

cADRE

Community of Associate Deans Research in Education

Australian Educational Research Funding Trends Report

A National Stocktake and Review of Category 1 Funding in Education

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS	2
EXECUTIVE SUMMARY	5
INTRODUCTION	7
<i>PROJECT BACKGROUND AND AIMS</i>	7
<i>ONGOING CHANGES IN EDUCATIONAL RESEARCH IN AUSTRALIA</i>	8
<i>ONGOING CHANGES IN RESEARCH FUNDING IN THE AUSTRALIAN RESEARCH ENVIRONMENT</i>	10
METHODOLOGY	13
<i>OVERVIEW</i>	13
<i>LIMITATIONS</i>	15
RESULTS	17
PART 1: <i>WHAT FUNDING IS BEING PROVIDED?</i>	18
<i>PART 1 KEY FINDINGS</i>	25
PART 2: <i>WHAT FoR (FIELD OF RESEARCH) CODES HAVE BEEN MOST SUCCESSFUL?</i>	27
<i>PART 2 KEY FINDINGS</i>	33
PART 3: <i>COMMON THEMES AND GAPS IN RESEARCH AREAS. WHAT RESEARCH IS BEING DEEMED AS MOST SIGNIFICANT BY THE FUNDING BODIES?</i>	35
<i>PART 3 KEY FINDINGS</i>	39
PART 4: <i>HOW MANY HAVE CHIEF INVESTIGATORS/PARTNER INVESTIGATORS ACROSS INSTITUTIONS AND ARE INTERNATIONAL?</i>	40
<i>PART 4 KEY FINDINGS</i>	49
RECOMMENDATIONS	51
CONCLUSION	53
REFERENCES	54
APPENDIX ONE: ORIGINAL PROJECT PROPOSAL	56
APPENDIX TWO: EDUCATION OR EDUCATION RELATED FIELDS OF RESEARCH (FoR)	58
<i>CURRENT ABS FIELDS OF RESEARCH (2008-CURRENT)</i>	58
<i>FORMER FIELDS OF RESEARCH IN EDUCATION (1998-2007)</i>	59

APPENDIX THREE: ALL SIX DIGIT CODES REPORTED IN SUCCESSFUL ARC FUNDED PROJECTS AND FELLOWSHIPS..... 61

EXECUTIVE SUMMARY

This report presents a stocktake and review of Category 1 grants¹ in educational research in Australia from 2009-2017. The focus of the review centred on the Field of Research (FoR) codes, which are most successful in terms of securing Category 1 grants in educational research, the amount of funding provided, common themes and gaps and the extent of transdisciplinary and collaborative research in education.

The stocktake and review revealed the following significant findings:

- The Australian Research Council is the principal funding source for Category 1 educational research projects in Australia;
- 130313 (Teacher Education and Professional Development of Educators) is the most successful Field of Research code at the six-digit level and 1303 (Specialist Studies in Education) at the four-digit level. However there has been a downward trend since 2015 in success (in obtaining Category 1 funding) across all education and closely related education Fields of Research codes;
- The Group of Eight (Go8) Universities are the dominant administering universities of Category 1 funding in educational research. The Regional Universities Network has performed particularly poorly revealing a substantial gap between metropolitan and regional universities;
- Connections with Australia's national research and science priorities and global megatrends are weak, identifying a significant gap in educational research in Australia;
- There is a significant correlation between an academic's gender (as the lead chief investigator or project leader) and their university grouping in obtaining Category 1 funding in education. Male academics at Go8 universities have the most success, whereas women who either work at Go8 universities or have no university grouping are less successful in obtaining and leading Category 1 grants. Again this signals a significant metropolitan-regional divide; and
- Nearly one third of all projects had no partners, which, given the new emphasis on university and industry focused research, is a concern for educational research in Australia. The results revealed the Victorian Department of Education and Training as the leading non-university partner across all projects, demonstrating a significant commitment of the Victorian Government towards educational research in Australia.

¹ Excluding Category 1 research funding grants awarded by the National Centre for Vocational Education Research (NCVER). These data were not accessible at the time of preparing this report. A separate data collection and analysis for the National Vocational Education and Training Research (NVETR) program is being undertaken by the ACDE.

The following five key recommendations are made:

Recommendation 1: Increase links between regional and metropolitan institutions through Category 1 university partnerships and linkages in educational research;

Recommendation 2: The Australian Council of Deans of Education (ACDE), the Australian Association for Research in Education (AARE) and the Australian Research Council (ARC) support cADRE in continuing research so that the sector can be kept abreast of educational research trends in Australia. Extensions of this research must include a review of University-based investment into educational research (given the findings of the Watt review) in addition to research focussed on the relationship between the allocation of research funding and quality and impact of research in Education;

Recommendation 3: The educational research sector engages more explicitly with Australia's national science and research priorities and the CSIRO's megatrends through transdisciplinary approaches to research. Such approaches require collaboration outside of the education sector banding with researchers in working towards these priorities in the context of the world's educational, social, ecological, cultural, technological and economic megatrends.

Recommendation 4: The ACDE, cADRE and AARE provide direct support and professional learning to academics working at non-Go8 universities in writing, winning and leading Category 1 grants. It is proposed that in the best interests of educational research in Australia, ARC panel members/reviewers, successful Category 1 grant winners and Associate Deans, Research in Go8 and non-G08 universities provide professional learning and mentoring across the sector to reduce both the gender and geographical (metropolitan/regional) inequities; and

Recommendation 5: Build a stronger university-government-industry research culture through systematic and industry-focused initiatives working with proven industry partners, such as the Victorian Department of Education and Training. This needs to be a highly collaborative exchange between governments and universities in particular.

In short, Category 1 funding is the highest level of funding in the Australian educational research environment and the competition for such funding is fierce amongst researchers. Within such a culture of increasing research performance measures and metrics, competition is encouraged, rather than collaboration. However, it is collaboration that is most likely to make educational researchers more competitive in the broader Australian research environment. In that sense and as identified in this report there are systemic and cultural issues within the educational research sector itself, which can only be addressed by the sector for the sector.

INTRODUCTION

Project Background and Aims

There have been numerous reviews of education, but it is still difficult to establish what is being funded in Educational Research at the national level in Australia (House of Representatives Standing Committee on Education and Vocational Training, 2007, p. V; Ingvarson et al., 2014; Teacher Education Ministerial Advisory Group, 2015). In 2010 Cumming undertook a review of the Academic and Research Workforce in Education on behalf of the Australian Council of Deans of Education. He concluded that:

Given the size and importance of the Education sector, there is an urgent need for genuine rethinking with regard not only to the focus, funding and conduct of research, but also to the training and development of its researchers and academics (p.2).

Cumming (2010) further recommended:

Work to collaboratively construct a national large-scale, long-term research agenda in Education to address critical issues identified by key stakeholders as current and emerging (e.g. in the context of more direct links between innovation, research, learning and capability). ACDE believes that the implementation of this national agenda should be driven by evidence-based approaches where specific problems and strategies for their resolution are clearly articulated. Entrenched cultures and endemic problems in education require sustained funding and research to eradicate. For example, the Future Fellowships scheme could establish a quota of workforce members to support a strategic national agenda for research in education (p.17).

While existing reviews and the works of Cumming (2010) have identified a lack of research funding in education, there have not been any actual empirical investigations. In view of this, the cADRE Steering Group sought support from the ACDE to fund a stocktake and review of Category 1 grants² in education (see Appendix 1: Project Proposal). The resulting data have subsequently been used to extrapolate the following information:

- What funding is being provided?

² Category 1 consists only of those research schemes/program listed on the Australian Competitive Grants Register (ACGR). Category 2 is other public sector research income. Category 3 is industry and other research income. Category 4 is Cooperative Research Centre (CRC) Research Income. Category 5 is University or internal research income/funding.

- What Field of Research (FoR) codes have been most successful in terms of attracting Category 1 grant funding? *Are there any links between funding and the quality of research?*³
- Common themes and gaps in research areas. What research is being deemed as most significant by the funding bodies?
- How many have Chief Investigators or Partner Investigators (CI/PI) across institutions and are international? This might provide information about the nature of collaborative research.

The intent of this report is to describe the present field, to build educational research capacity on a national level and to identify potential collaborative research opportunities. The key outcome of the project is this report, in addition to the associated database and data sets that are publicly available via the ACDE website.

Ongoing changes in educational research in Australia

This report takes place in a context of deliberation on educational research in Australia, itself caught in wider and deeper changes in research funding nationally and internationally.

In 2010 and 2012, the ARC made public two assessments (Excellence in Research Australia, ERA) of higher education institutions in Australia, in which educational research in Australia was rated poorly. It received an average rating across all universities of 2.2 in 2010 and of 2.4 in 2012⁴, both of which are considered below world standard. In light of this, significant efforts were undertaken to better understand the disciplinary boundaries, strengths and limitations of educational research in order to improve the practices and future ERA assessments (Bennett et al., 2013).

In particular, the AARE and the ACDE designed a joint project that mapped educational research in Australia, the results of which were published in a special Issue of the Australian Educational Researcher (Harrison & Seddon, 2013). This special Issue was especially informative for this research project in providing important historical background.

Goodyear (2013, p. 416) recalled that the poor performance of education in the 2010 ERA assessment was *“disappointing but not surprising”* and provided an insight on the reasons behind this:

It is impossible to avoid the diagnosis that much of the educational research that appears in the ERA is carried out by people who have some of the worst teaching loads and lowest

³ Please note that the second question is not answered in this report. Rather it is intended that it will be investigated in a subsequent project.

⁴ERA 2015 is yet to be incorporated into this analysis. However, an analysis of ERA 2015 data by Cutter-Mackenzie and Renouf reveals that the average ERA scores are **2.92** and **2.81** at the two and four-digit levels respectively. This is a marked increase from 2010 and 2012, although still below world standard.

levels of research funding in the whole of Australian academia, and that (for good or ill) up to a third of them do not work in schools or faculties of education (Goodyear, 2013, p. 416).

An important aspect of the joint AARE-ACDE project was to provide a topography of educational researchers in Australia to better understand who they are, where they work and under what conditions. A survey by Bennett et al. (2013) involving 504 respondents identifying as researching in the field of education, provided the first comprehensive stocktake⁵ of Australia's "educational researchers", defined as respondents located within Faculties or Schools of Education (in universities) submitting outputs in both the Field of Research (FoR) 1300 Education codes and in FoR codes outside of Education. In the survey, Bennett et al. (2013) distinguished between "core educational researchers" and "peripheral educational researchers" and highlighted their differences as well as their challenges. Among other findings that are directly relevant to this report, they found that *"two-thirds of the educational research workforce (...) is female"* (p. 480); that *"the respondents working in an [Education Organisational Unit, School or Faculty] were less likely to be at a senior level than the 'peripheral' respondents"* (p.480); that around three-quarters of the respondents were aged 46 and above (p.480); that respondents demonstrated a *"strong commitment to educational research"* (p.480); and that *"the vast majority (90.3%) when asked to identify their main research interest nominated an education-related topic"* (p.481). Additionally, Bennett et al. (2013) analysed the support and barriers encountered by educational researchers and found that, among other challenges, respondents had difficulty accessing grants (in education), outside studies programs, funding to support academic visitors, as well as paid study leave/sabbaticals (p.485-486). Also, 18.6% said they had no access to "preparing funding proposals" (p.486). Such existing trends will be further considered later in this report when reviewing what is being funded in educational research at the national level in Australia.

Furthermore, Bobis et al. (2013) provided a secondary analysis of ERA data, focusing on the data submitted by 13 universities. Citing Harrison and Seddon (2013, p.407), the analysis *"reveals shifts in research outputs, employment profiles and the location of researchers across universities and regions"*. They found for instance, that:

... a little over half (54.8 %) of the research outputs submitted to FoR Education for ERA 2010 were produced in Education [academic organisational unit, (AOUs)]. However, this increased by 4.5% points to 59.3% of outputs for the ERA 2012 submission with an accompanying decrease in the percentage contribution from non-Education AOU's (p.459).

Bobis et al. (2013) noted *"a significant share of FoR Education outputs in both assessment exercises came from non-Education AOU's"* (p.460); that *"the majority of the research only academics are Level A and B, suggesting a profile that reflects early career research or post-*

⁵ It is important to note that Bennett et al. (2013) recognised data skewness towards tenured academics and those employed at the Associate Professor and Professor levels.

doctorate appointments” (p.462); and that “[t]here is also a slight increase from 2010 to 2012 in the number of Professorial research appointments” (p.463).

Bobis et al. (2013) also examined FoRs and the types of outputs produced in Education AOU and concluded that:

Education AOU (...) submitted outputs for assessment across all twenty-two 2-digit FoR codes in both assessment exercises. For ERA 2010, 81.9% of outputs were submitted to FoR Education, increasing to 84.4 % for ERA 2012. [T]his means that approximately 18% of outputs submitted by Education AOU in ERA 2010 and 16% in ERA 2012 contributed to fields of research outside of FoR 13-Education. (...) The remaining share of outputs produced by Education AOU was distributed primarily to four other 2-digit codes: FoR 11 Medical and Health Sciences (3.1% increasing to 3.5%); FoR 16 Studies in Human Society (3.2% decreasing to 2.3%); FoR 20 Language, Communication Culture (2.5% decreasing to 1.8%); with the greatest increase occurring in FoR 17 Psychology and Cognitive Sciences, moving from 1.6% to 2.2% for ERA 2010 and ERA 2012 respectively (p. 467-468).

Noting the many changes that have occurred in the Australian educational research environment, Harrison et al. (2013) aptly surmise “*there has been a shift in research outputs away from the traditional area of school education*” and, concerned with the increasing competitiveness, the decreasing ‘think-time’ and the over-burdening culture of accountability, they encourage academics in education to “actively engage in a community of research” (p.505). Later in this report we further consider such findings in correlation with collaboration trends in Category 1 funding.

Ongoing changes in research funding in the Australian research environment

A significant change occurred with the former Abbott Government’s release of the strategy *Boosting the Commercial Returns from Research* on 26 May 2015. The explicitly named strategy proposed several different initiatives that included new science and research priorities⁶, a more accessible research block grant arrangement, incentives to promote collaboration between publicly funded research and industry including research assessment, and a plan to better recognise industry-relevant expertise or research in the allocation of competitive grants through the ARC (Department of Education & Department of Industry, 2014).

Soon after the publication of the strategy, Dr Ian Watt, former Secretary of the Department of Prime Minister and Cabinet, was commissioned to conduct a review of research policy and funding arrangements. In line with the aforementioned strategy, the review was given the task

⁶ Australia’s national ‘Science and Research Priorities’ are: Food; Soil and Water; Transport; Cybersecurity; Energy; Resources; Advanced Manufacturing; Environmental Change; and Health (Australian Government, 2017).

of developing recommendations to strengthen Australia's research system and encourage greater collaboration between universities and business with the aim of transforming high quality research into economic and social benefits. The review led to the publication of the *Report of the Review of Research Policy and Funding Arrangements* (the Watt Review) in November 2015. In the background of the Watt Review, it was revealed that:

Australia's research output ranks in the top ten OECD countries, as assessed by most quality measures. Australia also received the tenth highest ranking for research and development (R&D), among 141 countries, in the Global Innovation Index 2015 Country Rankings, and Excellence in Research for Australia (ERA) assessments have confirmed that significant numbers of universities are producing research rated at world standard or higher across many, if not most, fields of research (Watt, 2015, p. 1).

While research outputs are reportedly high, *"Australia's expenditure on research and development is not particularly high by comparable country standards, and was equal to 2.12 percent of GDP in 2013-14, up from 1.73 percent in 2004-05"* (Watt, 2015, p. 1). To those ends, the Watt Review reported that university research is supported by two major funding sources, namely:

- Australian Government research funding delivered through the dual funding system of competitive grants and RBG; and
- University funding, involving funding from a variety of income sources such as student fees, contracts and consultancies, investment income and philanthropy (Watt, 2015, p. 10).

Of those funding sources *"universities spent \$9.6 billion on research [2012 data]. ACG [Australian Competitive Grant] funded 17 percent of that expenditure and research block funding around 15 percent"* (Watt, 2015, p. 16). Notwithstanding, the Watt Review made 28 recommendations. The current Liberal government has endorsed all recommendations (Senator the Hon Simon Birmingham, May 2016). The most significant recommendations were concerned with research block funding, research training and competitive grant funding.

With respect to research block funding an important change is the removal of publications in counting towards a University's block grant. It will be based upon:

- (a) 50 percent based on Category 1 research income to support the indirect costs of Australian competitive grants; and
- (b) 50 percent based on Category 2-4 research income to support business and other research end user engagement (Watt, 2015, p. V).

According to Carr (2015, p.1), the opposition spokesman for innovation, industry, science and research, this change is consistent with the commercial ideology of the liberal government which *“renders invisible most of the successful and critical research that takes place”*.

This perception is further evidenced through the recommendation of the removal of Higher Degree by Research (HDR) student load from the research training funding scheme. Rather it will be based upon: 50 percent student completions; and 50 percent Category 1-4 research income, with equal weighting to be given to Category 1 income and Category 2-4 income.

Other changes include a continuous ARC Linkage scheme, business incentives, introduction of an impact and engagement assessment framework (with an implicit impact on future research funding) and the development of initiatives to influence global ranking systems to integrate innovation and industry engagement measures into their rankings (Watt, 2015). However, the Watt review has received some criticism. The National Tertiary Education Union (NTEU) raised concerns about a significant turn from ‘discovery’ or ‘pure’ research (MacDonald, 2015).

With these ongoing changes in mind, this review aspires to contribute to our collective understanding of educational research funding trends in Australia.

METHODOLOGY

Overview

This stocktake initially set out to research all Category 1 grants relevant to education, but given the lack of available data⁷, has specifically focused on the ARC Grants and Fellowships and the Office of Learning and Teaching (OLT) Grants. The data for the period 2009 – 2017 were collected directly from publicly available data via the ARC (arc.gov.au) and OLT (olt.gov.au) websites. It is important to note that only partial data were available for 2017 as it pertains to the ARC. The OLT funding schemes also ceased at the end of 2016. 2016 OLT data were not included as it was not available on the public OLT Grants search engine.

All funding schemes were considered across the ARC and OLT as identified in Table 1. There were 20 ARC funding schemes and 8 OLT schemes.

Table 1: ARC and OLT funding schemes

Funding Schemes
ARC Centre of Excellence
ARC Future Fellowship
Australian Laureate Fellowship
Discovery Early Career Researcher Award (DECRA)
Discovery Indigenous
Discovery Indigenous Development
Discovery Projects
Federation Fellowships
Industrial Transformation Research Hubs
Industrial Transformation Training Centre
Learned Academies Special Projects
Linkage CSIRO

⁷ The Australian Competitive Grants register (ACGR, see <https://docs.education.gov.au/node/40546>) was thoroughly searched to attempt to capture publicly available funding outcome data with an education focus. Only two of the funding schemes listed on the ACGR publicly identified funding outcomes, namely the *National Health and Medical Research Council* and the *NSW Environmental Trust (Research Scheme Only)*. However while both funding providers have publicly released funding outcome data, no grants have been awarded in education as a field of research between 2013-2016 (data period publicly available) for the NHMRC or the NSW Environmental Trust Research scheme (2009-2016). It is important to note though that the NSW Environment Trust scheme does have education and community grants which are classified as Category 2 funding. It is also important to note that while the ACGR lists a number of funding schemes where educational researchers can apply (*e.g., the Victorian Department of Education and Training – Research and Evaluation Partnerships, the National Centre for Vocational Education Research or the Bupa Health Foundation - Research Component Only*) funding outcomes are not made publicly available. This therefore is a limitation of this report. An extension of this project could be to work with those particular funding providers in obtaining non-public data. However, the latter is beyond the scope of this report.

Linkage Infrastructure, Equipment and Facilities
Linkage International
Linkage Projects
Linkage Projects (APAI Only)
Research Networks
Special Research Initiative
Super Science Fellowships
ARC Thinking Systems
OLT Innovation & Development and Seed Grants
OLT Innovation & Development Grants
OLT Strategic Commissioned Projects
OLT Priority Projects
OLT Extension Grants
OLT Fellowship Grants
OLT Leadership for Excellence Grants
OLT Special Initiative Reserve

With respect to the ARC, Education Category 1 grants were identified by their Field of Research (FoR) codes⁸. Current education FoR codes were identified as 13 (Education), 1301 (Education Systems), 1302 (Curriculum & Pedagogy), 1303 (Specialist Studies in Education), 1399 (Other Education), 1605 (Policy and Administration) and 1608 (Sociology). Former FoR codes (1998-2007) were also searched, namely 330000 (Education), 330100 (Education Studies), 330200 (Curriculum Studies), 330300 (Professional Development for Teachers) and 339900 (Other Education).⁹ All of these FoR codes also contain six digit codes which can be referred to in Appendix 2.

With regards to the OLT, education focused grants were identified through discipline filters as developed by the OLT. These were: Education – Curriculum and Education Studies; Education – Teacher Education; and Education – Other Education. The OLT developed 19 discipline categories (see Table 2).

⁸ For the Australian Bureau of Statistics (ABS) ‘Australian and New Zealand Standard Research Classification’ (ANZSRC) Field of Research codes refer to:

<http://www.abs.gov.au/ausstats/abs@.nsf/0/6BB427AB9696C225CA2574180004463E?opendocument>.

⁹ Note 330000 (Education) is the broad ‘Education’ ABS ‘Australian Standard Research Classification’ code (1998-2007). See <http://www.abs.gov.au/ausstats/abs@.nsf/0/5486D247F80EF701CA25697E0018FC6C?opendocument>.

Table 2: OLT Disciplines

OLT Disciplines
Not disciplinary based
Education - Teacher Education
Health - Other Health
Engineering and Related Technologies - Other Engineering and Related Technologies
Architecture and Building - Architecture and Urban Environment
Education - Other Education
Health - Nursing
Natural and Physical Sciences - Biological Sciences
Management and Commerce - Business and Management
Natural and Physical Sciences - Mathematical Sciences
Health - Rehabilitation Therapies
Education - Curriculum and Education Studies
Health - Medical Studies
Society and Culture - Behavioural Science
Natural and Physical Sciences - Physics and Astronomy
Society and Culture - Human Welfare Studies and Services
Society and Culture - Studies in Human Society
Natural and Physical Sciences - Other Natural and Physical Sciences
Society and Culture - Law

Cutter-Mackenzie at Southern Cross University had undertaken a smaller project mapping Category 1 funding in Education. This provided the groundwork for this particular project with respect to the data parameters of the study. A database was initially established in Excel (akin to what SCU had done). This database¹⁰ was then transferred to SPSS (Version 23) consisting of 65 variables and 479 data entries. A statistical analysis was then undertaken in SPSS using univariate and bivariate statistical analysis techniques providing a comprehensive overview of the current national trends in educational research Category 1 funding.

No ethics clearance was required for this project given the data are publicly available and were collected via the ARC, OLT and the Australian Grants Register websites.

Limitations

The implications of this research are limited by a number of factors. The publicly available data only report on approved grant applications. The ARC provides broad information pertaining to the success rate for all schemes, requested and approved funds, approved projects by research priority areas, approved projects by States and Territories, approved projects by administering

¹⁰ The full SPSS dataset accompanies this report. A basic dataset is also provided in Microsoft Excel.

organisations, and approved projects by Field of Research. However, no data are provided pertaining to the specifics of unsuccessful applications. As such, the data are partial on the wider grant applicant population – *the denominator*. As a result, this research may indicate, for instance, which university is the most successful in obtaining funding, but such findings would apply only to the projects *that have been granted funding*. Indeed, a university which has received four grants in the FoR code 1302 over the 2009-2017 period might actually be more successful than a university which has received eight grants in the FoR code 1302, depending on the total number of projects submitted in 1302. Perhaps the former university received four grants out of four applications in 1302, while the former university received eight grants out of thirty applications – making the latter less effective in obtaining funding. As such, in the absence of a denominator data inferences are limited.

A noteworthy limitation of OLT data is that some schemes were categorised as Category 2 (public sector research income). This was the case with the ‘Maths and Science Teacher Training’ funding scheme, which the OLT administered. Therefore, these projects were not included in this project. The funding dedicated to this scheme was \$12 million therein reducing the overall number of OLT projects reported in this study.

A further implication of the absence of data regarding unsuccessful applications is that valid statistical *predictions* cannot be made with the available data. Indeed, if all of the applications were available, *including the unsuccessful applications*, then the research could, for instance, provide advanced projections about future funding in educational research.

As a result of these limitations, and while this report does provide valuable insights on Category 1 grants in research income in educational research, it represents only a ‘stocktake’, a ‘snapshot’ in time.

RESULTS

As will be recalled, the focus of this research was to provide a stocktake and review of Category 1 grants in education. The results are organised by the four primary focus areas identified in the original proposal brief, which are:

- Part 1: What funding is being provided?
- Part 2: What FoR codes have been most successful in terms of attracting Category 1 grant funding? *Are there any links between funding and the quality of research?*
- Part 3: Common themes and gaps in research areas. What research is being deemed as most significant by the funding bodies?
- Part 4: How many have Chief Investigators or Partner Investigators across institutions and are international? This might provide information about the nature of collaborative research.

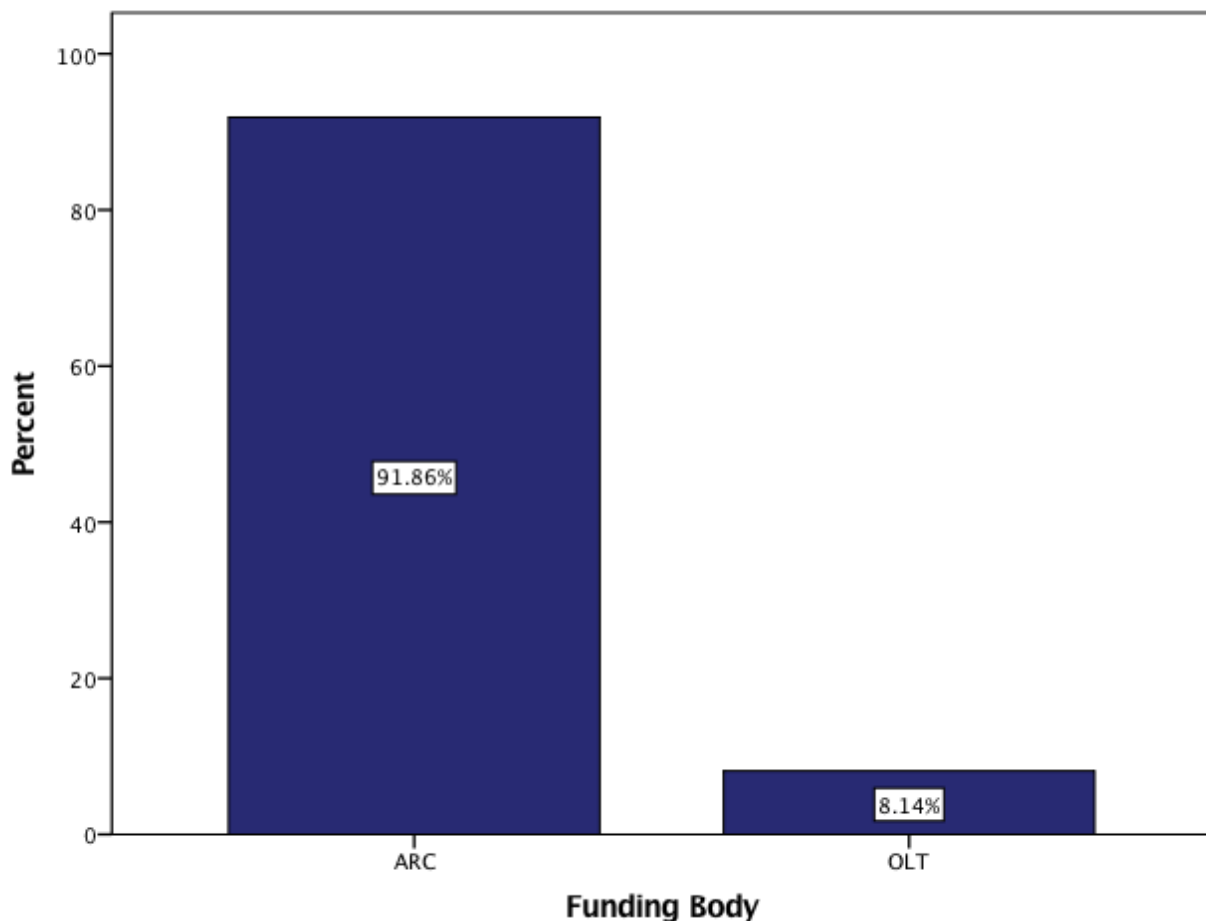
The analysis extended beyond the original brief and also reports on Category 1 funding trends across university groupings and demographics, which is reported across the data presentation sections.

PART 1: WHAT FUNDING IS BEING PROVIDED?

Australian Research Council and Office of Learning and Teaching Successful Category 1 Funding

Over the past nine years (2009-2017) 479 Category 1 grants in educational research and scholarship have been funded. As shown in Figure 1, 440 (91.86%, 2009-2017) were funded by the ARC and 39 (8.14%, 2009-2015) were funded by the OLT.

Figure 1: All funded projects by the ARC (2009-2017) and OLT (2009-2015) in educational research



The ARC scheme that has funded the most projects and fellowships is the Discovery Project program, equating to 198 (41.3%) Discovery Projects out of 440 ARC funded projects (see Figure 2). This is particularly significant in light of the recent Watt Review (2015) recommending a clear move away from pure or basic research. Notwithstanding, the Linkage Projects scheme was the second highest funding program (35.70%, n=171), followed by the Discovery Early Career

Researcher Award (DECRA) (6.1%, n=29) and Future Fellowship scheme (3.3%, n=16). The OLT schemes were relatively insignificant in comparison, with the OLT Innovation and Development Grant scheme (2.9%, n=14) receiving the highest number of successful grants in education.

Figure 2: Educational Research and Scholarship funded by the ARC (2009-2017) and OLT (2009-2015) Funding Schemes

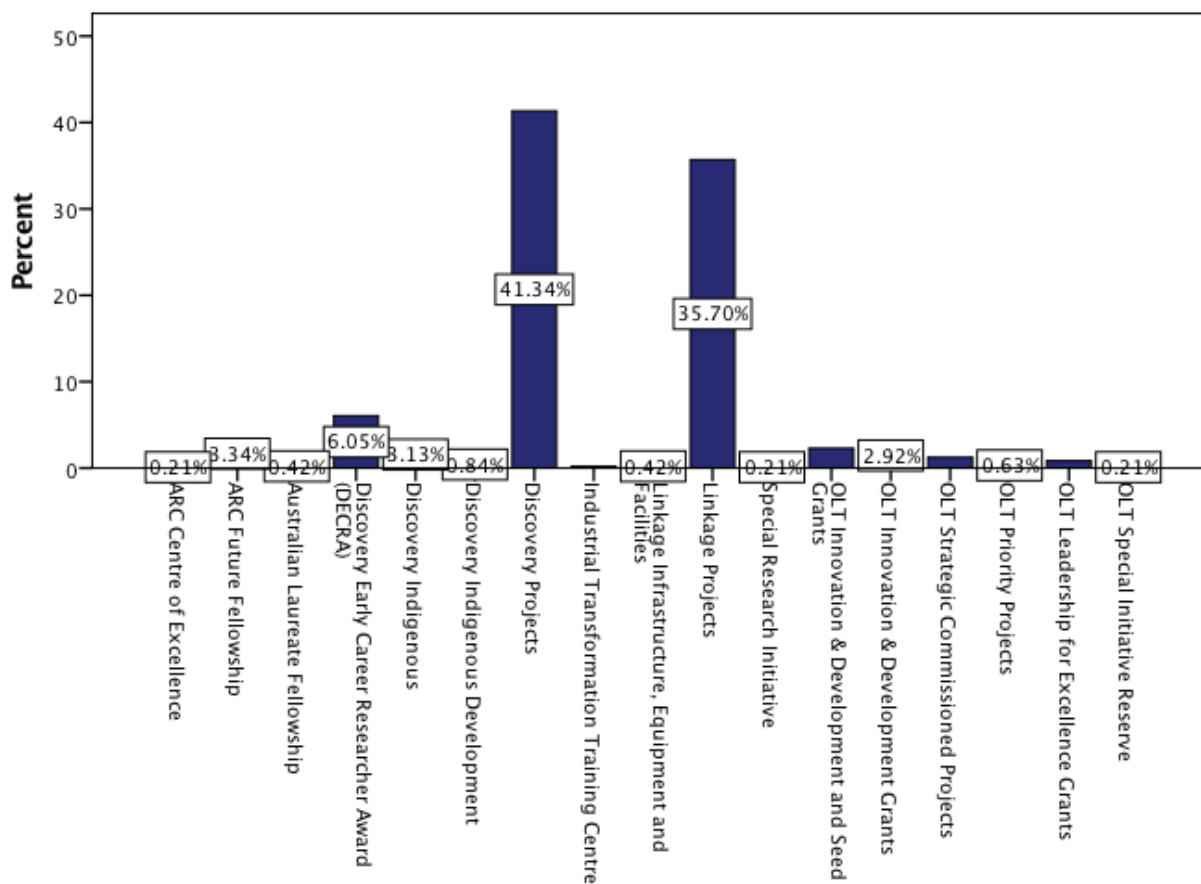


Table 3 provides a further breakdown across all funding schemes. It is to be noted that the number of projects funded by the ARC Discovery, Linkage Projects and Future Fellowship schemes have gradually decreased over time. From 2009-2014 63.1 projects were funded annually across all schemes. Of particular significance is that this decreased to 32.6 funded projects between 2015-2017. With the exception of 2017 (given not all funding outcomes are reported for 2017), 2016 recorded the lowest number of funded Category 1 projects with only 35 projects and fellowships funded in total in educational research. This average takes into account that OLT 2016 grant outcomes were not available. Nonetheless, this national trend confirms anecdotal observations of a decreased in Category 1 funding in education across

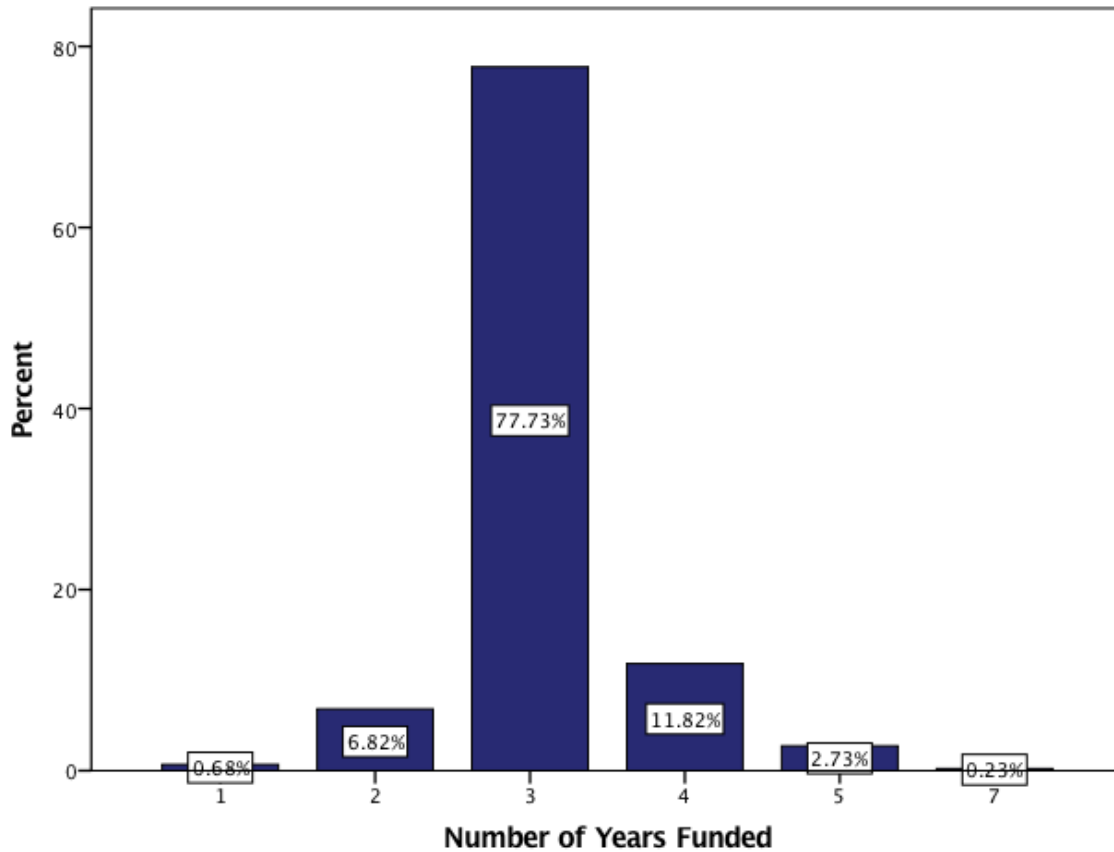
Australia.

Table 3: Funding by year across schemes

Funding Scheme	Funding Commencement Year									Total
	2009	2010	2011	2012	2013	2014	2015	2016	2017	
ARC Centre of Excellence	0	0	0	0	0	1	0	0	0	1
ARC Future Fellowship	2	3	5	1	1	4	0	0	0	16
Australian Laureate Fellowship	0	2	0	0	0	0	0	0	0	2
Discovery Early Career Researcher Award (DECRA)	0	0	0	6	2	7	4	5	5	29
Discovery Indigenous	0	0	0	3	2	1	5	3	1	15
Discovery Indigenous Development	1	1	2	0	0	0	0	0	0	4
Discovery Projects	32	24	31	16	21	22	20	16	16	198
Industrial Transformation Training Centre	0	0	0	0	0	1	0	0	0	1
Linkage Infrastructure, Equipment and Facilities	0	0	1	0	1	0	0	0	0	2
Linkage Projects	25	34	32	20	22	16	11	11	0	171
Special Research Initiative	0	0	0	1	0	0	0	0	0	1
OLT Innovation & Development and Seed Grants	0	0	0	2	6	2	1	0	0	11
OLT Innovation & Development Grants	0	0	2	2	7	3	0	0	0	14
OLT Strategic Commissioned Projects	0	1	0	3	1	1	0	0	0	6
OLT Priority Projects	1	2	0	0	0	0	0	0	0	3
OLT Leadership for Excellence Grants	0	0	3	1	0	0	0	0	0	4
OLT Special Initiative Reserve	0	0	1	0	0	0	0	0	0	1
Total	61	67	77	55	63	58	41	35	22	479

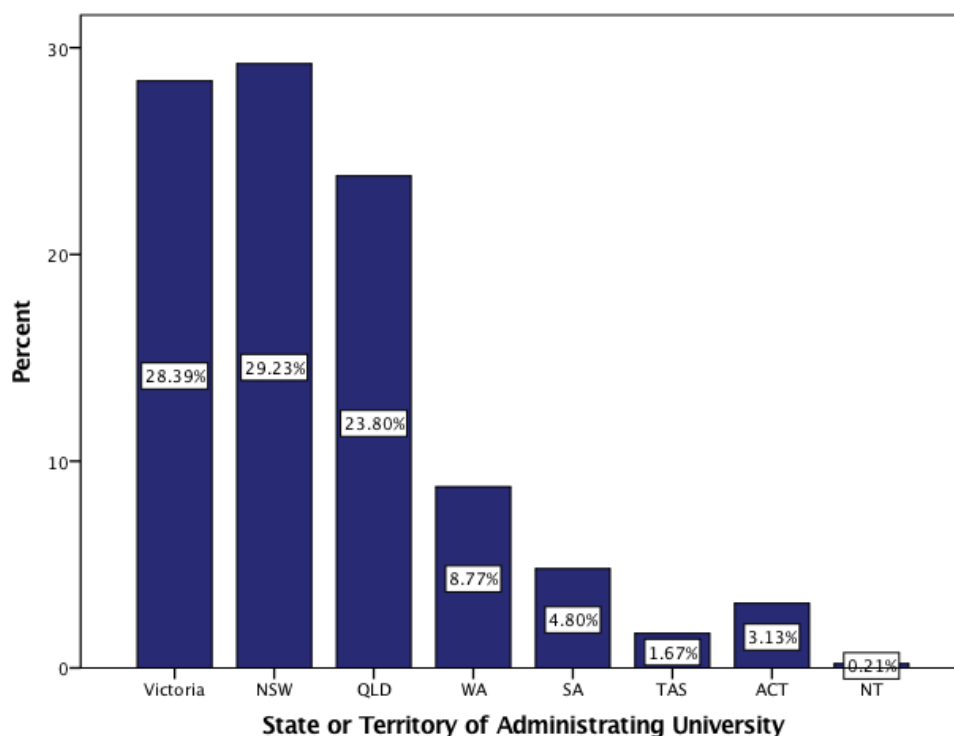
The total number of years of funding was also analysed with projects or fellowships ranging from 1-7 years in duration. The mean number of years funded was 3.10 (77.73%, n=342) (see Figure 3).

Figure 3: Number of Years of Funding (2009-2017)



The administration of projects was granted across all Australian states and territories with New South Wales (29.2%, n=140) receiving the highest number of projects (by administering universities) followed by Victoria (28.4%, n=136) and then Queensland (23.8%, n=114). The Northern Territory on the other hand has only received 0.2% (n=1) of projects to administer (see Figure 4).

Figure 4: State or Territory of Administering University 2009-2017



Funding granted across the ARC and OLT

Across all ARC and OLT funding schemes a total of \$190,537,512 (approximately \$190 million) has been allocated to funding educational research and scholarship. \$184,336,912 (96.74%) has been allocated by the ARC and \$6,200,600 (3.26%) by the OLT. Across the data collection period (2009-2017), 2014 was the most successful year for funding in educational research and scholarship with \$40,464,169 allocated (21.23%) (see Table 4).

Table 4: Education Funding Success by Year (ARC and OLT)

Year	Funding
2009	\$19,377,640
2010	\$24,254,294
2011	\$20,942,829
2012	\$32,041,171
2013	\$16,841,552
2014	\$40,464,169
2015	\$14,706,552
2016	\$13,525,549
2017	\$8,383,756

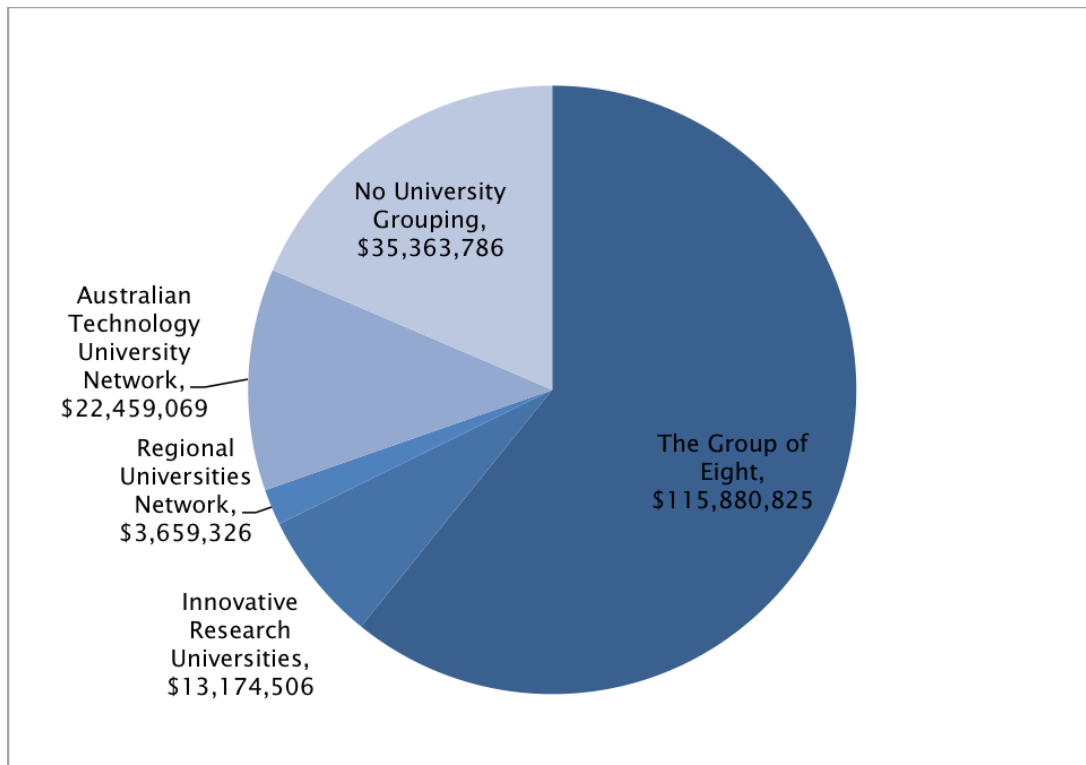
Educational research funding has been allocated across 17 funding schemes (noting that there are 28 funding schemes in total across the ARC and OLT). The highest cumulative amount of funding allocated was \$59,382,771 to the ARC Discovery program followed by \$51,163,535 to the ARC Linkage program. This verifies that the ARC Discovery program has been the principal source of Category 1 funding in Australia from 2009-2017 in educational research. This is despite two Linkage rounds per year and now continuous ARC linkage rounds as a result of Watt's recommendations (2015). Whether such continuous rounds will result in increased funding in educational research is yet to be seen.

Table 5: Allocated Education Funding Across ARC (2009-2017) and OLT (2009-2015) Schemes

Funding Scheme	Funding Allocated
ARC Centre of Excellence	\$20,000,000
ARC Future Fellowship	\$11,896,871
Australian Laureate Fellowship	\$5,345,984
Discovery Early Career Researcher Award (DECRA)	\$10,605,085
Discovery Indigenous	\$6,569,629
Discovery Indigenous Development	\$561,432
Discovery Projects	\$59,382,771
Industrial Transformation Training Centre	\$2,061,605
Linkage Infrastructure, Equipment and Facilities	\$750,000
Linkage Projects	\$51,163,535
Special Research Initiative	\$16,000,000
OLT Innovation & Development and Seed Grants	\$492,000
OLT Innovation & Development Grants	\$2,753,000
OLT Strategic Commissioned Projects	\$1,476,600
OLT Priority Projects	\$532,000
OLT Leadership for Excellence Grants	\$827,000
OLT Special Initiative Reserve	\$120,000

As illustrated in Figure 5, the Group of Eight (Go8) universities have been allocated 61% of all funding as the administering universities (\$115,880,825), followed by No University Grouping (18%), Australian Technology University Network (ATU) (12%), Innovative Research Universities (IRU) (7%) and the Regional Universities Network (2%). The Regional Universities Network (representing 6 Australian universities, 14.6%) has performed poorly in comparison to all other university groupings. These findings also suggest that there is a possible preference towards allocating funding to the Group of Eight (Go8) universities (as the administering universities) in educational research, which represent 19.1% of all Australian universities.

Figure 5: Education Funding Allocated by University Grouping (Administering) (ARC - 2009-2017 & OLT 2009-2015)



The highest funding awarded was \$20 million¹¹ followed by \$16 million¹². The lowest amount awarded was \$34,000 (see Table 6). Of significance, the top 10 highest funded projects or fellowships were awarded to the Group of Eight (Go8) universities (70%), Australian Technology University Network (ATU) (20%) and Innovative Research Universities (IRU) (10%). Universities with 'No University Grouping' ranked 15th with \$857,965 awarded for an ARC Linkage Project. The Regional Universities Network (RUN) did not rank in the top 100 funded projects, placing at 112 with \$396,500 awarded for an ARC Discovery project. This finding verifies data trends

¹¹ The Administering University is the University of Queensland (2014-2020). The Chief Investigators are Janeen Baxter; Stephen Zubrick; Deborah Cobb-Clark; Mark Western; Lorraine Mazerolle; Matthew Sanders; Colm Harmon; Michele Haynes; David Lawrence; Greg Duncan; Miles Corak; Wei-Jun Yeung; Rebekah Coley; Adrian Raine; Barbara Elliott; David Weisburd; Arnaud Chevalier; Orla Doyle; Heather Laurie; Helen Rogers; and Fadwa Al Yaman.

¹² The Administering University was The University of Melbourne (2012-2015). The Chief Investigators were Ottmar Lipp; John Hattie; Michael Timms; Pankaj Sah; Tianzi Jiang; Jason Mattingley; Ross Cunnington; Paul Dux; David Reutens; Robert Hester; Merrilyn Goos; Annemaree Carroll; David Clarke; Robyn Gillies; Gregor Kennedy; Collette Tayler; Siek-Toon Khoo; Martin Westwell; Russell Tytler; Timothy Bredy; Sue Thomson; John Pegg; Patrick Griffin; Sven Silburn; Lori Lockyer; Brian Butterworth; and Diana Laurillard.

reported earlier confirming that the Regional Universities Network has had limited success as Administering Universities of ARC and OLT funding schemes.

Table 6: Highest to Lowest Education Funding Granted by the ARC and OLT

Rank	Project ID	Funding Body	Funding	Year	Funding Scheme	University Grouping
1	CE140100027	ARC	20000000	2014	ARC Centre of Excellence	The Group of Eight (Go8)
2	SR120300015	ARC	16000000	2012	Special Research Initiative	The Group of Eight (Go8)
3	FL100100203	ARC	2744127	2010	Australian Laureate Fellowship	Australian Technology University Network (ATU)
4	FL100100014	ARC	2601857	2010	Australian Laureate Fellowship	The Group of Eight (Go8)
5	LP0990200	ARC	2209844	2009	Linkage Projects	The Group of Eight (Go8)
6	IC140100024	ARC	2061605	2014	Industrial Transformation Training Centre	Innovative Research Universities (IRU)
7	DP160101611	ARC	1203102	2016	Discovery Projects	The Group of Eight (Go8)
8	DP1094132	ARC	1118858	2010	Discovery Projects	The Group of Eight (Go8)
9	LP150100022	ARC	930000	2015	Linkage Projects	The Group of Eight (Go8)
10	FT120100731	ARC	889328	2012	ARC Future Fellowship	Australian Technology University Network (ATU)
470	SD13-3407	OLT	50000	2013	OLT Innovation & Development Grants	Innovative Research Universities (IRU)
471	SD14-4407	OLT	50000	2014	OLT Innovation & Development and Seed Grants	No grouping
472	SD13-3196	OLT	47000	2013	OLT Innovation & Development and Seed Grants	No grouping
473	SD13-3110	OLT	44000	2013	OLT Innovation & Development and Seed Grants	No grouping
474	LP100200723	ARC	41500	2010	Linkage Projects	No grouping
475	DP1097057	ARC	40000	2010	Discovery Projects	Australian Technology University Network (ATU)
476	SD13-3002	OLT	40000	2013	OLT Innovation & Development and Seed Grants	The Group of Eight (Go8)
477	SD15-5215	OLT	40000	2015	OLT Innovation & Development and Seed Grants	The Group of Eight (Go8)
478	SD12-2172	OLT	37000	2012	OLT Innovation & Development and Seed Grants	No grouping
479	SD14-3720	OLT	34000	2014	OLT Innovation & Development and Seed Grants	The Group of Eight (Go8)

Part 1 Key Findings

Part 1 revealed significant trends in educational research funding by the ARC and OLT. These are:

- The principal source of Category 1 funding in educational research is the Australian Research Council;
- The principal source of Category 1 scheme for educational researchers is the ARC Discovery Project scheme;

- 2016 was the worst year on record in the period 2009-2017 for educational research funding in Australia;
- The Go8 Universities are the dominant administering universities of funding in educational research in Australia; and
- The Regional Universities Network has performed poorly in comparison to all other Australian University groupings.

PART 2: WHAT FIELD OF RESEARCH (FoR) CODES HAVE BEEN MOST SUCCESSFUL?

The ARC and OLT do not both utilise FoR codes. Therefore, the data presentations are split into two sections with a review of ARC Education FoRs followed by OLT Education disciplines (as

identified in the methodology section of this report). Furthermore, the links between funding and the quality of research will be investigated in a follow-on study as per the original proposal brief (see Appendix 1).

Field of Research Analysis of ARC Funded Projects and Fellowships

ARC investigators can nominate up to five six-digit FoR codes in grant and fellowship applications (see Appendix 2 for four digit and six digit FoR codes as restricted to education). Across all ARC projects and fellowships, 1,104 FoR codes were identified at the six-digit level. The FoR code *under which applications were most frequently granted* was 130313 - Teacher Education and Professional Development of Educators. As shown in Table 7, the top five six-digit codes were 130313 – Teacher Education and Professional Development of Educators (4.8%), 130202 - Curriculum and Pedagogy Theory and Development (3.6%), 160809 - Sociology of Education (3.4%), 130208 - Mathematics and Numeracy Curriculum and Pedagogy (3.3%) and 130301 - Aboriginal and Torres Strait Islander Education (2.8%).

Table 7: Most Frequently Nominated Six-Digit Field of Research Codes (1-20)

Six Digit Field of Research	Frequency	Percent
130313 - Teacher Education and Professional Development of Educators	53	4.8
130202 - Curriculum and Pedagogy Theory and Development	40	3.6
160809 - Sociology of Education	38	3.4
130208 - Mathematics and Numeracy Curriculum and Pedagogy	36	3.3
130301 - Aboriginal and Torres Strait Islander Education	31	2.8
160512 - Social Policy	29	2.6
130106 - Secondary Education	29	2.6
130303 - Education Assessment and Evaluation	28	2.5
130102 - Early Childhood Education (excl. Maori)	27	2.4
130212 - Science, Technology and Engineering Curriculum and Pedagogy	24	2.2
130309 - Learning Sciences	23	2.1
330103 - Sociology of Education	21	1.9
160506 - Education Policy	21	1.9
139999 - Education not elsewhere classified	21	1.9
330101 - Educational Psychology	20	1.8
160805 - Social Change	20	1.8

130103 - Higher Education	20	1.8
170103 - Educational Psychology	18	1.6

** NB: Refer to Appendix 3 for full list of Six Digit Codes reported in successful ARC funded projects and fellowships*

The data were also analysed at the four-digit level. All projects with an Education FoR code or closely related FoR code were identified, namely 1301, 1302, 1303, 1399, 1605, 1608, 3301, 3302, 3303 and 3399. 29.70% of all projects nominated 1303 – Specialist Studies in Education. This was followed by 1302 – Curriculum & Pedagogy (21.61%) and 1301 – Education Systems (15.76%) (see Table 8)

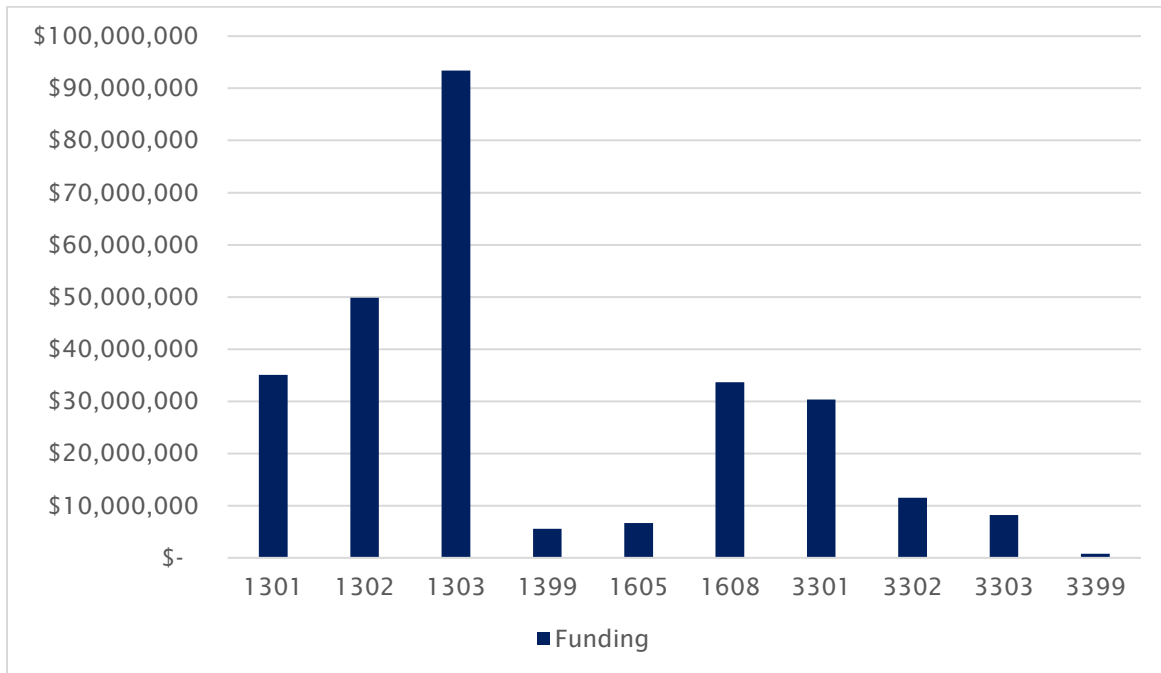
Table 8: Most Frequently Nominated Four-Digit Field of Research Codes 2009-2017

FOR	Frequency	Percent
1301 – Education Systems	113	15.76%
1302 – Curriculum & Pedagogy	155	21.61%
1303 – Specialist Studies in Education	213	29.70%
1399 – Other Education	21	2.92%
160506 – Education Policy	21	2.92%
160809 – Sociology of Education	38	5.29%
3301 – Education Studies	88	12.27%
3302 – Curriculum Studies	38	5.29%
3303 – Professional Development for Teachers	26	3.62%
3399 – Other Education	4	0.55%
Total	717	100%

** NB: The total is 717 because some projects nominated more than one of the nominated FoR codes in Education or Education related FoRs*

The data were also analysed in consideration of the amount of funding granted. The data trends are consistent with the most successful Fields of Research in Education (see Figure 6). 1303 has been granted \$93,404,781 in funding, which is double the amount of funding granted to 1301 and 1302 combined. 1608 (sociology of education) was also clearly an important FoR in Education receiving \$33,658,625 in funding.

Figure 6: Funding Received by Field of Research Code (2009-2017)



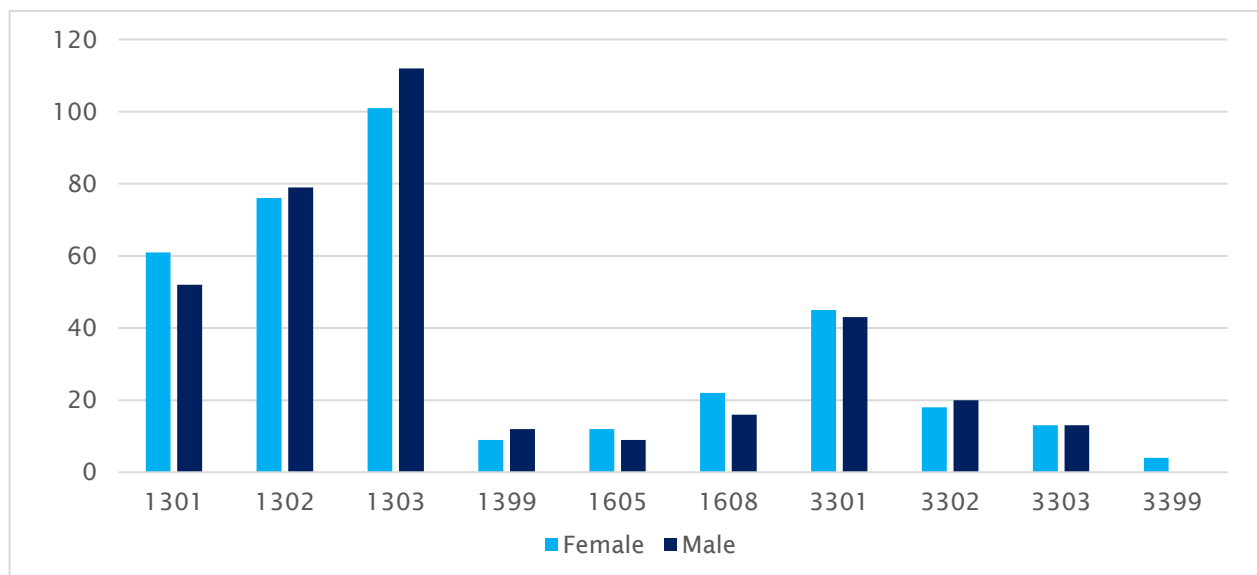
Field of Research data were analysed by year (2009-2017). As shown in Table 6, 1303 has been the most successful code since 2011. However, 3301 (Educational Studies) received the highest number (n=56) of successful projects in any year across the entire period of data collection (2009-2017). Table 9 also reveals a downward trend in success across all Fields of Research since 2015.

Table 9: Project FoR Frequency and Analysis by Year (2009-2017)

FoR Code	2009	2010	2011	2012	2013	2014	2015	2016	2017
1301	0	18	19	15	15	18	17	7	4
1302	0	16	32	24	23	19	18	12	11
1303	0	17	41	27	31	35	26	21	15
1399	0	5	7	2	4	1	1	1	0
1605	0	1	4	3	3	4	1	3	2
1608	0	3	10	4	3	7	3	2	6
3301	56	32	0	0	0	0	0	0	0
3302	30	8	0	0	0	0	0	0	0
3303	24	2	0	0	0	0	0	0	0
3399	4	0	0	0	0	0	0	0	0

Data were analysed in consideration of demographic information, namely the gender of the lead chief investigator. As shown in Figure 7, the most successful FoR for both women and men was 1303 with males more successful overall. Males were also marginally more successful with 1302 and females were more successful with 1301. However, given that women make up two thirds of the educational research workforce, leadership of ARC grants and fellowships (across FoRs) is not balanced.

Figure 7: Successful FORs by Gender of lead Chief Investigator (2009-2017)

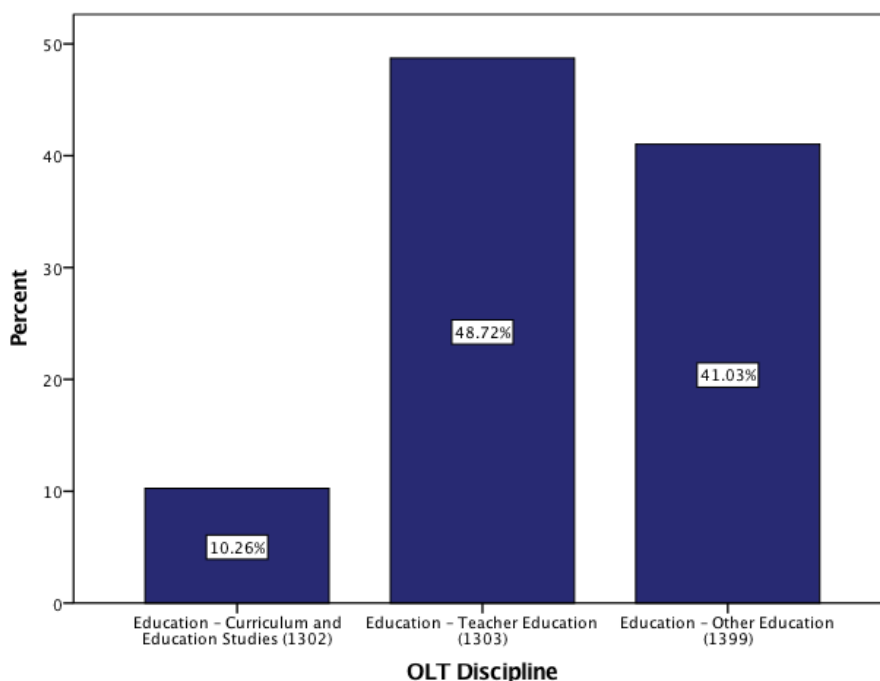


Discipline Analysis of OLT Funded Projects and Fellowships

OLT Discipline Analysis

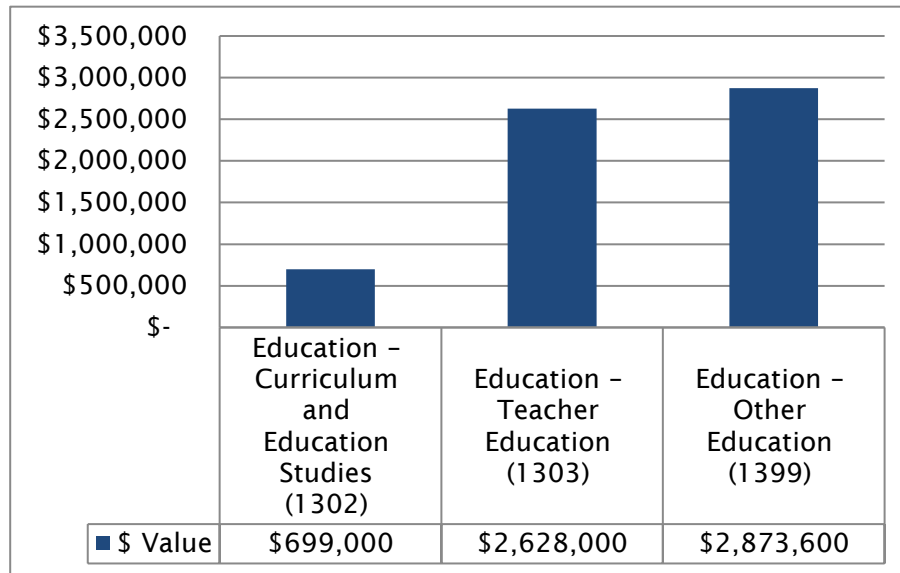
The OLT does not utilise ABS Fields of Research. Rather, it developed its own discipline groups (see Table 2, Methodology). The discipline groups specifically relating to Education are: Education – Curriculum and Education Studies (1302); Education – Teacher Education (1303); and Education – Other Education (1399). The corresponding Fields of Research are 1302, 1303 and 1399. As shown in Figure 8 and consistent with the analysis of approved ARC projects and fellowships, Education – Teacher Education was the most successful discipline (48.7%). The next most successful discipline categories were Education – Other Education (40%) and then Education – Curriculum and Education Studies (10.3%). The latter finding was not consistent with the ARC FoR analysis with respect to the subsidiary successful fields of research. Such findings signal different priorities across educational research and the scholarship of teaching/learning in Australia.

Figure 8: *OLT Discipline Analysis of Successful Grants and Fellowships*



The data were also analysed in consideration of the amount of funding granted. While there has been a greater number of projects awarded in Education – Teacher Education (see Figure 6), Education – Other Education has been awarded more funding (\$2,873,600) (see Figure 9).

Figure 9: OLT Disciplines Analysed by Funding



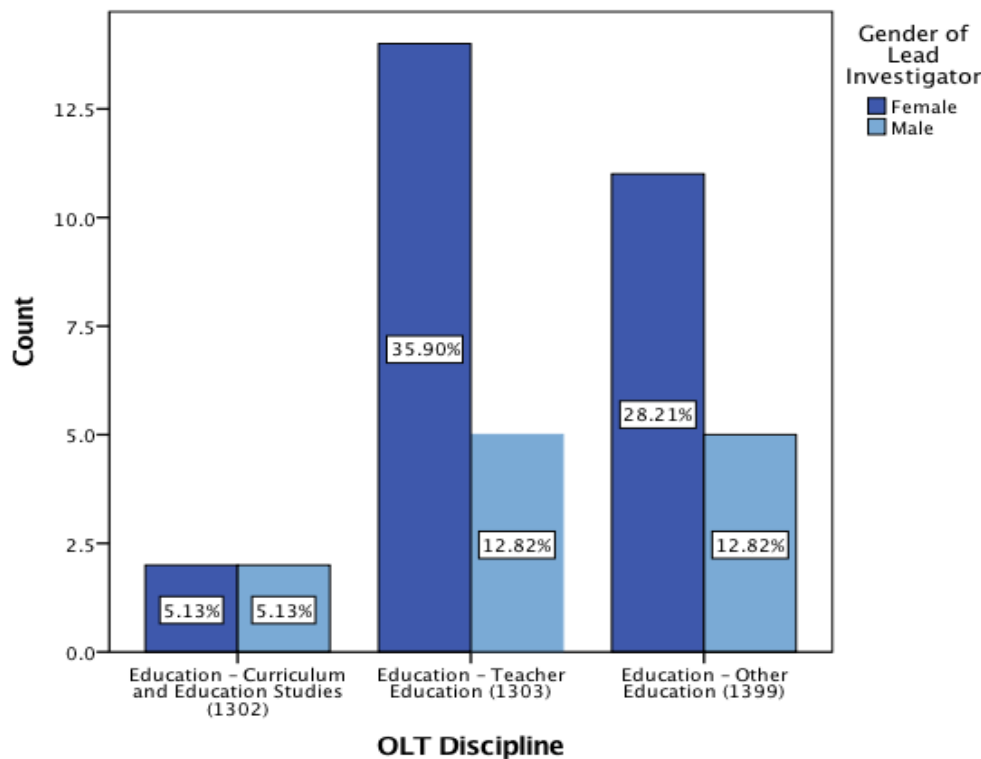
In addition, OLT discipline data were analysed by year (2009-2015). As shown in Table 10, Education – Teacher Education received the highest number (n=8) of successful projects in any year across the entire period of data collection (2009-2015). 2013 was also the most successful year across all OLT disciplines in Education.

Table 10: OLT Education Discipline Frequency and Analysis across Funded Projects from 2009-2015

OLT Discipline	2009	2010	2011	2012	2013	2014	2015	Total
Education – Curriculum and Education Studies (1302)	0	1	1	1	0	1	0	4
Education – Teacher Education (1303)	1	2	4	1	8	2	1	19
Education – Other Education (1399)	0	0	1	6	6	3	0	16
Total	1	3	6	8	14	6	1	39

Data were analysed in consideration of demographic data, namely the gender of the project leader. As shown in Figure 8, women were more successful overall (69.23%) than their male counterparts (30.7%) by two-fold. As shown in Figure 10, the most successful OLT discipline category for both women and men was Education – Teacher Education, with women more successful overall. Women were also more successful with Education – Other Education than their male counterparts. While women were more successful, given that females constitute two thirds of the educational research workforce, the balance of success is relatively even.

Figure 10: Funded OLT Projects Discipline Analysis by Gender 2009-2015



Part 2 Key Findings

Part 2 revealed important findings with respect to the most successful FoR codes (as relevant to the ARC) and OLT disciplines identifying key themes across Australian educational research. The key findings as concerns ARC funding were:

- For the period of data collection, the most successful FoR code at the six-digit level in Educational Research was 130313 - Teacher Education and Professional Development of Educators and, at the four-digit level it was 1303 - Specialist Studies in Education;
- The next most successful FoRs at the six-digit level were 130202 - Curriculum and Pedagogy Theory and Development, 160809 - Sociology of Education, 130208 - Mathematics and Numeracy Curriculum and Pedagogy and 130301 - Aboriginal and Torres Strait Islander Education;
- 1303 has been funded at double the rate of 1301 and 1302;
- 1303 has been the most successful code since 2011 identifying it as a significant research area with respect to the ARC reviewers and panel members who determine funding outcomes;
- 160809 (Sociology of Education) is an important FoR in Education receiving \$33,658,625 in funding;

- Since 2015 there has been a downward trend in success (in obtaining ARC grants and fellowships) across all Education and closely related Education FoR codes;
- Over the period of data collection, the most successful FoR code for both women and men was 1303, with males more successful overall. Males are also marginally more successful with 1302 and females are more successful with 1301. However, given that women comprise two thirds of the educational research workforce, male academics are significantly more successful in obtaining ARC funding. This signals significant gender inequities in the allocation of ARC funding in educational research.

The key findings as concerns OLT fundings were:

- Consistent with the analysis of funded ARC projects and fellowships, Education – Teacher Education was the most successful OLT discipline.
- The next most successful discipline categories were Education – Other Education and then Education – Curriculum and Education Studies. The latter finding was not consistent with the ARC FoR analysis with respect to the subsidiary successful fields of research. Such findings suggest different priorities with respect to educational research (ARC) and teaching/learning (OLT) in Education across Australia.
- While there have been a greater number of OLT projects awarded in Education – Teacher Education, Education – Other Education has been awarded more funding overall;
- Education – Teacher Education received the highest number of successful projects in any year across the entire period of data collection (2009-2015). 2013 was also the most successful year across all OLT disciplines in education; and
- Women were more successful overall than their male counterparts by two-fold. The most successful OLT discipline category for both women and men was Education – Teacher Education with women more successful overall. Women were also more successful with Education – Other Education than their male counterparts. However, relative to the ratio of women to men in the educational research workforce, success has been relatively even-balanced.

PART 3: COMMON THEMES AND GAPS IN RESEARCH AREAS. WHAT RESEARCH IS BEING DEEMED AS MOST SIGNIFICANT BY THE FUNDING BODIES?

Part 2 identified the themes in educational research areas. Parts 1 and 2 also identified what research areas are considered most significant by funding bodies through an analysis of FoR codes (ARC) and Discipline areas (OLT). In Part 3, the emphasis is focused on the ‘gaps’ in research areas.

Figure 11 presents a textual analysis of all ARC and OLT project summaries. The most frequent key words (excluding project, study, research) were:

- Students (471);
- School (451);
- Learning (387);
- Development (339);
- Teachers (310);
- Practice (216);
- Communities (199);
- Young/youth (194);
- Outcomes (178);
- Children (172);
- Science (170);
- Policy (155);
- Knowledge (151);
- Understanding (148);
- Health (138);
- Indigenous (132); and
- Mathematics (134).

This analysis suggests that there has not been a “shift away from... the traditional area of school education” as Harrison et al. reported (2013, p. 493) with respect to their examination of Australian educational research outputs. This interpretation is further confirmed in the Field of Research and Discipline analysis presented in Part 2, where it was revealed that the most successful ARC FoR code in Educational Research was 130313 - Teacher Education and Professional Development of Educators, followed by 130202 - Curriculum and Pedagogy, Theory and Development, 160809 - Sociology of Education, 130208 - Mathematics and Numeracy Curriculum and Pedagogy and 130301 - Aboriginal and Torres Strait Islander Education.

schemes. We identified the corresponding socioeconomic codes, which aligned with the CSIRO’s megatrends. Table 11 verifies that only 22 ARC projects or fellowships (5%) identified any of the corresponding socioeconomic code/s. While it is not unexpected that most ARC projects and fellowships identified education socioeconomic codes (Division 93 Education and Training), it is concerning that very few projects or fellowships are explicitly engaging with CSIRO-identified global megatrends.

Table 11: Megatrend Analysis of ARC and Fellowship Projects

Megatrend	Corresponding Socioeconomic Code/s	Frequency of Codes in ARC Projects & Fellowships
More from less: The earth has limited supplies of natural mineral, energy, water and food resources essential for human survival and maintaining lifestyles.	960701 Coastal and Marine Management Policy 960702 Consumption Patterns, Population Issues and the Environment 960703 / 760104 Environmental Education and Awareness 960704 Land Stewardship 960705 Rural Land Policy 960706 Rural Water Policy 960707 Trade and Environment 960708 Urban Land Policy 960709 Urban Water Policy 960799 Environmental Policy, Legislation and Standards not elsewhere classified 850799 - Energy Conservation and Efficiency not elsewhere classified 960302 - Climate Change Mitigation Strategies	2
Going, going ... gone? Many of the world's natural habitats, plant species and animal species are in decline or at risk of extinction.	960501 Ecosystem Assessment and Management at Regional or Larger Scales 960502 Ecosystem Assessment and Management of Antarctic and Sub-Antarctic Environments 960503 Ecosystem Assessment and Management of Coastal and Estuarine Environments 960504 Ecosystem Assessment and Management of Farmland, Arable Cropland and Permanent Cropland Environments 960505 Ecosystem Assessment and Management of Forest and Woodlands Environments 960506 Ecosystem Assessment and Management of Fresh, Ground and Surface Water Environments 960507 Ecosystem Assessment and Management of Marine Environments 960508 Ecosystem Assessment and Management of Mining Environments 960509 Ecosystem Assessment and Management of	0

	<p>Mountain and High Country Environments 960510 Ecosystem Assessment and Management of Sparseland, Permanent Grassland and Arid Zone Environments 960511 Ecosystem Assessment and Management of Urban and Industrial Environments 960599 Ecosystem Assessment and Management not elsewhere classified</p>	
<p>The silk highway: Coming decades will see the world economy shift from west to east and north to south.</p>	<p>910201 Consumption 910202 Human Capital Issues 910203 Industrial Organisations 910204 Industry Costs and Structure 910205 Industry Policy 910206 Market-Based Mechanisms 910207 Microeconomic Effects of Taxation 910208 Micro Labour Market Issues 910209 Preference, Behaviour and Welfare 910210 Production 910211 Supply and Demand 910299 Microeconomics not elsewhere classified 910301 International Agreements on Trade 910302 Trade Assistance and Protection 910303 Trade Policy 910399 International Trade not elsewhere classified 950502 Understanding Asia's Past 950201 Communication Across Languages and Culture</p>	0
<p>Forever young: The ageing population is an asset. Australia and many other countries that make up the Organisation for Economic Cooperation and Development (OECD) have an ageing population.</p>	<p>920502 Health Related to Ageing 920499 - Public Health (excl. Specific Population Health) not elsewhere classified</p>	1
<p>Virtually here: This megatrend explores what might happen in a world of increased connectivity where individuals, communities, governments and businesses are immersed into the virtual world to a much greater extent than ever before.</p>	<p>950299 Communication not elsewhere classified (identified as appropriate code by ABS – social impact of ICTE) 970110 - Expanding Knowledge in Technology</p>	1

<p>Great expectations: This is a consumer, societal, demographic and cultural megatrend. It explores the rising demand for experiences over products and the rising importance of social relationships (Hajkowicz et al., 2012).</p>	<p>900302 Socio-Cultural Issues in Tourism 920408 / 750103 Health Status (e.g. Indicators of Well-Being) 920205 / 730301 - Health Education and Promotion</p>	<p>18</p>
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Part 3 Key Findings

Part 3 focused on the gaps in the analysis of Category 1 (ARC and OLT) projects and fellowships. Significant points of interest were:

- A textual analysis identified the most frequent key words, namely students, school, learning, development, teachers, communities, practice, national, science, children, social, young, outcomes, health, Indigenous, understanding and knowledge. This trend was consistent with the Field of Research and Discipline analysis presented in Part 2;
- The connection between the identified key words and Australia’s research and science priorities is weak, identifying a hole in educational research with respect to working towards such priorities;
- Of significance, a socioeconomic analysis of all Education and Education-related ARC projects and fellowships revealed few explicit connections to the CSIRO’s global megatrends; and
- Together these trends signal a disconnect between the research priorities of the ARC reviewers and panel members and Australia’s research priorities and megatrends. This suggests that a significant shift in priorities must occur if there is to be a closer alignment of these factors.

PART 4: HOW MANY HAVE CHIEF INVESTIGATORS/PARTNER INVESTIGATORS (CI/PI) ACROSS INSTITUTIONS AND ARE INTERNATIONAL?

This final section of the report focuses on the collaborative nature of educational research across successful Category 1 grants (ARC and OLT). In this section the demographics of the lead chief investigator or project leader are initially presented and analysed, followed by an analysis of all collaborations (both university and government/industry).

Lead Chief Investigator and Project Leader Demographics, University and University Grouping

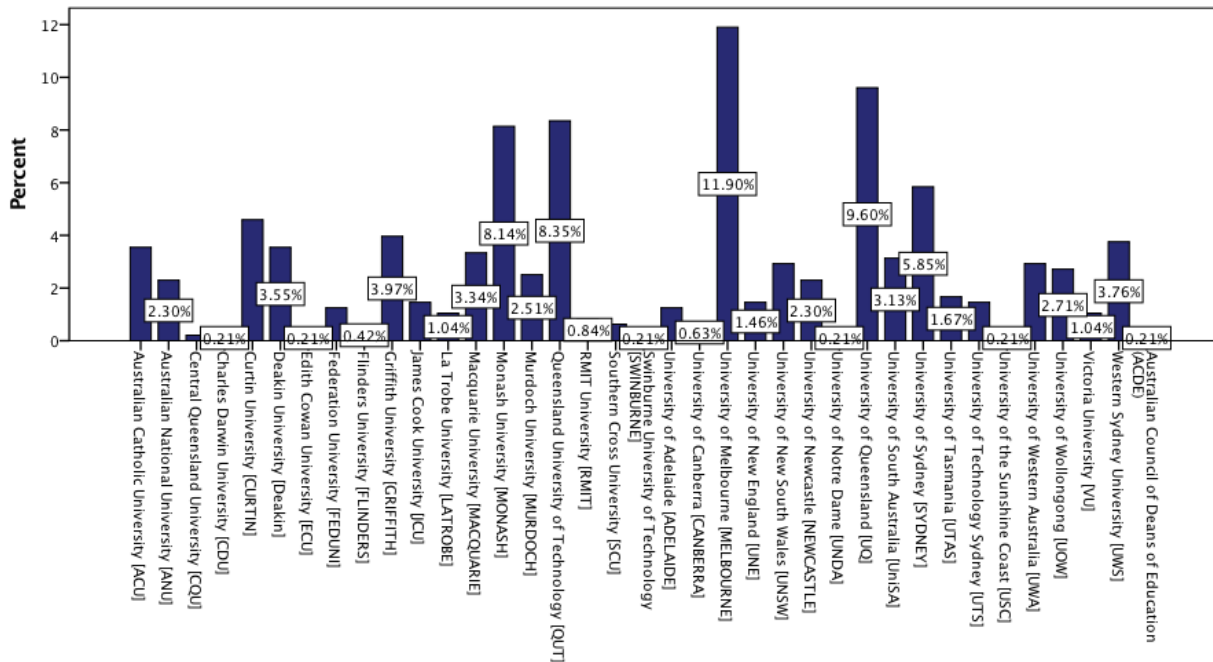
Academics in Faculties/Schools of Education represent 3.1% of the Australian university workforce at full-time equivalence (FTE) (Department of Education and Training, 2016). Across all academic disciplines, 55.51% are male and 44.38% female (Department of Education and Training, 2016). However, in the case of Faculties/Schools of Education women constitute two thirds of the workforce (Bobis et al., 2013). Across all Education and Education-related ARC and OLT projects, 54.1% of ARC and OLT projects and fellowships were or are being led by female chief investigators or project leaders, with 45.9% led by their male counterparts (see Table 12). While on balance it appears that women are more successful, this is not the case, with men clearly out-performing women in the context of the wider gender demographic of educational research workforce.

Table 12: *Gender of Lead Chief Investigator or Project Leader (ARC - 2009-2017 & OLT 2009-2015)*

Gender	Frequency	Percent
Female	259	54.1%
Male	220	45.9%
Total	479	100.0%

The administering university of all projects and fellowships was also considered. As shown in Figure 12, the most successful university in winning Education and Education-related ARC and OLT grants and fellowships was The University of Melbourne (11.90%, n=57), followed by the University of Queensland (9.60%, n=46) and the Queensland University of Technology (8.35%, n=46).

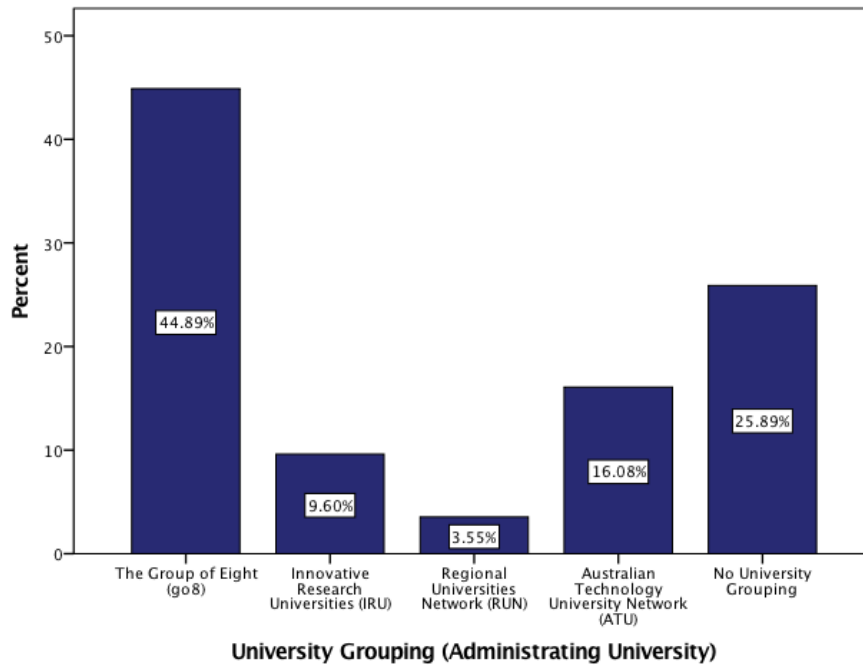
Figure 12: Administering University of Education or Education-Related Category 1 Grants and Fellowships (ARC - 2009-2017 & OLT 2009-2015)



Partner Analysis: University and Industry

The aggregate allocation of projects and fellowships across all university groupings (including non-groupings) was considered as part of the demographic analysis of Category 1 funding in Education. As illustrated in Figure 13, 44.89% of all projects and fellowships have been allocated to the Group of Eight (Go8) as administering universities. As reported in Part 1, the Go8 have also been allocated 61% of the total funding (dollar amount) as the administering universities (\$115,880,825). The Regional Universities Network, on the other hand, has been allocated 3.55% of projects and fellowships to administer, representing 2% of all funding allocated to Education and Education-related projects. This signals a significant metropolitan-regional divide in educational research in Australia.

Figure 13: *Projects Allocated Across University Groupings (ARC - 2009-2017 & OLT 2009-2015)*



A bivariate analysis was undertaken of gender and university grouping. As presented in Figure 14, 22.96% of male of lead chief investigators or project leaders were from Group of Eight universities, which is highly significant given men comprise one-third of the educational research workforce. In contrast, 21.92% and 16.08% of female lead chief investigators or project leaders respectively were employed at Go8 universities or had no university grouping. It was confirmed that the relationship between an academic’s gender and their university grouping was significant at $-.118^{**}$ (Pearson Correction) (see Table 13).

Figure 14: Lead Chief Investigator and Project Leader and University Grouping (ARC - 2009-2017 & OLT 2009-2015)

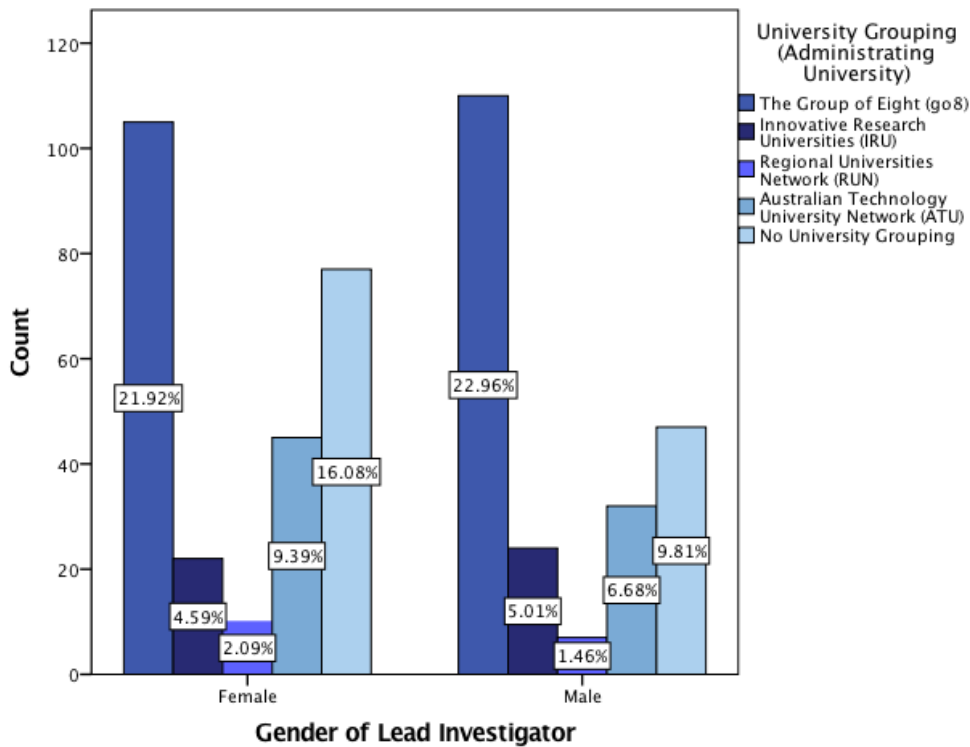


Table 13: Gender and University Grouping of Lead Chief Investigator/Project Leader (ARC - 2009-2017 & OLT 2009-2015)

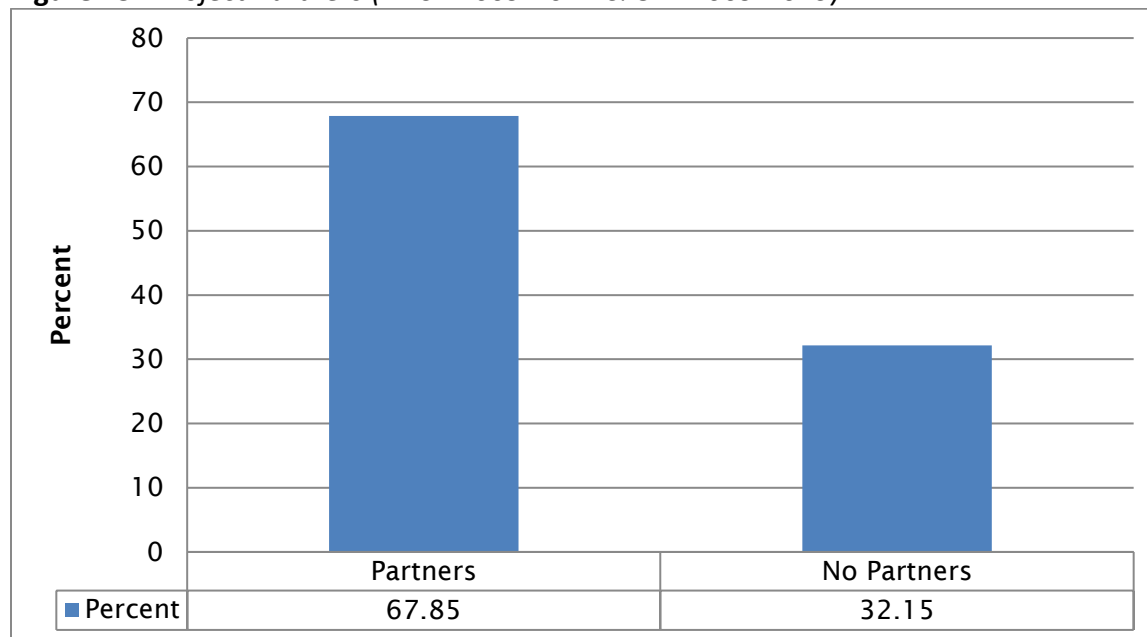
		Gender of Lead Investigator	University Grouping (Administering University)
Gender of Lead Investigator	Pearson Correlation	1	-.118**
	Sig. (2-tailed)		.010
	N	479	479
University Grouping (Administering University)	Pearson Correlation	-.118**	1
	Sig. (2-tailed)	.010	
	N	479	479

** Correlation is significant at the 0.01 level (2-tailed).

The mean number of investigators across all projects was 4.2. The maximum number of participants on a project was 27 and this project was also the highest amount of funding allocated

to an Education or Education-related project (CE140100027, Baxter, \$20 million). Across all projects, 67.85% (n=325) had partnered with either an Australian/non-Australian university and/or industry collaborator (see Figure 15). However, nearly one-third of all projects had no partners (32.12%, n=154) which, given the new emphasis on university and industry-focused research (Watt, 2015), is a concern for educational research in Australia.

Figure 15: *Project Partners (ARC - 2009-2017 & OLT 2009-2015)*



Across the data focus period (2009-2017) the number of participating partners on projects remained relatively unchanged, with the exception of 2009 and 2017 (noting data for 20017 is incomplete), where there was only an average of one partner in any collaborative project. For all other years there have been at least two partners on projects where projects had collaborators (see Table 14).

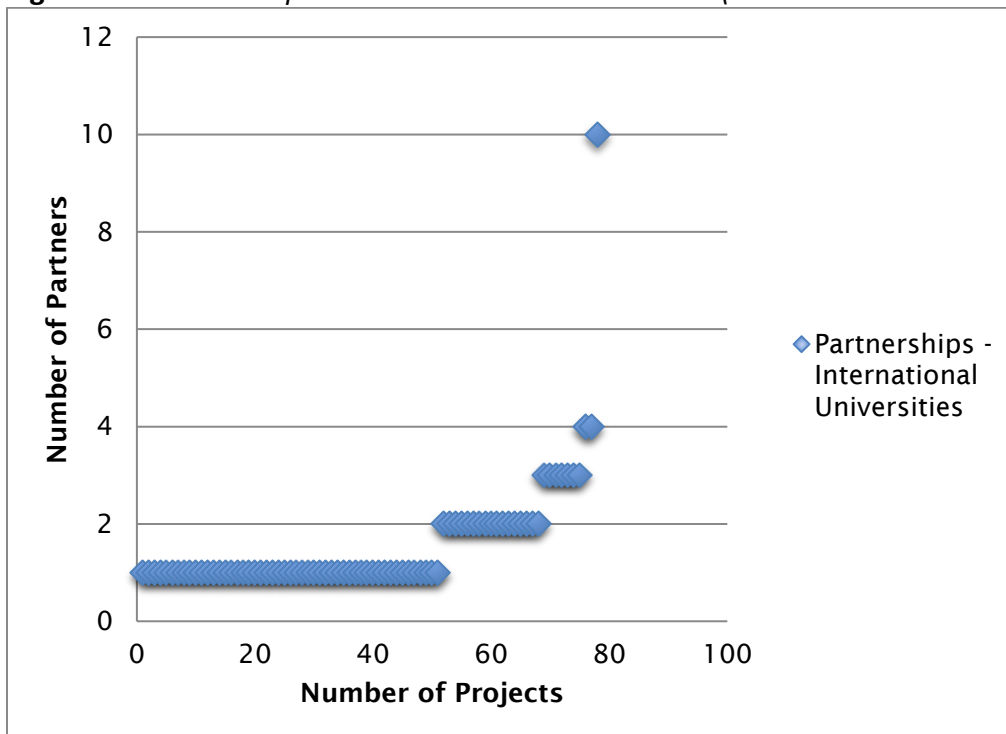
Table 14: *Frequency of Partners Across Projects with Partners by Year (ARC - 2009-2017 & OLT 2009-2015)*

Funding Year	Number of Projects with Partners	Number of Partners
2009	61	61
2010	67	137
2011	77	206
2012	55	149
2013	63	134
2014	58	125
2015	41	100

2016	35	83
2017	22	27

There was a total of 124 partnerships with international universities (outside Australia) across 78 projects. The highest number of university partners across one project (CE140100027, Baxter, \$20 million) was 10 (see Figure 16). There were only five international partner universities, which were: the Institute of Education, London, UK (n=3 projects); University of Glasgow, UK (n=3 projects); City University New York, USA (n=3 projects); University of Birmingham, UK (n=3 projects); and the University of Essex, UK (n=3 projects). Thus Australian universities most frequently engage with universities from the United Kingdom more than any other country (or group of countries) in educational research (Category 1). Furthermore, there were 16 partnerships with international commercial (non-university) industries across 7 projects with the highest number of industries across one project being 9 international industry partners. Engagement therefore with non-university international partners is very low in Australia with respect to educational research.

Figure 16: *Partnerships with International Universities (ARC - 2009-2017 & OLT 2009-2015)*



The data were also analysed in consideration of the number of Australian university partners and Australian industry collaborators. The highest number of Australian universities involved in any collaborative project was 6 (see Table 15). However, 55.5% of projects only had 1 Australian

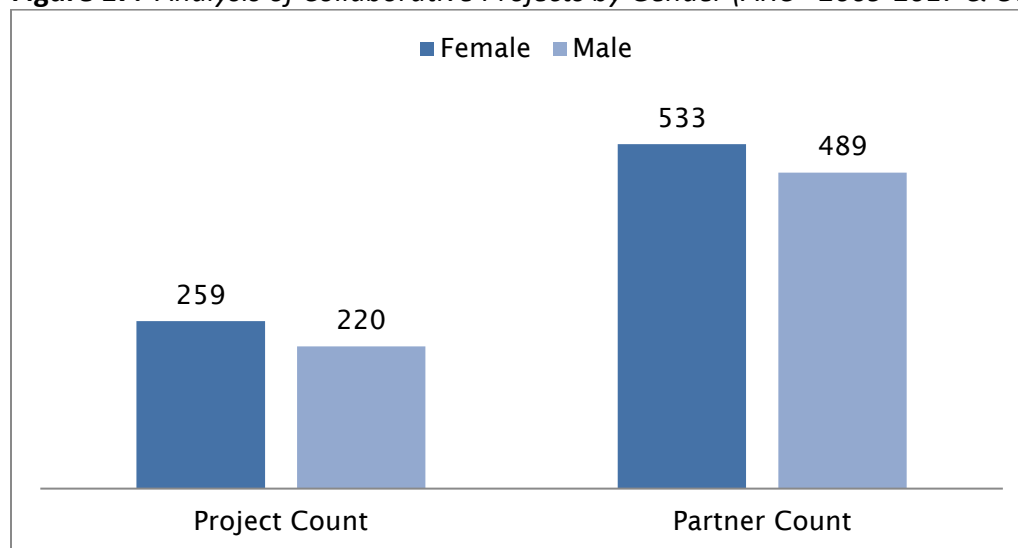
university partner in comparison to 1.58 international universities as collaborators. The highest number of industry partners in any collaborative project was 17 (including international universities and industries). Such data suggest that Australian universities are collaborating with international universities and Australian industry partners (on balance) at a higher rate than other Australian universities in educational research.

Table 15: Australian University Partners (ARC - 2009-2017 & OLT 2009-2015)

Number of Australian University Partners	Projects (Frequency)	Percent
1.0	105	55.26%
2.0	53	27.84%
3.0	20	10.52%
4.0	7	3.68%
5.0	4	2.10%
6.0	1	0.5%
Total	190	100%

The gender of the lead chief investigator or project leader was also considered with respect to those projects with identified partners. Female chief investigators or project leaders have led the highest number of projects overall (n=259) with the highest number of collaborators (n=55). Of projects won without considering women-to-men workforce ratios, women are marginally more collaborative than their male counterparts.

Figure 17: Analysis of Collaborative Projects by Gender (ARC - 2009-2017 & OLT 2009-2015)



As shown in Table 16, the ARC Linkage scheme has had the highest number of partners with 661

partners in total. This finding is not unexpected given that the focus of ARC Linkage programs is to “encourage and extend cooperative approaches to research and improve the use of research outcomes by strengthening links within Australia’s innovation system and with innovation systems internationally” (Australian Research Council, 2017). The ARC Discovery program (n=198 partners) had the second highest number of partnerships, followed by the OLT Innovation and Development program (n=42 partners).

Table 16: *Funding Scheme Project Partners (ARC - 2009-2017 & OLT 2009-2015)*

Funding Scheme	Total Number of Partners
Linkage Projects	661
Discovery Projects	198
OLT Innovation & Development Grants	42
ARC Future Fellowship	20
OLT Strategic Commissioned Projects	18
Special Research Initiative	16
ARC Centre of Excellence	16
Discovery Indigenous	13
OLT Leadership for Excellence Grants	10
OLT Priority Projects	8
OLT Innovation & Development and Seed Grants	8
Linkage Infrastructure, Equipment and Facilities	8
Industrial Transformation Training Centre	4

The organisations involved in the highest number of partnerships are identified in Table 17. Deakin University had the highest number of partners across all Education or Education-related Category 1 grants (n=28 partners in total). This was followed by The University of Melbourne (n=24), the Victorian Department Education and Training (n=18) and The University of Sydney (n=18). Such results identify the Victorian Department of Education and Training as the number one non-university partner across all projects demonstrating a significant commitment by the Victorian Government towards educational research in Australia.

Table 17: *Most Frequent Partner Organisations (ARC - 2009-2017 & OLT 2009-2015)*

Partner	Number of Partners	Total Funding	University Grouping
Deakin University	28	\$25,724,003	No Grouping
The University of Melbourne	24	\$45,274,361	The Group of Eight (Go8)
Victorian Department of Education and Early	18	\$24,095,426	No Grouping

Childhood Development			
The University of Sydney	18	\$24,794,688	The Group of Eight (Go8)
Charles Sturt University	13	\$3,721,173	No Grouping
University of Wollongong	11	\$2,768,901	No Grouping
Other (ARC unidentified category)	10	\$4,218,318	No Grouping
The University of Western Australia	9	\$23,474,099	The Group of Eight (Go8)
Macquarie University	8	\$18,512,116	No Grouping
Institute of Education, London	3	\$36,312,000	No Grouping

The analysis also considered the administering universities and the number of collaborative projects across the ARC and OLT funding bodies. Table 16 presents the top ten administering universities (in order of projects administered) in Education or Education-related projects. As confirmed in Table 16, Deakin University has collaborated more than any other administering university with 28 partnerships over 17 projects. The least collaborative administering university (in the top administering universities) is The University of Queensland (10 partnerships over 46 projects), followed by The University of Melbourne (24 partnerships over 57 projects). The latter finding is unexpected given The University of Melbourne and The University of Queensland are the top two performing universities in winning Category 1 funding in educational research.

Table 16: *The Top 10 Administering University Partner Analysis (ARC - 2009-2017 & OLT 2009-2015)*

University	Admin Uni. (Projects)	Num. of Partners	ARC Partners	OLT Partners	Count Admin %	Count Admin % Cumulative	Count Partner %	Count Partner % Cumulative
The University of Melbourne	57	24	21	3	12%	12%	2%	2%
The University of Queensland	46	10	9	1	10%	22%	1%	3%

Queensland University of Technology	40	18	13	5	8%	30%	2%	5%
Monash University	39	20	19	1	8%	38%	2%	7%
The University of Sydney	28	18	16	2	6%	44%	2%	9%
Griffith University	19	13	10	3	4%	48%	1%	10%
Western Sydney University	18	7	6	1	4%	52%	1%	11%
Deakin University	17	28	24	4	4%	55%	3%	13%
Australian Catholic University	17	13	9	4	4%	59%	1%	15%
Macquarie University	16	8	6	2	3%	62%	1%	15%

Part 4 Key Findings

The final part of the results section has revealed significant trends in collaborative educational research in Australia. These are:

- There are a higher proportion of female academics leading ARC and OLT projects and fellowships in education compared with their male counterparts. Given that women comprise two thirds of the educational research workforce, men are succeeding at a far higher rate than females signalling significant gender inequalities;
- The most successful university in winning education and education related ARC and OLT grants and fellowships was The University of Melbourne, followed by The University of Queensland and the Queensland University of Technology. Significantly these universities (when administering projects) also have the lowest rates of partnerships compared to all other universities;
- 44.89% of all projects and fellowships have been allocated to the Group of Eight (Go8) as administering universities, which represents 61% of all funding allocated and confirms their dominance with regards to receiving Category 1 funding in educational research;
- The Regional Universities Network has been allocated 3.55% of projects and fellowships, representing 2% of all funding allocated to Education and Education-related projects. Such findings are a significant concern for regional universities in Australia and the broader educational research sector;
- There is a statistically significant relationship between an academic's gender (as the lead chief investigator or project leader) and their university grouping in obtaining Category 1

funding in Education. Of particular note, the majority of male academics who lead ARC grants or fellowships are from Go8 universities;

- The mean number of investigators across all projects was 4.2;
- Nearly one third of projects had no partners, which, given the new emphasis on university and industry focused research (Watt, 2015), is a concern for educational research in Australia;
- Australian universities are collaborating in educational research with international universities and Australian industry partners at a higher rate, rather than with other Australian universities;
- Deakin University engaged in the most partnerships (as a collaborator) across all Education or Education-related Category 1 grants. This was followed by The University of Melbourne (n=24 where The University of Melbourne was a partner), the Victorian Department Education and Training (n=18) and The University of Sydney (n=18). Such results identify the Victorian Department of Education and Training as the most significant non-university partner across all projects demonstrating a significant commitment by the Victorian Government towards educational research in Australia;
- Deakin University has collaborated more than any other administering university. The least collaborative administering universities are The University of Queensland, followed by The University of Melbourne, suggesting that these universities tend to lead Category 1 grants and/or partner on other successful grants (led by other universities), but engage the lowest number of partners on projects they lead.

RECOMMENDATIONS

This stocktake and review has revealed a number of significant findings leading to the following recommendations:

Recommendation 1: Strengthen Regional and Metropolitan Partnerships and Linkages

Background: The Go8 Universities are the dominant administering universities of Category 1 funding in educational research in Australia. The Regional Universities Network has had the least success, signaling a metropolitan and regional divide in Category 1 grant leadership in educational research in Australia.

Recommendation: Increase links between regional and metropolitan institutions through Category 1 university partnerships and linkages in educational research.

Recommendation 2: Support Longitudinal, Quality and Impact Analysis of Australian Educational Research

Background: 130313 (Teacher Education and Professional Development of Educators) is identified as the most successful Field of Research code at the six-digit level, and 1303 (Specialist Studies in Education) at the four-digit level. However there has been a significant downward trend since 2015 in success (in obtaining Category 1 funding) across all Education and closely related Education Fields of Research codes.

Recommendation: ACDE, AARE and the ARC support cADRE in continuing research so that the sector can be kept abreast of educational research trends in Australia. Extensions of this research must include a review of University-based investment into educational research (given the findings of the Watt review) in addition to research focussed on the relationship between the allocation of research funding and quality and impact of research in Education.

Recommendation 3: Increase Transdisciplinary Nationally and Globally Significant Educational Research

Background: Connections with Australia's national research and science priorities and global megatrends are weak, identifying a significant hole in educational research in Australia. Such trends in educational research do not signal a significant shift away from traditional school or education-based research as reported in existing research (Harrison et al., 2013).

Recommendation: The educational research sector engages more explicitly with Australia's national science and research priorities and the CSIRO's megatrends through transdisciplinary approaches to research. Such approaches require collaboration outside of the education sector banding with researchers in working towards these priorities in the context of the world's educational, social, ecological, cultural, technological and economic megatrends.

Recommendation 4: Provide Opportunities for Category 1 Grant Professional Learning

Background: There is a significant relationship between an academic's gender (as the lead chief investigator or project leader) and their university grouping in obtaining Category 1 funding in

education. Male academics at Go8 universities are having the most success as lead chief investigators in comparison to their female counterparts.

Recommendation: The ACDE, cADRE and AARE provide direct support and professional learning to academics working at non-Go8 universities in writing, winning and leading category 1 grants. It is proposed that in the best interests of educational research in Australia, ARC panel members/reviewers, successful Category 1 grant winners and Associate Deans, Research in Go8 and non-Go8 universities provide professional learning and mentoring across the sector to reduce both the gender and geographical (metropolitan/regional) inequities.

Recommendation 5: *Building a Stronger University-Industry Research Culture*

Background: Nearly one third of all projects had no partners, which, given the new emphasis on university and industry focused research (Watt, 2015), is a concern for educational research in Australia. The results revealed the Victorian Department of Education and Training as the number one non-university partner across all projects demonstrating a significant commitment of the Victorian Government towards educational research in Australia.

Recommendation: Build a stronger university-government-industry research culture through systematic and industry-focused initiatives working with proven industry partners such as the Victorian Department of Education and Training. This needs to be a highly collaborative exchange between governments and universities in particular.

CONCLUSION

Category 1 funding is the highest level of competitive research income in the Australian educational research environment. The competition for such funding is strong among researchers. Within such a culture of increasing research performance measures and metrics, competition is encouraged rather than collaboration. However collaboration is necessary to make educational researchers more competitive in the broader Australian research environment. In that sense, and as identified in this report, there are systemic and cultural issues within the educational research sector itself, which can only be addressed by the sector for the sector. Echoing the conclusion of Cumming in 2010: *“there is an urgent need for genuine rethinking with regard not only to the focus, funding and conduct of research, but also to the training and development of its researchers and academics”* (p.2). Now seven years later, this need remains unchanged and ever more urgent.

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APPENDIX ONE: ORIGINAL PROJECT PROPOSAL

NATIONAL REVIEW OF CATEGORY 1 GRANTS IN RESEARCH INCOME IN EDUCATIONAL RESEARCH

1. Background to Proposed Project and Aims

There have been numerous reviews of teacher education, but it is still difficult to establish what is being funded in Educational Research at the national level. In view of this, the cADRE Steering Group proposes to the ACDE Board that there is value in undertaking a stocktake and review of Category 1 grants in education. The resulting data can subsequently be used to extrapolate the following information:

- What funding is being provided?
- What FoR have been most successful? Are there any links between funding and the quality of research?
- Common themes and gaps in research areas. What research is being deemed as most significant by the funding bodies?
- How many have Chief Investigators/Partner Investigators across institutions and are international? This might provide information about the nature of collaborative research.

From this, consideration can be given to how to build educational research capacity on a national level and to identifying potential collaborative research opportunities. **The key outcome of the project will be a final report with recommendations, in addition to the associated database and data sets. The intention is that the latter outputs would be made publicly available via the ACDE website.**

2. Project Methodology

This stocktake will focus on all Category 1 grants, specifically the ARC Grants and Fellowships, OLT Grants and other relevant funding bodies listed in the Australian Competitive Grants Register. The in focus FoR codes will be 13 (1301, 1302, 1303, 1399), 16 (1604, 1605, 1608) and MD. The data collection will be for the period 2009 – 2015 inclusive.

Such internal mapping has already commenced within Southern Cross University (SCU) and this will provide a framework for the collection of national data. No ethical clearance is required since the data are publicly available data and will be collected via the ARC, OLT and other granting body websites.

A database will be established in Excel initially (akin to what SCU have done). A detailed quantitative analysis will then be undertaken in SPSS using univariate, bivariate and multivariate

statistical analysis. This will provide a comprehensive overview of the current national trends in educational research.

3. Resources to Manage the Project

3.1 Project Leader

The SCU project mentioned above was led by Professor Amy Cutter-Mackenzie, Deputy Head of Research in the School of Education at SCU (CV *attached*). Amy is the Queensland representative on the cADRE Steering Group. In view of Amy's experience in this area she has volunteered to coordinate the national project. While her involvement will be largely in-kind (50 hours), a small amount of funding is requested for teaching relief (25 hours) and a research assistant to support Amy with the advanced data analysis in SPSS (20 hours).

3.2 Project Officer

The national project requires central coordination, oversight and a dedicated resource. As such it is proposed that Ms Anne Szadura, Manager, Projects and Networks be the Project Officer and undertake the data collection. Anne already provides executive support to cADRE and is experienced in managing projects and collecting data. She does not have expertise in SPSS, so specialist expertise in this area would need to be brought in for this part of the project (as requested above).

3.3 Project Reference Group

The cADRE Steering Group will be the project reference group. They will undertake a review of the database, datasets and final Green Paper. It is our intention that all resources would then be made publicly available via the ACDE website.

3.4 Funding

The cADRE Steering Group requests \$6,000 to support this project. Ms Szadura is currently employed at 0.1 FTE to support the network but may require beyond this allocation to support this project. Funding would also need to be transferred to SCU to support Professor Cutter-Mackenzie's role in addition to a research assistant to carry out SPSS analysis.

3.5 Partnership

It is anticipated that the final data collection will be of interest to other groups outside of ACDE. The Australian Association for Education in Research (AARE) has expressed interest in this project and may also be able to contribute some funding towards it.

APPENDIX TWO: EDUCATION OR EDUCATION RELATED FIELDS OF RESEARCH (FoR)

Current ABS Fields of Research (2008-Current)

1301: Education Systems

- 130101 Continuing and Community Education
- 130102 Early Childhood Education (excl. Maori)
- 130103 Higher Education
- 130104 Kura Kaupapa Maori (Maori Primary Education)
- 130105 Primary Education (excl. Maori)
- 130106 Secondary Education
- 130107 Te Whariki (Maori Early Childhood Education)
- 130108 Technical, Further and Workplace Education
- 130199 Education systems not elsewhere classified

1302: Curriculum and Pedagogy

- 130201 Creative Arts, Media and Communication Curriculum and Pedagogy
- 130202 Curriculum and Pedagogy Theory and Development
- 130203 Economics, Business and Management Curriculum and Pedagogy
- 130204 English and Literacy Curriculum and Pedagogy (excl. LOTE, ESL and TESOL)
- 130205 Humanities and Social Sciences Curriculum and Pedagogy (excl. Economics, Business and Management)
- 130206 Kohanga Reo (Maori Language Curriculum and Pedagogy)
- 130207 LOTE, ESL and TESOL Curriculum and Pedagogy (excl. Maori)
- 130208 Mathematics and Numeracy Curriculum and Pedagogy
- 130209 Medicine, Nursing and Health Curriculum and Pedagogy
- 130210 Physical Education and Development Curriculum and Pedagogy
- 130211 Religion Curriculum and Pedagogy
- 130212 Science, Technology and Engineering Curriculum and Pedagogy
- 130213 Vocational Education and Training Curriculum and Pedagogy
- 130299 Curriculum and Pedagogy not elsewhere classified

1303: Specialist Studies in Education

- 130301 Aboriginal and Torres Strait Islander Education
- 130302 Comparative and Cross-Cultural Education
- 130303 Education Assessment and Evaluation
- 130304 Educational Administration, Management and Leadership
- 130305 Educational Counselling
- 130306 Educational Technology and Computing
- 130307 Ethnic Education (excl. Aboriginal and Torres Strait Islander, Maori and Pacific Peoples)
- 130308 Gender, Sexuality and Education
- 130309 Learning Sciences
- 130310 Maori Education (excl. Early Childhood and Primary Education)
- 130311 Pacific Peoples Education
- 130312 Special Education and Disability
- 130313 Teacher Education and Professional Development of Educators
- 130399 Specialist Studies in Education not elsewhere classified

1399: Other Education

- 139999 Education not elsewhere classified

1605: Policy Administration

- 160501 Aboriginal and Torres Strait Islander Policy
- 160502 Arts and Cultural Policy
- 160503 Communications and Media Policy
- 160504 Crime Policy
- 160505 Economic Development Policy
- 160506 Education Policy
- 160507 Environment Policy
- 160508 Health Policy
- 160509 Public Administration
- 160510 Public Policy
- 160511 Research, Science and Technology Policy
- 160512 Social Policy
- 160513 Tourism Policy
- 160514 Urban Policy
- 160599 Policy and Administration not elsewhere classified

1608: Sociology

- 160801 Applied Sociology, Program Evaluation and Social Impact Assessment
- 160802 Environmental Sociology
- 160803 Race and Ethnic Relations
- 160804 Rural Sociology
- 160805 Social Change
- 160806 Social Theory
- 160807 Sociological Methodology and Research Methods
- 160808 Sociology and Social Studies of Science and Technology
- 160809 Sociology of Education
- 160810 Urban Sociology and Community Studies
- 160899 Sociology not elsewhere classified

Source: <http://www.abs.gov.au/Ausstats/abs@.nsf/Latestproducts/1E453F2C2F41D49BCA25741800049E1A?opendocument>

Former Fields of Research (1998-2007) in Education

Division 330000 - Education, covers education, including the professional development of teachers.

- 330100 - Education Studies
- 330200 - Curriculum Studies
- 330300 - Professional Development of Teachers
- 339900 - Other Education

Discipline 330100 - Education Studies

- 330101 - Educational Psychology
- 330102 - History and Philosophy of Education
- 330103 - Sociology of Education

- 330104 - Educational Policy, Administration and Management
- 330105 - Educational Counselling
- 330106 - Comparative Education
- 330107 - Educational Technology and Media
- 330108 - Special Education
- 330109 - Assessment and Evaluation
- 330199 - Education Studies not elsewhere classified

Discipline 330200 - Curriculum Studies

- 330201 - Curriculum Studies: English Education
- 330202 - Curriculum Studies: Mathematics Education
- 330203 - Curriculum Studies: Science Education
- 330204 - Curriculum Studies: Economics, Commerce, Management and Services Education
- 330205 - Curriculum Studies: Other Social Sciences, Humanities and Arts Education
- 330206 - Curriculum Theory and Development
- 330299 - Curriculum Studies not elsewhere classified

Discipline 330300 - Professional Development of Teachers

- 330301 - Teacher Education: Early Childhood
- 330302 - Teacher Education: Primary
- 330303 - Teacher Education: Secondary
- 330304 - Teacher Education: Vocational Education and Training
- 330305 - Teacher Education: Higher Education
- 330306 - Teacher Education: Special Education
- 330307 - Teacher Education: Nursing and Health
- 330399 - Professional Development of Teachers not elsewhere classified

Discipline 339900 - Other Education

- 339999 - Other Education **Exclusions:**

Source: <http://www.abs.gov.au/ausstats/abs@.nsf/0/5486D247F80EF701CA25697E0018FC6C?opendocument>

APPENDIX THREE: ALL SIX DIGIT CODES REPORTED IN SUCCESSFUL ARC FUNDED PROJECTS AND FELLOWSHIPS

Six Digit Field of Research	Freq.	Percent	Valid Percent	Cumulative Percent
<i>Total</i>	<i>1104</i>	<i>100</i>	<i>100</i>	
130313 - Teacher Education and Professional Development of Educators	53	4.8	4.8	48.1
130202 - Curriculum and Pedagogy Theory and Development	40	3.6	3.6	19.7
160809 - Sociology of Education	38	3.4	3.4	69.7
130208 - Mathematics and Numeracy Curriculum and Pedagogy	36	3.3	3.3	25.2
130301 - Aboriginal and Torres Strait Islander Education	31	2.8	2.8	32.5
160512 - Social Policy	29	2.6	2.6	60.4
130106 - Secondary Education	29	2.6	2.6	13.9
130303 - Education Assessment and Evaluation	28	2.5	2.5	36.7
130102 - Early Childhood Education (excl. Maori)	27	2.4	2.4	8.3
130212 - Science, Technology and Engineering Curriculum and Pedagogy	24	2.2	2.2	28.8
130309 - Learning Sciences	23	2.1	2.1	41.8
330103 - Sociology of Education	21	1.9	1.9	86.9
160506 - Education Policy	21	1.9	1.9	56.1
139999 - Education not elsewhere classified	21	1.9	1.9	50.9
330101 - Educational Psychology	20	1.8	1.8	84.8
160805 - Social Change	20	1.8	1.8	65
130103 - Higher Education	20	1.8	1.8	10.1
170103 - Educational Psychology	18	1.6	1.6	73.8
130302 - Comparative and Cross-Cultural Education	18	1.6	1.6	34.1
130204 - English and Literacy Curriculum and Pedagogy (excl. LOTE, ESL and TESOL)	17	1.5	1.5	21.2
130312 - Special Education and Disability	16	1.4	1.4	43.3
130306 - Educational Technology and Computing	15	1.4	1.4	38.8
200401 - Applied Linguistics and Educational Linguistics	13	1.2	1.2	79.9
130105 - Primary Education (excl. Maori)	13	1.2	1.2	11.3

330199 - Education Studies not elsewhere classified	12	1.1	1.1	90.9
330104 - Educational Policy, Administration and Management	12	1.1	1.1	88
160801 - Applied Sociology, Program Evaluation and Social Impact Assessment	12	1.1	1.1	62.5
111712 - Health Promotion	12	1.1	1.1	4.1
330399 - Professional Development of Teachers not elsewhere classified	11	1	1	96.7
130308 - Gender, Sexuality and Education	11	1	1	39.8
130108 - Technical, Further and Workplace Education	11	1	1	14.9
330203 - Curriculum Studies: Science Education	10	0.9	0.9	93
130399 - Specialist Studies in Education not elsewhere classified	10	0.9	0.9	49
170102 - Developmental Psychology and Ageing	9	0.8	0.8	72.2
160899 - Sociology not elsewhere classified	9	0.8	0.8	70.7
330202 - Curriculum Studies: Mathematics Education	8	0.7	0.7	92.1
330107 - Educational Technology and Media	8	0.7	0.7	89.1
130304 - Educational Administration, Management and Leadership	8	0.7	0.7	37.4
130210 - Physical Education and Development Curriculum and Pedagogy	8	0.7	0.7	26.4
130199 - Education Systems not elsewhere classified	8	0.7	0.7	15.7
330206 - Curriculum Theory and Development	7	0.6	0.6	93.9
160508 - Health Policy	7	0.6	0.6	56.9
160301 - Family and Household Studies	7	0.6	0.6	53.1
130213 - Vocational Education and Training Curriculum and Pedagogy	7	0.6	0.6	29.4
330302 - Teacher Education: Primary	5	0.5	0.5	95.2
330299 - Curriculum Studies not elsewhere classified	5	0.5	0.5	94.4
330201 - Curriculum Studies: English Education	5	0.5	0.5	91.4
330109 - Assessment and Evaluation	6	0.5	0.5	89.9
200102 - Communication Technology and Digital Media Studies	6	0.5	0.5	77.3

160807 - Sociological Methodology and Research Methods	5	0.5	0.5	65.9
160510 - Public Policy	6	0.5	0.5	57.7
160501 - Aboriginal and Torres Strait Islander Policy	6	0.5	0.5	53.8
160201 - Causes and Prevention of Crime	5	0.5	0.5	52.3
130209 - Medicine, Nursing and Health Curriculum and Pedagogy	6	0.5	0.5	25.7
130207 - LOTE, ESL and TESOL Curriculum and Pedagogy (excl. Maori)	5	0.5	0.5	21.9
130101 - Continuing and Community Education	5	0.5	0.5	5.9
111714 - Mental Health	6	0.5	0.5	4.6
111701 - Aboriginal and Torres Strait Islander Health	5	0.5	0.5	2.4
380106 - Developmental Psychology and Ageing	4	0.4	0.4	98.9
370107 - Social Change	4	0.4	0.4	97.9
339999 - Other Education	4	0.4	0.4	97.1
330301 - Teacher Education: Early Childhood	4	0.4	0.4	94.7
200201 - Aboriginal and Torres Strait Islander Cultural Studies	4	0.4	0.4	77.7
160808 - Sociology and Social Studies of Science and Technology	4	0.4	0.4	66.2
160806 - Social Theory	4	0.4	0.4	65.4
160803 - Race and Ethnic Relations	4	0.4	0.4	63
160702 - Counselling, Welfare and Community Services	4	0.4	0.4	61.3
130201 - Creative Arts, Media and Communication Curriculum and Pedagogy	4	0.4	0.4	16
330303 - Teacher Education: Secondary	3	0.3	0.3	95.5
330205 - Curriculum Studies: Other Social Sciences, Humanities and Arts Education	3	0.3	0.3	93.3
330106 - Comparative Education	3	0.3	0.3	88.4
210303 - Australian History (excl. Aboriginal and Torres Strait Islander History)	3	0.3	0.3	80.9
209999 - Language, Communication and Culture not elsewhere classified	3	0.3	0.3	80.3
190404 - Drama, Theatre and Performance Studies	3	0.3	0.3	76.2
170202 - Decision Making	3	0.3	0.3	75

170113 - Social and Community Psychology	3	0.3	0.3	74.6
169999 - Studies in Human Society not elsewhere classified	3	0.3	0.3	71.4
169901 - Gender Specific Studies	3	0.3	0.3	70.9
160601 - Australian Government and Politics	3	0.3	0.3	60.7
160509 - Public Administration	3	0.3	0.3	57.2
160504 - Crime Policy	3	0.3	0.3	54.2
130299 - Curriculum and Pedagogy not elsewhere classified	3	0.3	0.3	29.7
130205 - Humanities and Social Sciences Curriculum and Pedagogy (excl. Economics, Business and Management)	3	0.3	0.3	21.5
111704 - Community Child Health	3	0.3	0.3	2.7
380201 - Applied Linguistics and Educational Linguistics	2	0.2	0.2	99.2
370199 - Sociology not elsewhere classified	2	0.2	0.2	98.1
330304 - Teacher Education: Vocational Education and Training	2	0.2	0.2	95.7
330108 - Special Education	2	0.2	0.2	89.3
330105 - Educational Counselling	2	0.2	0.2	88.1
330102 - History and Philosophy of Education	2	0.2	0.2	85
321216 - Health Promotion	2	0.2	0.2	82.7
300899 - Environmental Sciences not elsewhere classified	2	0.2	0.2	82.1
220202 - History and Philosophy of Education	2	0.2	0.2	81.1
210301 - Aboriginal and Torres Strait Islander History	2	0.2	0.2	80.6
200209 - Multicultural, Intercultural and Cross-cultural Studies	2	0.2	0.2	78.4
200206 - Globalisation and Culture	2	0.2	0.2	78.3
200205 - Culture, Gender, Sexuality	2	0.2	0.2	78.1
190499 - Performing Arts and Creative Writing not elsewhere classified	2	0.2	0.2	76.5
179999 - Psychology and Cognitive Sciences not elsewhere classified	2	0.2	0.2	75.4
170203 - Knowledge Representation and Machine Learning	2	0.2	0.2	75.2
170110 - Psychological Methodology, Design and Analysis	2	0.2	0.2	74.3

170106 - Health, Clinical and Counselling Psychology	2	0.2	0.2	74
169902 - Studies of Aboriginal and Torres Strait Islander Society	2	0.2	0.2	71.1
160810 - Urban Sociology and Community Studies	2	0.2	0.2	69.8
160804 - Rural Sociology	2	0.2	0.2	63.2
160802 - Environmental Sociology	2	0.2	0.2	62.7
160507 - Environment Policy	2	0.2	0.2	56.3
150306 - Industrial Relations	2	0.2	0.2	51.4
150305 - Human Resources Management	2	0.2	0.2	51.3
130211 - Religion Curriculum and Pedagogy	2	0.2	0.2	26.6
120101 - Architectural Design	2	0.2	0.2	5.3
111717 - Primary Health Care	2	0.2	0.2	5
111716 - Preventive Medicine	2	0.2	0.2	4.8
111706 - Epidemiology	2	0.2	0.2	2.9
111099 - Nursing not elsewhere classified	2	0.2	0.2	1.9
110699 - Human Movement and Sports Science not elsewhere classified	2	0.2	0.2	1.6
440207 - Religion and Society	1	0.1	0.1	100
420308 - Multicultural, Intercultural and Cross-cultural Studies	1	0.1	0.1	99.9
419999 - The Arts not elsewhere classified	1	0.1	0.1	99.8
410303 - Multimedia	1	0.1	0.1	99.7
410101 - Music	1	0.1	0.1	99.6
390404 - Detection and Prevention of Crime; Security Services	1	0.1	0.1	99.5
389999 - Other Behavioural and Cognitive Sciences	1	0.1	0.1	99.5
380207 - Linguistic Structures (incl. Grammar, Phonology, Lexicon, Semantics)	1	0.1	0.1	99.4
380203 - Discourse and Pragmatics	1	0.1	0.1	99.3
380109 - Psychological Methodology, Design and Analysis	1	0.1	0.1	99
380105 - Social and Community Psychology	1	0.1	0.1	98.6
380102 - Learning, Memory, Cognition and Language	1	0.1	0.1	98.5
379901 - Gender Specific Studies	1	0.1	0.1	98.4
370299 - Social Work not elsewhere classified	1	0.1	0.1	98.3

370202 - Social Program Evaluation	1	0.1	0.1	98.2
370105 - Applied Sociology, Program Evaluation and Social Impact Assessment	1	0.1	0.1	97.6
370103 - Race and Ethnic Relations	1	0.1	0.1	97.5
370101 - Social Theory	1	0.1	0.1	97.4
360299 - Policy and Administration not elsewhere classified	1	0.1	0.1	97.3
350212 - International Business	1	0.1	0.1	97.2
330305 - Teacher Education: Higher Education	1	0.1	0.1	95.7
329999 - Medical and Health Sciences not elsewhere classified	1	0.1	0.1	83
321404 - Sport and Exercise Psychology	1	0.1	0.1	82.9
321299 - Public Health and Health Services not elsewhere classified	1	0.1	0.1	82.8
321214 - Health and Community Services	1	0.1	0.1	82.5
321212 - Care for Disabled	1	0.1	0.1	82.4
321204 - Mental Health	1	0.1	0.1	82.3
321025 - Rehabilitation and Therapy: Hearing and Speech	1	0.1	0.1	82.2
309902 - Education and Extension	1	0.1	0.1	82.2
300303 - Plant Protection (Pests, Diseases and Weeds)	1	0.1	0.1	81.9
300101 - Soil Physics	1	0.1	0.1	81.8
299999 - Engineering and Technology not elsewhere classified	1	0.1	0.1	81.7
280211 - Virtual Reality and Related Simulation	1	0.1	0.1	81.6
280205 - Text Processing	1	0.1	0.1	81.5
280199 - Information Systems not elsewhere classified	1	0.1	0.1	81.4
280104 - Computer-Human Interaction	1	0.1	0.1	81.3
240101 - Astronomy and Astrophysics	1	0.1	0.1	81.3
220206 - History and Philosophy of Science (incl. Non-historical Philosophy of Science)	1	0.1	0.1	81.2
210204 - Museum Studies	1	0.1	0.1	80.4
210101 - Aboriginal and Torres Strait Islander Archaeology	1	0.1	0.1	80.3
200525 - Literary Theory	1	0.1	0.1	80
200319 - Aboriginal and Torres Strait Islander Languages	1	0.1	0.1	78.7
200311 - Chinese Languages	1	0.1	0.1	78.6

200299 - Cultural Studies not elsewhere classified	1	0.1	0.1	78.5
200203 - Consumption and Everyday Life	1	0.1	0.1	77.9
200202 - Asian Cultural Studies	1	0.1	0.1	77.8
200104 - Media Studies	1	0.1	0.1	77.4
199999 - Studies in Creative Arts and Writing not elsewhere classified	1	0.1	0.1	76.7
190599 - Visual Arts and Crafts not elsewhere classified	1	0.1	0.1	76.6
190409 - Musicology and Ethnomusicology	1	0.1	0.1	76.4
190407 - Music Performance	1	0.1	0.1	76.3
190401 - Aboriginal and Torres Strait Islander Performing Arts	1	0.1	0.1	75.9
180199 - Law not elsewhere classified	1	0.1	0.1	75.8
180126 - Tort Law	1	0.1	0.1	75.7
180119 - Law and Society	1	0.1	0.1	75.6
180113 - Family Law	1	0.1	0.1	75.5
180110 - Criminal Law and Procedure	1	0.1	0.1	75.5
170114 - Sport and Exercise Psychology	1	0.1	0.1	74.7
170112 - Sensory Processes, Perception and Performance	1	0.1	0.1	74.4
170109 - Personality, Abilities and Assessment	1	0.1	0.1	74.1
160703 - Social Program Evaluation	1	0.1	0.1	61.4
160605 - Environmental Politics	1	0.1	0.1	61
160603 - Comparative Government and Politics	1	0.1	0.1	60.9
160602 - Citizenship	1	0.1	0.1	60.8
160511 - Research, Science and Technology Policy	1	0.1	0.1	57.8
160502 - Arts and Cultural Policy	1	0.1	0.1	53.9
160404 - Urban and Regional Studies (excl. Planning)	1	0.1	0.1	53.3
160403 - Social and Cultural Geography	1	0.1	0.1	53.2
160205 - Police Administration, Procedures and Practice	1	0.1	0.1	52.4
160202 - Correctional Theory, Offender Treatment and Rehabilitation	1	0.1	0.1	52.4
160104 - Social and Cultural Anthropology	1	0.1	0.1	51.8
160103 - Linguistic Anthropology	1	0.1	0.1	51.7
150312 - Organisational Planning and Management	1	0.1	0.1	51.6

150310 - Organisation and Management Theory	1	0.1	0.1	51.5
149903 - Heterodox Economics	1	0.1	0.1	51.1
140211 - Labour Economics	1	0.1	0.1	51
120199 - Architecture not elsewhere classified	1	0.1	0.1	5.4
119999 - Medical and Health Sciences not elsewhere classified	1	0.1	0.1	5.2
111799 - Public Health and Health Services not elsewhere classified	1	0.1	0.1	5.1
111711 - Health Information Systems (incl. Surveillance)	1	0.1	0.1	3
111703 - Care for Disabled	1	0.1	0.1	2.4
110903 - Central Nervous System	1	0.1	0.1	1.7
110321 - Rehabilitation and Therapy (excl. Physiotherapy)	1	0.1	0.1	1.4
100599 - Communications Technologies not elsewhere classified	1	0.1	0.1	1.4
091599 - Interdisciplinary Engineering not elsewhere classified	1	0.1	0.1	1.3
091299 - Materials Engineering not elsewhere classified	1	0.1	0.1	1.2
091199 - Maritime Engineering not elsewhere classified	1	0.1	0.1	1.1
090805 - Food Processing	1	0.1	0.1	1
090804 - Food Packaging, Preservation and Safety	1	0.1	0.1	0.9
090703 - Environmental Technologies	1	0.1	0.1	0.8
090508 - Water Quality Engineering	1	0.1	0.1	0.7
089999 - Information and Computing Sciences not elsewhere classified	1	0.1	0.1	0.6
080709 - Social and Community Informatics	1	0.1	0.1	0.5
080608 - Information Systems Development Methodologies	1	0.1	0.1	0.5
080602 - Computer-Human Interaction	1	0.1	0.1	0.4
080601 - Aboriginal and Torres Strait Islander Information and Knowledge Systems	1	0.1	0.1	0.3
050205 - Environmental Management	1	0.1	0.1	0.2
020204 - Plasma Physics; Fusion Plasmas; Electrical Discharges	1	0.1	0.1	0.1



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