

PROFESSIONAL DEVELOPMENT OF RESEARCH SUPERVISORS: A CAPACITY-BUILDING, PARTICIPATORY FRAMEWORK

Kevin Petrie, Gina Lemke, Anthony Williams, Brett G Mitchell, Maria Northcote, Malcolm Anderson
and Kayle de Waal
Avondale College of Higher Education, Cooranbong

Abstract

The professional development of supervisors of higher degree research students is growing in importance and undergoing change, based on the demand for timely completion of higher degrees and the Australian federal government's quality agenda driving improvement of practice. Research has informed the design of research supervision frameworks within large universities (Carton & Kelly, 2014; Luca et al., 2013) but smaller institutions face different issues, including the challenge of developing an active research culture.

This paper reports on the outcomes of an institution-wide project that was conducted in a small, private higher education institution involving the development and implementation of a framework for research supervision. The theoretical framework of the project drew on the pedagogical principles of research education (Kiley, 2009; Kiley & Wisker, 2009; Willison, 2010) and the project's methodological design adopted a utilisation-focused evaluation approach. By using a participatory research methodology, the perspectives of academic and administration staff, and higher degree students were gathered. Guidance was also sought from national and international experts in research supervision.

This paper outlines the research approach used and the framework that was developed, and reports on the issues raised during the initiative including insights into the success factors in changing culture.

Introduction

The pedagogy of supervision of higher degree research (HDR) students is a field of study that has gained momentum in recent years (Kiley, 2009; Kiley & Wisker, 2009). Consequently, the demand for professional development of HDR supervisors is increasing in importance and undergoing change, based on the demand for timely completion of higher degrees and the Australian federal government's quality agenda driving improvement of practice. Research has informed the design of research supervision frameworks within large universities (Carton & Kelly, 2014; Luca et al., 2013) but smaller institutions face different issues, including the challenge of developing an active research culture.

This paper reports on the first stage of a research project, funded by the Office for Learning and Teaching (OLT), for the purpose of developing an institutional framework of support to engage and empower HDR supervisors, both novitiate and experienced. National and international experts in research supervision informed the framework's design, but also acknowledged that the existing literature is primarily framed in the context of large established institutions. The project also drew from the experiences of the academics for which the framework was designed for the purpose of evaluating the specific needs of those supervisors in a small institution. The developed framework assists supervisors to develop and enhance their supervision knowledge and skills, leading to an improved student and staff experience.

Background

The project, reported here, drew from multiple sources in its endeavor to gain insights into the best means of supporting supervisors in their role of supervising HDR students, and involved panel discussions with both national and international experts in the field. The issues that challenge

supervisors, who work in a small institution, include workloads, ongoing training and professional development, access to relevant policies, procedures and support material, and measuring outcomes. In small institutions the supervision of doctorate degrees is internally tied up with the notion of a “modern university” (Lee & Green, 2009), accompanied by a push to increase the number of PhD students. This requires the implementation of strategies for guiding learners through their personal research journey and facilitating effective supervision (Wisker & Robinson, 2012).

The *National Academy for Integration of Research: Teaching and Learning (NAIRTL)* (2012), investigated how the nature of graduate education has undergone restructuring, including the implementation of supervision support and framework development. Studies such as this, have shown that it is essential to ensure that supervisor support and development is adopted within the highest levels of an institution after adequate consultation among all relevant stakeholders takes place. For example, the report by NAIRTL envisaged supervisors to be active researchers themselves, while acknowledging that there still existed the need to improve their common supervisory culture. Engebretson et al. (2008) challenged the conventional idea of good supervision as a private contract between student and supervisor, preferring more holistic and flexible approaches. In addition, they asserted that successful supervision is core to the research curriculum. Kelly (2009) focused on advancing dialogue to examine the practice of graduate supervision. She considered conduct within a student/supervisor relationship more broadly and looked at how fictional narratives reveal the manner in which supervision is presented in cultural practices, including the character of supervisor and supervisee. Her findings encourage the use of reflective supervisory practices in doctoral research by both supervisors and students.

Luca et al. (2013) created a toolkit to enhance the support and development of academic staff in their supervisory role. They surveyed experienced supervisors and found there was a clear need for additional support materials to aid their supervision practice. Their emphasis was on the development of a research supervisor toolkit. Although this type of research about supervision frameworks has been conducted within large universities (Luca, 2014; Luca et al., 2013), less research in this field has been initiated within smaller, developing higher education institutions. No research has yet been conducted within the institution featured in this paper about how to design, develop and implement a tailored framework for supporting supervisors of research students. However, Carton, from the University College Dublin, and her colleagues have developed a set of resources that assist higher education institutions such as the institution featured in this paper to develop their own institutional framework for supporting supervisors of research students (Carton & Kelly, 2014; Carton, O’Farrell, & Kelly, 2013; A. Kelly et al., 2012). The expertise of these researchers has been incorporated into each stage of this research project at Avondale, along with previously reported literature (F. Kelly, 2009; Kiley, 2009; Kiley & Wisker, 2009, 2010; McCallin & Nayar, 2012; McCormack & Pamphilon, 2004; Ulhøi, 2005; Wisker, Kiley, & Aiston, 2006).

The research approach and methods

The project team developed and implemented an institutional supervision support framework to both improve and enhance the capacity of the institution's academic staff in their capacity to supervise Honours and HDR students. The three specific objectives of the project were:

- to develop an institutional framework of support to engage and empower potential and current supervisors of Honours and higher degree research (HDR) students;
- to implement an institutional framework of support to engage and empower potential and current supervisors of Honours and higher degree research (HDR) students; and
- to develop and enhance academic staff members' supervision knowledge and skills, leading to an improved student and staff experience.

The project team aimed to have strategies that were repeatable, expandable and transferable and, as such, possible to implement across different educational contexts - especially small institutions in the

process of growing their research supervision capacity and quality. The framework, the primary outcome of the project, was designed to provide small and developing institutions with a tool to enable them to provide support to their research supervisors and, subsequently, the HDR students.

The project engaged staff for the purpose of enabling them to implement the developed outcome of the project, through owning the outcomes. As such, all the academic community, as well as the research students of the College were as engaged participants in the study.

The institutional framework development was guided by Patton's utilisation-focused evaluation research methodology (Patton, 1997, 2011) which is effective in the design, development and evaluation of learning resources within a participatory research methodology. This approach enabled the data gathered to be incorporated into the developed resource. Data were sourced from:

- the institution's administration leaders, HDR supervisors and HDR students;
- national experts who conducted a previous OLT project, *A best practice framework to inform and guide higher degree by research training excellence in Australia* (Luca et al., 2013); and
- international experts who have already developed a set of resources titled, *Developing an institutional framework for supporting supervisors of research students* (Carton & Kelly, 2014; Carton et al., 2013; A. Kelly et al., 2012).

Three data collection instruments were employed to gather data from the varied participants:

- online questionnaires for academic and administration staff, and postgraduate students;
- focus group schedules for groups of academic and administration staff, and postgraduate students; and
- discussion schedule for national and international expert advisory panels.

Samples of the questions and discussion prompts used are outlined in Table 1.

Table 1: Sample questions and discussion prompts from data collection instruments

Data collection instrument	Sample questions and discussion prompts
Staff online questionnaire	In your experience to date, what has been the most helpful in supporting you as a supervisor? As Avondale develops training activities and resources to help supervisors improve their skills in the supervision of Honours, Masters and/or PhD students, do you have any advice you would like to offer about <ul style="list-style-type: none"> • how this training should occur? • what this training should focus on? • when this training should occur?
Student online questionnaire	What knowledge do you think your supervisors should have in order to supervise Honours, Masters or PhD students? What skills do you think your supervisors should have in order to supervise Honours, Masters or PhD students?
Staff focus group	As a supervisor (or potential supervisor) of Honours, Masters and/or PhD students, consider the <i>activities</i> that may benefit you in your role as a supervisor. As a supervisor (or potential supervisor) of Honours, Masters and/or PhD students, please consider the <i>resources</i> that you may need in your role? How would you describe a good supervisor? In your opinion, is there a need for leaders in the College to be more aware of the needs of supervisors?
Student focus group	As a research student, what activities would your supervisor benefit from in their role as a supervisor? As a research student, what resources do you think your supervisors would benefit from using? How would you describe a good supervisor?

Data collection instrument	Sample questions and discussion prompts
Advisory panel discussions	From your experience, what are the essential components of a research supervision support (or “training”) framework? How would you describe the “pedagogy of supervision”? What lessons have you learned from being involved in providing support (or “training”) to postgraduate supervisors? Are there any traps to avoid? Please provide comments on the structure of our proposed Framework.

The mixed mode of analysis that was used to explore data gathered from the questionnaire, focus group and expert panel data was conducted to determine the needs and experiences of Honours and HDR supervisors and students at the institution. These data were collated according to staff and student categorisations, and coded using qualitative analysis software. Triangulation of the data was accomplished by comparing data from all sources to establish the credibility and trustworthiness of findings (Guba & Lincoln, 1989). Further analysis was conducted to ensure the developing framework was aligned with current best practice in the field of research pedagogy and the professional development of researchers.

Findings and recommendations for practice

The data gathered throughout the study produced varied perspectives from both external experts and the institution's internal stakeholders. Each of these data sets were analysed for the purposes of developing practical recommendations for practice that were used to inform the development of the supervision support and development framework. The findings from each data set are outlined below.

First expert panel discussion

The initial data gathering step in the project involved the engagement of an expert panel, comprising both national and international experts who provided early advice on the development of the framework, as summarised in Table 2.

Table 2: Feedback from the first expert panel

Scope of framework	Consider including aspects such as: supervisor selection, supervisors support, developing joint expectations, communication, the pedagogy of supervision, student skill development, policies/procedures, research milestones, cross-cultural supervision, student peer collaboration, the development of case studies, and supporting distance students.
Institutional considerations	The framework needs to align with institutional level considerations and should make clear how supervision occurs (distinctly) at this institution.
Supervisor background	Consider the impact that supervisors’ backgrounds may have when gathering stakeholder viewpoints on framework development.
Selection criteria	Be specific and transparent about the criteria used to select supervisors.
Framework generality	Ensure that the guidelines will suit a range of disciplines.
Joy in the journey	Facilitate the joy of postgraduate research and supervision, including the celebration of key milestones.
Work in progress	View the implementation of the framework as a work in progress, with the inclusion of all stakeholders in its ongoing development.

Online questionnaire

As indicated above staff and students of the College embraced the project; a total of 37 staff were invited to participate with 22 respondents completing the survey. Of these, 15 indicated they were currently supervising at least one HDR student, with 10 having supervised both Honours and Masters students through to completion and five having supervised PhD students through to completion. Staff strongly acknowledged the need for professional development in the area of research supervision, as evidenced by their responses to the five questions outlined in Table 3.

Table 3: Acknowledgement of the need for training and resourcing

	Very Important	Important	Sometimes Important	Not Important
Supervisors of HONOURS students require supervision training	11	5	4	0
Supervisors of MASTERS students require supervision training	14	4	2	0
Supervisors of PHD students require supervision training	16	2	2	0
There should be resources available for HONOURS, MASTERS and PHD supervisors.	16	3	1	0
Supervisors need access to online information about supervision practices	14	4	2	0

Our results suggested that the needs perceived by staff were greater when supervising Masters and PhD students as compared to supervising Honours students. Staff displayed higher confidence levels in supervising Honours students as opposed to PhD students. This is no doubt reflective of the fact that only five respondents reported having supervised a PhD student through to completion. The levels of staff confidence about their abilities to supervise Honours and HDR students are reported in Table 4.

Table 4: Confidence in supervising Honours and HDR students

	Very Confident	Confident	Not Very Confident	Not at all Confident
Supervising HONOURS students	6	9	4	1
Supervising MASTERS students	5	10	5	0
Supervising PHD students	3	9	4	4

Perception of the best methods for providing support for staff in HDR supervision

In terms of the best methods for providing support for supervisors of Honours and HDR students, staff strongly favoured online and face-to-face support. They suggested a number of areas to focus on, including: establishing responsibilities and boundaries; negotiating expectations; structuring a thesis; research methodology; pedagogies for supervision; and enabling students to become independent researchers. The importance of possessing a high level of knowledge and expertise in the area being studied was emphasised.

The participants identified a number of helpful activities that had been provided to date, including: working with other good supervisors; and reflecting on their own personal experience as an HDR student. This was evidenced by staff responses such as:

I value being paired with more experienced supervisors to gain an understanding of how they work.

Sharing views, gaining feedback and clarifying issues are very beneficial.

Issues listed as least helpful included unrealistic workloads and lack of formal guidelines and training for supervisors and candidates. This was evidenced by staff responses such as:

We need clear protocols on how to provide feedback as well as best practices on how to capture and record this feedback.

We need to be given the workload hours to adequately deal with the students we are supervising.

Student responses

Students' comments saw the supervisor's knowledge of the particular field of study combined with an understanding of the theoretical and practical aspects of doing research, as important. Interpersonal skills and the ability to communicate effectively were also highly valued. This was evidenced by student responses which included:

A good supervisor will know the process and feel comfortable holding me accountable to the goals we set.

Supervisors should have patience, humour, empathy, kindness and warmth.

They need to understand and appreciate the students' learning journey.

Academic staff forum and student interviews

To delve more deeply into the perspectives of staff and student stakeholders, our anticipated users of the framework, a follow-up staff forum and a number of student interviews were conducted. From an analysis of the data that were gathered during these forum and interview sessions, three key themes emerged. The first theme was the need for supervisors to know their role well and to provide competent support. One suggested strategy was to pair less experienced supervisors with those who had more experience. Second, both groups saw peer-forums as valuable since they provided opportunities for informal knowledge sharing and social support. Staff viewed these informal sessions as a context to exchange strategies with other supervisors, while students perceived them as opportunities to address their feelings of isolation, a response particularly reflected in the responses of distance students. Students wished to be part of a learning community while being engaged in postgraduate study. Third, clear protocols about the various stages of the research process are needed, achieved through professional development, supported by a central website of necessary resources, including exemplars of good practice. It was evident from the data, that both supervisors and students viewed easily accessible resources as a priority.

Of interest were the priorities expressed by the two groups. Academic staff highly valued support structures for students that facilitate skill development specific to postgraduate study. Students, on the other hand, valued supervisors who were very clear about their role. They also valued supervisors who possessed a thorough understanding of the processes required to guide their students, even if this included strategies not currently aligned with the supervisor's research experience to date. Also of importance was the need for supervisors to engage not only with the methodology, but also the topic of the student's chosen area of study. This was evidenced by staff and student responses including comments such as:

Supervisors need to be able to get a better idea of the skills students bring before they undertake the supervision process.

When a student has a skill gap, how is that addressed? Do supervisors ask them to upskill before continuing?

Confusion can be generated when academics outside discipline areas provide advice on methodology to students not studying in the academic's area.

Supervisors need knowledge of their discipline and content area and to be paired suitably with students in order to communicate well and give constructive criticism.

Second expert panel discussion

Following the completion of the initial framework draft, a second expert panel discussion, including the original experts from the first expert panel discussion, was conducted to provide advice on how to

further develop the framework. Feedback from the panel is summarised in Table 5.

Table 5: Feedback from the second expert panel

Keeping it manageable	The framework is currently too large and needs to be made more manageable. Focus on the key principles and develop them more fully.
Enrolment	Include a summary diagram of the application process at Avondale College, which reflects 'inclusivity', particularly for part-time students and geographically dispersed. Consider incorporating a reflective piece on 'why do you want to do a doctorate'.
Supervisor selection	Clarify the selection criteria for supervisors. Incorporate supervisor competency training with the inclusion of a clearly defined entry/exit strategy.
Supervisor workshops	Include: progression through all stages of the course and methods of monitoring progress through these stages.
Student support	Make peer group learning a stronger focus.
Sustainability	Give consideration to the sustainability of the program within the institution. Reflect aspects such as: program review, future funding and staff resourcing.
Joy in the journey	Do not lose sight of the joy and excitement of research.

Findings that emerged from an analysis of these varied data sources, as outlined above, were used to develop *Avondale's Supervision Support and Development Framework*, which is outlined below.

The framework

The main intention of the research project was to develop and implement an institutional framework to support and improve supervision of Honours and higher degree research students. Because we used a utilisation-focused evaluation research methodology (Patton, 1997, 2011), the framework represents advice gleaned from a review of relevant literature and suggestions from national and international experts. Furthermore, to ensure that the support system developed was suitable for the context of the institution in which it would be used, Avondale stakeholders were regularly consulted to relate the institution's needs to the framework under development.

It was important for the framework to develop in a way that built upon the work of previous researchers who had developed similar frameworks in varied higher education contexts. For this reason, the development of the framework drew upon national (Luca et al., 2013) and international experts (Carton & Kelly, 2014; Carton et al., 2013; A. Kelly et al., 2012) with previous experience in developing institutional frameworks to support the development of postgraduate supervisors. Key experts in the field were invited to join an advisory panel meeting twice during the early stages of the framework's development (March 2015 and May 2015). Each component of the framework was then further informed by recently published pedagogical principles of research education (Kiley, 2009; Kiley & Wisker, 2009, 2010; Willison, 2010). To ensure uptake of the framework within current institutional structures, the institution's existing policies, staff development resources and professional learning activities were reviewed and, where appropriate, integrated into the framework.

Based on the assumption that supervision of HDR students is a pedagogical experience, the institutional framework focussed on how HDR supervisors could facilitate students' learning about becoming a researcher in varied contexts. Development of the framework took into account the varied backgrounds and enrolment modes of HDR students. To operationalise these intentions, the framework provides mechanisms that can be used within blended learning situations because many students and supervisors operate in both on-campus and online contexts. The components of the framework include:

- an overall **aim** (that is, to develop and implement an institutional supervision support framework to improve and enhance the capacity of Avondale's academic staff to supervise Honours and HDR students);
- **principles** to guide the framework's practices and systems (for example, the pedagogy of supervision, a welcoming research community);

- **stages and sub-stages;**
- **processes** (for example, progress reporting, applying for funding, buddy system, mentoring system); and
- **resources** (for example, policies, case studies, workshop schedules, factsheets).

The overall structure of *Avondale's Supervision Support and Development Framework* is outlined in Table 6, which is based on the student's journey through their enrolment, the support processes and resources that are provided within the framework.

Table 6: Structure of Avondale's Supervision Support and Development Framework

Stage	Substages
Getting started	GS1: Application, admission and enrolment GS2: Expectations and roles GS3: Supervisor selection GS4: Supervisor capacity GS5: Candidate capacity GS6: The research process
Confirmation	C1: Preparing for confirmation C2: Confirmation event C3: Ethics
Researching and writing	R&W1: Conducting and managing the research R&W2: Skill development R&W3: Writing the thesis R&W4: Publishing, collaborating and presenting

Publication and use of the framework is currently being facilitated through a central website, including a Toolbox for supervisors and a Toolbox for students. Dissemination of the framework's purpose, content, structure and location is being conducted through the institution's staff development program and its central teaching and learning centre, the *Centre for the Advancement of the Scholarship of Teaching and Learning (CASTL)*, which supports both undergraduate and postgraduate students, and their lecturers and supervisors.

Future plans to further develop the framework are also underway, with indications from feedback data that the future development and implementation of the framework will incorporate both online and on-campus support resources and activities, including a virtual workshop to be delivered to off-campus supervisors and students.

Discussion

Our research was conducted in a small, private higher education institution. As such, this is a point of difference for other work in this area although the work of previous researchers in the field of research supervision support informed all stages of our work (Carton & Kelly, 2014; Luca et al., 2013). By adopting a utilisation-focused evaluation research methodology (Patton, 1997, 2011) we were able to design and develop *Avondale's Supervision Support and Development Framework* within a participatory research methodology. We were able to implement a supervision support framework using an approach that may not be possible in larger institutions due to logistical constraints. Our approach enabled a tailored and flexible research supervision support framework designed to meet the needs of supervisors and HDR students. As well as guiding our research processes, the participatory research methodology assisted in building a research culture within the institution, although it is too early to quantify the size of effect this may have had. Our future research will focus on the evaluation of the framework. The outcomes of our study, due to its context, may be especially relevant to those operating in smaller institutions or within units such as graduate schools or learning and teaching centres within larger institutions.

Based on the views of the participants in this study, especially the supervisors, it appears that the

process of supervising postgraduate students requires a particular type of pedagogical approach. This form of teaching has been referred to in other literature as a pedagogy of RHD supervision (Bruce & Stoodley, 2009) and has been gaining more and more traction over recent years. No longer is the process of research supervision only viewed as an apprenticeship. Our research findings have contributed to this growing field of research pedagogy by showcasing the voices of both the teachers and learners in postgraduate supervision.

As well as aligning with previous literature on the pedagogy of research supervision, the findings of our study support the theory of heutagogy proposed by Hase and Kenyon (Hase, 2009; Hase & Kenyon, 2001, 2003). The analysis of the data we gathered from both supervisors and candidates indicated that both groups acknowledged the importance of candidates being self-determined and self-directed during the research supervision process. Most supervisors expected that their candidates would become increasingly independent throughout the research process, as illustrated in Willison's (2010) *Researcher Skill Development Framework*, and, on the whole, students expected to take on greater responsibility as their research project progressed. This intentional drive to develop proactive and independent researchers provides an example of how the principles of heutagogy are at work within the supervisor-candidate pedagogical relationship.

Furthermore, the work of Wisker, Kiley and their colleagues (Kiley & Wisker, 2009, 2010; Wisker et al., 2006; Wisker & Robinson, 2012) have identified key threshold concepts that inform both teaching *and* learning processes associated with doctoral supervision. One of the key findings of our study was that both supervisors and candidates were particularly concerned with the processes surrounding and the knowledge developed during proposal and confirmation procedures, and the research and writing stages within a typical candidature. These concerns align closely with some of the threshold concepts of doctoral supervision identified in Kiley and Wisker's work (2009), especially in relation to developing conceptual and theoretical frameworks. Since these stages require students to engage in their topic conceptually and theoretically, our findings support those of Kiley and Wisker's (2009) identification of threshold concepts in doctoral education but are especially aligned to the threshold concepts of framework, theorising and knowledge creation.

Throughout the project, we identified the need to maintain the joy of research, despite the global and local push towards standardisation of research supervision processes. The project team was regularly reminded about this issue by the external advisory panel of experts. The development of an HDR framework using a utilisation-focused evaluation methodology aimed to strike the balance between the need to have policies and comply with standards, alongside the importance of enjoying research and being inspired by research processes within an atmosphere that supports intellectual freedom. Consequently, we developed a robust quality improvement framework that enabled flexibility for both supervisors and students and also acknowledged their academic *and* emotional requirements. While the emotional demands placed on and experienced by supervisors have been reported elsewhere (for example, Luca et al., 2013), the emotional stance of the postgraduate supervisor and candidate has yet to be fully explored in recent literature. Attempting to incorporate opportunities to experience the joy of research throughout *Avondale's Supervision Support and Development Framework* is an example of how positive emotions may be promoted within a process which is typically compliance and outcomes driven.

As yet, the implemented program has not been fully evaluated for the purposes of understanding how it has impacted research culture at the institution or how the framework has enhanced the effectiveness of research supervision and researcher development. The true impact of these aspects of the program will not be known until the framework is fully implemented across the institution and its two campuses, and metrics to evaluate the framework are developed. In future, our research will focus on looking back to evaluate the impact the framework has had on the institution's research culture, and on developing measurable metrics to identify (both quantitatively and qualitatively) and track the influence of the framework on the institution as a whole, and its supervisors and postgraduate students.

Conclusion

In pursuit of timely HDR research completions, coupled with the production of high quality scholarly outputs, there is a need to support the professional development of supervisors of HDR students. Small institutions face additional challenges, including the development of a research culture, the need for supervisors to balance a range of responsibilities and the demand on the institution to support flexible delivery of supervisor training, including those who operate on-campus and off-campus.

This paper reported on the development and implementation of a framework for research supervision, conducted within a small private higher education institution. A utilisation-focused evaluation approach, supported by participatory research methodology, ensured the perspectives of academic and administration staff, and higher degree students were gathered, with guidance from national and international experts in research supervision. The overall structure of *Avondale's Supervision Support and Development Framework* contained three stages: 1) getting started; 2) confirmation; and 3) researching and writing. Our approach enabled a tailored and flexible HDR framework that was informed by the needs of supervisors and HDR students within the institution.

This approach identified some strong themes, which became the foundation of the HDR supervision framework. These key themes specifically identified the need for professional development in the area of research supervision, the desire of potential or inexperienced supervisors to work with more experienced supervisors, and the need for supervisors to reflect on their own personal experience of being supervised. Furthermore, the research found that it was important for the institution to clearly define the role of supervisors, to provide peer support opportunities and to document protocols to adopt (by students and supervisors) at various stages of a research degree. Findings from the study also contributed to our growing understanding of the principles of threshold concepts in research supervision, research supervision as a pedagogy and the heutagogy of self-determined adult learning practices. By using a participatory action approach we aimed to enhance the research culture within the organisation, something that will be subsequently explored.

References

- Bruce, C. S., & Stoodley, I. D. (2009). *A pedagogical framework for the technology disciplines*. Brisbane: Queensland University of Technology.
- Carton, J., & Kelly, A. (2014). *Lessons learned from a multi-institutional collaboration to develop a national framework for research supervisor support and development*. Paper presented at the Quality in Postgraduate Research.
- Carton, J., O'Farrell, C., & Kelly, A. (2013). Developing an institutional framework for supporting supervisors of research students: Lessons learned from a unique inter-institutional project in Ireland. *Journal of the European Higher Education Area*, 2(2013).
- Engebretson, K., Smith, K., McLaughlin, D., Seibold, C., Terrett, G., & Ryan, E. (2008). The changing reality of research education in Australia and implications for supervision: a review of the literature. *Teaching in Higher Education*, 13(1), 1-15.
- Guba, E. G., & Lincoln, Y. S. (1989). *Fourth generation evaluation*. Newbury Park, CA: Sage.
- Hase, S. (2009). Heutagogy and e-learning in the workplace: Some challenges and opportunities. *Impact: Journal of Applied Research in Workplace E-learning*(1), 1.
- Hase, S., & Kenyon, C. (2001, 28-30 March). *From andragogy to heutagogy: Implications for VET*. Paper presented at the Research to Reality: Putting VET Research to Work: Australian Vocational Education and Training Research Association (AVETRA), Adelaide, SA.
- Hase, S., & Kenyon, C. (2003, 25-27 September). *Heutagogy and developing capable people and capable workplaces: Strategies for dealing with complexity*. Paper presented at the Proceedings of The Changing Face of Work and Learning Conference, Alberta, Canada.
- Kelly, A., Byrnes, L., Campbell, V., Carton, J., Harkin, S., Leonard, A. M., et al. (2012). *Developing an institutional framework for supporting supervisors of research students: A practical guide*. Cork, Ireland: National Academy for Integration of Research, Teaching and Learning.

- Kelly, F. (2009). Supervision satirized: Fictional narratives of student-supervisor relationships *Arts and Humanities in Higher Education*, 8(3), 368-384.
- Kiley, M. (2009). Identifying threshold concepts and proposing strategies to support doctoral candidates. *Innovations in Education and Teaching International*, 46(3), 293-304.
- Kiley, M., & Wisker, G. (2009). Threshold concepts in research education and evidence of threshold crossing. *Higher Education Research and Development*, 28(4), 431-441.
- Kiley, M., & Wisker, G. (2010). Learning to be a researcher: The concepts and crossings. In J. H. F. Meyer, R. Land & C. Baillie (Eds.), *Threshold concepts: Theory to practice*. Amsterdam: Sense.
- Lee, A., & Green, B. (2009). Supervision as metaphor. *Studies in Higher Education*, 34(6), 615-630.
- Luca, J. (2014). Good practice framework for research training. from <http://www.ecu.edu.au/centres/graduate-research-school/good-practice-framework-for-research-training>
- Luca, J., Standing, C., Adams, R., Borland, H., Erwee, R., Jasman, A., et al. (2013). *Developing a toolkit and framework to support new postgraduate research supervisors in emerging research areas: Final report 2013*. Sydney: Office for Learning and Teaching.
- McCallin, A., & Nayar, S. (2012). Postgraduate research supervision: A critical review of current practice. *Teaching in Higher Education*, 17(1), 63-74.
- McCormack, C., & Pamphilon, B. (2004). More than a confessional: Postmodern groupwork to support postgraduate supervisors' professional development. *Innovations in Education and Teaching International*, 41(1), 23-37.
- National Academy for Integration of Research: Teaching and Learning (NAIRTL). (2012). *Developing an institutional framework for supporting supervisors of research students*. University College, Cork: National Academy for Integration of Research, Teaching and Learning (NAIRTL).
- Patton, M. Q. (1997). *Utilization focused evaluation: The new century text* (3rd ed.). London: Sage Publications.
- Patton, M. Q. (2011). *Essentials of utilization focused evaluation*. London: Sage Publications.
- Ulhøi, J. P. (2005). Postgraduate education in Europe: An intersection of conflicting paradigms and goals. *The International Journal of Educational Management*, 19(4/5), 347-358.
- Willison, J. (2010). *The researcher skill development framework*. Paper presented at the 9th Quality in Postgraduate Reserach Confernce: Educating Researchers for the 21st Century. Retrieved from http://qpr.edu.au/2010/qpr_2010.pdf#page=306
- Wisker, G., Kiley, M., & Aiston, S. (2006). Making the learning leap: Research students crossing conceptual thresholds In M. Kiley & G. Mullines (Eds.), *Quality in postgraduate research: Knowledge creation in testing times*. Canberra: CEDAM, The Australian National University.
- Wisker, G., & Robinson, G. (2012). Picking up the pieces: Supervisors and doctoral "orphans". *International Journal for Researcher Development*, 3(2), 139-115.