of the Steering Group regarding whether they thought the aims of the project had been met. Unfortunately the timing of soliciting feedback was not ideal and the timeframe was quite tight so only four responses were received. These responses are given in Appendix A. It is apparent that the respondents were very supportive of the project and felt the aims had been met. For example, SG Member 1 said:

> The success of the recent ACUR Conference at ANU, which attracted students from a wide range of Australian universities and was attended by over 200 participants, is evidence of the importance of undergraduate research and the increasing sustainability of this annual event.

Another commented:

> As someone still fairly new to working in the area of undergraduate research it seems to me that the ACUR events have been instrumental in bringing people together who are interested (and working) in the area. And that the creation of these links are the necessary first steps to creating a firm base from which we can move forward together. (SG Member 4)

It is also evident there is a great deal of admiration for Professor Brew in leading the project team, and in providing such a strong platform from which to progress. The responses indicated some areas for improvement (regarding conference and website logistics) and I am confident such suggestions will be considered by the Steering Group as ACUR moves forward.

Summary

I have been impressed by the leadership of Professor Brew and the dedication and commitment of the project team to have the foresight and skills to develop and implement an ambitious initiative. Establishing an *Australasian Council of Undergraduate Research* and

associated events such as the conferences and *Posters in Parliament* has been a major undertaking that should not be underestimated. The project team has gone about their tasks in a very thoughtful way, with the aim of creating a framework that is sustainable. As a critical friend to the project team, my suggestions (and those of others) have been carefully considered and adopted where appropriate. I am confident that the structures and processes are now in place so that the future of ACUR is looking both solid and bright! I congratulate the project team for such an endeavour and the collegial manner in which the project has been conducted.

Appendix A: Feedback from Steering Group Members on ACUR

Steering Group members were asked for feedback on whether they felt the aims of the project had been met. The responses from four members are given below.

SG Member 1

The success of the recent ACUR Conference at ANU, which attracted students from a wide range of Australian universities and was attended by over 200 participants, is evidence of the importance of undergraduate research and the increasing sustainability of this annual event. The conference attracted a very broad range of disciplinary contributions and all were of a very high standard. As first time participants at an ACUR conference, the students and I were particularly impressed with the organisation at ANU, (both staff and students) the high quality of student presentations, the informed questions from the audience and the considered responses. The posters were equally good and presenters stayed by their posters and seemed to enjoy the interaction with other students. The overall environment was friendly and inclusive. ACU students valued the opportunity to see a wide range of research topics and the experience has firmed up their desire to do research.

In the lead up to the conference there was some confusion about dates for submission (dates were extended as they often are) but the accompanying documents were not changed to reflect the new dates so this caused confusion. If the conference continues to rely very much on the goodwill of staff to do all the work to support the conference, then this may weaken the sustainability of the event.

As a first time participant, we were confused about the relationship between the ACUR conference and the Posters at Parliament. I know this was recognised by the organisers during the conference. There seemed to be an expectation that we might stay on for the Posters but this was not suitable as it would have meant staying over for the weekend in Canberra, with a total time commitment of 6 -7 days, including travel - unrealistic for most of us. If the two events are separated next year (as Angela suggested would happen), universities such as ours may not be able to support both events.

SG Member 2

What a trip it was! The ACUR conference has been a great success. Student presentations were well prepared, very professional, engaging, creative and overall quite impressive. The organisation ran smoothly, the program well spread over the two days and no doubt, the highlight was probably the conference dinner on Day 1. This brought students closer and that was palpable on Day 2.

Suggestions for improvement: The ACUR conference website needed better maintaining. Updates, such as conference duration, start and end, rough program outline, were uploaded quite late in the process which increased the email traffic for myself and Angela, but no doubt for the actual organisers. Also, we noticed we had to distinguish the ACUR council from the ACUR conference more clearly and early in the process as people were confused as to who is organising the conference and the poster event.

Overall, the conference has been a great success and I was pleased to have been able to attend and meet some of the students who then presented their posters in Parliament.

The PiP event was another successful event and a true celebration of undergraduate research. The location alone gave the event a special meaning and a sense of real impact. Many more MPs and senators visited the event than we hoped for and it was very rewarding to see these talented and inspired students engage with them talking about their research, taking photos and connecting with one another and their local MPs via Twitter. Even though the logistics and finances made the event organisation challenging it was in every way rewarding, for organisers, students and visitors.

SG Member 3
The aims of the project are

- to create an organisational framework,
- appropriate documentation and
- other necessary support to ensure that an Australasian Conference of Undergraduate Research was held each year in different universities on an ongoing basis;
- and to encourage national investment in undergraduate research by raising its profile nationally.

My participation in this project has allowed me to gauge the impressive extent of the work of Prof Brew and her colleagues. This is the first time I've worked formally with Prof Brew but I've followed and used her work for some time in connection with a number of projects. Prof Brew is justly recognised as having an international reputation in the area of undergraduate research and it has been a privilege to be included in her research team and, especially, to work with Ms Lilia Mantai.
With the very successful ACUR 2014 at ANU, convened by team-member Dr Paula Newitt and her team, the greater part of the aims of this project are concluded. One of the strengths of this project has been the practical dimension of realising one of the best expressions of undergraduate research, namely the convening of an international conference. Prof Brew's interim report gave a clear and accurate picture of the progress of this Seed project while simultaneously mapping the stages of the project. In essence, what it takes to realise such a set of aims. So, this project serves both the purpose of achieving the articulated aims but also providing a summary account of how those aims were achieved. These documents will be extremely useful to whomever takes the larger project onto the next stage.
Dr Newitt's final report will provide the empirical data to track the success of ACUR 2104 but I'm already aware of the usefulness of her experience and the ACUR framework she has

implemented and extended for colleagues at UWA who will convene ACUR 2015. Formalised support for undergraduate research has been strong at least since 1978 with the establishment of the Council for Undergraduate Research. This OLT-funded Seed project to recognise and support undergraduate research in Australasia is an essential step in taking these programs, the opportunities they present and, perhaps most importantly, the thinking that informs them onto the next stage. One instance of Prof Brew's perspicacity has been to recognise that, despite the proliferation of undergraduate research opportunities, consolidating this kind of tertiary education requires co-ordinated recognition and support from national governments. It's this institutional backing at the federal level that will create and sustain UREs for the Asia-Pacific region. The operations of CUR, in North America, and BCUR in the UK, need only a third pillar from the southern hemisphere to create a global network for undergraduate research training.

I'd like to take this opportunity to thank Prof Brew for inviting me to join this project.

SG Member 4

I attended both the Australasian Conference of Undergraduate Research and the Posters in Parliament events this year.

They were a fantastic opportunity to see the excitement for learning and discovery that undergraduate students engaged with research demonstrate and to be amazed by the depth and breadth of the research represented.

The conference was a particularly valuable opportunity for me, as an academic involved in setting up a new undergraduate research program, to meet other staff involved in the area and to learn from them. Those whom I talked to agreed that a network for staff would be fantastic so as to collaborate and learn from each other's experiences.

The Posters in Parliament event – and the process of finding students within my institution to represent us at the event – was a great way of engaging the research portfolio within my local environment with the idea of undergraduate research. Having a national event of this prestige to send two students to meant that I could bridge the gap that often exists between the 'teaching' and the 'research' areas of the university and I found that very rewarding. By generating a little within-house media about our students attending the event I hope that we will also find it easier next year to get more engagement with the idea of undergraduate research across the institution.

As someone still fairly new to working in the area of undergraduate research it seems to me that the ACUR events have been instrumental in bringing people together who are interested (and working) in the area. And that the creation of these links are the necessary first steps to creating a firm base from which we can move forward together.

Appendix I

Conference evaluation questions

**SECOND AUSTRALASIAN
CONFERENCE OF UNDERGRADUATE RESEARCH**

Please take a moment to tell us about your experiences of the conference

1. Were you a presenter?   Yes ☐   No ☐

2. What was the most valuable thing you gained from the conference?

3. What will you <u>do</u> as a result of attending the conference?

4. Suggestions to the organizers for improvements next time:

Thank you for giving us this feedback.

If you wish to give your feedback electronically go to
http://www.undergraduateresearchAustralia.com