The CRC Contribution to Research Training

Good Practice Appraisal Tool

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For the Cooperative Research Centres Association (CRCA)
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Overview of the Good Practice Appraisal Tool

This *Good Practice Appraisal Tool* is the companion document to *The CRC Contribution to Research Training*, the final report of a scoping study commissioned by the CRCA. It has been prepared for the CRCA to facilitate internal stakeholder input on the CRC contribution to research training, and to form the basis for future development in this area. The aim of this appraisal tool is to assist in identifying and clarifying strengths and opportunities for improvement, to progress discussion on issues raised in *The CRC Contribution to Research Training* and other issues raised in the course of the scoping study.

Many of the issues raised in the scoping study pose new questions and address topics that are likely to be ongoing areas for discussion and potential development. These issues are therefore addressed in this document in a way that can provide the basis for ongoing development, and where specific areas may be developed along the dimensions described in the scoping study final report either as a single initiative or through review of different areas of activity on a staged basis over time. In this way the final report of the scoping study can serve as stand-alone report suitable for external stakeholders, while a broader range of specific issues can be captured through this appraisal tool as the basis for ongoing development, and as a resource for CRC education managers in particular.

This document also addresses issues not included in the scoping study final report. These are included based on an analysis of good practice frameworks and guidelines used as resources for the research training activities of university providers, and on findings based on the available evidence.¹

Issues included for consideration through the *Good Practice Appraisal Tool* are addressed through a series of discussion questions. These discussion questions reflect the content in the final report for the scoping study and are therefore organised under the relevant heading as they appear in that report. Extracts from relevant sections of the scoping study final report are included under each heading to provide context for the discussion questions, with additional material addressed in the relevant section under a separate heading.

The invitation to respond to the *Good Practice Appraisal Tool* outlined in section 5 has been included in template format to allow this document to be used as a flexible tool for self-appraisal and self-evaluation. It may also be possible to post the discussion questions proposed here in survey format online to assist in managing responses if used in this way.

This document is likely to provide the most value where used as the basis for ongoing development. This could be as part of a stand-alone initiative, or as part of a staged series of reviews based on the domains of activity outlined in the scoping study final report. It is recommended that this document be used as an adjunct to or separate from other benchmarking activities. While some of issues raised here are well suited to quantitative surveys, many of the issues raised in this document are of a strategic nature, and of a different kind to those amenable to more quantitative benchmarking. The appraisal tool therefore may be used to best effect as a separate but related exercise to inform other benchmarking activities.

¹ See Appendix V and Appendix VI of *The CRC Contribution to Research Training*. 
1 The CRC program and research education

CRCs set the benchmark for research cooperation in Australia. As user-driven centres for collaborative research, CRCs make an important contribution to Australia’s innovation capacity through bringing stakeholders together to address applied problems. The CRC program was established with the aim of supporting a long-term approach to investment in research through strategic partnerships with industry. As of 2010 there were 42 CRCs engaged with over 370 partner organisations both large and small. Many more Australian firms have been engaged with CRCs over the life of the program.

Research education represents an important part of a long-term approach to building and sustaining research capacity, and has featured as an important part of the CRC program since its inception. Central to this has been the role of CRCs in engaging research higher degree students as partners in collaborative research. CRCs support the development of ‘industry ready’ research graduates through providing opportunities for engagement and collaboration with government, business and community sector partners in the course of a research degree.

Question 1: Based on your experience with the CRC program, what would you say were the main strengths to the CRC contribution to research training?

Question 2: What do you see as the most distinctive aspects to the research training environment supported by CRCs?

Question 3: What areas would you identify as in need of improvement?
2 Measures for quality and scale in research training

Enrolment metrics support the basic measures in evaluating the efficiency and effectiveness of research training provision. Research degree completion rates have been a prominent indicator for performance in research training for some time. Other measures used include total enrolments, degree completions and full-time equivalent student load. These basic measures combine to provide other indicators, such as student attrition and rates and times for student completion.

CRCs report annually on their performance and progress as part of their program requirements. The Management Data Questionnaire (MDQ) is currently the principal means for collecting information on the activities of CRCs program-wide. The MDQ includes survey items relevant to a range of education-related activities. Current MDQ items relevant to CRC research training activities include:

- The equivalent full-time student load (EFTSL) of students;
- The number (headcount) of commencing students;
- The number (headcount) of course completions;
- Information on staff involved in research degree supervision; and
- Information on graduates taking up employment with end users.

2.1 Student load, FTE data and enrolment status

Total student load is a measure of scale in student enrolments. Student load data summarise enrolments counted on a full-time equivalent basis. Student load differs from enrolment measures that count numbers of students in summarising all student enrolments based on the proportion of a typical full time enrolment for a given course of study. There are two different ways student load is generally used. The first is to summarise the proportion of program enrolment for groups of students at a particular point in time (total student load). The second is to describe degree program enrolment time for each individual student (referred to in the case of research students as full-time equivalent candidature time, or simply candidature time).

**Question 4:** Which of the following best describes how enrolment status is recorded for research candidates engaged with your CRC?

- We maintain a regular record of each candidate’s cumulative full-time equivalent enrolment status;
- We maintain a regular record of each candidate’s enrolment status as ‘full-time’ or ‘part-time’ only;
- We regularly compile our own records based on enrolment data provided to us by our university partner;
- We don’t keep records of full or part-time enrolment status.

Additional notes or comments about this question:
**Question 5:** How often would you typically receive student enrolment data from your university partners?

- □ Four times a year or more
- □ Twice a year
- □ Once a year
- □ Once every few years
- □ Never

Additional notes or comments about this question:

**Question 6:** What enrolment information relevant to the candidates you engage do you typically receive from your university partners?

- □ Cumulative FTE enrolment data (including periods of part-time candidature);
- □ The most recently recorded enrolment status of each candidate;
- □ None of these.

Additional notes or comments about this question:

**2.2 Total student enrolments**

Total student enrolments are the closest indication of a student ‘head count’ available through commonly used enrolment metrics. Total student enrolments capture the number of students regardless of their enrolment status. While all CRCs would know the ‘head count’ for the research candidates they engage, there is currently no program-wide data readily available on the total number of research candidates engaged with CRCs. Summarising total student enrolments each year would provide a more complete record of enrolment patterns for CRC engaged research candidates, and also allow crude measures for attrition and completion to be derived from the dataset collected through the MDQ.

**Question 7:** Should each CRC compile and report information on the total number of research students they are engaged with?

- □ No
- □ Yes, via an amended MDQ
- □ Yes, via a process independent of MDQ reporting.

Additional notes or comments about this question:
2.3 Doctoral commencements and completions

2.3.1 Commencements
Item 4.1.2 of the current MDQ surveys CRCs each year on the ‘[n]umber (headcount) of new doctorate by research students who commenced their course during the reporting period’ (DIISR, 2011, p.24). While item 4.1.2 clearly refers to course commencement, there is a risk that this item might pick up responses indicating the number of students in their commencing year with the CRC who may already be continuing students based on their enrolment with their home institution. While the available data does not reflect significant error here, the difference is important: counting continuing students as commencing (even though they may be new to the CRC) confounds the data on CRC commencements and for calendar time to completion calculations.

Possible steps for managing the risk of error for this item include providing clearer context instructions on the MDQ form, or replacing the existing item with two: one that collects information on candidates newly engaged with the CRC that are commencing and another for candidates that are continuing in their current course of study (but newly engaged with the CRC). Data collected on new commencing candidates would remain comparable with data collected through this and comparable items in previous iterations of the MDQ. The inclusion of an item on new continuing students would assist in clarifying the existing item as well as providing additional insight into the characteristics of CRC engaged research candidates as well as the pathways student follow in becoming involved with CRCs.

<table>
<thead>
<tr>
<th>Question 8: Should the current items 4.1.2 and 4.2.2 of the MDQ be revised?</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ No, these items are fine as they are;</td>
</tr>
<tr>
<td>□ Yes, to clarify their intended purpose;</td>
</tr>
<tr>
<td>□ Yes, to include an item on new CRC engaged research candidates who are not in the commencing year of their degree;</td>
</tr>
<tr>
<td>□ Yes, for other reasons (outlined below).</td>
</tr>
</tbody>
</table>

Additional notes or comments about this question:

2.3.2 Completions
‘Completion’ can sometimes be an ambiguous term, used to refer to a range of enrolment events including:

1. Submitting a thesis for examination;
2. The final date of enrolment;
3. Receipt of examination reports recommending degree conferral;
4. Satisfaction of all requirements for conferral of a degree; and
5. Degree recorded as conferred by the education provider.

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2 This item is repeated for masters by research candidates as item 4.2.2.
CRC’s are currently surveyed on degree completions each year through the Management Data Questionnaire (MDQ). Item 4.1.3 of the current MDQ ask CRCs to indicate the ‘[n]umber (headcount) of doctorate by research course completions during the reporting period’ (DIISR, 2011, p.24). While item 4.1.3 of the current MDQ clearly refers to course completions, it may still allow undue scope for interpretation in potentially referring to any of steps 1 through 5 above. While there is no evidence of significant error on the available data, it may be worth clarifying the terms currently used for these items in the MDQ, to help ensure that CRC-engaged research degree completions are recorded and reported so they are comparable with those recorded for university providers.

<table>
<thead>
<tr>
<th>Question 9: Should the current items 4.1.3 and 4.2.3 of the MDQ be revised?</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ No, these items are fine as they are;</td>
</tr>
<tr>
<td>□ Yes, to more clearly specify satisfying all requirements for award;</td>
</tr>
<tr>
<td>□ Yes, for other reasons (outlined below).</td>
</tr>
</tbody>
</table>

Additional notes or comments about this question:

2.3.3 CRC doctoral completion rates

In comparing various measures for completion for the scoping study, it became evident that there were differences on these measures between CRCs by sector. While comparison of CRC completion ratios by sector may reflect areas where CRCs are performing well, this also serves to highlight sectors where they may not be performing so well. A summary of completion measures for CRCs by sector is included in Table 1 below.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Comparison of completion ratio measures for CRCs by sector</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Three year moving average ratio of research doctoral completions to commencements</td>
</tr>
<tr>
<td>Manufacturing Tech.</td>
<td>60%</td>
</tr>
<tr>
<td>Ag. &amp; Rural Manuf.</td>
<td>62%</td>
</tr>
<tr>
<td>Info. &amp; Comms Tech.</td>
<td>67%</td>
</tr>
<tr>
<td>Medical Science</td>
<td>78%</td>
</tr>
<tr>
<td>Mining Energy</td>
<td>77%</td>
</tr>
<tr>
<td>Environment</td>
<td>78%</td>
</tr>
<tr>
<td>CRC Program</td>
<td>66%</td>
</tr>
</tbody>
</table>

While scale appears to be a factor in the comparisons outlined in Table 1 above, the scoping study found that the numbers of candidates per CRC were relatively stable program-wide. manufacturing technology CRCs for example reported having 17 research candidates per CRC compared with an overall program average of 24 (1996-2011). Examination of detailed cohort progression and FTE candidature data would be the most advisable way of exploring these

3 This is repeated as item 4.2.3 for masters by research candidates.

4 Average simple ratios are a less reliable means of comparison with smaller numbers of candidates, and have therefore been excluded from this comparison.
comparisons further. Pending greater clarity on these differences, and on the availability of data to enable benchmarking against comparable measures for university providers, the above data was excluded from the scoping study final report.

**Question 10:** Are there additional issues that should be taken into consideration when using the kind of completion measures outlined in Table 1 above? (please outline below)
3 Markers for quality and distinctiveness

3.1 Domains of activity and dimensions of good practice

**Question 11:** Are there aspects of the research postgraduate experience or of your research training activities not dealt with here or in the scoping study final report that you believe are important? (please outline below)

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3.2 Infrastructure and resources for research

3.2.1 Minimum resource standards

While the infrastructure and resources CRC-engaged research candidates would have access to are typically at or above the industry standard, there are currently no strategies in place for monitoring or assuring the minimum standards of facilities and resources for CRC-engaged research candidates program-wide. Individual CRCs would typically have their own research infrastructure policies and guidelines, potentially supplementing those in place at the partner university. There is however scope to review the possibility that CRCs might adopt their own set of minimum resource standards for CRC-engaged research candidates, either on an individual level or program-wide.

**Question 12:** Does your CRC currently have a resources policy in place specifically for research higher degree candidates?

- Yes, and these are applied as a prerequisite for engaging research candidates;
- Yes, but these are guidelines only;
- No, but we have general guidelines that also apply for research candidates;
- No, we do not currently have any resource guidelines that apply in this way.

Additional notes or comments about this question:

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**Question 13:** Do you support the idea of developing minimum resource standards specifically for research higher degree candidates?

- Yes, but at the individual CRC level only;
- Yes, and these should apply program-wide;
- No.

Additional notes or comments about this question:
3.2.2 Candidate administered project funding

Financial support for the direct costs associated with the conduct and dissemination of research are identified in dimension seven of the draft Good Practice Framework (Luca & Wolski, 2012). Guidelines for the Balanced Scientist program also describe the provision of an operational fund, where financial resources are made available to candidates to support direct project costs (Dimond & Sarre, 2011, p.13). These entitlements are typically provided over and above those available from the partner university (where conditions would vary by provider). Guidelines for the Balanced Scientist Program recommend that candidates develop a fully costed project proposal at commencement which is used as the basis for the allocation of operational funds from the CRC. The guidelines also recommend that a professional development plan for activities such as short courses, workshops, field days, seminars, conferences, and relevant industry placements also be prepared by each candidate at commencement, in consultation with their advisory panel. Together these provide a framework for candidates to manage the costs and resources associated with their own research. There is scope to explore the extent to which comparable arrangements are in place for CRCs program-wide.

<table>
<thead>
<tr>
<th>Question 14:</th>
<th>Does your CRC currently make funds available to candidates to support the direct costs associated with the conduct and dissemination of research? If so, what is the total amount made available per year? (please select all that apply)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$____ for full-time candidates</td>
</tr>
<tr>
<td></td>
<td>$____ for part-time candidates</td>
</tr>
<tr>
<td></td>
<td>We don’t currently make financial support available to candidates in this way</td>
</tr>
</tbody>
</table>

Additional notes or comments about this question:

3.3 Scholarships and stipends

CRC funded scholarships make a significant contribution to the overall pool of scholarships available to support Australian research higher degrees. Resources and support provided to CRC affiliated research students include scholarships, often with ‘topped up’ stipend duration and value: top-up scholarships in various forms are a prominent feature of the CRC research training environment. Some CRCs provide an additional six months or one year of stipend funding to allow candidates to make the most of the full range of professional development opportunities available to them through the CRC research education program.

The draft Good Practice Framework recommends that the provision of scholarships be monitored by an appropriate committee responsible for higher degrees, and governed by a clear set of policies and procedures. These include:

- A clear set of transparent criteria for determining eligibility for and award of scholarships;
- Transparent policy and procedures for the allocation and administration of research scholarships;
- A clear statement of all scholarship entitlements and conditions; and
- Regular review of all relevant policies and procedures to ensure transparency, equity of opportunity and alignment with government or other scholarship provider conditions.
Opportunities exist for developing a clearer picture of the scholarship and stipend offerings supported by CRCs, in terms of their number, rate and conditions of award. Opportunities also exist for the development of a clear set of criteria and conditions for CRC funded scholarships, either at the CRC level or program-wide.

**Question 15:** Which of the following best describes the conditions and entitlements of scholarships funded by your CRC?

- [ ] They are exactly the same as the APA conditions of award;
- [ ] We maintain our own statement of scholarship conditions and entitlements;
- [ ] We do not have a statement of conditions or entitlements for the scholarships we fund;
- [ ] We do not currently fund any scholarships.

**Question 16:** Please indicate the information that best reflects the scholarship and stipend funding activities of your CRC (for the reporting year ended June 2012):

<table>
<thead>
<tr>
<th></th>
<th>#</th>
<th>Rate per year (FT)</th>
<th>Duration (FTE in months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full scholarships funded by your CRC</td>
<td>__</td>
<td>$________</td>
<td>____________ months</td>
</tr>
<tr>
<td>Partial or top-up scholarships</td>
<td>__</td>
<td>$________</td>
<td>____________ months</td>
</tr>
<tr>
<td>(paid in addition to external schols.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stipend extensions</td>
<td>__</td>
<td>$________</td>
<td>____________ months</td>
</tr>
<tr>
<td>(paid on expiry of external schols.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry funded scholarships</td>
<td>__</td>
<td>$________</td>
<td>____________ months</td>
</tr>
<tr>
<td>facilitated by your CRC</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Question 17:** Does your CRC use a set of criteria for determining eligibility for and award of the scholarships or stipend it funds?

- [ ] Yes, and these are publicly available;
- [ ] Yes, but we keep the details confidential;
- [ ] No, we use other means for managing the award of scholarships.

**Additional notes or comments about this question:**

**Additional notes or comments about this question:**

**Additional notes or comments about this question:**

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The CRC Contribution to Research Training
**Question 18:** Do you require candidates to demonstrate special considerations (as per the Commonwealth Scholarships Guidelines (Research)) for receiving scholarships funded by your CRC on a part-time basis?

- [ ] Yes
- [ ] No

Additional notes or comments about this question:

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### 3.4 Supervision and research advisory arrangements

A broader range of stakeholders are typically involved with each CRC-engaged research candidate’s project than would be the case with a more traditional university-based degree program. Each research student engaged with a CRC will typically have a panel with at least one advisor from their university, one from the CRC and one from an industry partner. Guidelines for the *Balanced Scientist Program* recommend that each CRC-engaged research candidate have a research advisory panel containing a primary, university-based research advisor and at least one other that is industry-based (Dimond & Sarre, 2011, p.9).

The draft *Good Practice Framework* also recommends that eligibility criteria be applied for prospective supervisors before approving supervisory arrangements, and the rights and responsibilities of both students and supervisors should be clearly defined and readily available. Supervisors should have access to ongoing professional development and support as part of the research degree program (Luca & Wolski, 2012). In line with this, guidelines for the *Balanced Scientist Program* include a structured process for identifying and matching PhD projects with suitable university and industry based supervisors (Dimond & Sarre, 2011, p.5). Opportunities exist to gain a clearer picture of the research advisory arrangements typical of CRCs, and the extent to which there are common aspects to research degree supervision and advice program-wide.

**Question 19:** Does your CRC have protocols or guidelines for establishing research candidate advisory arrangements?

- [ ] No
- [ ] Yes, but they do not specify requirements for the research advisory panel
- [ ] Yes, with the following minimum requirements (please check all that apply):
  - [ ] At least one CRC research advisor
  - [ ] At least one industry research advisor
  - [ ] At least one advisor from a university partner

Additional notes or comments about this question:
**Question 20:** Does your CRC use eligibility criteria for approving advisor participation in research higher degree advisory panels?
- Yes
- No

Additional notes or comments about this question:

**Question 21:** Does your CRC make advice available to candidates, staff and industry partners on steps involved in the research higher degree examination process?
- Yes
- No, but maybe we should
- No, that’s among the university partners’ responsibilities

Additional notes or comments about this question:

**Question 22:** Does your CRC undertake a pre-submission review process for each research higher degree candidate?
- Yes;
- No, but maybe we should;
- No, that’s among the university partners’ responsibilities.

Additional notes or comments about this question:

**Question 23:** What role does your CRC play in the examination process for research higher degrees?
- We assist in organising this in partnership with the responsible university;
- We seem to organise most or all of it;
- None, that’s among the university partners’ responsibilities.

Additional notes or comments about this question:
3.4.1 Research higher degree supervision data collection and reporting

Box 1: MDQ item 4.4 on supervision of higher degree by research students

<table>
<thead>
<tr>
<th>4.4 Supervision of higher degree by research students</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Data must only relate to the CRC’s activities, as specified in the Commonwealth Agreement.</td>
</tr>
<tr>
<td>• <strong>Non-university staff member:</strong> A person employed by the CRC or a participant, other than a university, for more than 50% of his or her time.</td>
</tr>
<tr>
<td>• Include: Supervision of doctorate by research and masters by research students who work on CRC activities and who are regarded as part of the CRC.</td>
</tr>
</tbody>
</table>

| 4.4.1 Number (headcount) of university staff members involved in formal supervision of higher degree by research students reported in questions 4.1.1 and 4.2.1 during the reporting period: 0 |
| 4.4.2 Number (headcount) of non-university staff members involved in formal supervision (e.g. second supervisor) of higher degree by research students reported in questions 4.1.1 and 4.2.1 during the reporting period: 0 |


Item 4.4 of the current MDQ surveys CRCs on aspects of the supervisor arrangements in place for CRC-engaged higher degree by research students (see Box 1 above). Aspects which limit the utility and reliability of data collected through this item include:

- While item 4.4.2 might survey the total number of non-university staff formally identified as participating on graduate advisory panels for each CRC each year, this statistic is only meaningful if divided by the number of current candidates for each CRC, and this calculation is not possible given the MDQ does not currently collect a ‘headcount’ for CRC-engaged research candidates;

- Non-university staff member criteria specified in this item excludes non-university staff employed by or participating with the CRC at a fraction of less than 0.5, and also excludes industry partners who may not be employed or engaged by the CRC at this level but are still formally identified as participating on the graduate advisory panel;

- Administrative arrangements for recording and managing each candidate’s supervisory panel may not be formally identified as among CRC responsibilities (particularly in regard to university-based supervisors), and therefore this item may be difficult for CRCs to respond accurately to; and

- There is no comparable information available for university providers of research training against which to benchmark responses to this item.

Among problems with this item is that the intent appears unclear. If it is intended to reflect the involvement of both CRC staff and industry partners in research degree supervision, one option would be to collect data on the three broad sources of supervision identified in the scoping study:

- University supervisors;

- CRC-supervisors (presumably, employed by the CRC); and

- Industry supervisors.

There would still be scope for uncertainty in responding to this item, as ‘CRC supervisors’ may in fact be from either an industry or a university background.

A better alternative may be to simply survey for the supervisory arrangements of CRC-engaged research candidates as being *either university or non-university based*, removing the criteria for being directly CRC-engaged. On this alternative the data collected would more accurately reflect the university/industry mix in research degree supervision.
Question 24: Should current items 4.4.1 and 4.4.2 of the MDQ be revised?

- No, these items are fine as they are;
- Yes, to simply survey for either university or non-university based advisors;
- Yes, for other reasons (outlined below).

Additional notes or comments about this question:

3.5 Skills and professional development

Opportunities exist to more clearly describe the unique resource-focussed approach adopted by CRCs in supporting skills and professional development, and to describe the extent to which characteristics of this approach are shared by CRCs program-wide. Among challenges here will be demonstrating quality and performance in an area characterised by diversity in content and approach.

Question 25: Does your CRC regularly host seminars and workshops as part of their research education activities?

- Yes;
- No, but maybe we should;
- No, that’s among the university partners’ responsibilities.

Additional notes or comments about this question:

Question 26: How do you think the skills and professional development activities of your CRC could best be reflected?

Question 27: How do you think the skills and professional development activities of your CRC could be improved?
3.6 Collegiality and intellectual climate

A broad range of activities in support of collegiality and a positive and productive intellectual climate were identified in workshops with CRC education managers, and in the annual reports published for individual CRCs. The diversity of activities in this area was comparable to that found for the skills and professional development activities supported by CRCs. Opportunities exist to provide a clearer picture of the program elements that support the collegiality-building activities of CRCs, and the extent to which common themes may be identified program-wide.

Question 28: Does your CRC host induction sessions for new candidates at least once per year as part of their research education activities?

☐ Yes
☐ No, but maybe we should
☐ No, that’s among the university partners’ responsibilities

Additional notes or comments about this question:

Question 29: How do you think the collegiality and intellectual climate of your CRC could best be reflected?


Question 30: How do you think the collegiality and intellectual climate of your CRC could be improved?


3.7 Graduate destinations

3.7.1 MDQ items on employment destinations

Box 2: MDQ Item 4.6 on graduate employment destinations

4.6 Graduate employment destination after completing postgraduate qualifications

- Data must only relate to the CRC’s activities, as specified in the Commonwealth Agreement.
- End-user: A person, organisation, industry or community capable of deploying the research outputs of a CRC, whether they are participants in the CRC or not.
- Course completions: The successful completion of all the academic requirements of a course which includes any required attendance, assignments, examinations, assessments, dissertations, practical experience and work experience in industry.
- Include: Only graduates who worked on CRC activities and who were regarded as part of the CRC.
- Exclude: Students who did not complete their formal postgraduate qualification.

4.6.1 Number of doctorate by research graduates taking up employment with end-users during the reporting period: 0

4.6.2 Number of masters by research graduates taking up employment with end-users during the reporting period: 0

4.6.3 Number of other postgraduates taking up employment with end-users during the reporting period: 0


Item 4.6 of the current MDQ surveys CRCs on the graduate employment destinations of CRC-engaged higher degree by research students (see Box 1 above). Items 4.6.1 and 4.6.2 of the MDQ survey CRCs on the number of graduates taking up employment with end-users each year. However, the item does not specify a year of graduation. A literal interpretation of these items would lead CRCs to report the number (to their knowledge) of current and former graduates taking up employment for end users. This may account for what appears to be significant error in responses to this item, as illustrated by those above 100% in Figure 1 below.

Figure 1 Error in reported proportion of doctoral graduates taking up employment with end users (internal reference only)

It should be possible to derive a statistic reflecting the proportion of graduates each year taking up employment opportunities with end users. This would be arrived at simply by dividing the number of graduates taking up employment with end-users by the total number of graduates each year. As Figure 1 above shows however using existing MDQ data reflects significant error in
the number of graduates taking up employment opportunities with industry, as in many cases this amounts to over 100% of graduates. While some improvement seems to have been supported through recent revisions to the MDQ, the primary source for this error is still likely to be CRCs reporting graduates from both current and previous years. Another possible source of error is CRCs reporting non-graduating candidates as taking up employment opportunities with end users, however this is to an extent controlled for by the clarification statement included with this item that respondents should exclude students “who did not complete their formal postgraduate qualification” (DIISR, 2011, p.26).

Items under 4.6 of the current MDQ potentially survey CRCs for useful information. However in their current form these items do not provide reliable data. One possible response would be to clarify the intent of items under 4.6 of the current MDQ to clearly refer to a subset of degree completions reported at 4.1.3 and 4.2.3.

Question 31: Should items under 4.6 of the current MDQ be revised?

- No, these items are fine as they are;
- Yes, to clearly refer to a subset of the degree completions reported at 4.1.3 and 4.2.3;
- Yes, for other reasons (outlined below).

Additional notes or comments about this question:

3.7.2 Building on good practice in evaluating graduate outcomes

The scoping study found a number of examples of good practice in evaluating and reporting graduate outcomes, including the detailed reporting of graduation and employment outcomes by the CAST CRC and the detailed exit survey conducted by CRC CARE. While there were numerous specific examples of good practice identified in the course of the scoping study, these did not appear to be evenly adopted program-wide. Given the strong level of interest in graduate outcomes evident in course of the scoping study, opportunities exist to review the extent to which common strategies and resources for evaluating graduate outcomes may be developed and shared for CRCs program wide.

Question 32: Do you support the idea of developing program-wide good practice resources for evaluating graduate outcomes?

- Yes;
- No, under no circumstances;
- Yes, but only under the conditions outlined below.

Additional notes or comments about this question:
Question 33: How do you think successful CRC graduate outcomes could best be reflected? (Please also include reference to any resources you may be aware of in this area that may be useful for other CRCs.)
4 Strategies for sustainability and opportunities for future development

4.1 Quality assurance and CRC research training program governance

CRCs support research training in partnership with university providers. CRC efforts to date have been largely focussed on offering a distinctive research training environment to supplement the ‘core’ research training activities of university providers. However, there is evidence that CRCs also have a role to play in helping to support the quality of the overall research training experience of candidates, and are often quite active in supplementing aspects that might otherwise be considered in the sphere of activity governed by the partner provider (Montagu, 2010, p.16).

The intersection of research training responsibilities between CRCs and university providers represents an area of risk. Two broad opportunities exist for CRCs to assure the quality of the research training environment they support in a more holistic and comprehensive manner. The first is to employ the same benchmarks and threshold requirements employed by university providers in research training. These would be guided by the same frameworks for good practice as used by university providers, such as that currently under development by the Australian Council Deans and Directors of Graduate Studies (DDoS).

The second opportunity would be to include a set of specific threshold requirements for research training provision as part of a formal agreement between CRCs and the university partners they engage with in supporting their research education activities. To be effective such arrangements would require CRCs only entering into research training support agreements where university providers meet or exceed a set of clearly specified requirements, with provisions to include exceptions on a case-by-case basis. In practice both opportunities are open to CRCs – in both improving and enhancing the CRC contribution to research training, and in only engaging the university partners that meet or exceed a clear set of threshold criteria for research training governance, services and support.

<table>
<thead>
<tr>
<th>Question 34: Does your CRC regularly convene an education and training committee?</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Yes;</td>
</tr>
<tr>
<td>□ No, but maybe we should;</td>
</tr>
<tr>
<td>□ No, that’s among the university partners’ responsibilities.</td>
</tr>
</tbody>
</table>

Additional notes or comments about this question:

<table>
<thead>
<tr>
<th>Question 35: Do you support the idea of developing network-wide good practice guidelines?</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Yes;</td>
</tr>
<tr>
<td>□ No, under no circumstances;</td>
</tr>
<tr>
<td>□ Yes, but only under the conditions outlined below.</td>
</tr>
</tbody>
</table>
4.2 Developing and sharing information and resources

Improved means of sharing information and resources were identified as a priority by CRC education managers in workshops conducted for the scoping study. Areas where scope for improvement was identified was in the program-wide data collected and reported for CRCs, and in the development and sharing of resources for good practice, potentially through the CRCA website.
4.2.1 Data for CRC candidate characteristics

Table 2 Possible Higher Education Student Data Collection Elements for use by CRCs

<table>
<thead>
<tr>
<th>Element No.</th>
<th>Element Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>306</td>
<td>Higher Education Provider code</td>
</tr>
<tr>
<td>310</td>
<td>Course of study type code</td>
</tr>
<tr>
<td>314</td>
<td>Date of birth</td>
</tr>
<tr>
<td>315</td>
<td>Gender code</td>
</tr>
<tr>
<td>328</td>
<td>Course commencement date</td>
</tr>
<tr>
<td>330</td>
<td>Type of attendance code</td>
</tr>
<tr>
<td>339</td>
<td>Equivalent full-time student unit load</td>
</tr>
<tr>
<td>358</td>
<td>Citizen/resident indicator</td>
</tr>
<tr>
<td>461</td>
<td>Field of education code</td>
</tr>
<tr>
<td>487</td>
<td>Scholarship type code</td>
</tr>
<tr>
<td>493</td>
<td>Highest educational attainment prior to commencement</td>
</tr>
</tbody>
</table>

Source: Higher Education Data Collection Element Dictionary (DEEWR, 2011)

Opportunities exist to provide a clearer picture of the characteristics of CRC-engaged research candidates through more systematic means. Most CRCs would already have access to the basic enrolment characteristics for the research candidates they engage, however there is currently no structured means of compiling and reporting this information program-wide.

One way of supporting both availability and consistency in student data collected and reported for CRC-engaged research candidates would be for CRCs to adopt the same data elements used by university providers. A list of possible data elements is included in Table 2 above as a starting point for considering the student characteristic data which could be collected for CRC-engaged research candidates. Information for these elements could be collected and compiled by CRCs directly, or requested from university partners on a regular basis. As with any data collection and reporting exercise, the benefits of collecting and reporting additional student data would need to be weighed against the costs.

**Question 39:** Of the following data elements, which do you regularly maintain for each of the research candidates engaged with your CRC?

- [ ] Age (year)
- [ ] Sex
- [ ] Field of research
- [ ] Indigenous status
- [ ] Enrolment status
- [ ] Cumulative enrolment (FTE)
- [ ] Estimated FTE to degree completion
- [ ] Disability status
- [ ] Domestic or international status

Additional notes or comments about this question:
**Question 40:** Which items do you think should be collected and reported for CRC research candidates program-wide?

**Question 41:** How should records for the items indicated above be managed:
- □ Compiled by individual CRCs;
- □ Requested from university partners;
- □ Both.

Additional notes or comments about this question:

**Question 42:** What other changes (if any) would you recommend to the existing MDQ?

Additional notes or comments about this question:

**Question 43:** If all CRCs were to collect and report additional information, would you recommend this process form part of an amended MDQ, or form part of a separate or parallel process?
- □ This should be managed through an amended MDQ;
- □ This should be managed through a separate process;
- □ CRCs should not get involved in reporting any new additional information.

Additional notes or comments about this question:

**Question 44:** Would you support adopting a voluntary set of CRC-wide data protocols for collecting, selectively sharing and reporting student enrolment information?
- □ Yes;
- □ No, under no circumstances;
- □ Yes, but only under the conditions outlined below.
4.2.2 Benchmarking and ‘good practice’ resources for member CRCs

Another area identified as a priority by CRC education managers in workshops conducted for the scoping study was in the development and sharing of resources for good practice, potentially through the CRCA website. It was noted that while there was scope to review the information collected as part of the annual reporting process, that there were also opportunities to improve on the information available through benchmarking activities, where these might also serve to highlight useful examples of good practice.

Outcomes from benchmarking activities should ideally form part of a ‘living document’ or online resource available for member CRCs. There may also be opportunities for developing a broader range of ‘good practice’ resources, ideally available to member CRCs through the CRCA website.

Question 45: Do you support the idea of developing good practice resources available to CRCA members?

- ☐ Yes;
- ☐ No, under no circumstances;
- ☐ Yes, but only under the conditions outlined below.

Question 46: Are there any examples of strategies, policies, procedures or frameworks for supporting your research education activities you are able to recommend or that you would like to share? (please include urls below or post information you would like to share direct to the CRCA website).

Question 47: Are there any datasets you are able to share?

CRCs typically publicly report detailed information on their candidates each year as part of their usual annual reporting. It would be of great assistance to the CRCA and to other CRCs if you were able to forward this information along, even if you are not able to respond to the discussion questions listed here.
5 Invitation to respond to the discussion paper [template]

The purpose of this discussion paper is to invite input and feedback on issues identified in the course of the scoping study conducted in 2012. A final report and draft development framework will be available [date], with the aim of supporting improvement in defining, measuring and sharing resources for the research training activities of CRCs. All interested stakeholders are invited to respond.

Responding to the discussion paper:

Input and feedback is invited in response to this discussion paper, at

[Email address]

The closing date for responses is [date].

If you have additional input or feedback, or have questions about this discussion paper, please contact [Name] at [email], or [telephone].

Responses will be posted to the CRCA website. Please indicate if you would like for your response to the Discussion Paper to remain confidential.
References


