Research Excellence Through Partnership and Engagement

The ECU Collaborative Research Network (CRN) project is a $17.8 million investment that includes $5.6 million funding from the Department of Education and Training Collaborative Research Networks Scheme (2011-2016), along with contributions from the partner universities and ECU.

The aim of the project was to enhance collaborative research by increasing numbers and proportions of research active staff and students, knowledge sharing, securing competitive research funding, publications and higher degree research student completions.

The overall benefit of fostering these collaborations with project partners has been an increase in research outcomes and outputs facilitated by:

• Increased opportunities for face-to-face meetings with project partners to facilitate planning for, and preparation of grant applications and publication writing. These meetings also provided opportunities to plan and implement workshops with visiting experts for ECU and partner institution researchers and students and to provide opportunities for project partners to share their expertise and experience with the rest of the group as well as, more broadly, with ECU staff and students.

• Opportunities to meet project partner researchers on a personal level also facilitated their roles as supervisors for higher degree students – potential students and supervisors had the opportunity to meet, build relationships and determine areas of expertise and research interest.

• Travel opportunities for staff and students that allowed relationships and new collaborations to develop that led to visiting fellows coming to ECU to run workshops of benefit to other ECU staff, and students and project partners and their students.

• The opportunity to submit good quality joint grant applications.

• The generation of numerous collaborative high-impact journal publications.

• Skill development for staff and students (ECU and CRN partners).

• The development up of new research ideas and partnerships.

The CRN project helped to build the research capacity of many early career researchers and students from ECU and partner organisations. Capacity building activities...
included a series of training courses, workshops and training schools. These training schools addressed discipline specific questions and some core research skills such as: writing for journal publication; motivational interviewing techniques; questionnaire development; advanced statistical techniques for data analysis; epidemiological methods; technological innovations in research; and qualitative research techniques.

The skills developed within these workshops/training activities enabled ECU staff and the early and mid-career researchers to increase their submission of grant applications and publications over the duration of the project. These increased research outputs also assisted participants to become research active; to obtain new employment positions; to develop new collaborations; and also to submit grant applications.

The Visiting Research Fellow’s initiative was another activity that assisted in building capacity by working with and enhancing the professional network of CRN engaged students, and early and mid-career ECU staff. Some of the Fellows also assisted with the range of training events. The funds from the CRN project also enabled numerous exchanges of post-doctoral and doctoral students between partner institutions and their collaborators.

Many students, early and mid-career staff were able to attend national and international conferences to share their research and build their professional networks, which was not previously possible without this CRN funding, especially given the distances researchers in WA need to travel to attend these events and maintain their professional links.
Promotion of Mental Health and Wellbeing in Young People

The CRN program enabled this ECU team, led by Professor Donna Cross, to partner with five core established research groups in Australia and a breadth of international groups focusing on platforms related to child health promotion (e.g., bullying and aggression). The group worked collaboratively on research publications, research proposals, supervision of higher degree by research students and the delivery of research training schools for early career researchers.

During the course of the CRN, 1 book and 9 chapters in edited books were published along with 16 peer-review papers published. There have also been 40 joint grant applications submitted (19 were Category One grants). Of these submissions, 18 grants were won (5 were Category One). These grants engaged multiple cross-institution, multi-disciplinary researchers and stakeholders as partners and as a result were more able to be translated when completed, into policy and practice.

Industry links were strengthened with the translation and dissemination of the social and emotional family, school and student capacity building program called Friendly Schools which was enhanced using grant funding secured with collaborations from the CRN. This resource marketed and distributed by Hawker Brownlow (publishers) Australia is being used by 2,700 schools in Australia and the UK, USA, Canada, New Zealand, South Africa and Singapore.

The core CRN project partners are currently maintaining ongoing collaboration opportunities, such as through formal alliances that formed or been strengthened as a result of the CRN including the Student Wellbeing and Prevention of Violence (Flinders University); Australian Universities Anti-bullying Research Alliance (Flinders University, University of South Australia and Queensland University of Technology); the Brain and Behaviour Research Focus Area at the University of Western Australia (UWA) and the Telethon Kids Institute; and the Youth Wellbeing Alliance (University of Melbourne and UWA).

During the CRN, the project team and partners have been successful in securing over $8 million in research income enabling a range of research projects and programs to be developed, including reducing peer victimisations in schools, cyber-aggression, improving the wellbeing of young people.
Exercise Medicine for the Prevention and Management of Chronic Disease

The CRN project has allowed the team at ECU, led by Professor Rob Newton, to partner with a range of research groups across the world in defining new effective disease-specific exercise programs to integrate with a range of treatments.

The aims of this sub-project were two-fold: to establish research-defining and effective, disease-specific exercise programs to integrate optimally with pharmaceutical, surgical, nutritional, psychological and other treatments for best patient outcomes; and to develop evidence-based “best practice” models of health care with appropriate referral pathways to health professionals and teams to maximise research translation.

During the CRN, the project team and partners have been successful in securing over $3 million in research income. This has enabled the development of various research projects and programs, including survivorship programs, lifestyle programs, and clinical trials.

One highlight of this project has been the 21 visiting fellows coming to ECU from a range of countries including Brazil, Finland, USA and Canada. This provided an opportunity for the team to engage and interact with a range of highly successful international academics and industry partners raising the profile of the team at ECU.

New collaborations will continue including participation in the international consortium for the POLARIS study with the EMGO and the Institute for Health and Care Research, Amsterdam. This large project is establishing an international database of randomised clinical trials evaluating the effects of cancer rehabilitation and supportive care including physical activity and exercise interventions and psychosocial interventions, on quality of life outcomes.

The team have also expanded their research into prostate cancer extensively over the course of the CRN resulting in ECU partnering with University of California San Francisco colleagues to lead an international trial of exercise medicine for men with advanced prostate cancer and the primary outcome being overall survival (involving 900 patients, over 21 worldwide trial sites and over $9 million funding by Movember).

There have been 42 journal articles published and 67 research grant submissions made over the period of the CRN (28 were Category One). Sixteen of these grants have been successful, including two fellowship applications.
Integrated Health Services to Enhance Community-Based Health Care

This sub-project, led by Professor Cobie Rudd, endeavoured to develop a strong ECU-based collaborative research team spanning all major health care delivery disciplines capable of developing evidence-based models of health care, service delivery and the subsequent educational approaches required, including inter-professional learning, experiential/work-based learning, and learning through simulation; and augmenting the role of community engaged research in health, to drive institutional change in higher education and national health reform.

The CRN funding enabled a new research team to be established that were able to develop and explore evidence-based models and the educational approaches in a range of fields including simulation, experimental/work-based learning and technology.

A major outcome achieved was with the UWA / Royal Perth Hospital CRN partner, who provided access to an excellent population for research; providing the basis for a successful SHRAC grant application. Furthermore, following on from work commissioned by the Val Lishman Health Research Foundation (VLHRF) that highlighted inadequacies in collaboration, understanding of roles and responsibilities and active professional development amongst health professionals, the VLHRF approached ECU to modify an existing suicide prevention training package and specifically tailor it for South West GPs. In total 28 grants were submitted with 11 being awarded.

The project team developed expertise in novel simulation-based education research, culminating in a number of publications in international journals and conferences. Our expertise also attracted requests for assistance to evaluate the:

- SimoDont dental simulator at the School of Medicine and Dentistry, UWA;
- WA Police use-of-force Tactical Training Simulator; and
- Royal Australian Air Force Hawk 127 simulator.

A by-product of the novel methods used by the team to research simulation-based education has been expertise developed in the use of eye-tracking technologies resulting in funded projects with the Australian Army and the WA Police.

The project has been awarded more than $600,000 in simulation-based research funding and the Project Lead, Professor Rudd achieved external funding of $10 million towards the development of the ECU Health Centre incorporating the Wanneroo GP Super Clinic and ECU Psychological Services Centre (opened in Sep 2014). These two facilities will be an excellent resource for future research projects.
Nano-Photonics and Nano-Electronics to Support National Frontier Technologies

This sub-project, led by Professor Kamal Alameh, aimed to increase ECU’s capabilities in the frontier technologies of nano-photonics and nano-electronics, through which higher-performance low-power hybrid nano-devices can be developed for future ICT systems and other applications, such as medicine, biotechnology, sensing, solar cells and displays; and create a leading national research collaboration and regional hub for the design, fabrication and integration of hybrid (photonic and electronic) nano-devices and fibre wireless solutions for projects of national importance.

The CRN has enabled Electron Science Research Institute (ESRI) to create world-class research capacity and outcomes through collaborative partnership with two CRN partners (The University of Melbourne and The University of Adelaide), focusing on Nano-photonics and Nano-electronics research that supports national frontier technologies.

The CRN project has enabled the ESRI team to be better positioned and prepared to submit quality grant applications. This has been demonstrated by the volume of category one grant submissions, including four ARC Discovery Project grants submitted in 2012, 2013, 2014 and 2015; an Expression of Interest for an ARC Centre of Excellence submitted July 2013; and a Linkage, Infrastructure, Equipment and Facilities LIEF grant submitted April 2012 with University of Melbourne. An Australia-India Strategic Research Fund application entitled “I-CARE (Innovative Contaminant Assessment, Remediation of the Environment) for Sustainable Crop Production”, has been submitted with Murdoch University, for funding in 2016. The team have also had 40 journal articles published during the CRN project.

ESRI now has a world-class Micro-/Nanophotonic fabrication and characterisation facility that includes photonic and electronic laboratories equipped for state-of-the-art design, development and characterisation, as well as a 256m² clean-room equipped for material growth, etching, characterisation, metallisation, photolithography and characterisation. This will provide ESRI with an excellent platform to attract further investment and become sustainable.

During the CRN project, ESRI has been awarded more than $3 million in category 1 funding and employed 4 postdoctoral research fellows. This funding was aided by the infrastructure and the opportunities for collaboration provided by the CRN. The Institute has developed prototypes with industry partners that demonstrate great promise for the wider industrial community.
Protection of Coastal Ecosystems and Marine Resource Management

The CRN team, led by Professor Paul Lavery, have worked closely with their core CRN partner, The University of Western Australia (UWA), in developing a range of strong research programs that investigates a range of management challenges relating to ecological connectivity, dredging, and benthic primary producers. This work has opened up a range of research opportunities and partnerships in New Zealand, Spain and the Middle East. Consequently, the ECU and UWA partnership is in an excellent position to develop a joint national research centre.

The objectives of this subproject comprised of establishing a nationally recognised expertise in eco-hydraulics and coastal connectivity, placing ECU and UWA in strong position to establish a national research centre in coastal ecosystems as a leading ocean research group within the Indian Ocean rim, and meeting national research needs in the area of adaption to climate change and management of marine biodiversity.

The opportunities made available for the ECU CRN team by the CRN partners has been a great success for this sub-project. The CRN team has participated in several grant applications and collaborative initiatives, including successful grant applications to the CSIRO Collaborative Research Clusters program, the WA Marine Sciences Institution research Nodes (Dredging Sciences and Kimberley Research program) and industry funded projects through the Department of Transport and the Department of Water. The Core CRN team (UWA and ECU) has continued their partnership throughout the project and recently submitted an ARC Linkage application.

A highlight of the project has been a wide range of new collaborations that have been formed with numerous groups across the world to further develop the research portfolio of the group, particularly in the area of climate change mitigation through coastal carbon capture. Two other major outcomes of the project have been the appointment of 7 HDR students and the 12 visiting fellows from a range of countries including, but not limited to Spain, Germany and the USA.
Advanced Technologies for Leading Teaching and Education Practice

The aims of the Education sub-project, led by Professor Mark Hackling, included research methodology advancement in the application of sophisticated capture and analysis of digital data to investigate teaching and learning behaviour, and expansion of the scope of current research using video-based methodologies at ECU and partner universities. This has allowed ECU and its Australian partners to leverage their respective infrastructure and expertise for cross-cultural studies with international partners.

There have been many successes within this team, including:

- Establishment of a web-based 360 video facility for teacher and pre-service teacher reflection and professional learning purposes.
- Establishment of a secure portal that allows pre-service teachers to upload their own classroom video footage and then share, discuss and annotate the video for reflective/professional learning purposes, and link examples to the AITSL Teacher Professional Standards.
- Publication by Springer of a research book arising from the ARC Discovery-funded ‘EQUALPRIME’ project, conducted in collaboration with CRN partners at Deakin University and international partners in Germany and Taiwan. The book includes a Foreword by Professor David Clarke (University of Melbourne). ECU Professor Mark Hackling is the lead editor, and ECU researchers are lead or secondary authors on 5 of the 13 chapters.
- Five Academics becoming active researchers.
- Establishment of a Data Analysis Group within the School of Education which has provided mentoring for researchers new to video-based classroom research within a culture of methodological innovation.

CRN funding has been crucial in establishing a strong focus on video-based research in the School of Education. There have been new methods and techniques developed in relation to video-based classroom research, including: 360-degree video capture, data manipulation and analysis of video footage, collaborative micro-ethnographic analysis of video, multimodal transcription of video capture, and ethical protocols for video-based classroom research.

Sustainability has been enhanced through embedding video methods in most education research at ECU based on staff capacity building and rich infrastructure and resources.

The CRN project has been the catalyst in establishing the focus of video-based research in the School of Education at ECU and its application to teacher education. There has been an increase in research capacity and outcomes through collaborative partnership with the University of Melbourne and Deakin University.
The Future of Innovation, Collaboration and Engagement at ECU

The CRN project has been successful and many of the collaborative partnerships will continue. The focus for ECU is to ensure the lessons learned and benefits from the CRN project continue to benefit all research areas across the University. To this extent there have been many new initiatives introduced as a result of the CRN that will benefit all research areas including:

- **Collaboration Enhancement Scheme**
  - An internal funding scheme with the main aim to increase research collaborations, the ECU Collaboration Enhancement Scheme (CES) was established in 2014 when a pilot scheme was launched. The total funding available now is $200,000 per year. This scheme is available to all ECU researchers.
  - The CES provides funding support for the main aspects associated with the CRN program (eg. visiting fellows, workshops, grant development etc.). Since its inception, a total of 50 projects have been supported.

- **Research Data Management**
  - The CRN Program has allowed ECU to focus on the development of its research data management framework. The approved policy and data management plan is currently being implemented and the outputs from this exercise will benefit the entire University.

- **Governance Model**
  - The governance model used for the CRN project has been a success and will be used for any future large collaborative projects.

- **ECR/MCR Network**
  - An internal early and mid-career ECU staff network has been established to provide a platform for this cohort to discuss relevant issues.

- **eResearch program**
  - The introduction of shared resources (eg. eye-tracking, motion-capture etc.) within our eResearch program will assist researchers at ECU develop new internal and external partnerships. The eResearch initiative started in late 2012 and now engages with the majority of Schools at ECU and numerous external organisations.
Industry Engagement
- ECU’s Collaboration and Innovation Team links industry with the University, facilitating collaboration and innovation access to end-user driven research programs and Intellectual Property. The Collaboration and Innovation Team, in partnership with ECU’s Office of Legal Services, are available to guide industry partners through the process of identifying and licensing University Intellectual Property that could benefit their business. Dedicated research programs can, in most cases, be developed to suit the needs of the industry/business partners and contribute to collaborative success.

Innovation Precinct
- The virtual Innovation Precinct development in collaboration with the City of Joondalup has been named The Link. The aim of The Link is to be the catalyst to connect businesses and academic researchers to develop innovative ways to solve problems, foster growth, and enhance commercialisation and competitiveness to benefit the wider community.

A note from ECU’s Deputy Vice-Chancellor (Research)

ECU is very grateful to the Commonwealth Government for funding the CRN Program, and to ECU’s nine university partners in particular, and the additional partners to whom we were introduced as a result of the collaborative research programs developed. Those universities are:
- Deakin University
- Flinders University
- Queensland University of Technology
- The University of Adelaide
- The University of Melbourne
- The University of Queensland
- The University of South Australia
- The University of Sydney
- The University of Western Australia

As summarised in this document, ECU’s researchers and their research programs and collaborations grew the quality and size of their research activities and outputs, and at the same time the University adapted its research support services and processes to build research beyond the University. To facilitate the best use of CRN funds, ECU established the position of Collaboration Manager, and strategic University funding allocated to collaborative research will be managed through that appointee. As a result of the success of the CRN program to not only grow research but also to develop and apply collaborative research support strategies, we hold the view that ECU (as for other CRN funding recipients) will be better placed to deliver on Australian research and innovation priorities.

Professor John Finlay-Jones
CONTACT US

For the latest news, events and information, or to find out more about collaboration and partnership opportunities:

email us at  crn@ecu.edu.au
            thelink@ecu.edu.au

or visit www.ecu.edu.au/research

GREENING ECU: Edith Cowan University is committed to reducing the environmental impact associated with its operations by conducting its activities in a socially and environmentally responsible manner. This includes implementing strategies and technologies that minimise waste of resources and demonstrate environmentally sensitive development, innovation and continuous improvement.

CRICOS IPC 00279B   key2creative_36961_04/16

Every effort has been made to ensure that the information contained in this publication is correct at the time of production. The information is subject to change from time to time and the University reserves the right to add, vary or discontinue courses and impose limitations on enrolment in any course. The publication constitutes an expression of intent and is not to be taken as a firm offer or understanding.

ECU IS SMOKE-FREE