

**For the James Cook University (JCU) Cohort Doctoral Studies Program:
Supporting working health professionals to complete a research degree**

1. SYNOPSIS

The James Cook University (JCU) Cohort Doctoral Studies Program (The Program) provides a structured ecosystem of support comprising research training, academic mentoring, networking, peer-assisted learning, and pastoral care enabling working health professionals to complete a research degree with translatable outcomes for industry. The Program has a 12-year track record of success, with candidates publishing more and completing faster than non-cohort peers. The Program targets part-time, external candidates who traditionally have poorer outcomes than full-time, on-campus peers, and also focuses on working mothers. Candidates' progress through their degree in small, interdisciplinary cohorts wherein a humanistic approach and student-centred learning foster learner interactions, and ensure learners' skills, knowledge, and autonomy are respected. Sustained student engagement is demonstrated by continued alumni involvement. The Program aligns with government policy, such as National Health and Medical Research Council Research Translation Strategy, to promote industry-university collaboration for world-class research. The value of The Program to industry is evident in the 2021 Australian Council of Graduate Research industry citation. Moreover, The Program's dedication to inclusivity and candidates' well-being was recognised with a prestigious international Making Opportunities for Mothers in Academia award (2023). This innovative program meets the needs of diverse, industry-based research candidates while achieving high retention rates and timely completions.

2. OVERVIEW

The Program was initiated by A/Prof Melissa Crowe in 2011 while in her former position as Associate Dean of Research Education in Tropical Health and Medicine. A/Prof Crowe has continued to develop and manage The Program supported by a core team of Cohort mentors, notably Dr Diana Mendez and A/Prof Meryl Churchill. Ms Christine Teitzel has provided student and academic support for 7 years. Formalised education/coursework in research degrees is a relatively recent concept in Australia, with the master/apprentice model of supervisor and student the traditional approach to research education. *The Australian Council of Learned Academies (ACOLA) review of Australia's Research Training System* (McGagh et al., 2016) recognised that Australian Higher Degree by Research (HDR) graduates have too-narrow a skill-base and need greater transferable skill development. The Program, based around a cohort model, provides formal research education within a **structured ecosystem of targeted services** to enhance HDR success. The Program provides research education in an environment that facilitates peer support and learning, provides support from experienced academic mentors (in addition to supervisors), and access to university experts in key areas such as literature review, ethics, research design, grant writing, data analysis, and research integrity. Program candidates also benefit from regular student conferences and writing retreats developing research communication and publication skills. To date, we have **132 Cohort completions** (102 HDR and 30 research pathway completions; Appendix 1). We currently have 135 candidates in The Program, with the majority of these part-time candidates working full time. In HDR education, **equity issues exist for part-time, external candidates** who are often isolated and receive significantly less support than their on-campus, full-time peers. A lack of familiarity with the university and its staff can often lead to decreased productivity with time lost to navigating university systems and processes. Data show that outcomes for external candidates are considerably below that of full-time candidates (Barry et al., 2018). **Another underserved group facing challenges is mothers undertaking HDR.** Females are more strongly represented in The Program (79% of current candidates; 64% of graduates; Appendix 1) reflecting the greater proportion of females in undergraduate healthcare programs and the health workforce, particularly nursing and allied health. There are currently 32 mothers in The Program, with 81% working while studying. Furthermore, 30 of The Program graduates were mothers who completed their degrees while parenting children of school age or younger, two-thirds of these while working full-time (Appendix 2). Our commitment to inclusivity and diversity also includes support for First Nations research candidates. The Program has four First Nations graduates (Appendix 1) and currently supports five First Nations candidates, aligning with the JCU focus on rural, remote, and Indigenous health. The services provided within The Program have been proven to successfully support learning engagement and improve the participation of groups of students who have historically been underserved in higher education, particularly in research education (see our **video at Appendix 3**).

3. STUDENT EXPERIENCE THAT SUPPORTS DIVERSITY AND INCLUSIVE PRACTICES

CRITERIA A

The importance of university-industry collaboration is demonstrated in the recent Australian University Accord Interim Report which recommends establishing a target number of PhD candidates employed in industry and promotes the creation of stronger links between industry and education, particularly in regional areas with low participation and attainment rates. These important industry-university links are also promoted in medicine and health by the National Health and Medical Research Council Research Translation Strategy and the Medical Research Future Fund. Aligning with these recommendations, our unique Program has a sustained history of providing research education and collegial networking support for busy, working health professionals undertaking research degrees relevant to their work. Research has shown that students **studying in isolation** (Barry et al., 2018; van de Schoot et al., 2013) or on a **part-time basis progress more slowly than full-time students** (Barry et al., 2018), with lower rates of completion (Spronken-Smith et al., 2018). The Program was developed to address these poor outcomes, and to provide an environment that facilitates applied research that is relevant to industry and of benefit to professional practice and patient outcomes. The Program commenced in 2011 with one multidisciplinary cohort of 13 candidates. We now support 135 candidates across 24 cohorts with 132 completions from multiple health disciplines (Appendix 1). JCU is a small regional university, thus, these outcomes are significant given that up to 70% of cohort candidates are working professionals, the majority working full-time and studying part-time. Importantly, 5% of our graduates are Indigenous candidates, 14% from the Pacific Islands and Asia and 13% from other countries (Appendix 1). The Program is **consistently highly rated by candidates** as exemplified by 2020 Program and Staff Performance Survey outcomes (Appendix 4).

The Program includes a suite of services (Figure 1) with a clear structured framework for progression; research education workshops throughout candidature; peer support, learning, and networking; experienced

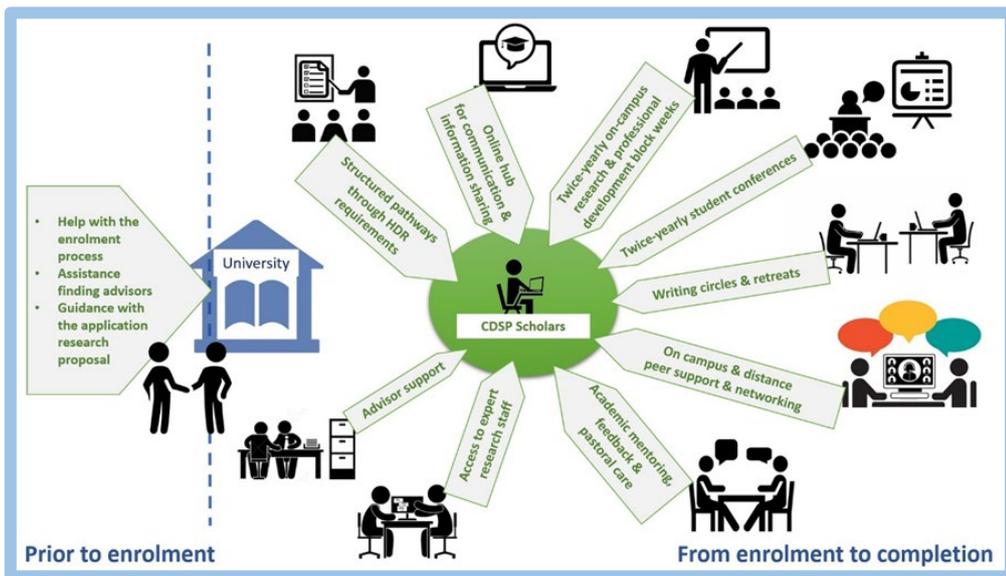


Figure 1. Key learning features of the JCU Cohort Doctoral Studies Program

academic mentors for research advice and pastoral care; critical thinking; student conferences to present their research with mentor and peer feedback; and writing retreats and writing workshops to facilitate communication and dissemination of research findings. The block format approach facilitates attendance by busy working professionals. The value of The

*“I really like **the array of topics** that are covered in the blocks. They are always **relevant** and seem to be well matched with the **stage of our candidature**. The cohort team are very **committed** and provide great advice, direction and **support**. It is always great to catch up with the rest of the cohort members. After the first cohort block I developed **friendships with several peers** in the group and these connections are very important and supportive, and I value them highly.”* (Cohort candidate, 2017)

Program to the health industry is exemplified by employers providing work time for their staff to participate and supporting research within the workplace. Since 2021, the teaching blocks have been delivered in hybrid mode (simultaneously face-to-face and online) with positive student feedback:

“The friendly tone of the way the Cohort Team welcomed all the participants including those on zoom set the appropriate tone for the whole week. I personally felt welcomed and so participated the whole week online.” (Cohort candidate. Induction block week. 2023)

Flexibility around the hybrid mode of attendance ensures that isolated candidates and those in remote locations have an **equal quality learning experience** to those on campus.

In addition to the block weeks, which are delivered twice yearly, candidates benefit from a weekly writing circle (on campus and online), regular contact from a nominated Program mentor, an online platform for information sharing and communication (via Blackboard; Appendix 5), group ‘catch ups’ in between block weeks, and invitations to attend peer milestone seminars. These key Program features were designed to enhance student engagement and research learning throughout candidature, addressing the development of transferable, generic skills (as endorsed by the ACOLA review), and facilitating a broader education experience during candidature. This is opposed to the traditional HDR experience where candidates become an expert in their narrow field of expertise. In contrast, the interdisciplinary cohorts in The Program help develop broader research skills. Candidates are exposed to research approaches outside their field of study, for example, we have laboratory-based candidates who learn the value and role of qualitative methodologies, and qualitative candidates who gain insight into quantitative research designs or Indigenous research methodologies through their cohort interactions. These expanded learning opportunities lead to greater breadth of skills in Program research graduates.

The Program enables working health professionals to remain in their workplace while completing their research studies, which is particularly vital in regional, rural, and remote areas where health workforce shortages exist. In these regions, health industry partners cannot release their clinicians for 3-4 years to undertake a research degree. The candidates in The Program benefit from our approach in a number of ways. The research they undertake is valued and supported by their workplace and has the opportunity to be translated into practice, Cohort staff and mentors recognise the need for a humanistic approach to teaching and learning that accounts for the life complexities of each candidate as an individual, candidates bring a wealth of knowledge and experience to The Program which facilitates peer learning and support, and the format and delivery of the learning experiences are undertaken in a manner that facilitates attendance by busy working professionals (see Appendix 6 for graduate letter of support). The accomplishments of The Program align with **Australian government policy** to promote collaboration between industries and universities for world-class research that translates into real and tangible benefits and also with the **Queensland State Government priority** objective to support research into health and wellbeing and the **Queensland Health mission** to build the research capacity of their workforce to provide outcomes that benefit their communities.

"As a clinician who had jumped into HDR studies with no prior research experience, I felt like a fish out of water, and had no idea what I was doing. ... During the block week, the Cohort Program mentors walked us through the basics of conducting research and what we need to know as HDR candidates. This made it possible for me to develop a feasible plan for my project" (Remote nurse, Cohort candidate, 2020)

COHORT PROGRAM OUTCOMES:

Undertaking HDR is challenging (ACGR, 2023), with high rates of non-completion (Australian Government, 2023), which is even more evident for part-time (Spronken-Smith et al., 2018), and external candidates (Barry et al. 2018; van de Schoot et al. 2013). In contrast to this trend, The Program has a sustained track record of high retention rates and successful completions. Our **retention rate has varied from 82-90% throughout the history** of The Program. This impressive performance was sustained through the COVID-19 pandemic, significant achievement when considering the marked impact of COVID-19 on health workers and noting that health research halted for an extended period in many of the hospital and health services. Figure 2 shows the increasing number of Program completions for HDR graduates (excluding pathway candidates) from 2017 to 2022.

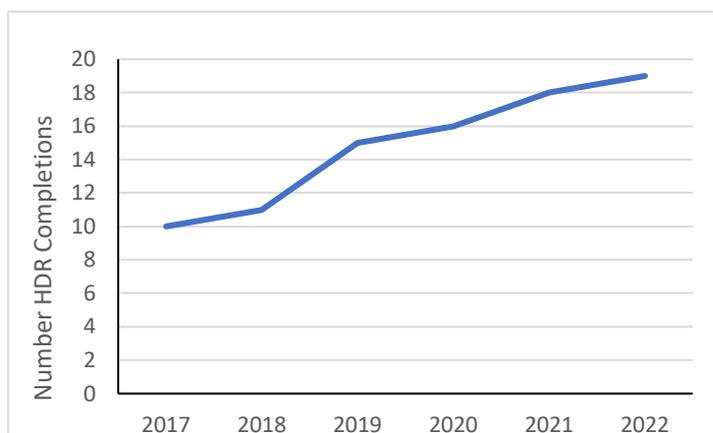


Figure 2. Number of Program HDR completions 2017-2022 including the COVID-19 pandemic period

In addition, the **successful learning experiences** of Program candidates is demonstrated in their high research productivity. Success in research is continually assessed through publication outputs and grant income. The Program encourages candidates to ‘publish as you go’ through writing skill development during annual 5-day writing retreats, weekly writing circles, and writing retreats during block weeks. We provide regular workshops on academic writing and editing, literature reviews, critical thinking, and publishing, with timely feedback on written work. Program candidates have been highly successful in publishing work from their research projects with **647 total publications** from Program inception to July 2023 (Table 1), with this number increasing exponentially as more candidates complete their degrees. Notably, **63 of these peer-reviewed publications include joint Program candidate authorship**, reflecting the effectiveness of The Program in fostering candidate collaboration. The Program also enables candidates to form active research alliances such as The Townsville Working Group on Diabetic Foot, SMART Arm stroke rehabilitation, tuberculosis, and One Health groups.

The **grants funding awarded to Program candidates exceeds \$10.3 million** from program inception to July 2023 (Table 1) with \$9.9 million awarded from external sources. We benchmarked The Program by undertaking a comparison of the productivity of Program versus non-Program candidates. Our publication (Churchill et al., 2021; Appendix 7) showed that additional support through The Program was associated with **higher research productivity** (assessed via the number of publications) and **shorter time to completion compared to those not engaging in a cohort program** (Appendix 8). The data revealed that the **average time to doctoral completion for Program candidates was 3.35 FTE years** (Churchill et al., 2021), considerably less than the median time to completion reported for Australian universities of 5 FTE years (based on data from 2005-2017, Torka, 2020).

Table 1. Cohort Program candidate indicators of success - publications and income (Sept 2011- July 2023)

Outcome	Value
Candidate Publications (total)	647
Joint publications	63
Grant income*	\$10,385,401 (external \$9,917,166)
Scholarships	\$12,124,400 (external \$8,013,308)

Data calculated July 2023. *note: not all grants have been administered by JCU.

Another important outcome is evident in the **success of the mothers within The Program**. The greater proportion of females in the health workforce is reflected in The Program. Furthermore, the career phase in which many people feel ready to undertake a research degree frequently coincides with motherhood. Rather than delaying either career progression or motherhood, The Program supports women to achieve both goals. A/Prof Crowe (Head of Program) is herself a mother of four young daughters. A/Prof Crowe’s experiences have shaped her humanistic, person-centred approach when supporting mothers and other candidates facing carer responsibilities during their studies. Although balancing a successful teaching and research career with being an attentive mother is challenging, through her achievements, A/Prof Crowe provides a role model for females within The Program. A/Prof Crowe and Dr Mendez, another Program mentor (also a mother) work with, support, and encourage mothers in The Program to find the solutions that suit their unique circumstances. They discuss the expectations and realities of undertaking HDR studies with potential candidates prior to their enrolment. These authentic conversations support mothers specifically, setting them up to be successful in their degree. Data show that women are underrepresented in Australian research metrics (Australian Research Council, 2022), thus **the high retention and completion rates of mothers in The Program are particularly noteworthy**, and our students value the high level of support:

"I had a 18 month old child when I commenced in the Cohort Program, I had my second child while studying and now I am a PhD! The mentors in the Cohort Program were supportive and encouraging about balancing the study workload and having a young family. The Cohort Program skill development workshops, events and mentor support streamlined the PhD study process while raising a young family. This made completing my PhD, working and family life manageable." (Mother, casual academic, children aged 9 and 12 years. Cohort candidate, now Alumni, 2022)

Since its inception, **30 mothers enrolled in The Program have graduated from their chosen degree** (Appendix 2). Collectively, mothers enrolled in The Program have achieved the following: published 135 manuscripts; co-authored at least 5 publications with another mother in The Program; received nearly \$AUD 2.6 million in scholarships (JCU funded \$683,710; externally funded \$1,901,328); and secured over \$AUD 2.7 million in grants (JCU funded \$31,838; externally funded \$2,697,851). By recognising motherhood and the successes of mothers, The Program is actively 'shifting the cultural landscape' of academia (Gilbert and Pascoe-Leahy, 2023) for mothers and mothers-to-be. The supportive, inspiring environment created by The Program staff and candidates within The Program enables mothers to thrive in what is typically seen as a difficult and challenging area, as shown by our student feedback:

"Being a mother with small children and studying while working most people assume and advise that it is not recommended to pursue this career. The Cohort group and advisors acknowledged the adversity and emphasized that I would be able to access whatever I needed in whatever fashion worked for my needs. Their flexibility and understanding have been integral to me continuing my research career."
(Working mother and HDR candidate)

"The Cohort is creative in finding solutions to problems that are encountered that include the considerations of families. The Cohort doesn't see that we have small children as a deficit, they champion it and make parents who study feel like we are needed just as we are with small children and that being a parent is a benefit." (Mother, academic health professional in a remote location, children aged 2 and 5 years, Cohort candidate, 2022)

The Program also builds research capacity in **Pacific Island countries**. Seven Program-enrolled PhD graduates from Pacific nations now hold important positions within their own health systems or universities. Two additional Pacific Island candidates are completing their theses and several others are in the enrolment process. In addition, we strongly support First Nation candidates in The Program, who play a critical role in providing advice on culturally appropriate research processes for research with First Nations peoples, along with conducting workshops on Indigenous methodologies and working respectfully with Indigenous communities. To date, over 35 research projects have been initiated by Program candidates that address, either specifically or in part, Aboriginal and Torres Strait Islander Health, aligning with the Federal Government agenda to Close the Gap. Furthermore, 30 projects focus on rural and remote health which will directly benefit the health of North Queensland communities. We have **four First Nation graduates** and of the five others currently enrolled, two are on track to finish in 2023. Feedback from First Nation's students has been highly positive:

"Yarning with other cohort students about how they manage studying with kids; helping out with things like travelling with the kids on the bus; and asking about the kids if they aren't with me. I don't feel bad or judged for being there. There's no pressure to do things because we can always find another way around. I wonder what impact studying and having my kids around the uni will have on them. Will seeing their mum studying inspire them to set their sights on going to uni if that's what they want to do?" (First Nations Graduate Diploma Research Methods candidate, Cohort candidate, 2022)

EVALUATION: We consistently seek **feedback from our candidates** in The Program, who are encouraged to provide verbal feedback on all aspects of The Program at the conclusion of every block week and complete an anonymous written survey feedback following the blocks. **Candidates are consulted regarding The Program format and delivery as well as Program content** and each cohort group is encouraged to suggest workshop topics for future block weeks. Our **responsiveness to learners' needs** ensures that the content of successive block weeks is fit-for-purpose, facilitating personalised learning. We also encourage learner autonomy by providing candidates access to Program mentors with a diverse range of skills and methodological backgrounds. Mentors refer candidates to other mentors for specialist advice where appropriate, something our students value:

"The cohort program has become a 'home base' for advice and support. I recommend it to others...!"
(Health professional, Cohort candidate, now Alumni, 2021)

In addition to the regular block week feedback, the teaching team implemented additional feedback surveys and **independent interview feedback** obtained from both **candidates and research supervisors**. Additional forms of **independent program feedback occur via the Postgraduate Research Experience Questionnaire (PREQ)** and the **JCU Doctoral Experience Report**. The PREQ questionnaire is a nationwide Australian Graduate survey sent to all recent HDR graduates at all Australian universities. This independent survey provides feedback on the student experience and student satisfaction with elements such as supervision, skill development, and intellectual climate. The JCU Doctoral Experience Report is conducted independently of the JCU Graduate Research School (GRS) to inform the GRS on the positive and negative experiences of JCU HDR graduates. Quite often graduates provide specific, unsolicited feedback about their positive experiences within The Program in these feedback opportunities: *“The Cohort program has been the best. It is a great opportunity to network with other HDR students, obtain professional development and write.”* (Cohort candidate, HDR Candidature Experience Report, 2022); *“Doctoral cohort makes it so much easier to be an external student”* (Cohort candidate, JCU Doctoral Experience Report, 2018).

CRITERIA B: The high quality and success of The Program was recognised at an institutional level in 2018 with a prestigious **JCU Citation for Outstanding Contributions to Student Learning** and in 2019 with a **JCU award for Excellence in Graduate Research Leadership**, presented to A/Prof Crowe. The success of The Program has occurred with little formal marketing. Most candidates apply for The Program based on recommendations from their supervisors or from current or past Program candidates, showing that our colleagues recognise the importance of the work we do. Further endorsement of The Program comes from the many JCU staff who donate their time to The Program to deliver research education workshops. Since The Program’s inception, over 80 staff have delivered workshops.

A **formal, independent external review** was undertaken in December 2018, chaired by the Chief Executive of the Townsville Hospital and Health Service, one of our key industry partners. The review concluded that, *“The Program has established itself as an innovative fit-for-purpose research education program. The Review Panel found its staff, activities and outcomes to be focused and committed to achieving its objective of ‘building researchers’ and research capability for industry.”* The review panel also reported that, *“The resultant diversity has provided a highly valued environment for cross-fertilisation of ideas and opportunities for cross-functional skill development for Participants. This web of technical and professional support is complemented with a high social and pastoral value attached to The Program by participants”*. The overall outcome of the external review was positive and was summarised in the review commendations as a *“well-regarded, high quality and professionally managed Higher Degree by Research (HDR) education program.”* Our actions, aimed at continual quality improvement, in response to the panels’ recommendations are summarised in Appendix 9.

In 2021, the Cohort Doctoral Studies Program was recognised with an **Australian Council of Graduate Research (ACGR) special commendation award for Excellence in Promoting Industry Engagement in Graduate Research**. In announcing the award at the awards ceremony, Professor Al McEwan of the Australian Council of Graduate Research Executive Committee, noted the outstanding supporting statements from the candidates in The Program.

The Program has been **financially supported by the Roderick Trust** since its inception. Funding applications outlining the achievements of The Program and justifying award of further funding are submitted every 3 years. To date we have received 5 rounds of funding from the Roderick Trust of \$250,000 per year, indicating the high value that the Board of Trustees place on The Program.



Figure 3. International award

The Program received **international recognition** in 2023 with **First Place for Making Opportunities for Mothers in Academia (MOMA) Changemaker award** (Figure 3) in the category of University/Institution. The award was bestowed by the International Association of Maternal Action and Scholarship (IAMAS) and presented at the IAMAS conference in Chicago this year. The award recognised the outstanding achievements supporting mother researchers to undertake and complete research degrees (see Appendix 2 for data from Cohort mothers and letter of endorsement from the Executive Director IAMAS).

Further **national and international recognition** and endorsement of The Program is evidenced by the following:

- An agreement with the Philippine Department of Science and Technology (DOST) to support working physicians based in the Philippines to undertake a JCU research degree within The Program. DOST sponsor candidate flights to Australia to attend Program block weeks and fund their research and publishing costs.
- **Queensland Health scholarships** available to allied health staff based in rural and remote regions to undertake a pathway degree (Graduate Certificate/Diploma in Research Methods) within The Program.
- Consultation with other institutions (e.g., Massey University, Menzies School of Health Research) regarding the possibility of establishing their own cohort-style doctoral program.

CRITERIA C: In Australia, few universities include coursework within the PhD (Kiley, 2014). However, this is changing given the call for development of a broader skill-base and for research degrees to train people for roles outside academia (McGagh et al., 2016). Research education at Australian universities typically involves workshops offered in large groups, sometimes with postgraduate coursework students, however, these encounters do not promote deep bonding between candidates. Many universities establish communities of practice through discipline seminars and social events, but cross-disciplinary interaction and in-depth research education tends to be lacking. To counter this, mentoring and peer support are recommended as a means of enhancing progression in doctoral studies (Terry and Ghosh, 2015). The Program **establishes small cohesive groups of multidisciplinary candidates** where research education and peer learning endures from the start of candidature through to completion. This model promotes strong bonding between candidates and with Program mentors. Our Program **creates a sense of community and belonging** because the mentors journey with the candidates from degree commencement, often before enrolment, through to thesis examination and completion. This **constant support** has been vital to the students (and the university), particularly in the past 8-10 years, which have seen two university restructures with high staff turnover and the COVID-19 pandemic.

The underlying **teaching philosophy utilised in The Program is student-centred learning**. Figure 4 illustrates the main aspects of student-centred learning utilised in The Program with quotes from candidates, supervisors, and university teaching staff illustrating the effectiveness of this approach. Further evidence of the positive impact of our innovative Program on student learning, engagement, and research experience is shown from the data in Table 1 and Appendices 1 and 8 (with significantly better outcomes compared to other candidates, even those enrolled full time) and the candidate quotes provided herein. Evidence of candidates' research translation also fulfils state and federal government agendas of increasing industry and university interaction to produce research outcomes with tangible benefits. Furthermore, the institutional, national, and international awards outlined above all attest to the successful implementation of a creative, novel and innovative approach to research education.

CRITERIA D:

Balancing full-time work with a research degree and other life responsibilities can be challenging. The isolation experienced by part-time, external candidates is often associated with a decreased chance of HDR success. **The Program was designed to address these challenges**. The delivery format and content, along with mentoring support and the creation of cohesive, supportive groups enhances the learning environment, leading to successful completion. **Student-centred learning** (Bremner, 2021) is the key educational approach that guides our teaching in The Program (Figure 5). Research education should develop higher order skills and promote critical thinking and problem solving. Student-centred learning can facilitate these outcomes through promoting autonomy, active participation (including interaction with peers), power sharing between teachers and learners, and adapting to the learner needs (Bremner, 2021). There have been calls for doctoral education to meet the diverse student needs (Bertone and Greene, 2018), this is achieved with our student-centred learning approach. In The Program, teachers value and respect the knowledge and skills candidates bring to their learning. Often candidates enter The Program with many years of clinical experience, which enriches the learning environment and facilitates knowledge sharing between candidates. Teachers draw upon this knowledge and experience when undertaking learning activities. Lateral and critical thinking are developed in candidates via problem-solving workshops; for example, one session challenges candidates to 'take the opposite view' and formulate an argument opposed to their usual thinking. In journal club, candidates learn to critically review literature which encourages candidates to think more deeply and reflect on their own writing and learning. One key to success of The Program is **flexibility**. Supporting busy health professionals requires considerable flexibility to accommodate the other demands on their time. We have maintained hybrid format (face-to-face and online) since 2021 because it enables those unable to travel for

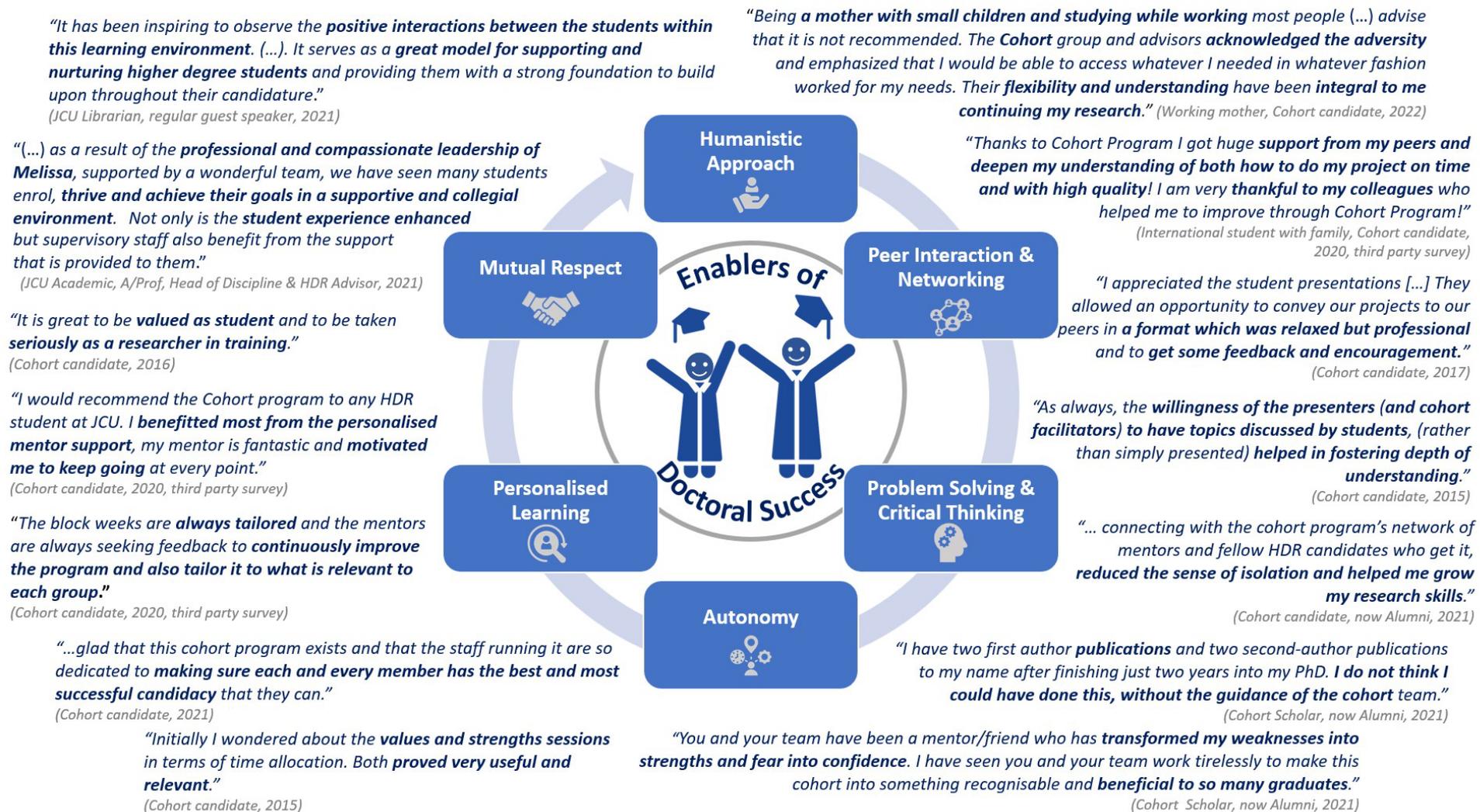


Figure 4. Enablers of doctoral success with candidate, supervisor and university teaching staff quotes illustrating effectiveness of The Program approach.

block weeks and candidates based overseas to engage in peer learning and real-time educator feedback. Feedback from those who attend online is positive with candidates claiming they “*feel like they are in the room*”. Responsibility for learning lies with the learner (autonomy), however, we facilitate learning through the inclusion of workshops on motivation, planning their time and work-life-study balance, and balancing parenthood with research thus empowering individuals to reflect on their own life and circumstances to plan how they will fit research into their busy lives. Our **flexible and humanistic approach** is consistent with the student-centred learning philosophy and may account for our above-average retention rates despite candidates being busy working professionals. At commencement, we explain that a part-time PhD may take 4 to 7 years to complete, and that major life events will occur during this time (e.g., promotion, divorce, births).

We discuss the confidential support available from Program mentors to navigate these challenges and have workshops that foster life balance.

Interaction and peer learning are encouraged and facilitated in The Program. Sessions are included where candidates explain

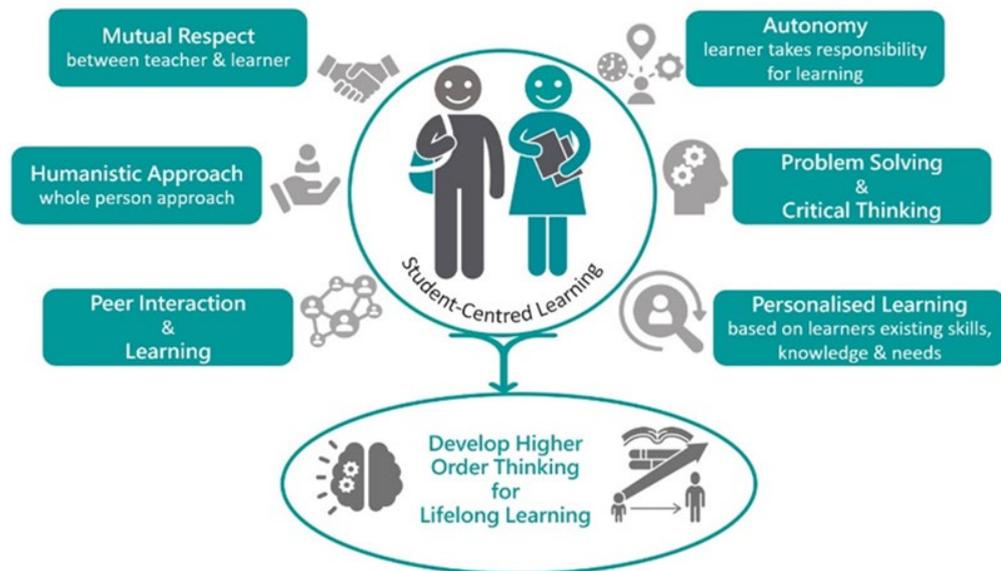


Figure 5. Student-centred learning approach adopted within The Program.

their research in formal (Cohort conferences) and informal settings. Candidates are encouraged to provide constructive feedback to peers in a respectful manner that facilitates peer learning. Most workshops incorporate group work and discussions to further facilitate peer learning. The multidisciplinary interaction has had some unusual interplays: one example of peer learning comes from a pharmacy candidate needing an innovative method to assess the temperature of drugs being administered in tropical conditions to establish drug stability. A One Health, laboratory-based candidate working on disease in frogs provided the solution with a tiny frog thermometer that the pharmacy peer used in their drug trial.

The **sense of belonging** within The Program provides an anchor for candidates to withstand challenges during their degrees (Appendix 10). The importance of belonging is a critical mechanism for student retention (Kahu and Nelson, 2018), and is vital for non-traditional students such as those in The Program, many of whom would rarely visit a JCU campus or have contact with other candidates were it not for The Program.

The program **content is adapted to the stage of candidature**. At the start of candidature emphasis is placed on research planning, literature review, ethics, writing a proposal, research design and research integrity. As candidates progress through their degrees, the content is mapped to their stage of candidature. Preparing for data collection, community engagement, and grant writing are followed by sessions on data analysis, data presentation, getting published and presentation skills. In late candidature the focus moves to thesis formats, incorporating publications into the thesis, and thesis examination. Content is adapted to student feedback thereby enhancing the **personalised approach to teaching**. Workshops on using social media in research, infographics, effective online conference presentations, artificial intelligence and its implications for research and research learning are all examples of workshops initiated following student feedback. In designing The Program, an emphasis was placed on writing, publishing and other transferable skills. The writing retreat methods proposed by Jackson (2009) were adapted to the context of delivery in The Program yielding higher than average publication outputs in candidates. We encourage candidates to be **lifelong learners** in line with the student-centred approach to teaching. Cohort alumni are encouraged to become research supervisors for current Program candidates to continue their learning and remain research active. This approach **builds**

research capacity within the health industry. There are now over 15 Program graduates who are supervisors of current candidates and workshop presenters. This important role modelling provides additional supervisory capacity for the university. Most of these graduates are industry-based which reinforces the government focus on industry-based research and the opportunity for translating research outcomes into practice. The value of The Program is further evidenced in the return of three alumni to work as Program mentors. The Program **teaching and learning** approach and outcomes are documented in the scholarly literature in **four peer reviewed publications** (Appendix 7), with a further two papers—one on the enablers of doctoral success (based on qualitative data), and the second documenting the research translation impact of Program alumni (quantitative)—in preparation. The latter publication in preparation involves assessment of the medium-term impacts (after 10 years) of the doctoral research of the early Program graduates.

The strength of The Program lies in converting into strengths what are often considered disadvantages and limitations for HDR candidates. Our diverse group of part-time, external candidates, including working mothers, First Nation, and Pacific Island candidates, brings a wealth of experience and knowledge to The Program, and generates an inclusive, supportive, collegial learning environment enhanced by the commitment of the Cohort mentors. This inclusive, student-centred, humanistic approach results in enhanced student experience and success that also benefits the health industry through relevant research where outcomes are translated into practice to improve patient care.

4. REFERENCE LIST

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