Submission to the ACOLA Review of Australia's Research Training System

August 2015

The Cooperative Research Centres Association represents all Australian Cooperative Research Centres (CRCs). In addition, the Association has universities, companies and research groups as Affiliate and Associate Members.

Membership of the Association is optional for CRCs. The Association promotes best practice in research and translation; student supervision and contract management.

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SUBMISSION ON ACOLA REVIEW OF AUSTRALIA'S RESEARCH TRAINING SYSTEMS

The Cooperative Research Centres Association represents all of Australia's CRCs as well as a number of other Affiliate and Associate members.

Since the start of the CRC Program in 1991, one of the few common features of all of the more than 200 CRCs, has been a postgraduate training program.

We believe CRCs fund about five per cent of Australia's PhDs, although it is difficult to be precise because CRCs are often only one of several funders and of course do not award PhD degrees themselves.

One of the original intents of the CRC Program was to increase the level of industry involvement in the training of postgraduate students. Over time, this intent has intensified in relation to PhD students and widened to include non-PhD postgraduates.

Under present guidelines (which are currently undergoing review to align them with the outcomes of the Miles Review 2015, CRCs must still fund a PhD program. However, they are encouraged to foster postgraduate work that is of most value to their particular industry. For example, if a CRC's Board decides that a major issue for its industry is the dissemination of knowledge, rather than the generation of new knowledge, the CRC might invest relatively more funds into, say, "Knowledge Brokers" who might be more appropriately trained with a Master's Degree or Diploma.

Given our experience and particular interest in research training, the CRC Association submits several observations for the ACOLA Review team to consider:

1. While the CRC Assocation encourages and supports greater industry-oriented training for (some of) Australia's postgraduates, we strongly caution against any "one size fits all" solutions. We would urge that maximum flexibility be retained appropriate to both the subject area for the candidate and the existing skills and experience of the candidate. In considering postgraduate training, it is often assumed that there is a generic model of a PhD student being in their early twenties and a newly minted graduate. In reality, PhD candidates are much more varied with different skill sets and life experience. In the case of the CRCs, this will often mean that existing industry professionals undertake a PhD in order to advance their prospects within their industry. This is a circumstance where it is very important to ensure a personalised program of training. If someone with ten or fifteen year's experience in an industry already is required to do entry-level introduction to that industry, they may be quite resentful. On the other hand, they may need to come up to speed in areas in which a new graduate might be quite familiar. Our experience shows a wide variety of training options should be made available.

   All these circumstances argue for specialised and personalised research training. We note this can be provided within a wider framework such as Vitae's Researcher Development Framework (see later).

2. The difficulty of accreditation, Attachment A to this submission shows the variety of approaches that current CRCs utilise in training researchers.

   Because CRCs are temporary multilateral organisations, few, if any, of the programs they have developed are accredited by a university. The students involved get the benefit of the training but generally no formal acknowledgement of that training.

The fact that a CRC operates across numerous universities can mean that it is simply too difficult to bother with accreditation of a program. It would be useful if the ACOLA Review considered this issue.[1]

THE RESEARCHER DEVELOPMENT FRAMEWORK

The CRC Assocation is a licensee of the Research Development Framework, which is delivered online by the company Vitae in Cambridge in the UK. The Framework was developed with funding from the British Research Councils to identify and document the competencies of an effective researcher.

The CRC Assocation is convinced that the Framework does indeed identify the traits of effective researchers. It allows a researcher to self-assess against those traits, identifying areas of strength and areas for development.

We have made the Research Development Framework available to all our Member organisations at no cost. However, our experience is that while researchers find it interesting, they are dissuaded by the complexity.

In recent discussions with Vitae, we found this is a common issue and they have started to deliver "chunks" of the Framework in training sessions, increasing its accessibility for researchers.

Members of the ACOLA Review that may wish to explore The Researcher Development Framework for themselves are welcome to do so. They may email RDF@crca.asn.au and simply request a password.

We recommend that the Australian universities look into utilizing the Researcher Development Framework, which has had over one million dollars of investment put into it. However, some resources need to be put into its effective use by researchers.

CRC TRAINING STUDY

[1] Education Manager at the Invasive Animals CRC, Dr Tony Buckmaster illustrates the dilemma of accreditation in a comment provided in response to a draft of this submission:

I think it is more complex than this. The IA CRC program has often been told that we should give some form of accreditation to students who participate in the program. To do this it would need to be delivered by an RTO (not necessarily a university) but the main problem is due to the individual nature of the training which is tailored to the individual students, it is difficult, if not impossible, to fit that all into the various competencies required for accreditation unless multiple accreditations are developed. Additionally, individual training needs are fluid and setting up an accreditation process initially may result in later training needs not fitting within that fixed framework being not counted towards the accreditation or, worse, not undertaken as they do not go towards the final accreditation. Similarly the variety of disciplines being studies by PhDs within most, if not all CRCs can preclude a single accreditation as the training needs of a mature age student undertaking a field based biological project are vastly different to those of a younger recent graduate undertaking a PhD in humanities even though they are working within the same CRC on a similar overall problem.

Most CRC undertake research into wicked problems requiring a multidisciplinary approach. It is highly unlikely that a narrow siloed approach that accreditation requires would cover all the training needs of the students. It really is not possible to offer a formal acknowledgement of training as the accreditation process has not kept up with the new wider nature of CRC research and PhD studies when compared with the traditional siloed approach.

The CRC Assocation commissioned Nigel Palmer of the Melbourne University's Centre for the Study of Higher Education to look at the contribution of CRCs to PhD training in Australia. A copy of that study is enclosed for the benefit of the ACOLA review.

References

Miles, D. (2015), *Growth through Innovation and Collaboration*, CRC Programme Review, Accessed 20 August 2015, from: www.business.gov.au/grants-and-assistance/collaboration/CRC/CRC-Programme-Review/pages/default.aspx

Palmer, N. (2012), *The CRC Contribution to Research Training,* Canberra, Australia, Accessed 20 August 2015, from http://crca.asn.au/the-crc-contribution-to-research-training/

ATTACHMENT A: EXAMPLES OF CRC VALUE ADDING POSTGRADUATE PROGRAMS

CRC	Research Training Program	Program Overview
AutoCRC	Education and Training Program	AutoCRC runs programs for students at Undergraduate and PhD level. Undergraduate students are paired with an industry mentor to work on a real-world problem and gain industry experience. The year-long research project counts as part of their final degree and during the year they also participate in a number of showcases and events to which industry representatives are invited. The PhD program also focuses on bringing students into contact with industry. This includes embedding PhDs in larger AutoCRC industry projects (17 students) as part of the project team and holding regular professional development activities and networking events with peers, researchers and industry representatives. PhD students also have the option to apply for additional funding for complementary professional development activities in Australia and overseas. http://www.autocrc.com/activities/education-training/phds
Cancer Therapeutics CRC	Molecules to Medicine	A Victorian State Government funded 3-year pilot program, Molecules to Medicine provided fundamental commercialisation and transferrable skills to postdoctoral biomedical research scientists. With a high practical component, supported by on-the-job mentoring, participation in the program grew 30% year on year. Molecules to Medicine is currently under review and future plans are to broaden its reach to encompass other research disciplines and align more closely with offerings from leading industry bodies and institutions. The future version of the program will be made available, on a selective basis, to PhD students.
	PhD Education and Training Program	The Cancer Therapeutics CRC Education Program provides additional financial support, opportunities to network with Industry partners and mentoring opportunities to outstanding PhD students at Participant organisations. In particular, CTx are committed to providing opportunities for clinicians to develop and sustain a career in cancer research, and have recently instituted a new award for Clinician Researcher PhD students. http://www.cancercrc.com/?page_id=35
Cell Therapy Manufacturing CRC	ePhD Program	The ePhD Program embeds industry-relevant education modules in the traditional PhD experience to equip CTM CRC graduates with the necessary skills base to pursue a broad range of careers in the biomedical sector. Training focuses on creating an industry-ready workforce possessing valuable transferrable skills, an understanding of research translation and commercialisation, and an entrepreneurial mindset. http://www.ctmcrc.com/ http://www.ctmcrc.com/
CRC for Polymers	Polymer Summer School	The aims of the Polymer Summer School are to broaden polymer education in Australia, increase the level of cross-fertilisation in Australian polymer science and engineering, and to provide a strong theoretical introduction for new researchers. In addition to attending formal presentations, there are excellent opportunities to meet on an informal basis with leading polymer scientists. http://www.crcp.com.au/education-2/polymer-summer-school
Pork CRC	Industry Placement Program	To retain personnel that Pork CRC has trained at the honours & postgraduate level, by sponsoring their placement in a commercial pork production organisation within the Australian pork industry in a structured and enhanced development program. To expose those graduates wanting a long term

		research or technical support role in the industry, to the commercial aspects of pork production and hence enhance their future contributions and value to pork businesses in their future roles. http://porkcrc.com.au/education/industry-placement-program/
CRC for Remote Economic Participation	Aboriginal Researcher Program	The Aboriginal Researcher program enables Aboriginal Community Researchers to work in settlements across remote Australia to build a more prosperous, healthier and happier future for their people. Particular examples of their work include broad research into people's views and concerns about smoking with the aim of reducing tobacco use; and encouraging Indigenous university enrolment rates for higher degrees. http://crc-rep.com/sites/default/files/upload/aboriginal_researchers_build_a_better_future.pdf
Dairy Futures CRC	Mentoring Program	The mentoring program provides high-quality bioscience researchers to support a productive dairy industry. The program is based on the successful DairySage model developed by WestVic Dairy and The People in Dairy with support from the Gardiner Foundation. All current PhD students have been partnered with a dairy industry mentor. The program gives students the skills to think beyond completing their PhD, to consider how they will contribute to the industry. http://dairyfuturescrc.com.au/education/industry-mentoring/
Invasive Animals CRC	Balanced Researcher	The Balanced Researcher Program prepares IA CRC postgraduate students for leadership roles in the invasive animal industry, research community and academia by providing education and training opportunities for students beyond that received in a normal PhD program. All PhD students undertake a placement within industry to encourage formation of collaborations and industry based networks. Students are presented with a certificate of completion when they finish the program. This certificate does not hold a formal accreditation. http://www.invasiveanimals.com/education/balanced-researcher-program/
CRC for Mental Health	Postgraduate Training	CRC for Mental Health early career researchers (PhD and postdoctoral fellows) receive opportunities to lead short projects, demonstrating their employability while solving real problems for the sector. This includes applying the skills they develop through their studies to consulting projects with end users, knowledge exchange visits with personal care workers at aged care facilities and providing scientific briefings to end user and industry stakeholders. http://www.mentalhealthcrc.com/education/postgraduate-training
Poultry CRC	PoultryGrad	PoultryGrad delivers academic and professional development skills to assist young researchers on their PhD journey as well as to prepare them to pursue careers as leaders in research or industry. Through targeted fieldtrips to production sites (feedmills, processing plants, vaccine production facilities and farms), it gives PhD students insights into how the Poultry Industry functions and helps students develop professional networks and connections with key industry partners. Along with the Researcher in Industry program, it encourages students to think about the practical applications of their research, and how it can be deployed to solve industry problems. http://www.poultryhub.org/
Wound Management Innovation CRC	ePhD	The Wound Management Innovation CRC is providing access for its students to the ePhD program developed by the Cell Therapy Manufacturing CC. http://www.woundcrc.com/education.html
Plant Biosecurity CRC	Education and Training	The Plant Biosecurity CRC Education and Training program aims to create a future generation of plant biosecurity scientists that will protect the productivity and market access of our agricultural industries. Current Post

		Graduate students (24) are supported by a professional development program, which offers the students training in e.g. Effective teams and leadership, IP and commercialisation, specialised Biosecurity training and science communication and media skills. The PBCRC also offers industry placements under its Internship Program which provides the students with an opportunity to explore future career options and build professional networks in agricultural and or policy related placements hosted by CRC Participants. http://www.pbcrc.com.au/education-training/students-projects http://www.pbcrc.com.au/education-training/students-projects http://www.pbcrc.com.au/sites/default/files/managedfiles/internship_flyer.pdf