

ACUR

Australasian Council for Undergraduate Research

Editorial

Angela Brew, Chair ACUR

It's always a delight and a pleasure to see the enthusiasm of students and hear about their research at the annual Australasian Conference of Undergraduate Research and this year was no exception. Sally Sandover, Lee Partridge, Cheryl Koh and colleagues are to be congratulated for hosting the very successful fourth ACUR conference at the University of Western Australia in September. This issue of URNA contains some reflections on the conference by Sally Sandover; by Anthony Westenburg who presented his research on the ancient Assyrian and Babylonian poem "The Epic of Gilgamesh" at the conference; and by Beth Ambros, the Executive Officer of the USA Council on Undergraduate Research, one of this year's distinguished international visitors.

In 2016 we look forward to the fifth annual ACUR conference to be held in October at the University of Central Queensland in Rockhampton.

This will be the first time that ACUR has been held on a regional campus. Plans are already well advanced and Professor Denise Wood, the ACUR2016 conference convener, reports that delegates are assured of a warm welcome.

Priorities for ACUR this year will be to further establish the formal structure for ACUR and obtain funding to make it possible to hold another Posters in Parliament event in the future. If you would like to join an Executive Committee and you have some time to give to the work of ACUR, however small, please let me know.

In this Issue of URNA, Saba Vayani-Lai describes a student-led mini conference held at Macquarie University. This initiative, which is entirely student led, provides mentoring for new undergraduate researchers and gives students a further chance to talk about their research in a public forum. We also hear of findings from the now completed TREASURE project. Susan Howitt and Anna Wilson discuss the importance

of listening to students' voices about their learning whilst engaging in research. John Willison, who has been visiting the USA recently, reflects on how the use of the Research Skills Development Framework can be used to send students into research orbit! HERDSA has sponsored a prize for the best paper in Education Research at the ACUR conference and Allan Goody, HERDSA President, explains how this fits with HERDSA's objective to advance higher education. Finally in this issue, there is an opportunity for undergraduate researchers and our usual Upcoming Events section. I hope you enjoy this issue.

I would like to take this opportunity to thank Kathie Mason and Tony Dwyer of the Learning and Teaching Centre, Macquarie University for all the work they have done to produce all eleven issues of URNA. Personnel changes at Macquarie University mean we may not be able to produce another issue. Offers to host and to edit URNA in the future are welcome.



Macquarie University students with Angela Brew at the ACUR2015 conference dinner at the University of Western Australia in September.

The fourth Australasian Conference of Undergraduate Research

Professor Sally Sandover, Chair ACUR 2015 Conference Organising Committee

This year the ACUR conference was hosted by The University of Western Australia (UWA). It was held very successfully alongside the International Conference of Undergraduate Research (ICUR). The conference was held on the 29th and 30th September at the new Harry Perkins Institute. With over 135 registrations, the conference was a wonderful opportunity for students to share their research, meet new people and network for future endeavours.

There were 114 presentations delivered in four concurrent sessions. Some of the sessions had presenters beamed in via video link. All disciplines were represented. Nine posters were presented in a very lively poster presentation session. An additional session was held for supervisors and academics interested in undergraduate research.

This year we were honoured to be joined by Dr Elizabeth Ambos Executive Officer of the Council on Undergraduate Research (CUR) in the USA, and Dr Suzanne Haberstroh and Maren Petersen from the University of Oldenburg, Germany. They are going to host the first German undergraduate conference in 2016. All visitors including the students commented on the quality of the presentations and the relaxed and engaging atmosphere of the conference.

The conference concluded with a wonderful meal at St Catherine's College attended by almost all delegates. Prizes were awarded and much fun was had. Thanks need to go to Cheryl Koh for all her hard work and assistance and the small team of volunteers who worked very hard leading up to the event and over the two days of the conference.

We wish ACUR 2016 all the best!



Reflections on ACUR2015

Anthony Westenburg, Macquarie University

I had the wonderful opportunity earlier this year, not only to attend the 2015 Australasian Conference of Undergraduate Research in Perth, but also to present at it!

This conference was a fantastic opportunity, in a variety of ways. The obvious one is, of course, that I was able to present my own research at the conference, before my peers. Presenting my own research solidified my goals, and gave me a taste of the experience of having my own projects seen by other students, as well as allowing me to receive feedback and potential insights into my research, due to the numerous questions from the audience.

If any of you have ever experienced such an event, you would understand the wonderful elation from having a piece of your own work, all dusted off and finished, being seen by so many other people, and hearing all of their feedback; their insights; their questions, and their different understandings. It truly is a great experience.

The other, and not so immediately obvious, way attending ACUR was a great chance for me, is the other students. It isn't everyday that I get to hear the independent research undertaken by fellow students, and have that research presented in a clear, informative manner. I relished the chance to hear the superb undergraduate research, from Macquarie University and from various other universities all across Australia. More than anything else, seeing the work of other undergradu-

ate students inspired me in my own work, and made me want to conduct further research.

Finally, it was a great chance just to talk to other undergraduate researchers. In my normal, day-to-day university environment, I don't run into other researchers, instead mingling with a variety of other students. Although this is good too, it was great being able to talk with other students about the difficulties, joys, and experiences of researching our own projects.

In short, presenting at ACUR was a great chance. It has really inspired me to continue my study, and possibly even try my hand at further research. I will always remember presenting at the conference as an important moment in my life, and, if anyone asks, I'll heartily recommend them all to go and present at the conference next year!



Thoughts on ACUR 2015

Elizabeth Ambos, Executive Officer, Council on Undergraduate Research

Member, Steering Committee for ACUR

I've been an admirer from afar of ACUR since its inception, but had never had the opportunity to attend until this year.

Oh, I'd viewed the conference design and implementation over the last few years, participated in steering committee email discussions, and gained insights from the extensive literature published by Angela Brew of Macquarie University and her colleagues on undergraduate research in Australia and New Zealand. But to have the opportunity to actually attend and participate in ACUR/ICUR 2015 was a rare treat.

Attending an undergraduate research conference is such a restorative process, and ACUR 2015 was a well-organized and vibrant event in a very functional and attractive venue.



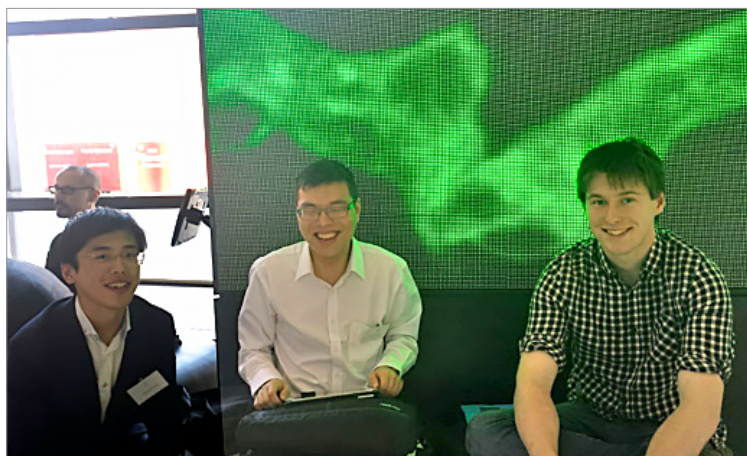
ACUR 2015 Helpers



Delegates enjoy the Conference dinner



Poster Session



Enjoying a break

Three aspects of the meeting were particularly defining for me.

First, the sense of community fostered by University of Western Australia conference hosts Sally Sandover, Lee Partridge, and others made the conference experience both professional and intimate.

Second, the interface between the scholars presenting remotely through ICUR, and the ACUR face-to-face session attendees was well-managed, and it was clear that the technology support was given good attention.

Third, the vitality, quality, and sophistication of the discussions between student presenters and their audiences were remarkable to witness.

One thing is for certain: whether attending the National Conference on Undergraduate Research in the United States, the British Conference on Undergraduate Research (BCUR), or an ACUR meeting, one can observe the research achievements of students and their faculty mentors so clearly as evidence of a high-quality educational process.

My final comment is how much I appreciated the opportunity to spend time with Angela Brew, whose vision, energy, and commitment to not just ACUR, but to the international undergraduate research movement, are truly remarkable.

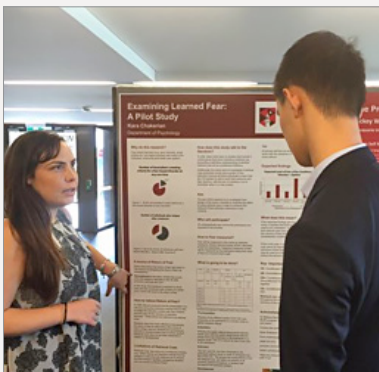
MURI Mini-Conference Poster Session

Saba Vayani-Lai, Macquarie University



Photograph of the 2015 MURI team and interns (left to right): Asta Rawson, Saba Vayani-Lai, Jerome Barkhan, Kara Chakerian, Kramer Thompson, Perri Reynolds, Dean Croxon, Aprill Miles, Natalie Papaellinas, Rickey Wan, Peter Keegan and Ian Plant (Anthony Westenburg, Noa Kerwick and Theresa Tran absent)

The Macquarie Undergraduate Research Internship (MURI) Program at Macquarie University offered ten undergraduate



Kara Chakerian won the Angela Brew Award for Best Poster Presentation for her self-designed psychology project about examining learned fear.

research internships in 2015. This year, interns were chosen from faculties across the university, with projects from a diverse range of disciplines including mathematics, criminology, ancient history and health sciences.

The MURI Program aims to foster staff-student engagement, with interns either guided by an Academic Sponsor on their own self-designed projects or collaborating with academics on pre-existing projects. The program also aims to create

a community of learning centred upon undergraduate research, with interns attending weekly peer-led workshops facilitated by interns from previous cohorts of the program.

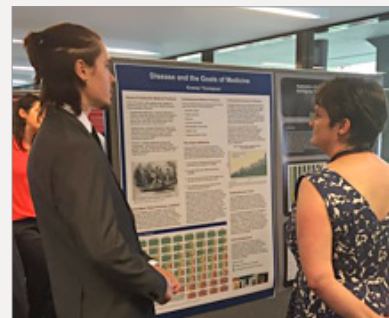
These workshops address topics such as research skills training, career skills and digital literacy and are an opportunity for interns to share advice and build friendships.

On December 8th, the program held its annual MURI Mini-Conference Poster Session, during which the interns presented their projects and preliminary findings four months into the internship. The MURI Mini-Conference was an opportunity to



Natalie Papaellinas won the People's Choice Award for her poster presentation on "Early literacy and NSW Public Libraries", a project she has been working in with her Academic Supervisor Dr Emilia Djonov.

celebrate the progress of the interns part-way through the internship.



Philosophy student Kramer Thompson presenting his research on disease and the goals of medicine.

Additionally, none of the interns had designed a conference poster before, making the MURI Mini-Conference an opportunity for interns to learn how to present their research in a new and exciting format.

Kara Chakerian won the Angela Brew Award for Best Poster Presentation for her self-designed psychology project about examining learned fear, which she has been working on with her Academic Sponsor Dr Melissa Norberg. The judges of this prize were MURI Program Managers Dr Peter Keegan and Dr Ian Plant.

Using the student voice to assess learning outcomes in undergraduate research

Susan Howitt and Anna Wilson

Australian National University, and University of Stirling, UK

The TREASURE (Teaching Research: Evaluation and Assessment Strategies for Undergraduate Research Experiences) project was developed to examine the learning that occurs during undergraduate research experiences (UREs) and how we can more effectively monitor and assess it.

As UREs are increasingly included as assessed degree components, this has become necessary to ensure equity between projects and their grading and to justify the increasing resources required to offer UREs to more students.

UREs generally include some form of presentation of project outcomes as a major assessment component.

Our concern was that this focuses student attention on the outcomes of the research instead of the research process, with failure to achieve results equated with failure to learn. However, it is the experience of research where the most valuable learning often occurs as the student comes to terms with the differences between authentic research and their more structured curricular experiences.

We first interviewed URE supervisors and course convenors to determine what learning they considered important and what was actually assessed. They valued the research process above the project outcomes, with analysis of the interviews leading to four categories of learning outcomes:

- The 'nitty-gritty' of research, including disciplinary, technical and generic skills and knowledge essential to the research project;
- The research process, or understanding the nature of research more generally than the project specifics;
- Ways of thinking including criticality, creativity, looking for patterns;

- Sense of self as a scientist, covering ownership, confidence and feeling like an expert.

Using this information, we developed prompt questions to scaffold reflective journals that students kept throughout their URE.

The questions were designed to focus student attention on specific aspects of their research projects, such as what they were doing and why, how they responded to problems and what they were learning. Journals were kept by 330 students across three institutions in a range of disciplines. Student responses have been analysed to identify the extent to which students meet the learning outcomes desired by their supervisors.

The interviews and journal analysis demonstrate that formal assessment in most UREs assesses only a small part of the learning that occurs, with actual learning encompassing the full range of desired outcomes listed above. Learning was often inextricably linked to descriptions of the project and the accompanying emotional engagement, with both students and supervisors recognising the importance of the affective domain.

We observed students combining complex skills and ways of thinking to address unstructured problems, with more sophisticated responses showing an ability to generalise to other research.

One implication of this complexity is that simple diagnostic tools to assess learning about research are likely to miss the very

learning that is most valued by supervisors.

The developing ownership, engagement and confidence that are visible in the journals are not easily evaluated but are an essential component of the learning that occurs. We suggest that there is considerable value in listening to the student voice to assess complex learning in the context of authentic research.

Acknowledgments: We are grateful to the OLT for funding the TREASURE project.

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Boosting undergraduates into a research orbit

John Willison, *The University of Adelaide*

Technical research skills are necessary but insufficient for undergraduate research to be conducted with rigour and sophistication. Whether these technical skills are learned in the lab or field, in quantitative or qualitative research methods courses, more than knowing techniques of research is required for success.

At the other end of the scale, repeated exposure to unguided or open-ended research may only result in the application, for many students, of the same degree of rigour in their final years as in their first year (Chaplin, 2003). In addition to technical skills, for students to be boosted into a research orbit requires a research mindset. Explicit and coherent development of undergraduate students' research skills in content-rich contexts is one realistic path towards ensuring that students' research mindsets are nurtured.

A research mindset is an orientation to asking and delving, ready to grapple with ideas, questions, problems, and to think divergently as well as logically and coherently. Developing student technical research skills in isolation can mediate against such a mindset. A great location to develop research mindedness is in content-rich courses. Many first and second year courses are content heavy and have great potential to foster a research mindset in such a content-rich context.

The Research Skill Development (RSD) framework (Willison & O'Regan, 2006/2015; 2007) has been used increasingly since 2006 to provide educators with a conceptual scaffold to make real this potential. The RSD website (www.adelaide.edu.au/rsd/evidence) lists articles that provide numerous disciplines that have drawn on the framework for the purpose of content-rich research skill development.

Multiple exposures to diverse implementations of the RSD are emerging as a realistic approach to facilitating a research mindset. Different educator personalities, foci within disciplines and interdisciplinary emphases are all helpful for providing different content contexts and different ways of operationalising the same set of overarching RSD facets. Likewise, a variety of orientations encountered will help students be more sophisticated in their knowledge base and be increasingly able to generalise the nuances between contexts.

Outcomes from courses and especially whole degree programs of explicit Research Skill Development show a substantial majority of students find not only that their research skills improved, but that these were useful for subsequent study as well as employment (Willison 2012; Willison, 2014).

If you want students to engage in undergraduate research with sufficient rigour and sophistication consider how you may use the RSD to scaffold

research mindedness in multiple content-rich courses as well as in research methods courses. The sophistication required for research is well mediated in the content knowledge base. Student rigour in research is typically improved slowly over time, through their repeat applications of skills with feedback and improvement cycles, and injections of technical skills.

Developing research mindedness as well as technical skills shows the potential to boost students into an orbit where they are more research ready and less likely to spiral out of control.

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In 1975 the USSR's Soyuz and USA's Apollo spacecraft docked while in orbit, and this historic event during the Cold War is immortalised in the Air and Space Museum, Washington D.C.

It took a concerted and informed effort to boost each capsule onto orbit (photo: John Willison, 2014).



News from one of our sponsors

Dr Allan Goody, HERDSA President

HERDSA, the Higher Education Research and Development Society of Australasia, is a scholarly society for people committed to the advancement of higher education. It promotes the development of higher education policy, practice and the study of teaching and learning. HERDSA encourages and supports collaboration and the development of professional communities in higher education and provides opportunities for dissemination of research and best practice. The HERDSA community is spread across Australia, New Zealand and Asia, in particular Hong Kong

and HERDSA branches sponsor many activities in their regions which are open to members and non-members.

HERDSA appreciates that students are integral to and partners in teaching, learning and research in higher education. By engaging in research, undergraduate students develop valuable skills that enhance their ongoing learning, are supported in the development of their sense of curiosity and inquiry, and develop valuable graduate attributes such as critical thinking and problem solving. These outcomes are what HERDSA members, whether they are teachers, researchers or professional staff, desire for the students with whom they work.

HERDSA is keen to support the Australasian Council for Undergraduate Research in their goal of engaging more undergraduate students in research by sponsoring the HERDSA Prize for Best Paper in Education Research. The prize, valued at \$500 included a cash prize plus a one-year student membership of HERDSA and a selection of HERDSA publications. By sponsoring this prize HERDSA hopes that the winner and other students who showcase their work, gain an awareness of the HERDSA community and the opportunities it presents for further learning and collaboration.

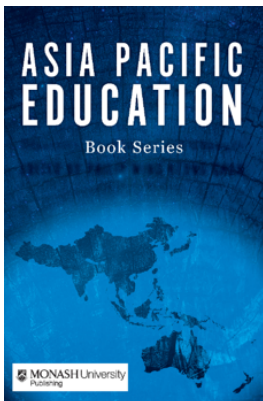
www.hersda.org.au

Undergraduate research opportunities

Calling student contributors: Invitation to contribute to Asia Pacific Education Book Series

Philip Chan, Series Editor, Monash University

Education in Asia Pacific countries is being transformed by globalisation and the market economy.



Most economies within the region have flourished due to increased regional capital flow, trade, and other forms of economic and political interaction. The Asia Pacific also has rich and unique

traditions which create cultural diversity, as well as common challenges, including obstacles of language and geographical separation. In addition, the Asia-Pacific region contains countries and school systems at very different stages of development. Consequently, it is perhaps not surprising that each school system has its own unique set of problems that require research in order to facilitate the solution of these problems. However, it is important to learn from the research being carried out in a neighbouring system within the region

since educational change is occurring very rapidly in many Asia-Pacific countries.

This book series aims to explore massive and important education issues in the Asia Pacific region by a large research team, which forms collaboration among educational researchers across their national borders. The articles in this Asia Pacific Education Book Series are assembled in five volumes: Equity, Identity and Social Justice; Teaching, Teachers and Educators; Leadership, Governance and Administration; Learners, Learning and Technology; and Early Childhood Education. These book volumes will be edited by content experts: Dr. Lilly Yazdanpanah, Dr. Raqib Chowdhury, Dr. Thanh Pham, Dr. Dat Bao, Dr. Philip Chan, Dr. Vennesser Fernandes, Dr. Michael Phillips, Dr. Ekaterina Tour, Dr. Liang Li, Dr. Sylvia Almeida and Dr. Denise Chapman. In order to ensure the qualities of the publication, these volumes are advised and supervised by professors in these fields. They are Professor Helen Forgasz, Professor Simone White, Professor Susan Webb, Professor Neil Selwyn and Professor Marilyn Fleer.

This 5-volume set will be published by Monash University Publishing. Monash University Publishing publishes scholarship of the highest standard from across the Humanities and Social Sciences, and specialises in Asian Studies, Politics, Education, Communications, and the study of Australian history, culture and literature. Monash University Publishing's scholarly titles pass through a rigorous process of peer review

prior to being accepted for publication. They are counted in the Higher Education Research Collection Data (HERDC). Monash University Publishing's scholarly titles are published online 'open access', ensuring that the reach and readership of these works is maximised. Print versions of Monash University Publishing titles are also sold through bookstores, ensuring maximum impact.

For 2016-2017, we are now inviting any interested researchers and research students to be part of this research team to contribute an insightful chapter to the following three volumes:

Volume 3 - Asia Pacific Education: Leadership, Governance and Administration

Volume editors: Dr. Philip Chan & Dr. Vennesser Fernandes

Volume 4 - Asia Pacific Education: Learners, Learning and Technology

Volume editors: Dr. Michael Phillips & Dr. Ekaterina Tour

Volume 5 - Asia Pacific Education: Early Childhood Education

Volume editors: Dr. Liang Li, Dr. Sylvia Almeida & Dr. Denise Chapman

It is an exciting opportunity to join the research team in this big publication project. For the detailed requirements and writing schedule of the specific volume, please contact the volume editors as soon as possible.



Upcoming Events

Announcing the Fifth Australasian Conference of Undergraduate Research

To be held at Central Queensland University's Rockhampton North campus in tropical Queensland **27th-28th October 2016**

The campus is conveniently located within easy reach of public transport and surrounding affordable accommodation.

Student accommodation facilities on campus have been reserved at a modest cost.

The conference dinner will be held in the University's sport centre with catering provided by Central Queensland University hospitality students.

The first call for Papers will be available in the new year.



The University for World-Class Professionals

BCUR 16
22nd & 23rd March, 2016
Manchester Metropolitan University Business School

The British Conference of Undergraduate Research promotes undergraduate research in all disciplines. The Conference, which acts as a showcase for the research, meets annually every spring in a different British university. Undergraduates of all levels are invited to submit papers, posters, workshops and performances to the Conference. Abstracts are peer-reviewed and those accepted will be invited to attend the conference.

The Abstract submission date deadline is **11th December 2015**

Please submit abstracts to BCUR16@mmu.ac.uk
For General Guidelines please visit: www.mmu.ac.uk/bcur16/abstract.php
To register go to: www.mmu.ac.uk/bcur16/registration.php

World Congress of Undergraduate Research



Save the Date!

November 13-15, 2016
University of Qatar
Doha, Qatar

Contact us:

If you didn't receive this directly from us, it means that you are not on our list. Please let us know if you would like to join our extended network of interested people. For further information, or to submit an item for inclusion in the next issue, contact:

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Find us on Facebook: The Australasian Conference of Undergraduate Research (ACUR)

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