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Keywords

postgraduate supervision; supervision pedagogy; research training; professional development; bespoke framework; higher degree research; student support

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Introduction

Over the past two decades, many higher-education institutions have begun to address the problem of how to provide support for supervisors and their higher degree research (HDR) students. In the past, the methods used to promote student engagement in their research degrees and the professional-development strategies to support the development of research supervisors have been somewhat makeshift in nature and application (McGagh et al. 2016). The recent focus on the support of HDR students and the provision of professional development for research supervisors has, in some cases, been implemented by developing support resources, programs and activities. For example, recent research in the fields of researcher education and supervisor development has focused on the construction and provision of professional-development systems that support supervision of HDR students, also known as research-training frameworks (Carton & Kelly 2014; Luca et al. 2013; Council of Deans and Directors of Graduate Research (DDOGs Australia), 2014; Taylor 2014). Furthermore, various resources have been developed to support the professional learning of postgraduate supervisors and postgraduate students (e.g. Willison 2010; Jackson & Taylor, 2007; Luca et al. 2013; Sisson & Crawford 2016). Alongside these recent developments, a greater focus on the pedagogy of research supervision has surfaced, emphasising the process of postgraduate supervision as a form of teaching and the engagement of postgraduate students in mentored research as a form of learning (Kiley 2009; Kiley & Wisker 2009; Bruce et al. 2009).

This paper outlines the development of an evidence-based, research-informed framework for use by both postgraduate candidates and their supervisors. In addition to theories and practices reported in the literature of supervisor development, researcher education and professional development, the framework-development process drew on the views of stakeholders who would be its key users, as well as the views of the institution's administrative leaders. Although the framework as it is currently used is described in this paper, the development process that led to its inception is the paper's overall focus.

Institutional setting

The primary aim of the larger research study, partly outlined in this article, was to design and develop an institutional framework to support the supervision and engagement of postgraduate students enrolled in HDR courses. The main stakeholders who were the focus of this project were academic staff whose role encompassed HDR supervision and their HDR students; the study also included the professional-development and administrative staff of the institution. Academic staff within the institution had specifically requested a professional-development program, training activities and resources to instruct them in the supervision process, while students had requested support activities and resources to guide them through their higher-degree studies. The Research Training Support Framework was developed within Avondale College of Higher Education, a self-accrediting institution in New South Wales, Australia, and was developed by a team of Avondale's scholars whose work was guided by an expert panel and funded by an Office for Learning and Teaching (OLT) Australia grant during 2014 and 2015.

The research setting played an instrumental role in the way the project was devised and conducted. Avondale College of Higher Education is a small, Christian, private higher-education provider with campuses in Sydney and Lake Macquarie, New South Wales, Australia. This institution offers a number of niche research opportunities for students who choose to study at a distance or part-time, and/or who are from cultures where English is not a first language. When this research was being conducted, Avondale had a total student enrolment of approximately 1,500 students and

an HDR student population of approximately 60 candidates across the master of philosophy and doctor of philosophy degrees. Most of these students were enrolled on a part-time basis, with almost half studying at a distance from interstate and other countries. The first doctoral candidate graduated in 2013 and the second in 2014; two graduated with doctoral degrees in 2015 and three in 2016. Avondale has had a strong output of master's and honours graduates over the years and the master's by research program has been slowly gaining momentum, with Avondale graduating its first master of philosophy candidate in 2015. Students are currently able to graduate from the discipline areas of arts, nursing, theology, business, education and science.

One of Avondale's strategic goals is the advancement of its research capacity. This goal is being pursued through its attainment of self-accrediting authority, which was awarded in 2014, and, eventually, university status. Self-accrediting authority grants Avondale the responsibility of designing, implementing, monitoring and conferring awards that have been through a rigorous quality-management process that includes close internal institutional scrutiny and external ratification. This recent development in the institution's anticipated journey towards university status has necessitated the development and implementation of a strong, institution-wide framework to promote high-quality supervision and engagement of postgraduate candidates enrolled in HDR courses. While the need for similar frameworks to support supervision and supervisor development has currently been identified as a need for other higher-education institutions (Leiber et al. 2015; Faculty of Education Queensland University of Technology 2015), the institution's quality of research supervision relies on the quality of faculty members' ability to supervise students effectively.

Recently, Avondale has undergone a major cultural shift from a predominant focus on undergraduate teaching to a recognition of the value of the teaching-research nexus. Avondale has increased the number of its staff with doctoral-level qualifications, improved research and publication output, attracted a number of government and organisational grants and increased the number of successful completions of HDR degrees. Given the emphasis on the quality of academics who are supervising their HDR students, Avondale's strategic initiative to develop and implement an institutional framework to support and improve supervision of HDR students has been timely and relevant. By describing the formation of an institutional framework to support quality supervision at Avondale, the paper offers relevance to other higher-educational institutions and contributes to the growing literature on doctoral and higher-degree supervision.

Background

Internationally, research output in the university sector is now viewed as central to government funding (Knott 2015; Lucas 2006; Tertiary Education Commission-Te Amorangi Matauranga Matua 2016). Along with a growing focus on research within universities, the long-held need to support both academic supervisors and their research students is becoming increasingly crucial, and institutions have been developing a range of initiatives both at institutional and national levels (Luca et al. 2013; Sisson & Crawford 2016). Moreover, students themselves are offered support from national bodies to enhance their preparedness for post-study work. The UK VITEA institution is one such body, with an aim to support the development of excellence in research and research training; as part of its scope of supporting research supervisors and students, it has developed a Researcher Development Framework (Careers Research and Advisory Centre (CRAC) Ltd 2016). In addition to the development of various researcher-development frameworks, there have also been substantial changes to how doctorates are obtained. For example, over the past two decades there has been a shift from an elite to a mass system in higher

education (McCulloch & Thomas 2013). The instigation of the Research Training Support Framework at Avondale can be seen in the context of wider institutional changes taking place both nationally and internationally, and the extenuating factors that students face in desiring access to HDR opportunities.

As well as changes in how HDR supervisors and students are supported, the process of research supervision itself is changing. It is now acknowledged that, for research supervision to succeed, it must be viewed as a unique pedagogy (Walker 2010; Golde 2010; Grant 2010). Lusted (1986) has argued convincingly that the primary conceptualisation of this pedagogy involves the relationship between a learner and a teacher, and the knowledge produced in and through that relationship (Green & Lee 1999; Lee & Green 1997; Green & Lee 1995). The relationship between the supervisor and student strongly influences the type of teaching and learning that occurs during postgraduate supervision (Kelly & Schweitzer, 1999; Barnes & Austin 2009; Jairam & Kahl 2012; Nakamura et al. 2009). Thus, relationships between students and supervisors are seen as being central to the doctoral-student experience (Austin 2002; Barnes & Austin 2009; Kelly & Schweitzer 1999; Nakamura et al. 2009).

Researcher education and supervisor development have become features in many universities' professional-development programs over the past few decades (McCulloch & Loeser 2016). The beginning of this movement was characterised by claims regarding the value of such programs, but many of these claims have typically been general in nature, neither clear nor specific about the content and nature of the programs required. However, more recently, explicit aspects of these programs have been placed under scrutiny. For example, Guerin et al. (2017) recently published a report that investigated the professional-development opportunities offered across Australian universities for research supervisors in how to support their doctoral students' writing abilities. This is an example of how researcher education is becoming more tailored and specialised within institutions. While the provision and uptake of these programs has been shown to be valuable (Emilsson & Johnsson 2007; Taylor 2014; Carton & Kelly 2014; Lepp et al. 2013), there has also been some opposition to their implementation. For instance, Manathunga (2005a) has reported resistance by some supervisors who "resent the intrusion of educational developers into what many of them have regarded as a private pedagogical space" (p.17). The conceptions of research held by postgraduate supervisors can also cause problems for their postgraduate students, especially "when conceptions and their underlying assumptions go unacknowledged and unchallenged" (Bills 2004, p.86). However, the professional learning that research supervisors engage in to develop their supervision capacities helps them develop their own skills and knowledge of supervision, as well as enabling them to become increasingly aware of their HDR students' needs, interests and abilities.

In the higher-education context in Australia, Palmer's report (2010) notes that postgraduate students appreciate regular contact with supervisors, collegial approaches, mentoring, availability and responsiveness and access to independent support and advice. The same report describes a number of student concerns, such as a lack of consistency in supervision, undue pressure on completion times, difficulties with administrative frameworks for managing research supervision and supervisors who are unable to devote adequate time and resources to their students. Supervisors' qualities that directly affect research supervision include credentials, research and publication output, grant success and supervision completions (Manathunga 2005a; Manathunga 2005b; Kim et al. 2006). Specifically, as Barnes and Austin (2009) conclude, doctoral supervision is complex, and cannot simply be viewed as formulaic. Rather, the relationship between supervisor and student has both an intellectual and an affective dimension. The experience of supervision enables students to develop and shape their professional and personal identities (Baker et al.

2013), their persistence (Felder 2010; Gardner 2009) and their academic and professional productivity (Paglis et al. 2006; Tenenbaum et al. 2001). The pedagogical relationship between the learner and the teacher or, in our case, between the HDR student and the supervisor, appears to be intrinsic to the student's success.

Research methodology

The project's methodological approach – a Utilisation-Focused Evaluation (UFE) methodology (Patton 1997; 2011; 2015) – was employed to develop and implement an institutional supervision support framework that improved and enhanced the capacity of Avondale's academic staff to supervise HDR students, and to support HDR students. The framework was designed in consultation with academic and administrative staff and HDR students, and was guided by a panel of national and international collaborators. The activities within the project were driven through a collaboration of leaders and members of each faculty within Avondale and an external expert advisory panel.

UFE is considered an effective approach to evaluation-focused research, particularly when designing, developing and evaluating learning resources to inform practical change. UFE is not limited to a particular research approach or methodology; as a rule, it supports "methodological appropriateness" and the use of mixed methods. It assists with shaping the approach and methodology that best works within the context of students' specific program (Vasser et al. 2010). The key consideration in UFE research is the proposed use of findings based on data gathered from key stakeholders to inform contexts and specific programs, rather than the development of knowledge that can be generalised to other contexts and times (Patton 1997). Consequently, evaluations are planned and conducted in ways that enhance the likely use of both the findings and the process itself to inform decisions and improve performance. The UFE approach centres on maximising "intended use by intended users", a term used repeatedly in Patton's (1997, 2008, 2015) work, emphasising that the principle goal of an evaluation is to give users (stakeholders) information they need in a well-timed manner. Patton argues: "Intended users are more likely to use evaluations if they understand and feel ownership of the evaluation process and findings and that they are more likely to understand and feel ownership if they've been actively involved" (Patton 2012, p.366). This requires identification and organisation of an evaluation team where both decision-makers and primary users collaborate throughout the evaluation process. It is the role of the team to clarify values, understand contextual dynamics, define action orientated questions and interpret findings, thereby "preparing the groundwork for use and reinforcing the intended utility of the evaluation" (Patton 1997, p.22).

This approach ensured that the stakeholders of the project were involved in each stage of the framework's development. Within the current project, the adoption of the UFE methodology remains the primary driver, making it more likely that the perspectives and needs of all stakeholders will ultimately determine the nature of the supervisory and student support provided. The following research question framed the focus and direction of the framework's development: What are the most suitable structures, components and content of an institutional framework to support HDR supervisors and their students at Avondale College of Higher Education?

To establish what type of framework was required to support HDR supervisors and their students, existing information about the institution was sought and information gathered from the framework's potential users. First, Avondale's existing policies, staff development resources and

activities were collated and reviewed by the research team and, where appropriate, integrated into the framework's structure. Second, an online questionnaire and interview schedule (for use in interviews and focus-group interviews) were developed, and HDR students, academic staff and administration staff were provided with multiple opportunities during the 2015 academic year to complete questionnaires and engage in focus-group discussions and interviews to inform the framework's development. Focus groups were used to gather supervisors' views and the views of administration staff in a group setting, and interviews were conducted with students on an individual basis. When gathering information from HDR students, one-to-one interviews were preferred over focus groups, as the researchers were concerned that students might not feel comfortable discussing problems regarding HDR supervision in a group situation. Table 1 provides examples of questions and discussion prompts employed during data collection; Table 2 provides information about the participants in the study.

Table 1. Sample questions and discussion prompts from data-collection instruments

Data-collection instrument	**Examples of questions and discussion prompts**
Online questionnaire for staff	In your experience to date, what has been the most helpful in supporting you as a supervisor? How would you describe the knowledge and skills that supervisors should have to supervise master's or PhD students?
Online questionnaire for students	What knowledge do you think your supervisors should have in order to supervise master's or PhD students? What skills do you think your supervisors should have in order to supervise master's or PhD students?
Focus-group schedule for staff	As a master's and/or PhD supervisor (or potential supervisor), please consider the activities that you may benefit from in your role as a supervisor. What might be examples of such activities? In your opinion (without mentioning anyone's name), how would you describe a good supervisor?
Interview schedule for students	As a master's or PhD student, what resources do you think your supervisor may benefit from in their role as a supervisor? How would you describe a good supervisor?

Table 2. Participants

Student participants			**Staff participants**		
Invited	**Completed questionnaire**	**Participated in interview**	**Invited**	**Completed questionnaire**	**Participated in focus group**
57	11	4*	37	21	9

* Including two on-campus students and two distance students

Of the HDR students (n=57), 11 completed the questionnaire, representing a 19% return rate; of the 37 staff who were invited to complete the staff questionnaire, 21 (57%) completed it. Furthermore, nine staff participated in an on-campus focus-group discussion, and four students participated in either phone or on-campus interviews. The discrepancies between student and staff participation may be due to the institutional context preceding the framework's development. For a number of years, many academic staff had requested a more systematic approach to the support of postgraduate students and a more institutional approach to the provision of professional learning opportunities for postgraduate supervisors. Hence, higher staff contributions to the data collection process may have been due to their intense interest in the framework's development, especially since it was, in essence, a response to their previous and consistent requests.

In addition to gathering information from administrative staff, HDR supervisors and HDR students about what was needed in the framework, members of an external panel of experts[1] were consulted on three occasions during 2015 (March, May and July). During these consultation sessions, the panel members provided additional guidance to assist in the framework's design and development. Some of the experts had national experience from a previous OLT project, *A best practice framework to inform and guide higher degree by research training excellence in Australia* (Luca et al. 2013); others had gained global recognition for designing and implementing an institutional framework for supporting supervisors of research students (Carton & Kelly 2014; Kelly et al. 2012; Carton et al. 2013). To supplement the data gathered from the framework's future stakeholders and the expert panel, further guidance to design and develop the framework was sought from recent literature on researcher education, professional development and postgraduate supervision (Barnes & Austin 2009; Kelly et al. 2012; Baker et al. 2013).

A mixed mode of analysis was used to explore quantitative and qualitative data gathered from the questionnaire, focus groups, interviews and expert panels. This analysis was conducted to determine the needs and experiences of HDR supervisors and students at the institution. Descriptive statistics (frequencies, percentages, mean scores, standard deviations (SD) and range) were used to examine data collected from the Academic and Administrative Staff Survey developed by the research team. This survey was based on a four-point Likert scale and open-ended questions that measured the level of supervision experience, supervisors' need for training and resources and confidence levels in supervising HDR students. We also constructed a Student Survey that consisted of closed-ended questions about the students' study program and two open-ended questions: (1) What KNOWLEDGE do you think supervisors should have to supervise master's or PhD students? (2) What SKILLS do you think your supervisors should have to supervise master's or PhD students? Qualitative data were collated, categorised by source (staff, student or expert panel) and coded to establish emergent themes in relation to the research question using qualitative-analysis software. A thematic coding approach (Robson 2011) was used to treat the qualitative data. First, each piece of qualitative data was labelled with a code; similar codes were then grouped together to represent emergent themes. In some cases, these themes were labelled using *in vivo* codes (adopting the actual phrases and words of the participants), while some themes were labelled by the researchers to represent the collection of meanings evident in the codes. The data was triangulated by comparing data from all sources to establish the findings' credibility and trustworthiness (Guba & Lincoln 1989). Further analysis was conducted to ensure that the developing framework was aligned with current best practice in the field of research-supervision pedagogy and the researchers' professional development.[2]

The project has received wide interest and support from Avondale's administration and academic staff, and is accessed regularly by external parties. The outcome of the research, the Research Training Support Framework (http://www.avondale.edu.au/research-training/), was launched in 2015 and is currently being evaluated and further modified as a result of ongoing stakeholder

[1] The External Advisory Panel included: Dr Janet Carton, University College Dublin; Professor Joe Luca, Edith Cowan University; Professor Margaret Kiley, Australia National University; and Associate Professor Catherine McLoughlin, Australian Catholic University.

[2] The framework continues to evolve, based on observations by the researchers of similar frameworks from national and international higher-education institutions. Feedback from the framework's users is also regularly analysed, and recommendations from these analyses are applied to enable continual development of the framework's structure and content. The outcomes of the evaluation processes, used to continually develop the project, will be reported elsewhere.

feedback. The methodology being used to evaluate the framework and the results of this evaluation have been reported elsewhere (Petrie et al. 2015). In addition to meeting the needs of postgraduate supervisors and students at Avondale, the Framework has the potential to extend Avondale's research profile and to assist other small higher-education providers in Australia to improve the quality of their HDR supervision and the quality of their postgraduate students' experiences.

Findings

The main phase of the research project reported in this paper yielded findings in two main areas: 1) the information drawn from the participants' multiple perspectives, published researchers and the expert panel about how a supervision support framework should be designed and developed; and 2) the completed Framework itself, known as Avondale's Research Training Support Framework, based on the data gathered.

Data analysis

Descriptive statistics, including frequencies and percentages, were used to analyse the survey data collected from staff and students. A total of 21 staff and 11 students responded to the survey. All students who participated were enrolled in an HDR program and were at either the pre-confirmation (50%) or post-confirmation (50%) stage. As Table 3 shows, academic staff came from a range of disciplines: creative arts and humanities (30%) education (20%), ministry and theology (20%), science (15%), nursing and health (10%), business (5%), administration (10%) and the library (0%). Nine (42.86%) staff had a leadership role in the college. Staff on average had 4.14 years (SD = 4.77; range = 0-20 years) supervision experience, and the majority (71.43%) were currently supervising master's and/or PhD candidates. Their level of experience varied from no experience (master's 28.57%; PhD 33.3%), co-supervision (master's 14.29%, PhD 28.57%), through to primary supervisor (master's 19.05%; PhD 33.3%), with about a quarter of staff supervising students through to completion. None of the staff were supervising HDR students from another institution.

Table 3. Administrative and academic staff responses to questionnaire (n =21)

Question	**n(%)**
Do you currently supervise master's and/or PhD students at Avondale?	Yes = 15 (71.43) No = 6 (28.57)
Do you currently supervise master's and/or PhD students at other institutions?	Yes = 0 (0) No = 21 (100)
What level of supervision experience best describes your experience of supervising MASTER'S students?	• Not experienced = 6 (28.57) • Have supervised student as a co-supervisor but not through to completion = 6 (28.57) • Currently a co-supervisor = 3 (14.29) • Primary supervisor = 4 (19.05) • Have supervised students to completion = 6 (28.57)
What level of supervision experience best describes your experience of supervising PHD students?	• Not experienced = 7 (33.33) • Have supervised student as a co-supervisor but not through to completion = 4 (19.05) • Currently a co-supervisor = 6 (28.57) • Currently a primary supervisor = 7 (33.3) • Have supervised students to completion = 5 (23.81)
How many MASTER'S students have you supervised through to completion?	0 students = 15 (71.43) 1 student = 3 (14.29) 2 students = 1 (4.76) 3 students = 1 (4.76) 10 students = 1 (4.76)
How many PHD students have you supervised through to completion?	0 students = 16 (76.19) 1 student = 3 (14.29) 2 students = 1 (4.76) 6 students = 1(4.76)
How many years of supervision experience have you had?	Range = 0-20 years Mean = 4.14 years SD = 4.77
Do you hold a leadership position at Avondale?	Yes = 9 (42.86) No = 12 (57.14)
What faculty or area of the college do you work in?	Education = 4 (20) Business = 1 (5) Science = 3 (15) Creative arts and humanities = 6 (30) Ministry and theology = 4 (20) Nursing and health = 2 (10) Library = 0 (0) Administration = 2 (10)

In considering supervisors' need for training and resources, the majority of staff believed that supervision training for master's (66%) and PhD (76%) students was very important. Similarly, about two-thirds (66%) also believed access to online information was very important. Table 4 reports staff members' confidence about their ability to supervise master's and PhD students.

Table 4. Confidence in supervising masters and PhD students (n = 21) n(%)

	Very confident	**Confident**	**Not very confident**	**Not at all confident**
Supervising master's students	5(23.8)	10(47.6)	5(23.8)	0
Supervising PhD students	3(14.28)	9(42.85)	4(19)	4(19)

When the data about HDR supervisors' and students experiences was analysed using the qualitative thematic coding approach (Robson 2011) outlined earlier in the paper, a number of key themes emerged (Figure 1). Two key themes illustrated the participants' views about how effective HDR supervision should be enacted and how an effective support framework should be structured, and incorporated participants' clear views about the support resources and activities required by both HDR supervisors and their HDR students. Some of these ideas overlapped. The themes were then used to inform decisions about the design and construction of the framework, which provided answers to the research question on which this paper focuses: What are the most suitable structures, components and content of an institutional framework to support HDR supervisors and their students at Avondale College of Higher Education? While the implementation of the framework has not been fully outlined in this paper, a description has been provided as evidence of how the data was used to inform its development.

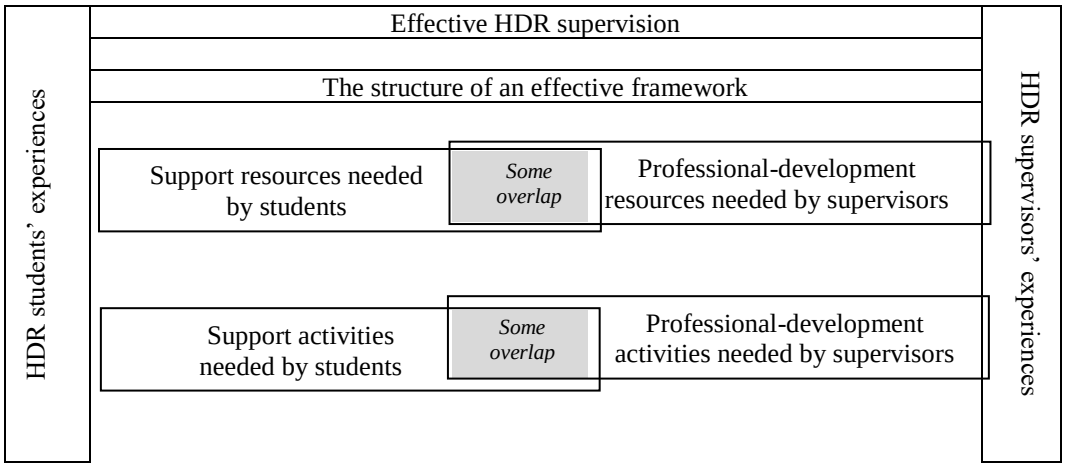

Figure 1. Themes that emerged from coding data from staff, students and expert panel

Participants' comments collected throughout the data-gathering process frequently referred to the effectiveness of HDR supervision processes and approaches:

> *Someone who can easily provide feedback to help you improve and guide your thinking without putting their own ideas in your head. (Comment from student enrolled in on-campus mode)*
>
> *A good supervisor would be really honest and be able to identify what they can realistically contribute to my project and what they can't. (Comment from student enrolled in on-campus mode)*
>
> *A good supervisor for me would be supportive, provide one-on-one time, and provide timely feedback. (Comment from student enrolled in on-campus mode)*
>
> *A good supervisor is…diligent and open – surrendering control while also being organised and consistent. There is a fine balance between not being over-intervening. (Comment from postgraduate supervisor during focus-group interview)*
>
> *In terms of giving a new supervisor support, what I am seeing in my own experience is that having a supervisor who is very experienced in supervision being with a new supervisor going through the whole process is very valuable. (Comment from student enrolled in distance mode)*

The framework's structure was informed by the analysis of the data gathered from the participants; the members of the expert panel provided further guidance and advice about the framework's design. Many of the stakeholder participants provided advice about the types of activities and resources that HDR students and staff required, especially regarding the need for supervisors to understand students' needs and the demand for staff resources:

> *I am finding one of the challenges is in interdisciplinary work, which is where a lot of these theses are going now; we could use a refresher on methods. (Comment from postgraduate supervisor during focus group interview)*
>
> *I think it would be incredibly useful to have modules around academic writing you could refer students to when they need direction in that area. (Comment from postgraduate supervisor during focus-group interview)*
>
> *They [supervisors] need a good understanding of all the resources we as students need, so even if their previous experience has been in quantitative research…my supervisors need the sorts of resources to be able to help me and support me…. (Comment from student enrolled in distance mode)*
>
> *…resources, seminars/workshops, clarification of expectations of supervisors and candidates, guidelines for cross-cultural supervision, development of writing skills, milestones (not just administrative), case studies, creation of policies or revision of existing policies, guidelines on what to do when things go wrong, working with non-standard and/or part-time students. (Comment from external advisory panel member, during first external advisory panel session)*

Comments gathered from stakeholders indicated a preference for the framework's structure to reflect a typical HDR student's journey, while also acknowledging the needs of *both* students and supervisors. The following comment represents a typical sentiment represented by both stakeholder-participants and members of the expert reference group:

> *Don't ignore supervisors' and students' needs to understand expectations, the practicalities of research and milestones. Both supervisors and staff need to be guided through the journey. Don't assume they know what to do. (Comment from external advisory panel member, during first external advisory panel session)*

> *The one thing I have really benefited from is working closely with someone who is supervising someone else – to see how they do it. (Comment from postgraduate supervisor during focus-group interview)*

In addition, valuable insights, including guidance from members of the expert advisory panel, were provided about how to design the structure of the framework and develop content, including the following advice:

- acknowledge the unique context of the institution;
- ensure that the framework's development is staged and feasible;
- define expectations of roles, milestones and level of quality;
- include resources, workshops, events and activities;
- provide supervisor information about levels, expectations and availability;
- recognise the pedagogy of supervision; and
- plan for the future development and evaluation of the framework.

Strong recommendations emerged about how the framework should be implemented and how the varied groups of students enrolled in postgraduate degrees and the staff supervising these students could be contacted, invited and engaged in professional learning activities. These recommendations had implications for the framework's design. For example, participants reported that Avalon's postgraduate students, especially those studying by distance, needed increased access to more-advanced online resources and information than were currently available. They also noted that on-campus students needed to gather for social events to share their research successes and challenges, and that supervisors needed to meet with students on an informal basis.

> *Consider using informal processes to communicate with supervisors and students in the institution – such as afternoon tea to update supervisors and students on changes to research-related policies and initiatives. (Comment from external advisory panel member, during first external advisory panel session)*

> *Probably most of you attend too many meetings, but an informal session like this where we can share experiences and hear fellow supervisors' concerns would be very useful on a periodic basis. (Comment from postgraduate supervisor in focus group)*

> *I wonder whether [there could be] a forum (get-together of supervisors) where we can hear their ideas and see the structures they put in place. I think face-to-face would be most valuable. Sit around and collectively see how everyone is going. (Comment from postgraduate supervisor during focus-group interview)*

Framework design

The findings were aggregated to form a set of relevant topics and practical recommendations that were incorporated into the design and construction of the framework (Table 5). These topics and recommendations informed the framework's content, structure, style and format and guided the planning of how the framework was later implemented across the institution.

Table 5. Relevant topics and practical recommendations

Guiding principles	**Practical recommendations**
Participants' views	Ensure all stakeholder views and needs are evident.
Mixture of knowledge and "soft skills"	Provide for development of supervisors' knowledge of the topic, their discipline and research in general, as well as their "soft skills" associated with communication, diplomacy, interest in the topic and the student, approachability, ability to motivate and empathy.
Expectations and milestones clarified	Clarify expected milestones and progress points throughout a typical candidature for master's and PhD programs.
Online access to information, policies and materials	Provide online resources and policies associated with supervision processes – for both HDR supervisors and HDR candidates.
Examples, exemplars and case studies	Include examples of good practice, case studies of real-life student-supervisor relationships and models of exemplary writing, chapters and theses.
Varied nature and context of training	Ensure that varied options are provided for training, including online and face-to-face activities, individualised and group activities, formal and informal events and compulsory training.
Mentoring approach	Emphasise the value of mentoring as a method for supervisors to extend their knowledge, skills and experience.
Supervisors' use of technology in research	Ensure that supervisors are familiar with technological tools such as Moodle, NVivo, Skype and Endnote for use in research contexts.
Critical approach	Emphasise the value of feedback to students' work. Provide honest, critical but not solely negative feedback.
Joy and excitement of research	Ensure that the joy and excitement of research is integrated into the practices, processes and outcomes of research, and not lost amongst the rules, regulations and policies.
Welcoming and scholarly community	Develop a community of scholars that recognises varied levels of development of both supervisors and candidates.
Pedagogy of supervision	Acknowledge the pedagogical process of supervision as a form of teaching and the process of being a master's or PhD student as being a process of learning

In addition to the topics and practical recommendations outlined in Table 5, three guiding theoretically focused principles were developed from the literature reviewed, the data gathered and advice from the expert panel throughout the study to form the framework's theoretical basis:

1) Welcoming research community

An important principle is that a research community is active, supports a sense of belonging and is inspiring. The enjoyment and curiosity of research and its relevance

to local and international communities is recognised by the team involved in developing and using the framework.

2) The pedagogy of supervision

Supervision is a form of teaching. Teaching and supporting the HDR student is part of the supervisor's role. The pedagogy of supervision is integrated through the components of the framework, with an emphasis on the student's role in learning the research process. As Avondale's vision involves an all-inclusive approach to learning and teaching, the components of the framework acknowledge academic, affective and spiritual aspects of teaching and learning.

3) Researcher development

The framework aims to support research supervisors and candidates as they develop research expertise. This expertise will be shared with other researchers within the Avondale community, and with the national and international communities. Expertise and capabilities developed by candidates will be useful for their postgraduate degree and the development of their career.

The framework's overall structure is based on the process a typical postgraduate student engages in during their degree. Although the framework consists of more than a website, its online representation serves to direct postgraduate staff and students towards resources, policies, events and activities that support the development of supervision and research at the institution. The online components of the framework include:

- an overriding aim;
- theoretically focused principles that drive the framework's operation;
- advertised activities and events, including workshops, guest speakers and webinars; and
- stages representing a typical postgraduate student's progression, with each stage presenting institutional policies, links to relevant Avondale resources and links to external resources, fact sheets and case studies.

The first period of the framework's development is now complete. During this period, the three most crucial stages (Stages 2-4) were designed and developed; the final phase of the framework's development (including Stages 1 and 5-7) is currently under construction, as outlined in Table 6.

Table 6. Current and future stages of Avondale's Research Training Support Framework

Current stages		**Future stages**	
2	Getting started	1	Student motivation
3	Confirmation	5	Completion
4	Researching and writing	6	Graduation
		7	Career

The current version of the framework has been designed to support postgraduate supervisors and students through the three most academically-focused stages of students' postgraduate journeys (Figure 2). Figure 3 shows the home page of one of the completed stages, *Stage 2: Getting started*.

Figure 2. Navigation bar of Avondale's Research Training Support Framework, available at http://www.avondale.edu.au/research-training/

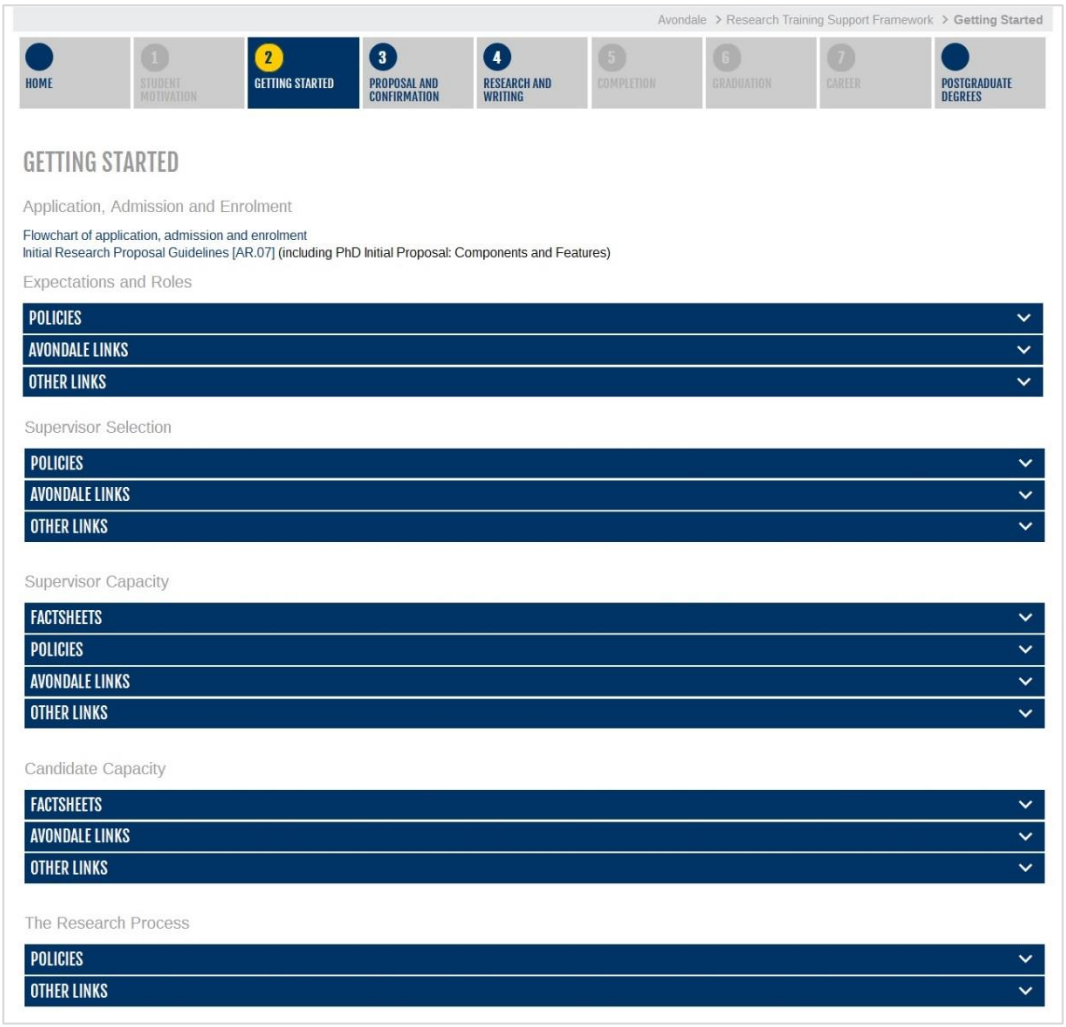

Figure 3. Getting Started (Stage 2) of Avondale 's Research Training Support Framework, available at http://www.avondale.edu.au/research-training/getting-started/

Since the framework's launch, an evaluation system has been devised; this system is currently being implemented to assess how the framework is being used. Results of this evaluation will be reported elsewhere.

Discussion

The project reported in this paper has produced an institutional framework to extend the capacity of academic staff in a small institution to supervise HDR students. The findings reported in this paper have specifically focused on how data was gathered to inform the framework's design and development. The institution for which the framework was designed is currently transitioning from a predominately teaching-only context to a research-focused perspective, a pedagogy that is the best possible approach to the changing dynamics of candidature and research practice (Green & Lee 1995; Green & Lee 1999; Lee & Green 1997). This transformation requires staff skills to be broadened in adopting productive pedagogies of teaching and supervision. This issue has been addressed in the development of the framework, which was designed as part of the study reported in this paper. It is important to note that these findings are consistent with the research conducted by Walker (2010), Golde (2010) and Grant (2010), all of whom acknowledge the need for support mechanisms that are characterised by the unique pedagogy of supervision.

The need for "ready" supervisors requires many staff to undertake research-supervision training, preferably before they are allocated a research student to supervise. Staff development needs to be maintained even when supervision has begun; this needs to be supported with mentoring sessions as well as professional-development sessions, with practising supervisors contributing to the process of mentoring new supervisors. The structure of the framework provides for research-supervisor training about relationships between supervisors and candidates (e.g., supervising cross-cultural HDR students), the need for clarification of various expectations and roles, the use of technology in research, milestones and monitoring progress, overview of policies, intellectual property and authorship of publications. Forums are an effective means of using both experienced and neophyte supervisors, as they can use the forums to comfortably relate the issues they are experiencing with their supervision and gain advice and support as part of the training process, thus creating a community of practice. These forums need to be regular, responsive and participant-directed, and may be conducted in on-campus or online contexts. These very specific demands of postgraduate and supervisor support contribute to the field of researcher education by identifying the fine-grained aspects required as components of research supervision and student support frameworks, especially when informed by locally collected data. In this way, this research contributes an evidence-based example of how a support framework was designed by a specific group of researchers for a specific group of staff and students, following the advice of Guerin et al. (2017), who suggest that "in general, collegially developed initiatives have a better chance of being taken up by the group than those introduced by a single individual bringing in ideas from an outside source" (p.A-90). Furthermore, by using the expertise of a specialised advisory panel, the framework developers also avoided the potential pitfall that "supervisor training that is conducted with only local colleagues tends to have fewer new ideas introduced and there is minimal cross-fertilisation of alternative practices" (p.A-90).

The framework resulting from this study has been designed to be tailored to the institution in which it was developed. Implementation of a UFE research methodology enabled an emphasis on situational responsiveness to be sustained (Patton 2012), but also of note are the research processes themselves that were used to inform the framework's development. These processes provide an interesting insight to the importance of the research students, as well as the academic staff, who participated in the study: without their help, the dual student and supervisor focus of the final framework may have been neglected. These methodologies have ensured that the perspectives and expectations of all stakeholders were considered at each stage of the project, taking into consideration the specialised requirements of the identified subgroups of postgraduate students,

including distance students, part-time students, students whose first language is not English and students who are from cultures where research is not as highly regarded as coursework degrees. This diversity was acknowledged during the framework's design and development process, and is evident in the completed framework.

The development phase of the recently implemented framework included much discussion about how to determine the prescriptive nature, or otherwise, of the framework and the extent to which postgraduate supervisors and students would be required to engage with the framework's resources and attend its activities. A balance was struck between supporting supervisors and allowing sufficient diversity to meet the needs of the student and supervisor. Although the implemented version of the framework is focused on research training, there are many synergies with the works of Chalmers (2013) and Chalmers et al. (2012), which relate to changed teaching practices. What is consistent is the need for the institution to align staff activities and staff development with institutional directions.

Thus the framework has not been designed to be generalisable across multiple contexts; rather, the emphasis has remained on what Patton (2015) refers to as the intended use by the intended users: its design and structure cannot be templated or applied elsewhere without tailoring. This is a key strength of the framework: its design was informed by multiple sets of data from stakeholders and research. It is essential that this responsiveness continues as the framework is delivered, implemented, supported and, in the future, evaluated. The ongoing experiences and perspectives of all stakeholders must continue to guide its development. As it develops over time, in line with Little's (2015) improvement models, participants will be able to assess its impact in providing improved HDR experiences for both students and staff. Thus the framework should be viewed as a responsive, flexible and dynamic resource, the design of which will continue to adapt to the perspectives and needs of all stakeholders.

Conclusion and recommendations for practice

The primary aim of this research was to design and develop an institutional framework to support postgraduate supervisors and candidates undertaking a higher research degree. This paper has reported on the processes adopted to design and develop the framework. The construction of a framework that meets the needs of students, supervisors and the institution is critical, especially in the context of significant change in the higher-education sector and the need to demonstrate the quality and impact of research.

The design of the framework was developed in consultation with academic and administrative staff, students and international expert-collaborators using a UFE methodology. This approach facilitated the concept that supervision should be viewed as a unique pedagogy. Feedback from those involved in this research enabled the development of a framework that reflected issues that were viewed as important to its users, as well as issues that were viewed as valuable from a panel of experts who possessed wide-ranging views.

While this paper concentrated on the construction of a framework to support HDR supervisors and HDR students, issues associated with the implementation of such a framework need to be considered to ensure the future evolution of this type of guiding resource. A key challenge for higher-education institutions is to ensure that academics are supported and a culture of supervision, including supervisory skills and support systems, is developed institutionally. Similarly, the varied needs of HDR students at different stages in their candidature also require

integration into the institution's research culture. In the future, these challenges need to be balanced against academic autonomy and the issues associated with an overly prescriptive framework, including the degree to which supervisors are required to implement all elements of the framework and the degree to which their students are expected to engage in using its components, online or otherwise. A more prescriptive approach may require a regulatory arm to examine compliance. Onerous regulatory processes that focus on compliance with an HDR framework may distract resources away from essential components of an HDR program.

From this research, a number of practical recommendations were identified for consideration by others engaged in the process of developing a framework to support students engaged in higher degrees and their supervisors:

- The use of a methodology that works collaboratively with stakeholders will increase the likelihood of a framework that is fit for purpose and accepted by user-stakeholders, while also incorporating views of well-respected scholars with national and international experience.
- A framework that guides practice, but is not too prescriptive in nature, is preferable. A "one size fits all" approach is not suitable for small higher-education providers or larger institutions where transdisciplinary and multidisciplinary research is undertaken.
- Engagement of staff in the frameworks' development is critical to its success.

When developers work alongside students, supervisors and administrators, it is possible to produce a framework that is suitable for different disciplines and for transdisciplinary research. The outcomes of this project have demonstrated the development of a framework that is useful for those whom it was designed. The design process was informed by clear theoretical principles and supported by a welcoming research community. The resulting framework offers a supervisor support program comprising a variety of resources and formal and informal processes. Further, the eclectic nature of postgraduate students is taken into consideration when providing support and resources. Finally, the framework identifies Avondale as an institution that integrates the joy and excitement of research into its policies. To this end, the implementation of such a framework has the potential to instigate positive institutional change and to promote a research-focused culture. The method by which the Research Support Training Framework was designed and developed is offered here for consideration by other small higher-education institutions that face the challenge of developing a tailored resource at an institutional level that aims to serve both postgraduate supervisors and postgraduate students. This method may be considered especially relevant to institutions with candidates who enrol externally or online in their HDR programs This construction process, using a participatory evaluation-focused and utilisation-focused research methodology, incorporates the views of internal stakeholders as well as the more global and external views of recent researchers and experienced experts.

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