Social support and identity development

in the journey from PhD ‘student’ to ‘researcher’ and beyond

Lilia Mantai

Dissertation Submitted in Fulfilment of the Requirements
for the Degree of Doctor of Philosophy

Macquarie University
Department of Educational Studies

February 2017

(Page intentionally left blank)

Table of Contents

List of Tables

List of Figures

Summary

This thesis explores how doctoral candidates become researchers. Despite a substantial body of literature on doctoral education, how PhD candidates develop researcher identities, both internalised (feeling like a researcher) and externalised (being recognised and performing as one), largely remains a mystery. In this thesis, the PhD is framed as a journey of becoming. It uses McAlpine's (2012) theoretical framework of identity-trajectory that conceives candidates as composites of their past experiences, present circumstances and future aspirations. It positions the candidate as an active agent in their personal and professional development. The aim of this thesis is to explore the doctoral experience in regards to the identity development of students becoming researchers within the social aspects of the PhD. This research draws on three lines of empirical data using a mixed methods approach: (1) focus groups and interviews with 64 doctoral candidates from two research-intensive Australian universities, at the beginning and final stages of their PhDs, (2) 79 doctoral thesis acknowledgements, and (3) autoethnography. The findings demystify candidates' researcher identity development by presenting a nuanced and empirically supported understanding of how doctoral students become researchers. They point to issues of candidates' exclusion from professional communities and the risk of developing narrow researcher identities in contrast to candidates' diverse professional needs and outcomes. Research findings show candidates pro-actively engage in various practices beyond their PhD research to develop researcher identities for various employment contexts and to increase their perceived employability. This thesis argues that researcher identity development in the PhD is facilitated by social and collaborative practices, as well as diverse academic and other professional development and learning experiences. It suggests that PhD programs should be refocused to increase the level of connectedness of candidates with academic and other professional communities, facilitate more collaborative practices during PhDs, and support students' agency in engaging in professional development practices early on.

Statement of Candidate

I certify that the work in this thesis S*ocial support and identity development in the journey from PhD 'student' to 'researcher' and beyond* has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree to any other university or institution other than Macquarie University.

I also certify that the thesis is an original piece of research and it has been written by me. Any help and assistance that I have received in my research work and the preparation of the thesis itself have been appropriately acknowledged.

In addition, I certify that all information sources and literature used are indicated in the thesis.

The research presented in this thesis was approved by Macquarie University Ethics Review Committee, Reference No. 5201300597.

Signature: …….

Full name: Lilia Mantai

Student ID: 42299500

Date: ……

Dedication

To my past and future.

To my parents and Elias.

Acknowledgement

Writing a paper on thesis acknowledgements was not as hard as writing my own thesis acknowledgement. Partially because I need a few more pages to list all the people that offered me all kinds of support in the last four years: social, academic and instrumental.

My supervisors, without doubt, deserve to be mentioned first. My Principal Supervisors Prof Robyn Dowling and Dr Agnes Bosanquet have gone out of their ways and offered so much more of their time than their busy academic schedules allowed. I could not have done any of this without them and I will cherish the personal, academic and professional lessons I have learned from them forever. I can only hope to give back one day, to them and (perhaps) my future PhD students, what they have given me. *I will miss our inspiring and stimulating conversations about all things 'higher education' and life in general. Robyn, your experience, wisdom and strategic thinking have put me on the path to success and for that, I am eternally grateful. Agnes, you brought me over the finish line, including another award! All those long blacks could never repay the help and care you have provided to me in the last year. Thank you both for your commitment and your friendship!* My Associate Supervisor Dr Theresa Winchester-Seeto did a wonderful job in helping me question my assumptions, clarify my argument and simplify my writing when she needed support most. Dr Trudy Ambler took on my thesis in the last three months and I am grateful for her generosity.

I thank Macquarie University, the School of Education, and especially the Learning and Teaching Centre for accommodating me, offering opportunities, and being my academic and professional 'family' and community. Thanks to all the anonymous paper reviewers for their constructive feedback and my editor for calling this thesis *'an epic piece of work'*. To my examiners, *your valuable feedback will guide my future research and career. Thank you for your words of praise and encouragement to go on.*

Prof Angela Brew, although not formally supervising me, has been a very special academic mentor in my PhD life. *Angela, I am privileged to call you my friend. You remain*

an inspiration, as you know you got me into this (doing a PhD), and the Parliament House, of course! I am grateful for every conversation we continue having.

During most of my PhD I worked with wonderful colleagues at the Learning and Teaching Centre, Macquarie University. Every single one of them deserves a *Thank You*! *I miss our team.*

So many other colleagues and fellow PhD students have been there for me without asking. I thank my Writing Group for their guidance and comments, especially Jacqueline Mackaway and Natalie Spence (soon to be Doctors!)*, you did more than being critical friends and I hope to keep seeing you around.* Dr Kerry-Ann O'Sullivan, a colleague with a generous soul, reached out to me when I did not know where my research and I belonged. Dr Claire Aitchison and A/Prof Inger Mewburn, without knowing, have provided me with confidence and encouraged me to believe in myself. *A heartfelt Thank You!*

I thank my loving family and friends in Germany who keep wondering why I am still in Australia and what I am doing here. *I don't promise to return any time soon if Australia continues to treat me as well as it currently does, but you all hold a very special place in my heart.* To my friends and 'extended family' in Australia, y*ou have no idea how much your company and friendship have contributed to my sanity and a sense of home away from home in the last few years. Thank You!*

To my parents, *Worte reichen nicht aus, um meine Liebe und Dankbarkeit für euch auszudrücken. Ihr gebt uns alles ohne etwas zu erwarten. Diese Arbeit ist euch gewidmet.* To my *sestras*, Anna and Helena, *you are awesome in every way, I love you both and miss spending time with you.*

To *mi amor,* my greatest supporter, my inspiration, and my everything. *Without you I would not be here, nor physically nor intellectually. 'Anywhere with you' rings true, once again.* To Elias, our miracle, *mein Schatz* and *pequeño*. *You changed our lives forever. I hope Mummy's and Daddy's achievements will inspire you to make your own. I love you both to the moon and back.*

Last but not least, thanks to my research participants for their generous sharing. I wish you safe travels and all the best on your life journeys. *This is to us! Cheers!*

Table 1. Declaration of published work included in this thesis.

Thesis chapter	Publication reference and status	% of candidate contribu-tion	Nature of candidate contribution	Co-author name, role, % and nature of contribution
4.2	Mantai, L., & Dowling, R. (2015). Supporting the PhD journey: insights from acknowledgements*. *International Journal for Researcher Development,* 6(2), 106–121. http://dx.doi.org/10.1108/IJRD-03-2015-0007. Published. **Awarded Highly Commended Paper by Emerald Literati Network.*	80%	The initiation, key ideas, data analysis, theme development and writing up.	Prof. Robyn Dowling, principal supervisor at time of submission; 20%; rewriting of introduction and discussion sections, editing of the complete manuscript before submission, help in addressing reviewers' comments.
4.3	Mantai, L. (forthcoming). The role of social support for doctoral belonging and becoming. Under review.	100%	Full contribution	
4.4	Mantai, L. (2015). Feeling like a researcher: experiences of early doctoral students in Australia. *Studies in Higher Education*, 1–15. http://dx.doi.org/10.1080/03075079.2015.1067603. Published.	100%	Full contribution	
4.5	Mantai, L. (forthcoming). How to become a researcher: developmental opportunities on campus and beyond. In Eds. Christopher McMaster et al., *Postgraduate study in Australia: Surviving and succeeding.* New York: Peter Lang. In press.	100%	Full contribution	
4.6	Dowling, R. & Mantai, L. (2016). Placing researcher identifications: labs, offices and homes in the PhD, *Area.* http://dx.doi.org/10.1111/area.12317. Published.	50%	Writing of methodology, data collection, analysis, and findings sections, literature search and review on identity, help in addressing reviewers' comments, final editing and submission.	Prof. Robyn Dowling, principal supervisor at time of submission and main author; 50%; initiation, key ideas, argument development, theoretical framework, writing up of introduction and discussion, addressing reviewers' comments.
4.7	Mantai, L. (forthcoming). Feeling more academic now — PhD stories of becoming an academic. Under review.	100%	Full contribution	

Chapter 1

Introduction

The traditional purpose of the PhD as preparation for academic careers in universities no longer stands in light of graduates' diverse career destinations. Increasingly, the PhD degree facilitates candidates' professional development and learning for diverse future careers in and outside academia. Changes in academia and the higher education sector, stimulated by globalisation and the knowledge economy, influence doctoral education, candidates' PhD experience, and shape the identities candidates form and develop. However, despite a growing body of literature, little is known about how students develop researcher identities as a basis for academic and professional futures. What is widely known is that the PhD is a challenging and emotional journey, which many candidates perceive as isolating and lonely. This thesis-by-publication examines development of researcher identities and the role of social practices in the PhD journey. The thesis frames doctoral researcher development as a journey embedded in students' past experiences, present circumstances and future aspirations. Doctoral candidates' narratives, a perspective that is largely missing in current doctoral education research, add a nuanced understanding of how doctoral students become researchers in a higher education context that emphasises the measurement of research above other academic roles and identities. This thesis is of interest to current and future doctoral candidates, supervisors and higher degree research (HDR) support staff. It contributes to the field of study of wellbeing of doctoral students as well as that of academic identities and developing a professional, researcher and academic community belonging. As a point of departure, the following section maps a picture of the doctoral education status quo and current changes that affect doctoral identities.

1.1 Background: changes in doctoral education in Australia and worldwide

1.1.1 A brief history of the PhD

The first Australian PhDs were awarded in 1948**.** The traditional PhD as a research degree originated in Germany in the nineteenth century and included compulsory coursework

for students, conduct of independent research, dissertation writing and a final oral defence. This type of PhD is commonly known as the Humboldt model (Group of Eight, 2013). Central to this research degree was a close one-on-one relationship with an academic acting as supervisor, who was usually male, senior, and aptly described as 'Doktorvater' in German. While today's PhD programs in the US mandate Humboldtian PhD-style coursework, PhDs in the UK and Australia still largely follow the research apprenticeship model (Park, 2007), although Doctorate in Education (EdD) programs and professional doctorates can include coursework in development and increasingly research students are supervised by more than one supervisor. The master-apprenticeship model is manifested in the supervisor-student dyad that is a close working relationship between a senior (experienced researcher) academic and a student (novice researcher). Although the primacy of supervision has been contested in recognition of the range of other helpful individuals (Aitchison & Guerin, 2014; Green, 2005; Kemp, Molloy, Pajic, & Chapman, 2013), it cannot be denied that the supervisor still assumes a key figure in the student's PhD experience and serves as the first connection to the academic and disciplinary community.

PhD, doctoral, graduate or research students are described in various terms across the world. The term 'student' is the most common and internationally accepted term; however, in some countries like Australia, the term 'candidate' is increasingly used, as it marks a formal difference from being an undergraduate student, i.e. through passing a doctoral research proposal by an institutional committee. Other terms like mentee (common in the US) and protégé(e) (from the French term for 'the protected'), and apprentice describe a learner/student status, but also a status of a person in need of a guide, mentor, or protector even, with a suggestive role of a parent/pastoral carer for their supervisors or mentors. These descriptions of doctoral candidates stem from the beginnings of doctoral education centuries ago. The fact they still persist in doctoral education language is telling of the kinds of help and guidance that the doctoral student requires from supervisors and others involved in the process.

The original purpose of the PhD was apprenticing the student for a scholarly career in academia (Austin, 2002; Park, 2007). Thune (2009, p. 640) explains that 'traditionally a PhD was seen as the preparation for an academic career in universities and similar research and teaching institutions. It is the only degree that qualifies for entry into permanent faculty positions in universities, and as such the raison d'être of the PhD is preparation for the academic profession.' In Australia, the doctoral research degree takes on average three to four years and culminates in a written thesis of about 100,000 words. It does not require an oral examination or viva, and includes mandatory and optional coursework, which differ significantly in content and scope (Kiley, 2014). All universities provide higher degree research skill workshops or seminars in some form. Despite an original PhD focus on developing teaching capacity, there is no obligation for candidates to teach or mentor other students during the PhD.

While the traditional PhD remains an academic degree awarded by universities and similar institutions, its purpose and fitness have long been debated (Golde & Dore, 2001; Park, 2005a; Park, 2007). Originally conceptualised as socialisation of students into academic professions, the PhD degree is now discussed in regards to diverse purposes and outcomes, career options and aspirations.

1.1.2 Trends and influences in doctoral education in Australia

Any investigation into the doctoral experience must consider the changes in academic practice and higher education sector in general. Doctoral education does not stand in isolation, but is closely related to and directly influenced by the changes that effect higher education and as such, academic professions and lives. Changes in the higher education sector and academia as a workplace have significant effects on doctoral education.

Research degrees are of great importance to Australian higher education. Investing in doctoral education is investment into Australia's future, as doctoral candidates of today will form research groups, academic cultures, professionals and leaders of tomorrow. Doctoral graduates present an original contribution to scholarly thought. According to the Grattan

Institute Report, research candidates constitute a large proportion of the research workforce (Norton, 2012) that keeps the institutional research agenda going. They contribute to research productivity, the public reputation and academic credibility of universities. For Australia as a nation, research degree holders form the intellectual and skilled workforce with high innovation and creativity capacity, promising to add to the country's growth and progress (Group of Eight, 2013; McGagh et al., 2016; Park, 2007).

Today, over 8,000 doctoral students graduate each year in Australia and the figures are growing. There was a 30% increase in doctoral graduates from 2004 to 2013 (Trigwell, 2016) and 50% over the last 20 years (Universities Australia, 2014). Australian doctoral education is not only experiencing a fast growth in enrolments, it also faces an increasingly diverse student cohort. Women and international students have dominated the diversity discussion for decades, and now more mature students and students from low socio-economic backgrounds take up PhD study (Group of Eight, 2013). The average Australian PhD candidate is now 35 years old and 55% are female (GCA, 2016) as opposed to 'young, white, middle-class and male' (Read, Archer, & Leathwood, 2003, p. 274). At the same time the academic employment market has become highly competitive with few continuing (or tenured) positions (Austin, 2002), and instead highly casualised (Golde & Walker, 2006). The impact of massification in postgraduate research education (Group of Eight, 2013), with unprecedented numbers of higher degree-by-research theses (Evans, Murphy, Pearson, & Tregenza, 2003), alongside a constrained academic labour market, particularly in some HASS (Humanities, Arts and Social Sciences) disciplines (Cuthbert, Spark & Burke, 2009), has contributed to changes in doctoral education and the doctoral experience (Boud & Lee, 2009).

Like academics, doctoral students are affected by universities' neoliberal discourses (Burford, 2015; Pickering, Grignon, Steven, Guitart, & Byrne, 2015) as a consequence of globalisation and the move from resource-based to knowledge economy (Cuthbert & Molla, 2014). Dowling (2008, p. 2) states, 'neoliberalisation processes include the infusion of market and competitive logics throughout universities, the rise of audit processes and cultures of

accountability, and the replacement of public with private (student and private business) funding.' Academic work in neoliberal universities is strictly managed, regulated, audited and increasingly performative (Ennals, Fortune, Williams, & D'Cruz, 2016). Auditing and public accountability are key features of neoliberalism (Berg, 2015; Brabazon, 2016; Dowling, 2008). One's Curriculum Vitae (CV) becomes evidence of alignment between oneself and university's objectives (Berg, 2015), an alignment of personal aspirations and professional obligations. Responsibility for one's quality of work, skills and employability is shifted to the individual, promoting individualistic work cultures (Brabazon, 2016; Dowling, 2008; Müller, 2014).

While Burford (2014) claims there are a number of differences between academic and doctoral student practices, McAlpine et al. (2009) find doctoral students engage in a variety of academic activities during their PhD degrees. Arguably, both share the same precarious space and environment in higher education (Burford, 2014; Ryan-Flood & Gill, 2013). Doctoral students, too, feel the pressures of an increased focus on performativity, rankings, measures, pressures to publish, diverse and conflicting academic workloads but simultaneous reductions in support and funding (Burford, 2015; Golde & Walker, 2006; Müller, 2014; Rond & Miller, 2005), and pressures to evidence research impact beyond the university to community and industry (Malfroy & Yates, 2003). A lack of academic jobs means that many doctoral graduates are employed outside higher education.

For doctoral students, this adds a level of complexity, as it raises expectations for them to be research productive and publish during their PhD (Lee & Kamler, 2008; Pickering et al., 2015; Sinclair, Barnacle, & Cuthbert, 2013) to be able to compete. Sinclair et al. (2013) go so far as suggesting that the purpose of the doctorate should be on forming active and productive researchers, not 'just' researchers. It seems that learning how to do independent research is insufficient and the onus is now on demonstrating that one is an expert in the field through early publications and public presentations.

As a result of these changes, doctoral education is increasingly referred to as doctoral or research training (Blaj-Ward, 2011; Craswell, 2007). The boundaries of work, education, training, research, and career development are increasingly blurred in the doctoral experience (Cumming, 2007). The twentieth century showed a strong recognition that universities as producers of knowledge were central to the nation's social and economic progress, and so high investment followed into building human capital that would form a well-educated workforce of the future (Neumann & Tan, 2011). According to the authors, research 'training' is also a reflection of the recognition that doctoral candidates need to be trained for industry employment (Neumann & Tan, 2011). Candidates are now knowledge workers in the knowledge economy (Malfroy & Yates, 2003; Neumann & Tan, 2011; Wiles, Durrant, Broe, & Powell, 2009). The PhD process has become more regulated and formalised to produce more graduates in a shorter timeframe. Debates about research skill training are grounded in employability discourse (Craswell, 2007) and concern that PhD students are not well prepared to conduct research (Wiles et al., 2009). Structured coursework, learning skills workshops or online modules, are facilitated by universities, faculties and departments to develop the practical research skills and capabilities of students undertaking research. In 2000, Metcalfe and Kiley (2000) argued for semi-structured programs in the first year of the doctorate involving optional and flexible seminars aiming to develop different skills (e.g. project management), and creating a social and collegial community for candidates. This would presumably make the Australian PhD more compatible and competitive with international PhDs and enhance candidates' employability by teaching generic, professional and transferable skills (Cuthbert et al., 2009; Nerad & Heggelund, 2011; Pearson, 1999).

A growing body of research on the neoliberal university critiques neoliberal influences on academic practice (e.g. the time pressures adversely impacting academic work). Trevitt and Perera's (2009, p. 356) call for more time, and space, warns against challenges associated with 'the new public management' and institutional 'accountability regimes'. They state reflection and teasing out new ideas requires time and provision of appropriate scaffolding

(e.g. peer-based workshops, one-to-one coaching, etc. Archer (2008) and Harman (2003) claim time pressures threaten to fragment academic identities, and those of aspiring academics, and disrupt assumptions of what it means to be an academic. Feeling like an academic constitutes doing academic practice and having an identity of an academic (Archer, 2008). The time pressures or the 'fast, lean and mean' culture threaten academics to 'unbecome' academics, as manifested in academics feeling marginalised, excluded and inauthentic (Archer, 2008, p. 400). Interestingly, McAlpine et al.'s (2009) research on challenges that influence students' identity development shows over 50% of all challenges are attributed to time issues or pressures experienced by students. The context of academic identities is important to doctoral identities, as academics form the immediate and physically closest community. Doctoral candidates learn what it means to be a researcher in academia, on campus, or elsewhere from the academics they interact with. Such interaction and learning occur in formal and informal settings and various physical contexts. Some research illustrates how academic and researcher identities are distributed across space blurring the lines between work, home and study (Barnacle & Mewburn, 2010; Hopwood & Paulson, 2012). Recent and ongoing changes in university structures and desires, as well as alterations in doctoral education, are shaping new spatialities and temporalities of academic, and hence doctoral, work and identities.

This thesis casts a different gaze on PhD students' and academics' spatialities and temporalities in this context. The thesis investigates the spatialities of the PhD experience and in particular the spatialities of researcher identifications, hereby taking a geographical approach to exploring how the physical setting and environment with its social components impact on PhD researcher identities. On the one hand, the capacity of university physical and social environments (socio-spatial aspects) to enrich and support learning is widely recognised across the sector and Australia as underpinning the doctoral experience (Coates & Edwards, 2009; Gillen, Ziegler, Friess, & Wasson, 2014). From the perspective of campus infrastructure and university concern with student experience, then, greater attention to the

use and understanding of space by doctoral students is invaluable. On the other hand, spatialities have been comparatively neglected in the growing literature on academic work and identities. In geography and beyond, the imprint of neoliberal traits across university life are widely discussed, including the shifting temporalities of academic work such as intensification and acceleration (Mountz et al., 2015; Müller, 2014). These temporal insights in and through space remain to be more explicitly examined. Thus, this thesis adds geographical insights to a growing literature on the ways in which identities and practices of research are performed and produced, with a specific focus on PhD research.

The critique of fast and lean academia is not new. Gee (2000) argued that 'new capitalism' and neoliberal practices changed academic identities. The trends described above have been observed in academic culture for several decades. This seems to have given rise to academic individualism as a prevalent cultural narrative (Deem & Brehony, 2000; Müller, 2014). Müller (2014) paints a bleak picture as she argues that the academic future is marked by acceleration, anticipation and individualisation. Metrics-based competition drives early academics to preference quantity rather than original and qualitative work (Colbeck, 2002). The focus on quantity leads individuals to only collaborate with others if it can lead to publishable outcomes; hence, the level of engagement in social relationships with colleagues and the local research community depends on what is in it for them in terms of outcome (Müller, 2014).

The contemporary pressures of universities as outlined above inevitably affect doctoral students, and their everyday practices and identities (GCA, 2014). Publications and other research outputs gain in prominence and serve as indicators and evidence of research productivity. The format of thesis by publication is therefore gaining popularity (Guerin, 2015; Kamler, 2008). With this comes an increasing focus on developing students' writing skills and the implementation of structures to support it (i.e. writing courses, boot camps, writing retreats, workshops, employment of writing consultants and teachers). A large body of literature has long positioned writing, for various audiences and in diverse formats including

online, and publishing skills as the main focus of doctoral training (Aitchison, 2009; Aitchison, Catterall, Ross, & Burgin, 2012; Aitchison & Guerin, 2014; Aitchison & Lee, 2006; Guerin, 2015; Kamler, 2008; Kamler & Thomson, 2004; Lee & Kamler, 2008; Mewburn & Thomson, 2013). This recognises that writing and publishing is an important element through which newly developed researcher identities are constituted and communicated. Through writing and publishing one becomes an expert, a researcher, and joins a community of scholars. Moreover, the growth in PhD enrolments and candidates' diverse personal and professional needs, combined with the decrease in academic employment security and increase of graduates' employment outside academia point to issues that undoubtedly affect doctoral practices and identities.

In light of the changes reviewed above, it is unclear how PhD candidates develop as researchers and what kind of researcher identities they develop if their professional destinations are varied and the purpose of the PhD can no longer be viewed as preparation for academic professions.

1.2 Aims and contribution

This thesis is interested in the range of social, collaborative and supportive practices candidates identify as having an influence on their sense of self and their identity development. In this thesis, the PhD is framed as a journey of professional development, where becoming a researcher is a starting point for any professional career, in and outside academia. The aim of this research is to explore the doctoral experience in regards to the identity development of students becoming researchers within the social aspects of the PhD. It seeks to reveal underlying influences, forces and issues pertinent to identity development, and as such contribute a nuanced understanding of how doctoral students become researchers. This thesis poses the following research questions:

1. What role do social practices play in doctoral identities, and specifically researcher identity development?

2. What does researcher identity development look like in doctoral daily practice and from the students' perspectives?
3. How do doctoral identities, and specifically researcher identity development, change over the course of the PhD?

This thesis makes valuable contributions to doctoral education research. Firstly, it highlights the critical role of social and collaborative practices that promote researcher as well as professional learning and development. Secondly, it points to a need to enhance candidates' sense of connectedness and belonging to a community from the beginning of their PhDs, for several reasons. An integration of PhD candidates in academic, research and professional communities minimises feelings of isolation, and facilitates learning the academic or professional 'game' and what it means to work as a researcher in any career context. Further, candidates' connections with others enable building of professional relationships and networks, which potentially leads to employment opportunities. Thirdly, it provides an empirically robust understanding of identity development during the doctorate by presenting a large set of empirical data, namely candidates' personal and diverse narratives.

1.3 Thesis by publication format

This thesis is a thesis by publication (also called a publication-based (Sharmini, Spronken-Smith, Golding, & Harland, 2015) or paper-based thesis (Pretorius, 2016)), as it integrates a series of published articles (Guerin, 2015). Writing up of different phases took place throughout the candidature as individual manuscripts were prepared and submitted for publication. The rationale for choosing to do thesis by publication was to ensure the high quality of the final work as different stages of research and writing received regular feedback and were peer reviewed by a wider audience. This approach also made the project more manageable by dividing it in sub-projects (Dowling et al., 2012).

While choosing the thesis by publication format did not determine the research design, it did influence the data analysis processes and presentation of findings. Presenting findings in individual papers enabled a focus to be placed on various significant themes that emerged in

the data analysis, which inform current key debates in doctoral education literature. Specific research questions and foci of the individual papers and journals required drawing on subsets of data and revisiting coding and analysis to highlight the key message of each paper. Table 2 below provides an overview of the Findings (Chapter 4) in the thesis, either published or under review. Publications are not presented in order of publication date, but in order of logical progression of research findings in support of the thesis argument.

Table 2. List of papers published and under review.

Sequence	Paper	Status
Publication 1 (Journal article)	Mantai, L., & Dowling, R. (2015). Supporting the PhD journey: insights from acknowledgements. *International Journal for Researcher Development,* 6(2), 106–121.	Published. http://dx.doi.org/10.1108/IJRD-03-2015-0007
Publication 2 (Journal article)	Mantai, L. (forthcoming). The role of social support for doctoral belonging and becoming.	Under review.
Publication 3 (Journal article)	Mantai, L. (2015). Feeling like a researcher: experiences of early doctoral students in Australia. *Studies in Higher Education*, 1–15.	Published. http://dx.doi.org/10.1080/03075079.2015.1067603
Publication 4 (Book chapter)	Mantai, L. (forthcoming). How to become a researcher: developmental opportunities on campus and beyond. In Eds. Christopher McMaster et al., *Postgraduate study in Australia: Surviving and succeeding.* New York: Peter Lang.	In press.
Publication 5 (Journal article)	Dowling, R. & Mantai, L. (2016). Placing researcher identifications: labs, offices and homes in the PhD, *Area.*	Published. http://dx.doi.org/10.1111/area.12317
Publication 6 (Journal article)	Mantai, L. (forthcoming). Feeling more academic now — PhD stories of becoming an academic.	Under review.

1.4 Thesis overview

Chapter 2 discusses current research on doctoral candidates' researcher development, following a structure of beginning, middle and end of the PhD as a reflection of the journey metaphor. It presents a visual map of literature that informs the journey from doctoral student to researcher, academic and professional identities. This chapter closely examines the 'journey' metaphor and discusses the theoretical key concepts underpinning researcher identity development.

Next, Chapter 3 presents a detailed discussion of the mixed methods methodology, including the longitudinal study design as well as the processes around data collection and

analysis. This research employs narrative inquiry and draws on three lines of evidence: doctoral experience in conversation (focus groups and interviews), doctoral experience in text (thesis acknowledgements), and autoethnography.

In Chapter 4, the individual publications present prominent aspects of the research findings and, combined with autoethnography, tell a story of progression in doctoral students' development of personal and professional identities over the course of the PhD. This story starts by investigating the PhD experience as expressed at various points in the PhD. This provides a starting point for framing the PhD as a journey of becoming and a fundamentally social and collaborative process and, in contrast, highlighting candidates' experiences of disconnection and isolation and consequent struggles to view themselves as researchers. The story then tells of specific events and activities, times and places, that help candidates experience researcher identities, highlighting the need for validation, external recognition, personal and professional connections with others, and wider academic and professional development and learning. A summary of findings is provided upfront that directly addresses each research question separately, to provide an overview to the reader of how the papers are connected, and relate the findings to each other across papers. My personal PhD experience (autoethnography) concludes the findings chapter as additional data. I use autoethnographic accounts to introduce and link the individual papers to each other. In doing so, autoethnography grounds the production of this thesis in the development of my personal researcher identity.

The discussion of the findings and their implications follow in Chapter 5. The findings provide a nuanced understanding of how doctoral students develop as researchers, academics and professionals in the PhD, and outline the social and contextual influences experienced by doctoral students. The main findings relate to the social and collaborative nature of doctoral identity development in the PhD, and the critical role of professional learning and development opportunities during the PhD in preparation for the diverse career opportunities awaiting PhD graduates. Essentially, this thesis shows the doctorate does more than educating

for the academy, and doctoral candidates are more than just ‘students’. The findings raise questions in regards to the purpose, and fit of doctoral programs and support for doctoral candidates.

The concluding Chapter 6 suggests ways forward and points to promising initiatives that have recently emerged in the doctoral education landscape.

Chapter 2

Literature review

The purpose of the thesis is to investigate how students develop researcher identities over the course of the PhD. This includes the practical (researcher skills) and the theoretical (sense of identity) aspects of researcher development. Firstly, section 2.1 examines the fit of the journey metaphor with the PhD experience as a process of becoming, and of personal and professional growth and development. Secondly, section 2.2 presents the theoretical underpinnings of identity. It then outlines how doctoral identities and 'becoming a researcher' are currently theorised in doctoral education research. Three lines of argument are evident here: (1) doctoral researcher identities are embedded within a wider context of personal and professional life trajectories, (2) they are socially constructed, and (3) some identity markers can be identified (e.g. liminal and threshold experiences). Thirdly, the review in section 4.3 presents insights from previous research into doctoral students' development of researcher identities reflecting phases of a journey: leaving home and homeliness and embarking on the PhD, navigating the new terrain of academia, travelling in company, and arriving at the end of journey. As a whole, this chapter illustrates what is currently known about doctoral identity development and what still needs to be examined.

2.1 PhD as a journey of becoming and identity development

The PhD experience and identities formed in the PhD are conveyed through the kinds of metaphors students use to describe their PhDs. Not only do metaphors tell the 'real' (hidden and unspoken) PhD story, they also convey certain expectations students have of the PhD. Morgan (1980) defines metaphor as 'a way of seeing […] and thinking'. The authors ascribe a powerful role to metaphors in shaping and constructing our reality. Metaphors do not provide singular interpretations, but transfer emotions and holistic understandings of a subject (Milne, Kearins, & Walton, 2006). As such, metaphors are powerful mental constructions in communicating one's experiences and understandings (Hughes & Tight, 2013; Lakoff & Johnson, 1980). The journey offers a powerful image of the PhD as an 'exploration of new

terrain, having new experiences and becoming exhilarated and exhausted in the process' that vividly conveys 'the intensity of the experience and the strong emotions — positive or negative' (Brause, 2000, p. 11).

Several other metaphors describe the PhD. Students encouraged to reflect on their doctorate through the use of metaphors by Heinrich (2000) frame it as a 'heroic journey' and as 'initiation' to scholarly identity. Other research describes the PhD as an 'entry card' or 'beginning of an academic career', 'the first stage of an academic career' (Austin, 2002), as 'just a job', 'rite of passage, apprenticeship', 'a perilous passage' (Weidman, Twale, & Stein, 2001), 'license to academia' and 'group enterprise' (Malfroy & Yates, 2003), 'a maze', 'gardening' and 'giving birth' (Brause, 2000). PhD students are described as wanderers, chameleons, and warriors, and 'their narratives represent portraits of experiences faced by doctoral students at the peak of their epistemological and ontological growth' (Murakami-Ramalho, Piert, & Militello, 2008, p. 806). Reybold (2003) characterises socialisation processes to academia as anointed, pilgrim, visionary, philosopher, and drifter. Such metaphors vividly illustrate the diversity of PhD experiences and doctoral identities. Academia is further described as a game with covert rules (Delamont, Atkinson, & Parry, 2000; Parry, 2007), and the PhD is about learning how to play the game (Baker & Lattuca, 2010), positioning PhD students as players and actors of the game.

However, the PhD as a journey metaphor dominates over others. It suggests the student assumes the role of a traveller who navigates unknown terrains by means of an itinerary (e.g. PhD research plan) to get to a destination of their choice (e.g. obtain the title, produce a thesis, gain employable skills, personal and professional growth, become a researcher). Mapping a PhD journey means to organise ideas, plan the process, define milestones, negotiate necessary skill development and support and eventually design a map as a navigation tool for oneself and others, i.e. the research community and supervisory team. In fact, 'the journey' has become a useful and fitting metaphor in recent decades as the doctorate has become increasingly viewed as a process of developing the researcher rather than the

research (Gardner, 2008b). Many authors in education employ the metaphor of a journey in matters relating to the learning, psychological and personal development of students (Appel & Dahlgren, 2003; Bitzer & Van den Bergh, 2014; Brown & Holloway, 2008; Evans & Liou, 2011; Taylor, 2008), research undertaking (Brew, 2001) and personal identity development (Gardner, 2008b).

Despite the popularity and seemingly wide acceptance of the 'journey' metaphor in educational settings, some critique has been expressed in relation to the PhD being described as a journey. McCulloch (2013) critiques the 'journey' metaphor as too linear and too simple to describe the uncertainty and messiness of the PhD. He argues viewing the PhD as a journey suggests a linear progression from A to B, giving an illusion of predictability and certainty of a positive result. Instead, he proposes framing the PhD as a 'quest' metaphor and parallels six elements of a quest to the PhD, as discussed by Auden (in McCulloch, 2013, p. 60–61): PhD as a precious object sought after; a long journey with the possibility of not finishing; the student as a hero; difficult tests to overcome; examiners as the guardians of universities and disciplines; supportive people as the helpers. As such, McCulloch claims that the 'quest' metaphor better reflects the transformative experiences the PhD potentially holds for the student.

However, the type of a journey McCulloch assumes and argues against is indeed a simplistic, linear and predictable type of journey, which assumes two clear destinations and some means of transport to get to the final destination. He does acknowledge, however, that the precious object in the PhD quest can well be the search of who one is (self-knowledge), or new knowledge rather than the award or the title (McCulloch, 2013). Although McCulloch, in fact, accepts certain aspects of the journey metaphor, his definition of the journey is focused somewhat more on the technical or mechanical part of the learning journey that the PhD entails. Just like any journey is not a simple transition from A to B, a research degree is not 'simply a matter of a technique to be mastered as a simple act of research training' (McCulloch, 2013, p. 59). The PhD more likely resembles a one-way trip, backpacking

around the world, or emigrating to a new country where one does not know the culture and language, fleeing one's home country, or embarking upon a pilgrimage. Such journeys are not easily predictable, nor are they meant to be, and they likely present transformative experiences for the travellers. It is this kind of journey, simply defined as a learning experience, that potentially transforms the person and in the least involves change and development in one's identities, that the notion of the PhD as a 'journey of becoming' assumes. While the quest aims to reach a destination and solve a (research) problem, the journey metaphor concentrates on the process and the growth and development of the person rather than the product of the PhD.

So how do the many facets of the PhD experience fit in with the journey metaphor? Milne, Kearins and Walton (2006, p. 815) state that the journey metaphor is strongly associated with features like 'forward movement, progress, continuous improvement and learning', 'movement down a path or road, taking steps', and 'achievement of milestones'. Miller and Brimicombe (2004, p. 409) describe the journey as a 'passage of time and phase changes in our being as we age, learn and develop'. The metaphor succeeds in capturing the emotional intensity, the adventure, and possible risks and dangers to our being. Journeying does not require a clear destination. This 'de-emphasis of destination is reference to progress and learning' (Milne et al., 2006, p. 816). In the process, one changes through gaining first-hand experience and becomes familiar with foreign customs (Hellstén, 2002; Andersson and Kalman, 2010). Illustrating a learning process as a journey means highlighting the less visible differences and contrasts between new and familiar, as the following quote explains:

> On returning home, the traveller's gaze not only recognizes the homely and well known, but is estranged to something that has come to be perceived as narrow and limited. Hence, it is only after truly coming into contact with that, which was previously foreign, that the ways of viewing the 'home of one's childhood' may come to change significantly (Andersson & Kalman, 2010, p. 207).

This thesis focuses on the process of identity formation and development as a significant part of the PhD destination (e.g. to become a 'Doctor', a professional researcher, etc.).

Metaphors describe and structure experiences (Lakoff & Johnson, 1980). The 'homely and well known' is what the student brings to the PhD; it is the personal background, beliefs, values and aspirations but also existing support, resilience and emotional fitness which will determine the process and the outcome. Together they form the success tools and the baggage of the PhD student. People involved in the student's PhD are their travel companions. They are essential in navigating the new terrain of academia and in getting to where one wants to be. The journey metaphor indeed helps to demystify and structure the messy, unpredictable and emotional PhD process into stages, phases, milestones, common events and incidents, shared practices, support systems, networks and relationships. The journey metaphor serves as a structural and interpretive tool in presenting how doctoral students assume researcher identities.

2.2 Mapping and theorising identities in the PhD

The doctorate is 'as much about identity formation as it is about knowledge production' (Green, 2005, p. 153). The term 'identity' has been widely adopted in doctoral education research in the last two decades (Bitzer & Van den Bergh, 2014; Colbeck, 2008; Gunzenhauser & Gerstl-Pepin, 2006; Harrison, 2008; Holley, 2009; Jazvac-Martek, 2009; Malfroy & Yates, 2003; McAlpine, 2012a; Pifer & Baker, 2014; Weidman et al., 2001), yet it is rarely explained in detail. Therefore, the concept of identity emerges as an abstract, elusive and mysterious phenomenon in the complexity of the doctoral experience (Cotterall, 2015), multi-layered and hard to grasp. This part explains the notion and use of the term identity in this thesis, building on theoretical constructs widely accepted and applied in doctoral education research.

This research acknowledges the process of becoming (a researcher) as central to doctoral education and defines doctoral students as primarily becoming researchers or further developing as researchers if prior research experience exists. The PhD experience and

doctoral education are confined within academic worlds. This thesis examines candidates' researcher development as dictated by the purpose of the PhD, but also acknowledges candidates' diverse career aspirations and hence, development of academic and other professional identities. Figure 1 presents an overview of the literature reviewed in Chapter 2 and helps position the discussion with the context of current research.

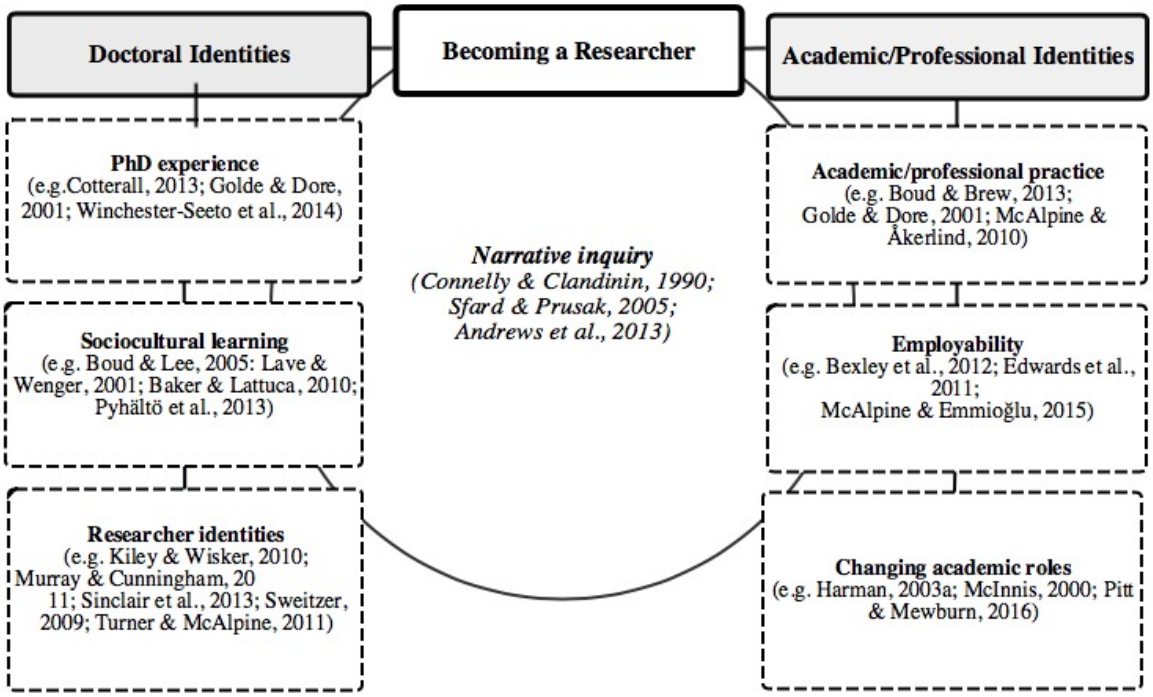


Figure 1. Mapping the literature and context for this study.

This literature review brings together literature on doctoral, academic and professional identities. On the one hand, the basis and starting point for this thesis is previous research on doctoral student identities described by the shared PhD experience, social and cultural learning, and the theoretical and practical researcher development (left hand side of Figure 1). On the other hand, three particular aspects of academic identities literature inform this research and provide the wider context for this study: the nature of academic practice, changing academic roles, and the current academic employment context (right hand side). The different strands of literature are positioned to support the argument of the thesis. The discussion on doctoral identities (on the left) positions students as 'being' and 'becoming' researchers, while the right hand side sees students in the enactment ('doing') of future academic and other professional identities. Overall, Figure 1 can be read as a progression and

development of candidates from left to right, presenting the pathway from doctoral student identities to academic and professional identities through becoming a researcher by means of undertaking PhD research. However, candidates may come to the PhD from various professional contexts, and may have previous professional, academic and research work experience. Therefore, doctoral, researcher, academic and professional identities must be seen as intertwined and developing simultaneously during the PhD, although candidates' points of departure vary. The next section separately discusses and explains the co-existence of doctoral student identities, researcher identities, and academic and professional identities in the PhD context. Narrative inquiry is used as a methodology to create a dialogue between the bodies of literature, and hence, is illustrated as a background circle that connects both sides of the figure.

2.2.1 Doctoral identities

Tonso (2006) conceptualises identity from three perspectives: thinking about oneself (being), performing (doing), and being thought of as a researcher (identified as a researcher). Tonso's conceptualisation positions identity as developing in relation to others. Identities develop in figured worlds, which are socially and culturally constructed (Holland, 2001; Lave & Wenger, 2001). Identity is 'constructed' by imagining oneself, acting as well as being recognised as a certain type of person, and more importantly as a member of a particular community (McAlpine & Asghar, 2010). The understanding of identity as a three-way construct has informed several studies of doctoral student researcher identities (Chen, 2012; McAlpine & Asghar, 2010; McAlpine et al., 2009), and also guides this thesis.

Further, research on doctoral students views identity as an assembly of various roles enacted by the student. A person classifies oneself in various roles depending on the social setting. Jazvac-Martek (2009) explains that in every interaction people hold a particular social position and each of these positions is linked to expectations by oneself or others. These identities are confirmed if actions and behaviours match expectations; hence, individuals are

in constant search for legitimation and social validation. The individual's concern is then to maintain role identities through performance according to role.

Such understandings of identities are underpinned by power relations enacted in social settings. Supervisory relationships, for instance, are marked by power relations, where candidates assume a student role and supervisors have authority over students (e.g. Green, 2005). Doctoral student identities are defined through the multiple roles and activities PhD students engage in, including how they perceive themselves and are perceived by peers, supervisors and senior researchers, e.g. writing a doctoral research proposal, learning how to do research, and learning doctoral requirements.

Doctoral student identities are increasingly diverse. As activities and engagements change, so do doctoral student identities. Colbeck (2008) and others (e.g. Grant et al., 2016) argue candidates can have as many identities as groups they participate in, and these can benefit or restrict each other. Identities overlap and can clash if two groups schedule a seminar at the same time (i.e. student role in supervisory colloquium and a peer in a PhD reading group). Building on Tonso's three-perspective concept of identity, this means one can feel different to how one is seen by others, and vice versa. Congruence or dissonance can either strengthen or weaken one's developing identities, e.g. as a researcher. Colbeck (2008, p. 14) extends the purpose of doctoral education to prepare students as academics, proposing that students should develop as researchers, teachers and 'engaged public scholars', all roles that enrich each other through a shared meaning and contribute to an overarching identity of an academic as a professional. She claims multiple identities inevitably leak into one another, are interwoven, and likely support or suppress each other. Soong, Thi Tran and Hoa Hiep (2015) concur and state that identities cannot be separated, since we, as people, are constantly actively trying to connect to make sense of who we are at any given moment.

Doctoral candidates' identities are shaped by their pasts, presents and futures. Bitzer and Van den Bergh (2014, p. 1047) describe doctoral identity as 'a continuous conscious and unconscious process influenced by interacting elements, such as doctoral candidates'

biological characteristics; own unique psychological needs, interests and defences; as well as and the cultural milieu or context in which they operate'. Doctoral student identities are a patchwork 'enacted "in the gaps" of everyday life' (Barnacle & Mewburn, 2010, p. 437). Barnacle and Mewburn's (2010) study highlights the spatial distribution of roles and identities across multiple physical settings, e.g. home, workplace and study. Students reconcile various identities on a daily basis (e.g. care responsibilities, academia or industry employment) while figuring out their future careers. Their life experiences and career aspirations significantly impact their activities and development during their PhD (McAlpine, 2012a).

The operating milieu of today's PhD students is complicated further by student demographic diversity as well as changes in doctoral and higher education. In the last decade, doctoral identities were increasingly expected to do what counts as professional development, such as presenting at conferences, networking, and serving on committees (Blessinger & Stockley, 2016). Such professional development activities diversify the PhD experience and extend the definition of doctoral identities to include other identities, e.g. professional networkers, entrepreneurs. In a traditional PhD, these professional identities are usually confined to academia.

Despite a collective and shared PhD experience, doctoral identities are complex, highly contextual, and involve multiple variables to do with the individual and institutional context.

2.2.2 Researcher identities of doctoral candidates

Researcher identities refer to people who do research in any given context, e.g. in academic roles, professional positions in academia, and industry. They may be distinguished by the type of research undertaken, e.g. qualitative, quantitative, interdisciplinary, etc.

In the context of research education, Barak and Brekke (2014, p. 616) state 'the term identity formation refers not only to acquiring required knowledge and intellectual expertise, but also to the growth in personality and character and the sense of mission required to undertake the role of a scientist and a scholar'. Other research argues that a sense of mission

is critical in identity formation and is more commonly described as agency, initiative and self-development (Hopwood, 2010a; McAlpine & Amundsen, 2009; McAlpine & Asghar, 2010). Perseverance, resilience and passion for research are common attributes ascribed to researchers (Heinrich, 2000; Turner & McAlpine, 2011; Wisker & Robinson, 2013). Further, being a researcher means to recognise one's role in research (Sallee, 2011), negotiate isolation and exercise independence (Coryell, Wagner, Clark, & Stuessy, 2014). 'Learning to be a researcher requires individuals not only sort out roles of participation […] but they also must be aware of their feelings, perceptions, and actions in context with their own personal biographies' (Coryell et al., 2014, p. 369). Åkerlind's (2008a) literature review of academics' perceptions identified three broad defining themes of 'being a researcher': fulfilling academic requirements, establishing oneself in the field, developing oneself personally, and enabling broader change.

PhD students as novice researchers contribute 'hard work and patience' to becoming a more competent researcher (Feldon, Maher, Roksa, & Peugh, 2015, p. 21). Recent research highlights how an institutional focus on research outputs, the 'publish or perish' agenda (Rond & Miller, 2005), dominates not only academia but also the doctoral experience. Publishing is a demonstration of productivity that marks the student as an active researcher (Sinclair et al., 2013). This extends researcher identities of PhD students to include identities of productive researchers, who write and publish prolifically.

Doctoral candidates are generally conceived as novice researchers (Chen, 2012; Feldon et al., 2015), where development of researcher identities forms the goal for doctoral education (Austin, 2010; Delamont & Atkinson, 2001). Overall, researcher identities are generally assumed to solidify with increasing research experience and research skill development.

2.2.3 Academic and professional identities of doctoral candidates

Although not limited to role and position descriptions, academic identities are generally associated with traditional academics (teaching and research), teaching academics (teaching only positions) and university researchers (in academic or professional roles). Academic roles

and identities are changing and becoming increasingly diverse, encompassing research, tertiary teaching, project management, curriculum design, learning design, community engagement and entrepreneurship (Boud & Brew, 2013). Academic identities have been frequently described as fragmented, troublesome and precarious in light of an increasingly neoliberal managerial higher education sector (Harman, 2003a). This highlights identity as a fluid, dynamic, ever changing and complex process (Clegg, 2008). Today's academic employment market is highly casualised, offering little long-term stability with few continuing positions (Bexley, Arkoudis, & James, 2012), and is research output-driven (Rond & Miller, 2005). For PhD candidates, this means many PhD graduates may not find academic employment (46% according to GCA (2014)) and may need to consider work outside academia (Edwards, Bexley, & Richardson, 2011). Although literature related to traditional doctorates rarely discusses doctoral identities as professional identities, it is appropriate to think of doctoral students as developing wider professional identities. Many graduates nevertheless aspire to do academic work, and academia is still the preferred sector of employment for many PhD graduates despite the difficult academic job market (Edwards et al., 2011; Roach & Sauermann, 2010; Waaijer, 2016).

Given such employment preferences, students are likely to engage in activities and practices that will assist their overall development and preparation for academic as well as non-academic employment. The traditional view of the PhD as preparation for academic careers in universities still persists, although doctoral graduates' job expectations differ (Neumann & Tan, 2011; Thune, 2009). A large body of literature discusses PhD candidates' identity development most frequently in relation to 'academic' identities (e.g. Alexander, Harris-Huemmert, & McAlpine, 2014; Austin, 2002; Jazvac-Martek, 2009; McAlpine & Åkerlind, 2010). This literature finds that doctoral candidates enact academic identities through engaging in various academic practices during their PhD. In this context, doctoral student identities are distinctly separated from academic identities. McAlpine and colleagues (2009), for instance, differentiate between doctorate-specific and academic practices of

doctoral candidates. Activities, such as submitting doctoral grant applications, teaching, and taking exams, completing coursework are associated with doctoral identities. Practices such as submitting papers, conference presentations, applying for academic grants and jobs, as well as teaching, are linked to academic identities. McAlpine et al. (2009, p. 108) state:

> Doctoral students' academic identity is developed through such a wide range of activities, involving interaction with a variety of people within and beyond the academic community […] it is through this range of activities and interactions that doctoral students come to think of themselves, perform, and be thought of as academics […] doctoral students are participating in multiple concurrent activities, both academic and otherwise, which may engender tensions not just within but also across these different activities.

Jazvac-Martek (2009) also makes a distinction between doctoral (e.g. teaching assistant, research assistant) and academic (role) identities (e.g. having publications accepted, presenting at conferences). Arguably these practices are in essence academic work. Both studies align in their distinction between doctoral and academic activities by the degree of formality, shift in status, and the underlying assumption that doctoral students do PhD student-typical work. Interestingly, McAlpine et al. (2009) categorise supervisory meetings and working as research assistants as semi-formal activities, and publishing is missing altogether. It is also noteworthy, that most doctoral activities are listed under informal activities. These appear to be the least visible as they are supposedly undertaken in isolation.

Teaching is a particularly interesting example of doctoral and academic practice. Although some international PhD models recognise students' teacher identities, e.g. graduate teaching assistants (Park, 2004), the Australian research-based PhD model neglects teaching as a site of doctoral learning (Golde & Dore, 2001; Greer, Cathcart, & Neale, 2016; Jepsen, Varhegyi, & Edwards, 2012). An academic role, however, involves roughly 40–60% of activities related to teaching; this is higher for casuals (Golde & Dore, 2001; McInnis, 2000). This can add up to over 30 hours per week of wide-ranging activities related to teaching (Pitt

& Mewburn, 2016). Yet, teaching development is rarely integrated into the PhD process (Brew et al., 2011).

In summary, student, researcher and academic and professional identities overlap in the doctorate and together form doctoral identities. Doctoral students, too, may teach, apply for scholarships and grants, collaborate, network, manage projects, exhibit leadership skills, etc. Doctoral identities overall, emerge as a fusion and patchwork of identities (Barnacle & Mewburn, 2010; Bosanquet, 2017), suggesting the various roles candidates perform are developing simultaneously, at times working together or against each other. Colbeck (2008, p. 11) argues that identities of the academic profession and activities associated with them (teaching, research, service, etc.) are inseparable. Regarding them as mutually exclusive and keeping them separate is the cause of stress and poor commitment to the various roles. Moreover, multiple identities (e.g. student, researcher and academic identities) are embedded in personal lives and must be negotiated with personal identities (e.g. carer) (Grant et al., 2016). Academic, researcher or doctoral identities challenge students' personal identities, values and beliefs, and in turn, their personal identities challenge the traditional academic norms, in which the traditional PhD is situated (Deutsch, 2004; Fataar, 2005; Quaye, 2007).

2.2.4 Doctoral candidates as composites of their pasts, presents and futures

PhD lives are inevitably embedded in personal lives. The concept of identity-trajectory developed by McAlpine (2012) and colleagues presents a useful framing to the analysis and discussion of doctoral student identities in this thesis as it considers what students bring with them to the PhD experience and what they hope to get out of it. Identity-trajectory 'attends particularly to individual agency, interweaving the academic within the personal, and incorporating students' pasts and imagined futures' (McAlpine 2012, p. 38). While previous research had recognised that students' personal life trajectories somehow influence the PhD experience and students' academic and researcher development (e.g. Brailsford, 2010; Ellis & Bochner, 2000; Gardner, 2006, 2008a), 'identity-trajectory' explicitly moved individual agency and personal lives to the centre of doctoral identities as critical decision-makers in

committing to academic work and careers (McAlpine, 2012a). The students themselves must eventually shape and direct the process of developing an identity as a scholar (Barak & Brekke, 2014; Walker, Golde, Jones, Bueschel, & Hutchings, 2009).

Identity-trajectory links identity to students' narratives about themselves and their experience in the doctorate. Students' reflection and reflexivity or self-awareness are central and can serve as coping strategies (McAlpine & Åkerlind, 2010). The doctoral experience is inseparable from the life experience in which it is embedded. As such the PhD and researcher identity work happen in the socio-geographical-historical context of the student's life (McAlpine, 2012a) and is an ongoing development and learning process. Identity work includes practices (e.g. writing and publishing) that assist in the formation and development of any identity, i.e. as researchers (Dowling, Gorman-Murray, Power, & Luzia, 2012). Doctoral student identities are under constant 'construction as students explore ways of thinking and interacting in their academic work within the fullness of their overall lives' (McAlpine & Lucas, 2011, p. 695). McAlpines's work and the concept of identity-trajectory have since been widely applied in doctoral education research where narrative inquiry guides the analysis (Cotterall, 2015; Hancock, Clegg, Crossouard, Kahn, & Weller, 2016; Hopwood, 2010a; Sinclair et al., 2013; Soong et al., 2015; Wisker & Robinson, 2014).

PhDs viewed through the lens of identity-trajectory appear as very personal, unpredictable, messy and emotional journeys. It appropriately accommodates the vast variety of individual experiences. As such, the concept is particularly suitable as it legitimates and empowers ever growing student diversity in doctoral education. This thesis adopts the view that doctoral identities are a dynamic and changing mix of personal and professional identities, which include being and becoming a researcher, an academic or other professional.

2.2.5 Socialisation and doctoral identities

In addition to personal lives, the academic and institutional context in which the PhD degree is embedded immediately effects doctoral identities and their development. Socialisation into research inevitably shapes candidates' identities. The concept of

socialisation helps describe how candidates develop researcher and other professional identities foregrounding that identities are formed and shaped in relation to others, and hence, are inherently social.

The influential forces at play are commonly referred to as the socialisation context of PhD candidates. 'Socialisation in graduate school refers to the processes through which individuals gain the knowledge, skills, and values necessary for successful entry into a professional career requiring an advanced level of specialised knowledge and skills' (Weidman et al., 2001, p. iii). Three mechanisms constitute socialisation: (1) interaction with others, (2) integration or sense of fitting in with the expectations of faculty and peers, (3) acquiring knowledge or skills that are necessary for effective professional practice (Weidman & Stein, 2003). Weidman and Stein (2003, p. 643) further specify that 'the core socialisation experience resides in the graduate program under the academic control of faculty within the institutional culture'. They assessed departmental characteristics that influence the socialisation of graduate students and found that a social and collegial environment where the student receives encouragement and support for participating in activities expected of the scholarly role, provides a strong foundation for the student's research productivity. Gardner (2008b) suggests that identity transition (moving between roles and expectations) is part of the doctoral socialisation process. The process of socialisation is 'not regarded as linear but as seamless, fluid, dynamic, interactive, evolving, and permeable' (Weidman & Stein, 2003, p. 643). Jazvac-Martek (2009) developed this idea further and argued that the development of role identities occurs in an oscillating manner. Identities do not magically emerge nor are they finished. This thesis, guided by this understanding of identity, provides further evidence of the oscillating nature of identity.

Changes in academic practice and the growing diversity of doctoral students led to some critique of Weidman's socialisation model in the last decade. Bieber and Worley (2006) found that graduate student socialisation process may be less powerful than often perceived. They argued that graduate students hold unrealistic views of faculty life and claimed that

students believe what they see. For instance, students usually experience academics in the public teaching role and associate academic work with a flexible and autonomous lifestyle. The complexity and politics of academic work are only visible to students who enjoy closer relationships with academics. Hence, Bieber and Worley's study points to the importance of genuine and personal relationships between research students and their advisors. It also highlights the power of academics and researchers to communicate what it means to do research through everyday behaviours, attitudes and conversations.

Another critique point is that socialisation is normative and linear (Acker & Haque, 2015), and does not account for differences in gender, race, age and family status. Doctoral student socialisation is described as a gendered process, masculine in nature, as it favours competition and hierarchy (Sallee, 2011). Gardner (2008a) argues that the various experiences (by discipline) and the normative socialisation pattern may not fit students' lifestyle or expectations and their diverse backgrounds. This creates a mismatch, making students feel like they do not fit in. The kind of socialisation process students experience can determine if candidates leave or continue the PhD (Gardner, 2008a).

Socialisation is sometimes viewed as enculturation (Delamont et al., 2000). The doctorate involves enculturation (Parry, 2007) and acceptance into the academic tribe (Becher & Trowler, 2001) of one's discipline. It is important to note, however, that socialisation is different from enculturation or immersive learning, albeit being used synonymously (Delamont et al., 2000; Parry, 2007). Socialisation implies a directed approach involving intentional structures put in place for the purpose of individual's development, whereas enculturation generally is perceived to happen naturally.

Metaphorically, socialisation into academia and, in fact, academia itself, is described as a game. This then suggests the first task for individuals is to recognise and learn the cultural conventions of both discipline and the doctorate first before transitioning to and identifying as an independent scholar and researcher. Academia is a complex game with tacit, invisible and unwritten rules (Deem & Brehony, 2000; McAlpine & Asghar, 2010), whose

actors frequently “conform to inexplicit, sometimes covert, counter-norms” and behave against institutional expectations (Parry, 2007, p. 20). This creates challenges for supervisors and students alike who are to learn and teach invisible rules of the academic game. Parry resolves the ambiguity by pointing out that although one cannot name the rules, one can learn to perform as expected. He quotes that 'doctoral students do know what it is that they have learned, because what they have learned is performative: they can perform discipline-specific writing at the highest level of sophistication, but they cannot describe the rules of the game' (Parry, 2007, p. 115). Learning how to perform as an academic should not be viewed as simple compliance of students. Socialisation into academia arguably involves epistemological and ontological changes as aptly pointed out by Carter, Blumenstein and Cook (2013, p. 340): 'doctoral game is about negotiating entry to a culture; acceptance there entails identity shifts'. Despite the critique the socialisation context, defined through social and professional interactions, integration and practices (Weidman & Stein, 2003), is instrumental in doctoral identity formation processes.

2.3 The journey from doctoral to researcher and other identities

This thesis frames the PhD as a journey of becoming and identity development as researchers and other professionals; therefore, the subheadings reflect the journey metaphor and describe the various stages of the PhD journey. In the attempt to demystify and untangle the messy process of identity development in the PhD, the doctoral experience of ‘becoming a researcher’ is presented in a seemingly linear journey, purposefully constructed to make sense of how students develop new identities as researchers in the PhD from a doctoral student to a researcher. Each stage of the journey, roughly divided in ‘leaving’, ‘navigating’ and ‘arriving’, shows how candidates’ pasts, presents and futures play into the development of researcher and other professional identities. Much emphasis is placed on ‘navigating new terrain’ of researcher identity development and its social and collaborative nature, i.e. ‘travelling in company’, as both form the focus of this thesis.

2.4 Embarking on a PhD: becoming a doctoral student

Leaving home is a metaphor that figuratively describes what beginning a PhD may feel like. Leaving home and homeliness describes leaving behind what is known, familiar, comfortable and secure. For some students, who are already working or have worked in research or academia in the past, the new terrain will be at least somewhat familiar. As the PhD takes up one slice in the richness of students' diverse personal lives, it is important to consider where students come from, who they are, where they wish to go, and what their initial experiences of identity are on the PhD journey.

2.4.1 Who are doctoral candidates?

What students bring to the PhD as their characteristics, background, past experience, expectations and aspirations will influence how they navigate the PhD process (Bitzer & Van den Bergh, 2014; Murakami-Ramalho et al., 2008) and what approaches they take to doctoral study (i.e. attending workshops, writing groups) (Fataar, 2005). Students' personal lives symbolise the student's baggage (in a positive and negative sense), and tools in undertaking the PhD. Doctoral research students have become very diverse over the last few decades and the trend continues. In 2009, for instance, 7,091 HDR candidates in Australia completed their degree, with a quarter of those being overseas students (Australian Government, 2011). Completion figures stagnated between 2006 and 2009, although numbers of international research students continued to grow (Australian Government, 2011). While international students complete sooner and report less attrition (Dobson, 2012), they experience higher pressures due to intensifying factors, e.g. not speaking English or leaving their support network (i.e. family and friends) behind in their home countries (Harman, 2003b; Winchester-Seeto et al., 2014). There are various other dimensions to diversity beyond ethnicity or country of origin and enculturation, such as gender, study mode (full-time or part-time), social class, age, spoken language(s), previous education and professional training, discipline, and being first-in-family to do a PhD (Gardner & Holley, 2011), all of which have effects on students' PhD trajectories. For female, part-time and mature students, the PhD experience is

often aggravated, too, as they carry the 'heavy baggage' (Miller & Brimicombe, 2004) of juggling personal and professional responsibilities, like work, family and research. In fact, students' individual and very personal characteristics, including emotional resilience and stress-coping strategies (Aitchison et al., 2012; Wisker & Robinson, 2013), add to PhD student diversity. Although doctoral education research constantly reminds us of student diversity PhD policies, socialisation approaches in doctoral education, and PhD advice do not always reflect this (Gardner, 2008a; Miller & Brimicombe, 2004).

2.4.2 What do doctoral students expect?

On the one hand, what candidates know about the PhD before they enter and their ideas about academia will likely determine their experience of the PhD. On the other hand, students' envisioned futures and career aspirations will direct how they navigate the PhD process and what support they seek and which opportunities they participate in. Yet, despite an overwhelming plethora of How-To-PhD guides available on the market and the numerous blogs and websites written by PhD students, post-docs and academics sharing their experience, in 2001, Golde and Dore (2001) found students were not clear about expectations of PhDs, the process and how to navigate it successfully. Not surprisingly, the same survey of over 4,000 students showed that the training PhD students receive is not what they want or need. Clearer expectations early on in the PhD help reduce students' anxiety and assist in researcher development. Such necessary signposts, milestones and landmarks, i.e. PhD research proposal, (Clegg & Gall, 1998) are usually provided by institutional higher degree research handbooks, policies and research guides directed at students at PhD entry. They do and cannot, however, predict emotional turning points, critical events and identity shifts (Miller & Brimicombe, 2004). Evans and Liou (2011) emphasise the prevalence of the individuality in every journey due to different motivations, interests, baggage, etc. The authors (Evans & Liou, 2011, p. 409) stress the need for individual PhD students to 'navigate through their own research projects that will have unique waypoints'. PhD experience and identities are also contingent upon the different meanings that PhDs carry for students (i.e.

getting the title, learning, developing, license to academia) (Deem & Brehony, 2000). Most PhD guides will emphasise the importance of choosing a 'good' supervisor, hereby assigning great responsibility on the supervisory relationship. A recent Postgraduate Research Experience Questionnaire (PREQ) (GCA, 2014) of research students, however, shows that they can expect at least one change in their supervision, which can potentially unsettle their progress, confidence and identity development (Wisker & Robinson, 2013), for better or worse.

2.4.3 What do doctoral candidates experience early in PhDs?

In other educational contexts, the literature assigns special significance to 'the first year university experience' because it sets the student up for what follows. The notion that underpins the first year experience is that of transition, changes, and adjustment. Hellstén (2002, p. 3) explains the concept of 'transition' as shifting between familiar and unfamiliar learning environments. This naturally requires adjustment and learning the rules and what is expected. International students, accustomed to different cultures of studying, learning and working (alone and with others) are most likely to experience this transition as they find themselves in a culturally different environment away from home (Brown & Holloway, 2008; Burnapp, 2006; Fritz, Chin, & DeMarinis, 2008). For many students, the shift from structured study to the PhD may in fact be a 'mysterious learning process which culminates in PhD students' metamorphosis into doctors' (Cotterall, 2015, p. 360) and 'a continuous conscious and unconscious process' of doctoral identity' (Bitzer & Van den Bergh, 2014, p. 1047). In PhDs, transition is not limited to the early doctoral experience. Evans and Liou's 'doctoral students in transition', for instance, experience the shift from US style coursework-based committee-advised program to UK/Australian-style research-based, individually-supervised program as a 'transition'. A growing body of literature focuses on the transition from doctoral study to academia or employment in general (Neumann, Kiley, & Mullins, 2008; Neumann & Tan, 2011).

The early doctoral experience is marked by negotiation of personal identities (i.e. caring roles, professional work) with the new demands of being a doctoral student and becoming a researcher. Embarking on the PhD journey means learning a new identity in the first place, namely how to be a doctoral student (Soong et al., 2015) and a member of a research student culture (Deem & Brehony, 2000). Research student cultures are defined through the shared experience of being a PhD student and doing a PhD. Students learn how to be 'doctoral' and what they need to do to develop qualities of 'doctorateness'. Doctorateness is defined as the doing and achieving of research by Trafford and Leshem (2009). This includes the research process and research techniques that candidates are expected to acquire before graduation, e.g. articulating research questions, designing a project, applying methods, writing a proposal (Trafford & Leshem, 2009).

Doctoral identities are negotiated with other identities and roles students hold, referred to as personal identities (Fataar, 2005; Gardner, 2008b; Pifer & Baker, 2014). Being a doctoral student means to engage with theory, question one's assumptions, write like a researcher or an academic, read extensively, present one's research to different audiences, etc. (Harrison, 2008; Trafford & Leshem, 2009). Previous research suggests the negotiation is marked by tension as it results in the 'shedding' (Baker & Lattuca, 2010), 'giving up' (Kim, 2011) or 'hiding' (Carter et al., 2013) of prior identities. This thesis adopts Colbeck's (2008) views of newly developing identities as being added and integrated with existing (personal and professional) identities, rather than replacing or eliminating them.

Although PhD entry can be associated with excitement, anticipation and pride, research shows the beginning of the doctorate can be unsettling, cause anxiety, cultural shock, and uncertainty. Manathunga (2007, 2010) applies the concept of 'unhomeliness' in doctoral experience that vividly describes the early doctoral experience. She writes unhomeliness captures 'the cultural alienation, sense of uncertainty and discomfort that people experience as they adjust to new cultural practices' (Manathunga, 2007, p. 98). Later she adds 'unhomeliness also tries to capture the overwhelming sense of ambivalence people may feel

about their identities as they blur, change and re-form' (Manathunga, 2010, p. 92). For students who do not share the gendered, classed and ethnic norms that are implicit in academic cultures, the doctorate can be a particularly disorienting and alienating experience (Johnson, Lee, & Green, 2000). Crossouard and Pryor (2008) find their participants expressed feelings of disempowerment at the beginning of the doctorate where their existing identities confronted authoritative academic identities.

In the early stages of the PhD, first relationships and friendships are formed. Peers build the first frame of reference in the student development towards a member of the research community. Although there is a wide recognition of the value of integrating candidates in departmental communities and peer groups, little is reported on if and how these connections are established and maintained throughout the PhD. Deem and Brehony (2000) found that few of candidates' connections were sustained after the initial PhD stage.

2.5 Navigating new terrain: becoming a doctoral researcher

In leaving 'home' or 'homeliness', the early doctoral experience and the beginning of the doctorate were presented as a transitional and disruptive experience offering first points of contact with others (e.g. peers, supervisors). They are marked by vague ideas about PhD study, academia and other kinds of futures, mixed emotions as well as a disruption of diverse cultural and personal identities in negotiation with new doctoral identities. For many PhD students, the new terrain is academia and learning how to be and act like a researcher. Although the process of becoming a researcher in the PhD is portrayed as a mysterious process (e.g. Cotterall, 2015), doctoral education literature does offer some insights into how candidates acquire researcher skills and competence as researchers, and how identity shifts and changes can be identified.

2.5.1 Doctoral versus academic work

Some research, for example, differentiates what typically doctoral work is and what it is not. Cumming (2007) provides a useful classification of doctoral practices, demonstrating the variety of activities candidates engage in. McAlpine and colleagues (2009) distinguish

between formal, semi-formal and informal activities, as well as doctorate-specific and academic practices considered id entity-formative. Formal doctoral activities, for example, include submitting (doctoral) grant applications, teaching, taking exams, and completing coursework, whereas formal general academic experiences list submitting papers, conference presentations, applying for academic grants and jobs, as well as teaching, amongst numerous others. Informal practices include (doctoral-specific) writing, reading, peer conversations, and PhD research-related activities (collecting data, measurements etc.). A small-scale study by Jazvac-Martek (2009) in Canada with nine doctoral candidates in their final stages investigated doctoral everyday experiences that form student identities. Both studies align in their distinction between doctoral and academic activities by the degree of formality, shift in status, and the underlying assumption that doctoral students do student-typical work. Interestingly, in McAlpine's work (McAlpine et al., 2009), supervisory meetings and working as research assistants are categorised as semi-formal activities and publishing is missing altogether. It is also noteworthy, that most doctoral activities are listed under informal activities. These appear to be the least visible as they are supposedly undertaken in isolation.

Teaching, although not strictly related to PhD research, is a practice many students engage in during PhDs. Some parts of the world mandate some kind of teaching training in the doctorate (i.e. through graduate teaching assistantships (GTA) in North America) rooted in the belief that teaching is a critical part in being an academic (Park, 2004). GTAs confront issues relating to identity and notions of self-worth, as their beliefs and ideas are tested in contact with students because they 'occupy an ambiguous niche' (Park, 2004, p. 355), simultaneously serving as teachers and students, employees and apprentices, and as a result identifying as 'neither fish nor fowl' (Park, 2004, p. 355). Teaching development is not mandated in Australian PhDs. However, research provides some evidence that students engage in academic practices such as teaching and tutoring (including marking, assessment and curriculum development) activities nonetheless (Austin, 2002; Hopwood & Stocks, 2008; Jazvac-Martek, 2009; McAlpine et al., 2009) and may well share some of the sentiments

expressed by GTAs. As to the reasons why students do teaching, students stated teaching experience during the PhD increased their academic status, employability, and career prospects (Hopwood & Stocks, 2008). In her study of education doctoral students, Meyer-Parsons (2007, p. ii) argues teaching is a space where students experienced 'becoming' researchers through: 'negotiating commitments and resources (e.g., time away from family); making schoolwork "personal"; identifying as "certain kinds of people" (e.g. teacher); and/or identifying/dis-identifying with other students, faculty or valued persons were strategies of the self'.

This research points to a demarcation of doctoral activities as being 'other', 'different', perhaps even 'lower standard' from academic activities, although providing evidence that doctoral candidates do academic work.

2.5.2 Everyday PhD practice

Literature points to some research on the effects of informal PhD activities on student's identity development, although surprisingly little if one considers that much of support is informal, i.e. peer support. For example, McAlpine (2012b) argues students exercise agency in reading by making sense, connecting ideas, and hereby creating intertextual networking. This generates a sense of validation of their academic identities. On the other hand, reading can be intimidating and give rise to the imposter syndrome (although this was mainly observed in Humanities students). McAlpine (2012b) suggests that reading strategies could assist in constructing identities.

The main focus is clearly placed on students' everyday thesis writing**.** The thesis forming the final product, based on which the student is assessed at the end of the PhD, naturally puts a strong need for developing doctoral writing skills. A large body of research therefore investigates strategies to help students write regularly, emotions associated with writing, and the effects of writing in emerging academic identities (e.g. Aitchison, 2009; Cuthbert, et al., 2009).

In her study, James (2013) frames higher degree research students' becoming as the relationship between learning, writing and identity or subject formation. Through writing, students express how they think, what they value, what they bring to their research, and essentially who they are. For instance, disciplinary culture shapes researcher identities as disciplinary proponents, which was shown to be reflected in writing (Aitchison et al., 2012). James (2012, p. 41) refers to Butler's work on performativity in thinking through the relationship between writing and academic subjectivity and states, 'competent writing is the effect of the repeated performance of a particular academic subjectivity, instantiated in text, over time.' Butler's subject, the academic identity, is relational, social, unstable, and expressed through spoken or written discourse and language.

Communicating one's research in any form, including simple everyday conversation with others, is an important skill (and need) of academics. Jazvac-Martek (2009, p. 261) states:

> It is important to highlight that it is through the conversations, interactions and exchange of ideas and feedback that PhD students associated with feeling like being an academic or engaging in academic work. Thus, construction, development or changes to any particular role identity is interactive, based on continuous reflexive dialogue and relations with significant others, and remains a dialogic process throughout the doctorate.

Everyday communication and conversation with fellow students is often discussed as helpful in feeling 'one is not alone'. Sharing one's troubles and challenges is one way of identity assemblage: 'Troubles talk is a kind of work that is done to assemble a PhD candidate identity' (Mewburn, 2011, p. 324). 'Telling stories about troubles is one way to come to terms with an altered identity' (Mewburn, 2011, p. 322). Examples of everyday doctoral practices described above show how integral they are to candidates' identity development as researchers.

2.5.3 Supervision as identity work

Supervisory meetings form an important experience of the PhD. Supervision is commonly portrayed as a relationship that benefits student learning and identity development (Wisker & Robinson, 2013), regardless of its conceptualisation (stewardship, pedagogy, apprenticeship, mentoring, etc.). For instance, Paglis, Green and Bauer (2006) find positive benefits of mentoring for subsequent productivity equalling student's performance, and self-efficacy, and Sinclair et al.'s (2013) review confirms that a productive advisor may be key to forming an active researcher. In their conceptual and discussion paper of mentoring as socialisation, Hall and Burns (2009) propose mentors should know about identity construction so they do not reproduce researchers according to their own ideal, but help students form their own researcher identities, e.g. through reflection, regular meetings, explicit conversations, and planning of developmental opportunities. Research with international students has shown that students with the most cultural capital (i.e. confidence developed by encouraging supervisors and a supportive environment) experience the 'most favorable identity trajectories' (Cotterall, 2015, p. 360). Wisker & Robinson (2013) identified links between loss or lack of supervision and students' ontology, sense of being and identity and epistemology, and knowledge and its construction, once more highlighting the significance of supervision. A more detailed discussion of supervisors' role in candidates' researcher identity development follows in section 2.4.5 where I position supervisors as critical PhD journey companions.

2.5.4 Markers of identity development

Daily PhD research activities, engagement in academic work, and supervision, as presented above, make identities and identity development of candidates visible and graspable, and can serve as markers of identity shifts and changes.

The literature offers some discussion on scholarly identity markers. Of particular importance is the work on threshold concepts. Building on research by Meyer and Land (2006) and applying it in doctoral learning journeys, Kiley and Wisker (in Kiley, 2009; Kiley & Wisker, 2009) describe conceptual threshold crossing as specific key moments of change

and development, where doctoral students come to understand their ontological and epistemological positioning, and themselves as learners and builders of knowledge (Kiley & Wisker, 2008, 2009). The student's change of being and knowing marks a shift towards thinking like a researcher and being a researcher. 'A novice researcher recognises (s)he is no longer the same person who entered their programme, a threshold is crossed and one's identity has shifted' (Keefer, 2015, p. 18). Threshold concepts include development of a clear argument, theoretical framework, knowledge creation, analysis and interpretation, and a research paradigm. Apart from being transformative, conceptual threshold crossing is argued to be irreversible (there is no way back as one cannot 'unlearn'), integrative (making connections between ideas or concepts visible), bounded (i.e. by disciplinary boundaries), and troublesome (counterintuitive or 'alien' knowledge) (Kiley & Wisker, 2009).

The period that precedes threshold crossing has been termed as liminality or liminal state (Keefer, 2015; Meyer & Land, 2006). Keefer argues the experience of doctoral liminality is highly emotional: 'altered identity often comes after a liminal period of uncertainty, confusion, or doubt, something akin to the transition within a rite of passage', which feels like 'becoming expert and not quite being one' (Keefer, 2015, p. 19). Isolation, loneliness, lack of confidence and imposter syndrome are typical liminal experiences (Keefer, 2015). Kiley and Wisker (2009, p. 432) elaborate on the student's experience of the liminal state:

> The liminal state might involve much oscillation and confusion. While in the liminal state students may mimic the language and behaviours that they perceive are required of them, prior to full understanding. It is while in this state that doctoral students are often likely to feel 'stuck', depressed, unable to continue, challenged and confused.

Candidates can transition from 'being stuck' to ownership, confidence and autonomy (Wisker & Robinson, 2013). Conceptual threshold crossing helps students shift their self-image towards incorporating scholarly identities elements on the way to completion (Fataar, 2005).

Liminal experiences and threshold crossing present evidence that identity shifts, as experienced in becoming a researcher, involve emotional work. Although the PhD journey is widely acknowledged as an emotionally challenging journey, both the researcher and their research work are often portrayed as emotionless (Borg, 2001; Coryell et al., 2014). Yet, the emotional self is directly involved in research undertaking and researcher development (Coryell et al., 2014; Cotterall, 2013). Recognising and addressing emotions to do with one's self-image as a developing researcher, for instance, can provide valuable insights into how doctoral candidates grow and develop in the PhD process.

2.4.5 Travelling in company

Even though the thesis is seen as an artefact produced by an individual, the PhD is a group enterprise (Malfroy & Yates, 2003) and involves a variety of people and institutions. These people and institutions knowingly and unknowingly contribute to the production of the thesis and the development of the doctoral candidate as a researcher (Baker & Lattuca, 2010; McAlpine et al., 2009; Turner & McAlpine, 2011). Social relations and networks within and outside academia were shown to aid doctoral progress and improve the PhD experience (Jairam & Kahl Jr., 2012; Lahenius & Martinsuo, 2011; Lovitts, 2001; Sweitzer, 2009).

Described as the rite of passage, a journey and a life-changing experience, doing a PhD degree brings with it emotional challenges. Annual and biannual surveys of PhD student experiences highlight students' social needs and indicate dissatisfaction with social support provision in doctoral education (Coates & Edwards, 2009; Edwards et al., 2011). National surveys, such as the annual Postgraduate Research Experience Questionnaire (PREQ) and the National Research Student Survey (NRSS), consistently highlight the significance of collegiality, belonging and community, but show relatively lower scores in these categories (GCA, 2014; Edwards et al., 2011). Student satisfaction and course completion is determined by the sense of collegiality and belonging that students experience. However, doctoral education literature is filled with accounts of isolation, loneliness and disorientation encountered by PhD candidates (Ali, Kohun, & Cohen, 2006; Carpenter, 2012; Coates &

Edwards, 2009). Research suggests social practices and pedagogies help with counteracting such negative experiences (Boud & Lee, 2005; Hopwood, 2010a; Pyhältö, Stubb, & Lonka, 2009; Wisker, Robinson, & Shacham, 2007; Yates, 2007).

Supervisors

Within academia, two groups of people take up the main stage in the PhD support group: supervisors and peers. A significant body of literature (Clegg & Gall, 1998; Grant et al., 2016; Green, 2005; Keefer, 2015; Winchester-Seeto et al., 2014) focuses on the supervisory relationship as a crucial component in doctoral education. Supervisors like students are described in many metaphorical terms: navigator, guide and route planner (Miller & Brimicombe, 2004), 'expert guide across a terrain to a destination' (Clegg & Call, 1998, p. 329) and 'a navigator, in a slightly raised passenger seat' (Clegg & Call, 1998, p. 330). While different metaphors will resonate with different supervisors and supervisory approaches and practices, every supervision situation involves power relations between supervisor and the supervised. Supervision is argued to be a pedagogy and practice that shapes doctoral identities, illuminating 'the psycho-social dynamics of struggle, submission and subjectification' (Green, 2005, p. 151).

Different identities entail different power relations (Crossouard & Pryor, 2008). Every individual enacts different roles in different contexts because society is constructed via power relations that ascribe roles and hence, identities to its members (Baker & Lattuca, 2010; Jazvac-Martek, 2009). The supervisory relationship is such an example of power relations, where the supervisors have authority over the students through the position they are allocated and the roles they are ascribed. No matter how senior or more knowledgeable a candidate may be than their supervisor, they assume and enact the 'student' role in the context of a supervisory meeting. The same candidate may assume the role of an educator as soon as they end the meeting and go to teach a class, and a role of a parent when they return home, for instance. Hence, various identities are enacted in everyday life depending on the role or position that is assumed in the given space and time. Such role descriptions do not necessarily

reveal the real identities enacted within these roles, but determine how they are perceived nevertheless.

While ‘supervisor’, ‘advisor’ and ‘mentor’ are sometimes used interchangeably in international literature, in Australia, there is a difference ascribed to the roles of a supervisor (as a more experienced academic who guides the less academically experienced student and provides academic advice) and mentor (need not be an academic, but is someone who can provide valuable advice in navigating one’s career and life beyond the PhD, and is often said to have a closer relationship with the student). These roles can be assumed by different people. In reality the boundaries are not always clear, and do not need to be, and such roles can be performed by the same person simultaneously.

While supervision is a learning relationship of power, Fataar (2005) suggests it may be the most formative activity of the PhD. In fact, Harrison (2008) describes how his researcher identity was facilitated by a mentoring relationship, marked by pastoral care. Harrison’s reflective study presents an example of how a working relationship with an academic mentor generates confidence and trust in one’s capabilities, dissolves anxiety and frees up time to engage in actual scholarly work. Other research has also argued that supervisors play a great role in modelling and affirming student agency (McAlpine & Amundsen, 2009). Further, a productive advisor together with a productive research environment have been shown to produce productive researchers (Miller & Brimicombe, 2004; Tenenbaum, Crosby, & Gliner, 2001).

While the supervisors (also called academic advisors and mentors) are largely presented as the first and main connection of the PhD candidate, their primacy in providing any support has long been questioned as relationships with other individuals (peers, colleagues, etc.) have been recognised as equally important (Austin, 2002; Boud, Cohen, & Sampson, 2001; Boud & Lee, 2005; Buissink-Smith, Hart, & van der Meer, 2013).

Peers

Literature on doctoral student support moves peer learning to the foreground (Boud et al., 2001; Boud & Lee, 2005; Buissink-Smith et al., 2013; Devenish et al., 2009; Grindstaff & Richmond, 2008). Peer groups and supportive relations to PhD fellows and post-docs are said to provide a positive environment beneficial to the student's sense of belonging, emotional well-being and, hence, PhD progress (Coates & Edwards, 2009; Jairam & Kahl Jr., 2012). Peers can potentially replace or complement (Kemp et al., 2013), or subvert and complicate supervisory guidance. Especially, where the supervisory relationship is problematic and the student relies on others for support (Carpenter, 2012; Devenish et al., 2009). Learning with and from peers, in particular, frequently provides a pedagogical frame for research education (Boud and Lee, 2005). Peer learning facilitates the acquisition and practice of collaborative skills and the feeling of being part of a learning community. Peer groups are understood to have the potential to strengthen a sense of belonging, provide a home-base and 'a safe haven to test ideas and thinking' (Devenish et al., 2009, p. 62), and serve to share and develop learning skills, while also acting as places for encouragement and mutual empowerment (Ryan, 2011; Yates, 2007; Boud & Lee, 2005; Conrad, 2003). Miller & Brimicombe (2004, p. 7) advise PhD students as 'travelers in transit' to voyage in the company of others to avoid isolation and loneliness. By 'transition' the authors refer to changing roles and identities that PhD students have to juggle: employee, researcher, parent, partner, etc. Travelling in groups is presented as a solution to surviving the confusing 'wilderness years' (Miller & Brimicombe, 2004, p. 410) and getting through the 'unpredictable moorland' of the PhD (Miller & Brimicombe, 2004, p. 414).

However, research shows peer groups, too, can be a source of conflict (Boud & Lee, 2005), despite the accepted belief that peer learning communities provide academic, social and emotional support. Critical voices highlight issues that can arise in peer groups such as intimidation, anxiety, not fitting in, intolerant behavior, competition, peer pressure and in extreme cases harassment and ostracising of team members (Boud & Lee, 2005; Cumming, 2008; Conrad, 2007; Yates, 2007). Boud argues the achievement of peer support benefits

‘depends on the ways in which peer learning is established and the context in which it operates’ (Boud, 1999, p. 4). With this in mind, Devenish et al. (2009) argue that peer support is not sufficiently recognised within the formal university discourse, labelling it an informal and possibly invisible practice among PhD students. While this points to potential conflicts and tensions on social interactions, it is nevertheless part of the student’s social PhD experience and subject to student’s negotiation between benefits and drawbacks of engaging with peers and others. This thesis points to evidence that such negotiation plays a role in candidates’ identity work.

Academic culture

The various other significant support providers of PhD students comprise the overall research community or academic research culture, essentially forming the socialisation context of doctoral and researcher identities. Deem and Brehony (2000, p. 158) define academic research cultures as including ‘disciplinary or interdisciplinary ideas and values, particular kinds of expert knowledge and knowledge production, cultural practices and narratives (e.g. how research is done, and how peer review is exercised), departmental sociability, other internal and external intellectual networks and learned societies’. Pearson and Brew (2002) recommend a high quality research learning environment to include senior researchers and novices, and ideally social networks and relationships amongst peers and academics across departments, faculties or the institution, referred to as scholarly and collegial climates by Weidman and Stein (2003). In other words, PhD students should feel part of and actively contribute to the academic research culture, that is facilitated by a supportive, collegial and collaborative community (Gardner, 2008b). What academic cultures refer to are the visible and often more formal settings of community and support structures, provided by institutions (higher degree research offices, graduate schools, departments and faculties). The capacity of university’s physical environments to enrich and support learning is widely recognised by institutions and is identified in the Australian case, as underpinning the doctoral experience (Coates & Edwards 2009). However, much research points to

students' pro-activeness in generating and initiating their own resources, support structures, etc. (Hopwood, 2010a; McAlpine & Amundsen, 2009). Student agency has been discussed as critical in PhD success and it is the combination of formal and informal support structures and offerings that constitute the PhD experience (Hemer, 2012; McAlpine et al., 2009) and help students feel part of the academic community (Hopwood & Stocks, 2008).

While social connections inside academia are regarded most pertinent to PhD support and development, the literature recognises, even though it rarely discusses in detail, that significant support in the PhD also comes from outside the PhD environment. The candidate's personal relationships, family and friends and others, are significant players in providing material (i.e. meals and shelter), moral (i.e. distraction and encouragement), emotional and social support during the PhD (Austin, 2002). Other research concurs by demonstrating that networks and relationships with various members in and outside academia are equally valuable in sustaining the PhD student's resilience for achieving completion and success beyond the doctorate (Baker & Pifer, 2011; Weidman et al., 2001).

Apart from seeking support inside and outside academia, students seek support online. Research in doctoral education provides some evidence, that supervision, research skill development, and various support forms, groups and networks are facilitated online (Halter, Kleiner, & Hess, 2006; Kumar, Johnson, & Hardemon, 2013; Rockinson-Szapkiw, 2011), although surprisingly little considering the rise of online education. This is likely to do with the doctoral education, despite its massification, still being seen as a one-on-one socialisation process, where the student is guided or mentored by one or a team of more experienced academics, and hence, experiences a more distributed supervision. This is in line with the generally little uptake of new technology by higher education and research students (Carpenter, 2012; Dowling & Wilson, 2017). However, online environments, like social media forums (i.e. Twitter, academia.com, etc.) offer students firstly, the opportunity to construct and communicate their new identities and secondly, to connect with online communities and knowledgeable others in seeking support and reducing isolation (Bennett &

Folley, 2014; Mewburn & Thomson, 2013). As such, students' online support and communities contribute to PhD support and play a role in doctoral identities. This thesis recognises the importance of online support, however, a proper investigation of this aspect falls beyond the scope of this thesis.

The social PhD

The literature review reinforces the argument that an overall supportive social environment, including relationships inside and outside PhD, offline and online, play a vital role in dealing with typical PhD challenges. Social practices, support and integration in the community are linked to PhD progress and completion (Weidman & Stein, 2003), while a lack thereof potentially jeopardises the student's well-being, reduces motivation, and can result in PhD attrition (Golde, 2005). A supportive social environment undoubtedly provides a more positive PhD experience, which is likely to result in the student's academic engagement and active participation in the research culture. Moreover, it is known that social networks and connections play an important role in the development of a professional and a researcher identity in the PhD process (Baker & Pifer, 2011; Sweitzer, 2009). Little research thus far empirically investigates how the various people involved in the PhD aid student development that translates to researcher identity development. Baker and Lattuca (2010) and Sweitzer (2008) come closest to the task by studying the professional identity development of doctoral students in top-ranked business programs via developmental networks. More research in less specialised contexts or a variety of specialist contexts is required.

While the value of informal support practices is more and more recognised, especially for its social support benefits, it remains unclear how they are integrated as part of everyday doctoral education pedagogy and, hence, form part of the social PhD experience. Students' perspective on what they find helpful and what support they use and value can provide valuable insights. Evidence exists that PhD students actively employ various resources on and off campus and online to help them. They proactively seek and maintain social relationships and networks in order to overcome typical PhD challenges (Devenish et al., 2009; Hopwood,

2010a; McAlpine & Amundsen, 2009). Meaningful social interactions and networks with a range of individuals constitute a significant part of the success recipe in the PhD and students' development as researchers.

In summary, the PhD is undoubtedly a social experience and a social process, albeit its product, i.e. thesis, being viewed as individual and independent work and knowledge production. The sociality of the PhD in its different forms is critical in the PhD experience and students' socialisation to doctoral and researcher identities. It is clear that the significance of the student's travel companions as a collective support super network is to provide the student with a sense of community and belonging. It is unclear, however, how the network members assist students in developing a sense of an identity as researchers. This thesis addresses this gap by examining how social interactions and practices that PhD candidates engage in influence candidates' identities.

2.6 End of journey or just the beginning: approaching researcher and other professional identities

The end of the PhD cannot be clearly marked as the end of the identity development journey. Nor can it be viewed as a concluding event culminating in the award ceremony, for instance. It can mark the arrival at the destination defined by students' expectations, e.g. PhD degree, title, licence to academia, becoming a researcher. Based on the PhD metaphors introduced earlier, it can also be viewed as an entry and therefore, the beginning of an academic or other career. In such cases, the end of the journey may involve imagining future employment, constructing one's CV, applying for work and transitioning to various careers. Besides, as attrition figures show, for many students the doctoral journey ends well before degree award.

Arriving at the end of the PhD journey looking back at candidates' expectations and projected outcomes can inform the value and adequacy of PhD programs perceived by candidates. It is widely known that worldwide between 30–50% of students do not complete their PhDs (Golde, 2000; Lovitts, 2001; Park, 2005b). This results in an enormous sunk cost

and a waste of resources for universities and is taxing for the students on various levels; financial, emotional, and psychological. The high attrition rate is attributed to reasons to do with mismatch and failed integration (Golde, 2005). Specifically, six main reasons for leaving the PhD were identified by Golde (2005): student goals/expectations mismatched with disciplinary practice, mismatch between the expectations of the student and department (academically underprepared or lack of understanding PhD programs), mismatch between the advisor and student, mismatch of university life with student life, poor job market, structural isolation of students and lack of community integration. These themes show attrition has roots in the department structure and culture rather than solely in students' personal lives.

If the journey culminates in degree completion, the path to expected employment opportunities is not straightforward. Russo (2011, p. 535) states that 53% of PhD graduates worldwide said they 'wanted to end up in academia' and '57% said that they would pursue a postdoc in academia after graduating'. Other research confirms that the majority of candidates aspire to gain academic employment (Edwards et al., 2011; Roach & Sauermann, 2010; Waaijer, 2016). According to Graduate Careers Australia (GCA, 2010), only 46% may end up in academia. Despite the relatively dire academic employment prospects, Roach and Sauermann (2010) found that the perceived availability of academic positions did not affect PhD graduates' job choices. It is important to remember, however, that candidates do not always have clear ideas or correct perceptions of their options and opportunities post-PhD (Bieber & Worley, 2006; Russo, 2011). The academic market situation versus students' expectations holds two important lessons. Firstly, that it is as important to consider students' aspirations and preferences of employment as their actual employment situations. Secondly, it emphasises the importance of the PhD experience and development opportunities the PhD degree provides. Focusing on what candidates want from the PhD, as well as what they get, can inform how best to support doctoral candidates.

2.7 Summary and research questions

Increasingly the purpose of the PhD is rooted in researcher development rather than apprenticeship for academic professions. This literature review presented the multiple personal and professional identities doctoral identities perform and aspire to in everyday PhD practice. The multiple identities overlap, co-exist, potentially clash and develop simultaneously, always embedded in personal lives. This thesis conceives doctoral candidates' identities as composed of their pasts, presents and futures. The PhD clearly emerges as a process where the formation and development of new identities is at the foreground and where a range of relationships and networks are involved in supporting the candidate as a researcher in development. Despite some insights on markers of identity development, it remains unclear how candidates develop a sense of being a researcher and how the various relationships are involved in the process. Researcher identity development needs further demystifying to better support candidates who transition to increasingly diverse careers and futures. The literature review leads to the following research questions:

RQ 1: What role do social practices play in doctoral identities, and specifically researcher identity development?

RQ 2: What does researcher identity development look like in doctoral practice and from the students' perspective?

RQ 3: How do doctoral identities, and specifically researcher identity development, change over the course of the PhD?

Chapter 3

Methodology

3.1 Overview of study design

This longitudinal study employed a mixed methods design and narrative inquiry to understand the processes of researcher identity development in the PhD and the importance of supportive networks and relationships. It drew upon three lines of evidence: doctoral experience in conversation (focus groups and interviews), doctoral experience in writing (thesis acknowledgements), and autoethnography — my own experience of the doctoral journey. A sequential multi-phase and mixed methods approach was used to answer the research questions. Figure 2 below presents a detailed overview of the study design.

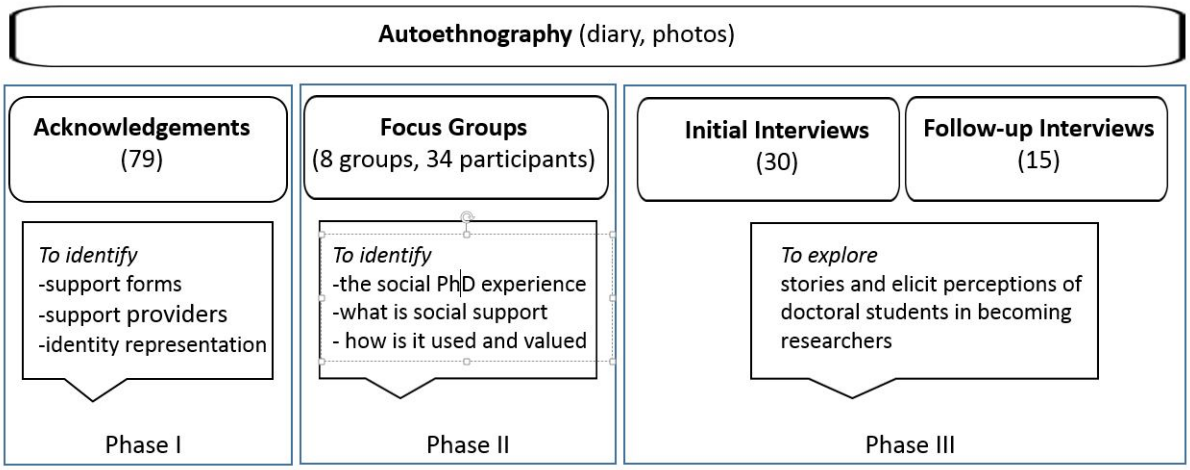


Figure 2. Study design.

The benefits of applying different methods at different points in time are twofold. Firstly, the results from one method help develop and inform the other methods (Greene, Caracelli, & Graham, 1989). Research findings from Phase II shifted the original focus of investigating social support to investigating identity formation in the interviews. Phases I and II clarified the social PhD experience, and the focus groups revealed a need to focus on students' identities as emerging researchers. Secondly, the findings from one method are strenghtened by the others (Creswell, 2008). Phases I and II, for instance, complemented each other in providing a rich picture of collaborative and social elements that inform researcher

development. Furthermore, each phase contributed unique insights on identity formation processes during the PhD.

While open questions were employed in both phases II and III (focus groups and interviews) to investigate shared and personal PhD experiences, the foci in the two data collection methods differed. Focus groups were designed to elicit student support needs and the kinds of support used or not. The interviews employed open narrative interviews with general guiding questions concerning students' personal PhD stories and their identity development towards becoming researchers. The same interview protocol was followed one to one-and-a-half years later to elicit development over time, changes and differences in perception of one's self, one's researcher identity, and the overall PhD experience. The longitudinal approach of narrative initial and follow-up interviews aimed to examine researcher identity development over time. In focus groups and interviews, a total of 64 PhD students shared their individual PhD stories and experiences.

The purpose of this chapter is to firstly, communicate the positioning and orientation of the research as well as the researcher. Secondly, it guides the reader through the individual phases of this study, explaining recruitment strategies, data collection proceedings and data analysis. Ethical considerations and limitations are also disclosed.

3.2 Research framework and orientation

The mixed methods approach applied in this study was used to explore the doctoral experience in regards to development of candidates' researcher and other identities. Mixed methods research combines quantitative and qualitative research techniques, methods and concepts in a single study (Creswell & Clark, 2007; Johnson & Onwuegbuzie, 2004). According to Morse (2003) priority can be given to both types of methods or one can be emphasised more than the other. Recently the benefits of integrating quantitative and qualitative paradigms, traditionally viewed as distinctly separate and incompatible, have been recognised, creating a third research paradigm of mixed methods (Johnson & Onwuegbuzie, 2004).

This research locates narrative inquiry within a mixed method approach, placing an emphasis on the use of qualitative research methods. An exploration into the human experience is a complex and messy process. Drawing on multiple research strategies, data and techniques helps generate 'better understandings of important social phenomena' such as doctoral candidates' identity development, because it allows and 'respects multiple responses to critical issues and invites dialogue among them' (Greene, 2012, p. 756). The value that the mixed methods approach brings to this study lies in the multiple aspects that the different methods, techniques and data afford to explore the phenomenon of identity and identity development in the doctoral journey. Previous research on doctoral identity development has been small-scale and predominantly qualitative in nature.

This research is exploratory and interpretative in nature. Exploratory research aims to explore and describe the phenomenon under investigation rather than aiming to generalise the findings (Babbie, 2015). It is sometimes referred to as grounded research, as it shares the principle of letting empirical data tell the story rather than exploring pre-formulated hypotheses. However, no research starts with a blank page and no researcher is without preconceived ideas or assumptions. Exploratory research assumes some prior theory (Stebbins, 2001). In contrast, grounded theory research has been criticised for being too limited by data and claiming it is free of any assumptions prior to inquiry (Layder, 1993; Thomas & James, 2006). In this context the mixed methods approach employed in this research is founded in the belief that all knowledge and human experience are constructed and contextual. For instance, as a doctoral student myself, I must be aware of how my experience influences my interpretation of the findings. The autoethnography discloses my personal experience of growing as a doctoral researcher and, as such, declares my views of researcher identity development as a research subject.

This research aims to listen closely to the data arising from students' stories of their PhDs, to report back what has not been said yet and what needs to be made known about the ways students develop as researchers. While it does not strictly follow the grounded theory

approach developed by Glaser and Strauss (1967), this research aligns with what was later called constructivist grounded theory (Charmaz, 2014), rooted in relativism and pragmatism. Data were analysed in an iterative and systematic manner, by coding, memoing, and finding and refining themes and categories (Glaser & Strauss, 1967). Constructivist grounded theory acknowledges that data and theory are co-constructed between the researcher and the researched rather than newly discovered. As such, this development of grounded theory accommodates existing preconceptions that are inevitable (Thomas & James 2006). For instance, it accepts preconceived ideas prior to data collection, as long as these are not imposed on the data. In this research, a preliminary literature review on researcher development as well as my own early PhD experience provided a basis for planning the process of data collection. However, participants' subjective experiences and perceptions are given voice to allow the emergence of different realities (Caelli, Ray, & Mill 2008).

This is where narrative inquiry presents a solution to minimise the researcher's preconceptions and prevent the researchers' ideas and voice from overwhelming the analysis. The use of students' narratives in data analysis and presentation of students' voices via lengthy quotes, for instance, limits researchers' interpretive voice. Narrative inquiry, as utilised in sociocultural research on learning, reveals stories as constructions of identity, 'products of a collective storytelling' (Sfard & Prusak, 2005, p.14). As McCormack (2004) states, stories are both a mirror, revealing ourselves, and a window revealing others. This study embraces the idea of a narrative-defined identity, and locates identity-building in stories of lived experience (Connelly & Clandinin, 1990). This study views identity-making as a communicational practice and as a discursive construct, as opposed to being described or represented in fixed terms. As a discursive construct, one's identity is an ever-changing, never completed entity, and subject to social and cultural influences (Sfard & Prusak, 2005). People tell their life experiences in stories, and collecting such stories is common in interpretive research (Ollerenshaw & Creswell, 2002) and in developmental activities in education

(Clandinin & Conelly 2000). Thesis acknowledgements, and group and one-on-one conversations with students present stories of identity in this study.

This research is guided by an interpretivist constructivist perspective, which aims to understand the world from the perspective of the ones who live it (Creswell, 2012; Mack, 2010; Schwandt, 1994). The interpretivist paradigm, also referred to as antipositivist, postulates that events are seen differently by different people since they interpret and construct meaning of their reality as they see it (Mack, 2010). The lived experience and subjectiveness of reality form central features of interpretivism. Meaning-making is an iterative process in interpretivism. The role of the interpretivist researcher is to 'understand, explain, and demystify social reality through the eyes of different participants' (Cohen, Manion, & Morrison, 2007, p. 19). The paradigm has been critiqued for its subjectivity and lack of generalisability of findings (Mack, 2010). The goal of interpretive research is, however, to understand rather than explain and generalise (Cohen et al., 2007). While the researcher's subjectivity has the benefit of adding meaning to research findings, the researcher's power to construct meaning must be recognised (Mayuzumi, Motobayashi, Nagayama, & Takeuchi, 2007). This gives rise to the significance of researcher's reflections and articulation of one's own positioning as integral to research. Accordingly, this thesis aims to gain a deeper understanding of how doctoral students develop researcher identities. It does so by focusing on the personal subjective stories of students themselves. In addition to PhD students' voices, my own narrative and experience of the PhD as a student and researcher presents another viewpoint.

3.3 Autoethnography

'Every research project is made up of stories the researcher's story, the research story, and the stories of individual subjects and participants' (Sword, 2012, p. 88). My personal experience of the PhD journey adds to participants' narratives and guides my reflections on the findings as I simultaneously position myself as a study participant and as a researcher-as-insider.

My own experience extends the methodology to include an autoethnographic approach. Autoethnography is associated with narrative inquiry and autobiography (Maréchal, 2010, p. 43) as it places experience and story at the center of meaning-making. Autoethnography, the journey metaphor of learning, and identity construction are closely related (Harrison, 2008; Stinson, 2009; Trahar, 2013). Autoethnography describes a type of qualitative research where the researcher investigates the group or culture of which they are a member or insider. Autoethnography falls into the autobiographical genre and aims to move beyond the personal and to locate the individual experience within the wider context (Ellis & Bochner, 2000). Autoethnographers 'retrospectively and selectively' write about life-changing moments, which are enabled by being a member of a culture or 'possessing a particular cultural identity' (Ellis, Adams, & Bochner, 2011, p. 276), in my case it is the identity of a doctoral student. I use self-reflection on my own researcher identity development, connect and locate it within the wider context of my research findings, and contrast it against existing research. Autoethnography has been critiqued for being 'too artful', not sufficiently scientific, too aesthetic, personal and biased (Ellis et al., 2011; Silverman, 2006). However, Ellis et al. (2011) argue that these exact personal and aesthetic aspects form the strength and special value of autoethnographic research. It bears potential to evoke social change, because it is accessible and relatable to underrepresented voices and helps connect and communicate different points of view. Credibility and validity of autoethnographic research lies in its use and application in practice.

The insider status is inescapable (Clegg & Stevenson, 2013). Just as it is impossible to separate personal contexts of participants from the analysis, it is deceptive to separate 'interpretive acts and power relations' from production of data (Clegg & Stevenson, 2013, p. 2). Mayuzumi and colleagues (2007, p. 591) add: 'studies focusing on minority's voice and subjectivity often overlook the power structures between the researchers and the researched.' I have gained insider and expert status in the field of PhD experience through extensive reading prior to data collection. As a researcher-as-insider, I inevitably interpret students'

stories that form my data to construct meaning (i.e. by paraphrasing what students said). Many others (Nadin & Cassell, 2006; Rolfe, 2006) suggest researchers should exercise reflexivity in any research process and articulate it explicitly. This study shares the underlying rationale that an experience, such as the PhD or a research process, does not alone lead to learning, but that learning happens through reflection on the experience (Boud, Keogh, & Walker, 2013; McAlpine & Weston, 2000).

Reflection has received much attention in education. Kolb, Gibbs and others have described how reflection works, in structural and cognitive terms. Kolb's (2014) view of reflection is essentially learning from experience that leads to transformation (i.e. applying newly acquired knowledge in a different context), illustrated in Kolb and Fry (1974) as the learning cycle. Gibbs views reflection as a debriefing and builds on Kolb and Fry's learning cycle. He uses guiding questions to facilitate the debrief and manifest learning (Gibbs, 1988). Guiding questions are widely used to facilitate research processes like writing a literature review or any other academic writing. Reflection (introspection, turning the gaze inwards, based on Dewey's idea of reflection as critical in learning) and reflexivity (i.e. the reflective self, ability and willingness to recognise and question how one shapes the world and how the world shapes them) are generally seen as positive and valuable, and even critical in research (Macbeth, 2001). Sandelowski and Barroso (2002, p. 216) explain the significance of reflexivity in research building on Alvesson and Sköldberg's (2009) work:

> Reflexivity is a hallmark of excellent qualitative research and it entails the ability and willingness of researchers to acknowledge and take account of the many ways they themselves influence research findings and thus what comes to be accepted as knowledge. Reflexivity implies the ability to reflect inward toward oneself as an inquirer; outward to the cultural, historical, linguistic, political, and other forces that shape everything about inquiry; and, in between the researcher and participant to the social interaction they share.

However, advice is rarely given on how to do or facilitate reflexivity in the research process (Nadin & Cassell, 2006), or how to do it well, purposefully and systematically (Boud & Walker, 1998). Also, relatively little literature on identity formation in the PhD moves personal narratives, students' reflection on the lived PhD experience and student's reflexivity to the core of discussion. Soong et al. (2015), for example, argue that biographical accounts through reflective writing present valuable evidence of one's agency and personal input in the development of one's researcher identity. Through reflective writing, the authors connect the 'contextual' and 'personal', the 'internal' and 'external', and the 'individual' and 'collective' factors shaping the authors' identity formation within the doctoral education (Soong et al., 2015, p. 439). Trahar (2009), on the other hand, postulates autoethnography as the most appropriate method to explore her role in telling intertwined stories of her international student participants. She states 'through the autoethnographic exploration of my own practice, my subject positions, social locations, interpretations, and personal experiences continue to be examined through the refracted medium of narrators' voices' (Trahar, 2009, p. 1).

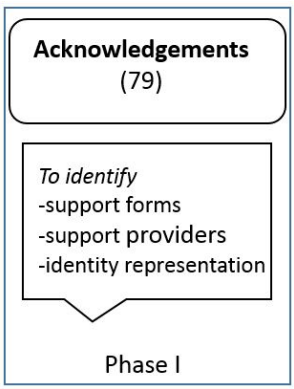
Although students' personal insights in their own voice could arguably add to the discussion of identity formation in the PhD, such examples remain scarce. Even less of this research is undertaken by research students themselves, with a few exceptions (Harrison, 2009; Harrison, 2008; Merga, 2015). PhD students embarking on their research journey are often advised to keep a research journal or diary for the purpose of logging one's ideas, and theoretical and methodological decisions in PhD research (Engin, 2011; Nadin & Cassell, 2006).

Research diaries have been shown to help scaffold research (Engin, 2011), document professional learning (Borg, 2001; Nadin & Cassell, 2006), and evidence validity, trustworthiness and rigour in research processes (Rolfe, 2006), although such accounts are relatively rare in published research. Further, the use of the research journal as a means to facilitate self-understanding sits well with autoethnographic methods.

I used a PhD diary from day one to document my reflections, thoughts, ideas, decisions, brainstorms, mind maps, notes on preliminary findings, literature summaries, and future research ideas, for instance. I turned to it every time I felt I needed to write something 'off my chest' and to debrief. Writing entries could occur each day for several days in a row or not for months depending on the research stage I was at. Later in the process, as my topic started to crystallise, I realised the greater potential of my journaling activity. Not only was it useful to keep track of my PhD decisions, it also served as a record of whatever else was going on in my personal life, my various activities (paid and unpaid work), consideration of various career options, general learning moments, research ideas not related to my PhD, etc. I felt it was necessary to capture the wider context of my PhD as it influenced my PhD work.

The reflection notes on my PhD filled two standard A4 notebooks. I did not originally plan to use my diary notes as data to investigate my own experience. Hence, notes are messy, and ideas are disjointed and scattered. Writing is presented in shorthand, making use of acronyms common in my personal context, containing typos, informal expressions and sometimes German words. I also used my mobile to take photos of situations and places to capture a sentiment or a moment the way writing could not do, i.e. conference venues or the various places where I did PhD work. The autoethnography in this thesis draws on these diaries and photos as raw data. Reading raw notes in retrospect means autoethnography not only describes, but interprets, my experience of feeling like a doctoral student, a researcher and an academic. The 'small stories' I present in section 4.7 mark the shifts and changes in my personal development of becoming a researcher and an early academic.

3.4 Phase I: Thesis acknowledgements



In the first research phase, a systematic inquiry was undertaken into what thesis acknowledgements can reveal about the doctoral experience and the doctoral student. Acknowledgements are suited to investigate what sort of support graduates view as critical to their success and whom they acknowledge. They also communicate

authors' identities. Following a long tradition in citation and acknowledgement analysis (e.g. Hyland, 2003), both qualitative and quantitative analysis of a corpus of acknowledgements were conducted.

3.4.1 Data collection

A corpus was assembled from a digital repository, Trove, which consisted of a collection of 1500 doctoral theses contributed by 40 Australian universities. Systematic sampling of the database was undertaken to gather a 10 percent sample. Every tenth thesis listed in the collection was accessed to retrieve the acknowledgement text. However, not all links led to a free accessible publication (i.e. logins were required, links were broken) and a few doctoral theses did not have an acknowledgement at all, so in these cases the item was skipped and the successive tenth item was chosen. The audit resulted in 79 thesis acknowledgements which form the data set for the first paper in this study.

3.4.2 Data analysis

For data analysis purposes, background data were collated on thesis submission date, university, department, discipline, and gender. There was a roughly equal number of acknowledgements written by women (38) and men (41), and a preponderance of acknowledgements by researchers in STEM (55) versus HASS disciplines (34). Forty acknowledgements in the sample were from theses completed in 2013, 30 from 2011–2012, and nine from 2009–2010 combined.

Acknowledgement files were uploaded into NVivo10 and analysed quantitatively and qualitatively. NVivo is primarily a qualitative data analysis software that helps code and manage vast amounts of data, carry out different inquiries and draw reports from the data, as well as graphically visualise concepts and ideas found in the data (Bazeley, 2007). Quantitative analysis of acknowledgements involved a systematic NVivo10 coding analysis that identified the frequency of what was acknowledged (support types), who was acknowledged (support providers), and who was acknowledged for what. Acknowledgements were analysed in semantic units and classified into types of support based on Cronin's (1995)

and Wills' (1991) typologies. Their typologies informed the coding procedure and the node structure in NVivo. Nodes are categories or files in NVivo that hold all coded text related to similar ideas and concepts. Although 'guiding and mentoring support' was not identified by Cronin (1995) and Wills (1991), it frequently emerged in the data and hence, was separately added as a new support type and a separate childnode under parentnode 'support types'. The support types were then further categorised in instrumental, academic, social and general support categories. Support providers were then deducted from the data and matched with the kinds of support they provided. This was facilitated via node classification (e.g. Figure 3) and matrix query (e.g. Figure 4) features in NVivo. The matrix query created a table that matched support types with their providers to provide information on who provided what type of support.

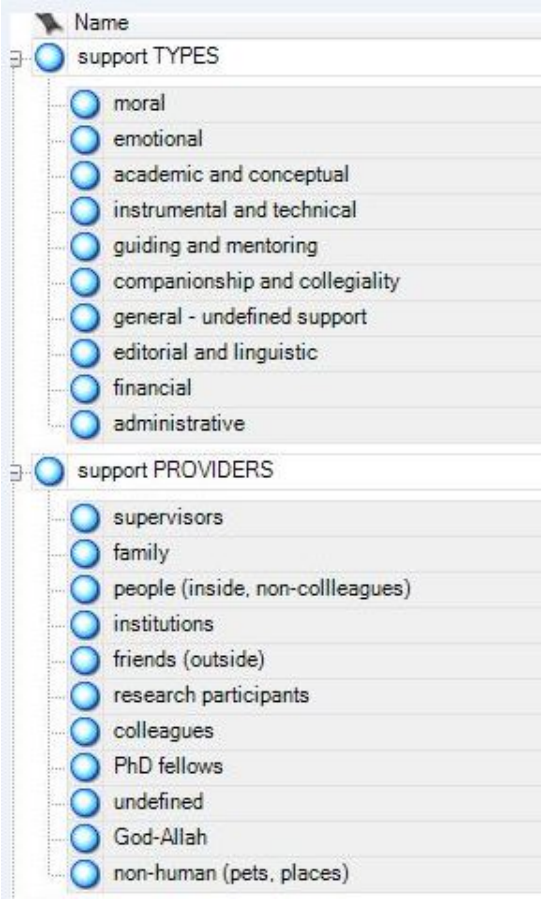


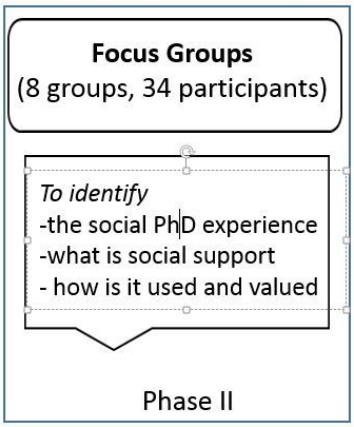
Figure 3. Parentnodes and childnodes.

	A : academic ...	B : administrat...	C : companion...	D : editorial an...	E : emotional	F : financial	G : general su...	H : guiding an...	I : identify for...	J : instrument...	K : moral
1 : colleagues	38	11	33	13	34	0	13	20	5	32	25
2 : co-researc...	4	0	4	0	2	0	1	0	0	1	1
3 : peers and f...	10	0	13	4	7	0	1	1	1	4	6
4 : different pe...	13	3	10	6	4	0	0	6	4	8	4
5 : family	2	0	24	3	67	3	26	4	5	13	54
6 : parents	0	0	2	0	18	0	7	1	1	6	17
7 : partner	1	0	8	2	29	0	8	1	1	5	21
8 : friend,s	10	0	21	1	19	0	8	4	2	3	12
9 : God-Allah	0	0	0	0	0	0	0	2	1	0	1
10 : institutions	4	1	2	0	3	20	4	2	0	17	4
11 : others- in...	1	0	3	0	3	0	0	0	1	1	2
12 : peer	0	0	0	0	0	0	0	0	0	0	0
13 : people inv...	7	1	5	0	5	0	0	2	2	26	2
14 : superviso...	54	5	13	14	26	0	6	47	8	7	42
15 : co-superv...	8	2	3	4	1	0	2	7	1	0	5
16 : supervisor	33	6	4	10	19	0	2	28	6	3	27
17 : supervisors	17	0	3	4	8	0	4	12	1	3	13

Figure 4. Matrix query.

Data analysis extended beyond expressions of types and sources of support. Acknowledgements cannot be simply taken at face value and as reflections of the doctoral experience, but need to be recognised as performances of the writer's desired identity as a researcher. This offered an additional dimension to the textual analysis in NVivo, which involved coding for expressions of self-presentation, indication of student's reflexivity, or explicit self-alignment with prominent research groups, conferences, and people.

3.5 Phase II: Focus groups



Phase II was designed to investigate candidates' perspectives on the types of support, with a particular focus on social support, available during the PhD and the types of social support that they use and value. This complements the acknowledgements research and paints a fuller picture of the social PhD experience within which the central aspect under study, researcher identity development, is situated.

3.5.1 Participant recruitment, response and selection

Recruitment of participants occurred via a variety of channels at two Australian research-intensive metropolitan universities: University A and University B. The Call for Participants was circulated to PhD students at both universities through PhD staff and departmental administrators. At University A, the Call for Participants was posted in the PhD Learning Skills online unit with around 180 enrolled student participants across the campus. In addition, PhD managers of all faculties at University A were contacted and asked to

disseminate the Call for Participants to their PhD candidates. This turned out to be the most efficient way of getting PhD candidates' attention as most students registered their interest to participate in this study after they had received the email forwarded to them by department administrators. Interested candidates could register their willingness to participate in focus groups, interviews or both, and indicate their availability via an online survey. Participation incentives were offered in the form of a $20 gift card for each session.

The response to the Call for Participants was well received. From University A alone, 88 students registered their interest to participate within the first three weeks. This was considered sufficient to recruit for eight focus groups. More students (end total 113) signed up in the following months, including the later participant recruitment at University B. It is worth noting that significantly more Humanities, females, international and part-time students signed up for the study. The sign-up figures were not representative of the currently enrolled student cohort. They may, however, point to these groups' special needs to share and voice their experience as well as their need to be heard.

In total, 64 students participated in focus groups and interviews (initial and follow-ups): 8 focus groups with 34 participants from University A and 30 interviews with other (not the same as focus group participants) participants from both Universities A and B. Table 3 presents the characteristics of the participant sample. Although this research does not aim to produce generalisable findings, and therefore, does not employ a purposive sample, participants were selected to reflect the demographics of the PhD student population in Australia (Dobson 2012; Norton 2012) as far as possible. Gender and status figures at time of enrolment reflected the currently enrolled student cohort proportion in Australia (Dobson 2012; Norton 2012), whereas the disciplinary and gender figures did not.

Table 3. Participant sample.

n=64	Enrolment Status	Mode of study	Discipline	Gender	Age group
	43 domestic	53 full-time	42 HASS	45 female	36 in 20+
	21 international	11 part-time	22 STEM	19 male	16 in 30+ 12 in 40+

All participants were enrolled in a research doctorate, a PhD, rather than a professional doctorate study or similar. One third of participants, all in their twenties, transitioned directly from Honours or Master studies into the PhD, while the rest reported having had between one to 20 and more years of professional and/or academic work experience before entering the PhD program. All participants expressed a desire to pursue academic employment after their PhD, but generally stated they were open to non-academic job opportunities.

3.5.2 Ethical considerations

According to professional codes of ethics, this study ensured that participants were not coerced into participation, informed about study goals, experienced no harm, and all personal information was treated as confidential (Cohen et al., 2007; Creswell, 2012). An approval was sought from the Human Research Ethics Committee of Macquarie University prior to commencement of the research. This project was considered to be of 'low risk' to the participant, which is defined as 'research in which the foreseeable risk is one of discomfort [only]' (NHMRC & Committee, 2007, p. 16). In case such discomfort would occur despite all precautions, appropriate institutional support centres would have been involved and help sought. However, no such incidents were reported from this study.

3.5.3 Setting and groupings

Focus groups took place on the campuses where the participants were based for the convenience of the researcher and the participants. A quiet meeting room was booked for each focus group. Groups were arranged once the first 30 participants registered their interest to participate. The timing allowed me to comprise relatively homogeneous groupings of students. While the first two categories were self-selected in the sign-up form, the latter (Humanities or Sciences) was determined by the researcher based on the department students indicated and following the traditional definition of HASS and STEM disciplines: HASS (Humanities, Arts and Social Sciences) and STEM (Science, Technology, Engineering and Mathematics).

Eight focus groups were facilitated, with 4–6 PhD candidates per group. The first session served as a pilot where the sequence of questions and activities were tested and participants were asked to suggest improvements. The pilot group revealed that the originally selected PhD comics (from http://phdcomics.com/comics.php, see Appendix C for more details) for the icebreaker activity depicted the PhD as too negative, and so was replaced with more neutral comics.

Focus groups took between 50–70 minutes. They were conducted in groupings of students with at least one common group descriptor: all students in the group would optimally be international or domestic, part-time or full-time, Humanities or Sciences students. This ensured that students were able to relate and elaborate on each other's experiences (Cohen et al., 2007).

Once groupings were arranged, group members were contacted via email to inform them about time and place of the session. In case of short-notice cancellations, other candidates were invited to fill in the spot to maintain a reasonable group size (at least three participants), who would stimulate a lively discussion. The focus group questions were sent to participants prior to the meeting to reduce potential anxiety about the unknown, establish the right expectations of the research participation and to stimulate initial thoughts and reflections on their personal experience of social support in their PhD (Cohen et al., 2007). This ensured that a deeper, more reflective and thought-through account of candidates' experience was achieved.

3.5.4 Questions and activities

A question protocol, which included instructions for participants and prompts to ask and space for my reflective comments, served as memory aid to guide me through the focus group discussions and interviews (Creswell, 2008). All sessions were digitally recorded and complemented by the interviewer's observational notes during the session, which served as a memory aid for later analysis. Questions were kept open to promote response variety, but included prompts to encourage conversation flow. Research suggests that one's actions reflect

one's beliefs (Silverman, 2006), so asking students to share what they are actually doing is considered to add depth and reliability to students' narratives.

All focus group discussions started by commenting on a selection of PhD comics related to the social experience in the PhD. This ice-breaker activity initiated a 20–30min open group conversation, followed by a post-it activity and a final discussion of more specific questions. The sequence of activities and discussion was inspired by development stages in group work theories, such as Tuckman's stages of a) FORMING (helping group members feel comfortable via an opening and warm-up activity), b) STORMING (prompting sharing of diverse experiences), c) NORMING (finding shared experiences) and d) PERFORMING (producing something together, engaging in an activity as a group) (in Fortune, Reid, & Miller, 2013). The last two stages, i.e. norming and performing, were swapped as the pilot session suggested the post-it activity was likely to stimulate an in-depth discussion that needed to be accommodated in the time frame. The focus group schedule is shown below in Table 4.

Table 4. Focus group protocol.

Sequence	Activities
1. Comics (ice-breaker activity) (20–30 mins) **FORMING+ STORMING**	Four comics were selected for the purpose of the focus groups (see Appendix C), that depicted different aspects of social support in the PhD: social media, family, partner and PhD environment. Asking participants to comment on at least one of the comics served as an ice-breaker activity and stimulated a lengthy discussion and exchange of personal experiences in all groups.
2. Post-it activity (15–20 mins) **PERFORMING**	Participants were asked to discuss with their group and write down on individual and coloured post-its what social support they thought they needed (on red), knew of (on green), and used (on blue) in their PhD (5 min). Participants were presented with the social support model that was developed in the literature review stage to elicit information. Then they were asked to discuss and sort the post-its they had written under the three categories presented to them. Finally, a discussion followed on how these types of social support helped and benefited participants in the PhD process. This interactive task was designed to directly address the first two research questions. Examples of post-it activity:

	
3. Open discussion (15–25 mins) **NORMING**	In the last part of the session open questions were asked to probe for a shared understanding of what social support meant and how important it was in their PhD process. Questions included: Can you define social support in the PhD context? What does social support mean in your PhD? How important is it in your PhD? What aspects of your PhD require social support and other forms of support? Can you give me an example of successful social support?

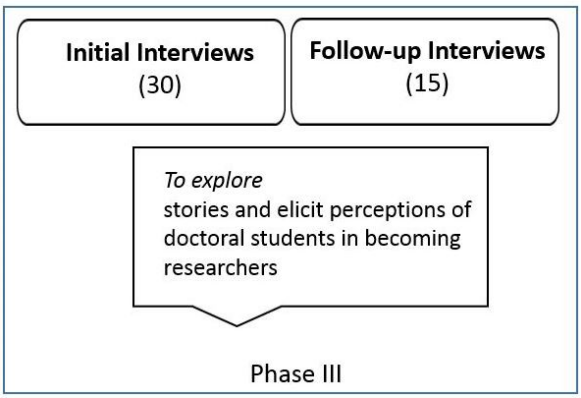
3.5.5 Data analysis

The digital recordings of focus group conversations were transcribed by a professional transcription service. The analysis of group conversations employed a constant comparative approach, a process integral to grounded theory methodology, which allows grouping of similar ideas and themes in an iterative manner (Glaser & Strauss, 1967; Thorne, 2000). More specifically, data analysis followed the six-phase thematic analysis approach (Braun & Clarke 2006). The phases included: (1) familiarising yourself with your data; (2) generating initial codes; (3) searching for themes; (4) reviewing themes; (5) defining and naming themes; (6) producing the report.

First, all transcripts were checked and proofread upon receipt and against interview recordings. They were re-read to become familiar with the data. Transcripts were then imported into NVivo 10 for coding. Coding for themes in phases 2–6 was facilitated in NVivo. In step two, lengthy semantic units of data text or coherent excerpts of conversations (i.e. where group participants commented on one aspect of their experience) were coded for content. First nodes (categories or files holding similar concepts in NVivo), for instance, coded comments related to ‘academic community’, ‘how PhD students were perceived by others’, ‘definition of social support’, and ‘examples of support’. As more and more

transcripts were coded, nodes were merged or amalgamated to parentnodes or divided and renamed in childnodes (subnodes). These eventually formed the themes of the findings, i.e. tensions and conflicts in social support experiences (detailed in Findings section 4.3). Decisions that led to re-organisation of codes were captured per memo feature in NVivo.

3.6 Phase III: Interviews



Selection and recruitment of interview participants followed the same process as phase II. The longitudinal approach of narrative initial and follow-up interviews aimed to shed light on the changing PhD experience and researcher identity development in different stages of the PhD process. This section describes how empirical data were obtained and analysed.

To elicit students' perceptions of how they saw themselves as becoming researchers, 30 in-depth face-to-face interviews were conducted in this phase. Interviews were expected to produce rich and personal narratives of their PhD journeys. The questions aimed to reveal how participants viewed and felt about their PhD, what social and other support they experienced and used, who and what impacted on their PhD process and progress and how, personal 'aha' moments, positive and negative experiences, if and how they perceived themselves as researchers, and what and who promoted this. In line with the concept of identity-trajectory (McAlpine, 2012a), that theoretically framed this study, interviewees were asked what brought them to take up a research degree and where they envisioned their future careers. The interview schedule was derived from previous research on researcher and academic identities (Barnacle & Mewburn, 2010; Brew, 2001; Jazvac-Martek, 2009; McAlpine & Amundsen, 2009; McAlpine et al., 2009). Interview prompts and clarifying questions were informed by focus group research, i.e. participants' remarks on where they did PhD work, what sort of support they found helpful, why and from whom, etc. Preceding focus

group research raised awareness of my assumptions, i.e. what social support meant and where it was located. Clarifying questions were asked to make sure that each participant's meaning was accurately captured.

3.6.1 Initial interviews

Interview locations varied from meeting rooms, HDR lounges, participants' offices, researcher's office, staff tea-rooms, cafes and libraries depending on participants' preferences. All initial interviews were conducted face-to-face, apart from one phone interview with a student on fieldwork and one Skype interview with a part-time student who lives in a different city. A personal get-together for the initial interviews was considered important for the purpose of building rapport and a more personal connection with the student on site and in an environment of their choosing. The interviews each lasted 40–70 minutes.

As in focus groups, a question protocol, including instructions, prompts and space for reflective comments, was prepared for the researcher to guide the conversation (Creswell, 2008). All sessions were digitally recorded and complemented by the interviewer's observational notes during the session, which served as a memory aid for later analysis. In line with narrative inquiry and narrative interview methodology, efforts were made to have participants lead the conversation in the interviews, and to encourage them to share their experience honestly and in as much detail as they liked. Narrative interviews are classified as qualitative interview techniques (Flick, 2009) and are in-depth interviews with specific features. They go beyond the question-answer scheme and give more control to the interviewee by minimising the interviewer's talking time, language use, and positioning the interviewer as a listener rather than an interrogator (Bauer, 1996). Narrative interviews naturally stimulate storytelling. Storytelling has three features: detailing of events, fixation on features relevant to the storyteller, and story elements (beginning, middle and end; time and place) (Schuetze, 1977, Conelly & Clandinin, 1990). To stimulate storytelling, a narrative interview follows phases: initiation or ice-breaker, narration, question time, and closing small talk (Bauer, 1996). At the start of the interview, I presented myself as a PhD student to

establish a personal connection, and as a researcher to signal I was assuming an objective position for the purpose of the interview. This would usually involve a short small talk before I would prompt interviewees to talk about their PhD experience. Questions and prompts would arise during the interview based on what personal stories and experiences students decided to share, albeit sticking to the topic of PhD support and researcher development. Narrative interviews are open-ended and characterised by interviewer's and interviewee's flexibility, building a rapport with interviewees, and a conversational approach (Cohen et al., 2007; Silverman, 2006). While the researcher cannot avoid some influence on the way the interviewees present themselves or what stories they tell and how, the strategies of narrative interviews presented above attempt to keep researcher's imposing and intervention to a minimum.

3.6.2 Follow-up interviews

As this project was interested in doctoral students' researcher identity development over time, follow-up interviews of 40–60 minutes were conducted with half (15) of the interview participants one to one-and-a-half years after initial interviews. Some withdrawal from PhD study was expected, as literature suggests a doctoral attrition rate of 30–50% depending on the discipline (Carter et al., 2013; Lovitts, 2001; McAlpine & Norton, 2006). However, this was not the case. Eight follow-up interviews were conducted at University A and seven follow-up interviews from University B were facilitated via Skype, for everyone's convenience. Investing in face-to-face meetings at the initial stage showed benefits as participants generally seemed relaxed and comfortable and the conversation flowed easily from the start. Follow-up interviews were the same in structure and approach; hence, the same guiding questions were used, but changed and evolved in the immediate interview context.

3.6.3 Data analysis

Like focus groups, all interviews were also recorded and professionally transcribed and then imported to NVivo10 for analysis. Interview analysis also followed the same coding process and employed a constant comparative approach (Braun & Clarke, 2006) for thematic

analysis, as detailed in section 3.5.5 above. Thematic analysis falls under narrative analysis and focuses on the told and the content, on 'what' rather than 'how' stories are told. This approach is useful in drawing common thematic elements from participants and the sort of events they report, allowing to theorise across various individual cases (Riessman, 2008). The open-ended nature of interviews produced a variety of different stories, experiences and perspectives. Narrative research analysis involved comparing participants' stories, and through this process, identifying emergent themes and categories, common aspects, and shared and contrasting experiences. The cyclical nature of the analysis approach and the vast amount of data (close to 50 hours of recorded conversations from interviews alone) resulted in extensive coding, re-coding and re-organisation of nodes until dominant themes were established that related to students' development as researchers.

Initial and follow-up interviews, while using the same analysis approach, were analysed separately after each round. While the goal of the initial interviews was to draw out experiences of researcher identity development, the follow-up interviews aimed to elicit the longitudinal progression. On the one hand, the follow-ups were treated as a collective experience of the later PhD stages and compared with the collective experience as expressed in initial interviews. On the other hand, selected cases were drawn out that reflected significant shifts in experience and self-perception to serve as representations of researcher identity development over time. For the longitudinal analysis, all coded text relating to the theme 'identity development', which emerged in coding of initial interviews, was revisited.

Next followed a mapping exercise of student participants and their PhD experiences conceptualised as 'events'. Narratives have two foci: events and experience (Andrews, Squire, & Tamboukou, 2013). Students report stories of critical events with positive or negative consequences. Positive events, for instance, create social support, skill development opportunities, publications, and helpful supervision, while negative events include juggling research and paid work, time pressures, financial troubles, and administrative and technical issues. In this thesis, such events are constructed as intensifiers (Winchester-Seeto et al.,

2014), that magnify difficult or reveal uncomplicated PhD experiences. In order to identify representative portraits, all events reported by PhD students (events that occurred during the PhD and that were perceived to intensify their PhD experience in positive or negative terms) were mapped to students in a matrix constructed by the researcher. Table 5 below shows a simplified version to preserve readability. The complete de-identified matrix can be found in Appendix E. While re-reading interview transcripts, reported events were listed on the left (bold print) as they emerged, and allocated to either the positive or negative experience category, with an X indicator linking experiences to participants.

Table 5. Simplified matrix.

	Intensifiers/ events reported by students	**Partici-pant 1**	**Partici-pant 2**	**Partici-pant 3**	**Partici-pant 4**	**Partici-pant 5**
Negative	**Supervision**	x	x			
	Peer network					
	Teaching	x		x		
Positive	**Supervision**				x	x
	Peer network	x		x		x
	Teaching					x

This approach retained students' individual contexts and highlighted personal life circumstances while structuring the data for analytical purposes. The matrix proved to be a useful exercise as it enabled comparison of PhD stories. Where students reported a higher proportion of negative experiences, they expressed dissatisfaction with their PhD and struggled to view themselves as academics. Where events showed support and reassurance, students articulated overall satisfaction as well as personal and professional confidence. This data analysis approach identified two contrasting PhD experiences that represented the range of participants' identity development experiences (detailed in Findings section 4.7).

3.7 Limitations

This thesis acknowledges several limitations. As the research findings did not aim to be representative of the PhD student population, the participants group was not selected to be a purposive sample. The participants were recruited from two large research-intensive universities in Australia. The Australian context differs from other countries in the political

agendas, governance structures and research funding schemes that shape higher education. Such aspects shape academic and research climates of the institutions and inevitably shape emerging researcher identities of doctoral students and their PhD experience in regards to support provision, focus on research outputs, and length of study time, for instance. In this context, researcher identity development as the phenomenon under study is subject to influences beyond the scope of this research. This research scope is limited to the individual student level and students' perceptions of their identity formation. While the findings do not aim for generalisation, they may be applicable to PhD students who undertake similar PhD programs as participants in this study.

The qualitative data collection methods used in this study are not without flaws. Focus groups can produce 'group think', unify rather than diversify responses and silence people who have a different opinion. Interviews are prone to some bias and subjectivity on the researcher's part (Cohen et al., 2007). Interviews present limited insights constrained by time and place as they provide snapshots of the students' experience in a particular time and context. The researcher is aware interviewees can be ingenuine, put on a front, or not be willing to disclose information (Cohen et al., 2007) as interviews are, by necessity, constructed settings. Further, what participants say they do and what they actually do may not be aligned (Silverman, 2006). Finally, it must be acknowledged that participant recruitment strategies can be limiting (i.e. dissemination of the Call for Participants), and cannot be assumed to have reached every student on campus or presented everyone with a chance to participate. Part-time and distance students, in particular, may have missed this communication and were not able to attend focus groups and interviews.

Despite the limitations, the validity and reliability of methods and procedures applied in data collection and analysis were carefully considered at every stage of the research to answer the research questions posed earlier. The narrative methodology and inquiry are used to understand the processes of researcher identity development in the PhD and the role of supportive networks and relationships. The following chapter presents the findings in detail.

Chapter 4

Findings

This chapter presents the thesis findings as a set of papers. Each section presents selected themes and aspects in depth. The following describes what questions are asked in each section, what data it draws on, what the individual research findings are, and how each section contributes to the overall thesis argument. Each section is introduced with a personal story, as a means to present the conception and background stories of each paper. In doing so, it aims to make visible the messy and unforeseen aspects of the research process that are hidden in the papers themselves. They, as I argue in this thesis through my participants' and my own experience, are necessary and integral to researcher, academic and professional identity development.

4.1 Summary of findings

Initially this research set out to investigate the role of social support in the PhD experience. This thesis sees identity development and 'becoming' at the core of the PhD experience. During the literature review and preliminary data analysis, it became clear that social support discussed in various forms by participants, concerned the student (as opposed to help with the thesis) and their development of professional identities (i.e. researcher, academic and non-academic). This thesis argues that the development of doctoral candidates' researcher and other identities is fundamentally facilitated by social and collaborative practices.

Table 6 below presents an overview of the individual Findings sections and papers that are published or under review, including individual research questions and findings. This is followed by a summary of the thesis findings according to three core research questions. Individual findings are located in specific papers and sections (indicated in brackets).

Table 6. Overview of individual findings sections.

Thesis section/paper	Research questions	Methods / data	Findings	Contribution to thesis
4.2: Mantai, L., & Dowling, R. (2015). Supporting the PhD journey: insights from acknowledge-ments*. *International Journal for Researcher Development*, 6(2), 106–121. http://dx.doi.org/10.1108/IJRD-03-2015-0007. Published.	What do acknowledge-ments tell us about support experienced in the PhD?	79 Australian thesis acknow-ledgements	PhD support includes social, academic and instrumental support, and involves various people, and personal, academic and professional networks. Acknowledgements portray the PhD author and researcher.	Doing a PhD is a social experience. PhD graduates' identities are result of social and collaborative practices.
4.3: Mantai, L. (forthcoming). The role of social support for doctoral belonging and becoming. Under review.	What is social support in the PhD? How and why is it important?	8 focus groups with 34 PhD students	Social support is critical to researcher identity development. Student diversity requires diverse support. Social support can cause conflict.	Students' social needs are diverse. Social interactions, relationships and networks are at the heart of identity development in the PhD.
4.4: Mantai, L. (2015). Feeling like a researcher: experiences of early doctoral students in Australia. *Studies in Higher Education,* 1–15. http://dx.doi.org/10.1080/03075079.2015.1067603. Published.	What events and practices do doctoral students identify as moments when they feel like researchers?	30 initial narrative interviews with PhD students	Students' researcher identities are validated through publishing, doing and communicating research, and through recognition by peers and senior researchers.	Specific moments, events and activities promote researcher identity development. Validation is key to identification as a 'researcher'. Internal validation depends on external and formal recognition by peers and senior academics or researchers.

4.5: Mantai, L. (forthcoming). How to become a researcher: developmental opportunities on campus and beyond. In Eds. Christopher McMaster et al., *Postgraduate study in Australia: Surviving and succeeding.* New York: Peter Lang. In press.	What are developmental opportunities for PhD students? Why should PhD students engage in them?	30 initial narrative interviews with PhD students	Potential benefits of additional developmental opportunities and work experience for PhD progress, students' confidence and careers.	Provides advice for current and future students based on thesis findings.
4.6: Dowling, R. & Mantai, L. (2016). Placing researcher identifications: labs, offices and homes in the PhD, *Area.* http://dx.doi.org/10.1111/area.12317. Published.	How do PhD workspaces shape researcher identities?	8 focus groups with 34 PhD students and 30 initial narrative interviews	PhD workspaces promote development of different identities.	Identities, relationships and power are interconnected through workspaces. Identities are shaped by spaces.
4.7: Mantai, L. (forthcoming). Feeling more academic now — PhD stories of becoming an academic. Under review.	How do doctoral researcher identities develop over time?	30 initial narrative interviews, 15 follow-up interviews, 2 case studies	Teaching practice is critical to students' academic identity development, general professional and academic confidence and employability. The PhD is not enough for academic employment.	Researcher identities extend to academic identities through academic teaching.
4.8: Autoethnography	What facilitated my researcher and academic identity development?	Autoethno-graphy of PhD experience	Numerous, informal and mundane moments in time define instances of shifts in assuming doctoral, researcher, academic and professional identities.	Academic and researcher identity development is interwoven with personal identities. Reflection reveals the depth of identity development processes.

What role do social practices play in doctoral identities, and specifically researcher identity development?

This thesis provides rich empirical evidence that professional development during the PhD is inherently social and collaborative, and candidates need to be closely connected to academic communities and meaningfully embedded in academic cultures.

The thesis findings defined social practices as collaborative practices (e.g. writing with others, discussing ideas with others, co-authoring, receiving feedback on drafts or presentations, peer learning, higher degree research skill workshops, research seminars). Social practices included any kind of support, i.e. social, academic and instrumental, provided to the doctoral candidate (section 4.2), be it academic advice in supervision, or mutual encouragement in peer groups, for instance. For participants in this research, for instance, the focus groups and interviews presented a social support experience (4.8). Social practices further included personal and professional relationships and networks, and met candidates' needs to feel connected (e.g. 4.3 and 4.4). Examples of feeling connected and supported were often associated with positive experiences of social gatherings and events, such as department morning teas, Christmas parties, lunch meetings, where students could casually connect with others. Meaningful professional relationships of PhD candidates went beyond supervisors. Supervisor primacy was contested as candidates' drew on wider supportive relationships and networks (4.2 and 4.4). Sections 4.3, 4.4 and 4.5, specifically highlight that 'it takes a village to raise a PhD', as many people were involved in the PhD and student development. Collaboration and networking in the PhD were signs of external validation and membership in the professional community or academic researchers on the one hand. On the other hand they were strategies for building professional relationships for future career opportunities in or outside academia (4.7). Specific to researcher identity development, supportive relationships were valued because they provided formal recognition and external validation of students' emerging professional researcher identities. Episodes and experiences of oneself as a researcher occurred in relation to, and with, other researchers, fellow students, and colleagues,

for instance. Researcher development in terms of performing (skills and attributes) and imagining oneself as a researcher was underpinned by various activities and practices in everyday PhD life that were essentially situated in social settings (4.2, 4.3 and 4.4), e.g. communicating one's research, exchange of ideas with peers and supervisors, writing groups, and receiving feedback on drafts. Moments of feeling like a researcher highlighted the importance of validation by others and oneself as a becoming researcher (4.4). Opportunities for receiving positive feedback and validation arose not in isolation, but through participation and engagement in research and academic cultures. Students reported growing in confidence as researchers as they capitalised on external recognition in the course of the PhD (4.4 and 4.7).

While the thesis findings emphasised the value of social practices to feeling connected to academic cultures and community (4.3), it also highlighted students' experiences of conflicts, hierarchy and exclusion. Sections 4.3 and 4.8 offer examples of students' experiences that disrupt their sense of belonging and community. These essentially contributed to the anxiety, frustration and isolation reported by participants in this research. The PhD emerged as an emotionally troubling experience. Emotions candidates expressed in this research concerned how they perceived their personal, researcher and more broadly professional development and how they saw themselves connected to or disconnected from the community.

What does researcher identity development look like in doctoral practice?

This thesis identified the PhD experience as a challenging journey of personal and professional development. The thesis contributed doctoral candidates' perspectives on what makes them researchers, academics and professionals. Events and activities, where doctoral candidates see themselves on the cusp of becoming the professional they want to be, bring to the fore a diversity of significant moments that constitute the researcher development in the PhD. 'Feeling like a researcher' moments ranged from formal (presentation and publication),

to very informal and even accidental (writing, reading, peer conversations and other research-related activities), and almost invisible settings (inner realisation, aha-moments) (4.4). Candidates were able to identify specific events or activities in their PhD that promoted experiences and performance of researcher identities. Three groups of such activities were identified as facilitating the crossing from 'students' to 'researchers': (1) research outputs, (2) doing research, and (3) talking about research (4.4). Candidates emerged as agents in their own researcher and general professional development as they actively sought out (often in addition to PhD) developmental experiences through the workshops they attended, groups they joined, or practices they engaged in (4.4 and 4.5).

The formation of researcher and academic identities was rooted in pre-doctoral experiences and were in constant negotiation with personal identities. Section 4.6 illustrates this point by drawing on conceptualisations of 'space' and 'spatiality'. It argues how different workspaces promote different identities of PhD students. Being on campus, present and visible, was more important for early researchers to affirm emerging professional identities and to enhance their sense of belonging to a professional, e.g. research or academic, community. Home and working away from campus, in contrast, disrupted identifications as researchers or emergent academics, as it physically and emotionally disconnected the candidate from the community (4.6).

Section 4.3 highlights candidates' social needs in assuming researcher identities and points to the need of recognising students' diverse personal identities they bring to the PhD and the professional identities they hope to take on in the process. The separation between 'us' and 'them' exemplified in 4.3 risks marginalisation of students from the professional academic community and disrupts identities that students define in relation to others.

How do doctoral identities, and specifically researcher identity development, change over the course of the PhD and what facilitates the changes?

The thesis findings suggest that doctoral candidates aim to develop more than researcher identities (4.2, 4.6 and 4.7) and seek to purposefully engage in various developmental practices that prepare them for academic and non-academic careers. Candidates exercised agency in seeking support and creating personal networks and interpersonal relationships for professional support and advancement. The overall sense was that doctoral programs do not prepare participants sufficiently enough for future employment. The current difficult academic job market was the recurring narrative of doctoral identities status quo when approaching thesis submission deadlines. Sections 4.3, 4.6, 4.7 and 4.8, specifically, point to changes in doctoral education (i.e. student diversity, increasing PhD enrolments, and neoliberal agenda of the higher education sector) that influence PhD practice, experience and identities, specifically candidates' researcher development. These influences were manifested in time pressures, and focused on research outcomes, and competition for future employment. They caused stress and anxiety for PhD candidates (4.7). Students assessed their employability and market value in comparison with fellow PhD students (mainly comparing their publication track record) and against expectations of academic roles mandated by institutions and media. Some students considered avenues to increase their market value, e.g. focusing on honing their teaching skills (4.7).

Formal recognition and validation from established and experienced researchers gained through publications and on formal presentations, although adding to students' anxiety, were important markers of candidates' researcher identities. External validation could raise or decrease the credibility factor for PhD candidates. External perceptions of students as researchers translated to an internalised sense of being a researcher (4.4). Further, students who aspired to academic careers, increasingly identified as researchers or academics by overcoming PhD challenges, learning about themselves and what it meant to be a researcher or an academic, and asserting that this was what they wanted to do and what they were able to

do (4.4 and 4.7). Growing a researcher identity is not a linear process and involves moving back and forth while gradually approaching the ideal image of being a researcher. This was aptly evidenced in the autoethnography (4.8) and in the introductory paragraphs to the individual papers. These sections highlight the messiness of the research process and my researcher becoming, in other words, the unforeseen and serendipitous situations that led to the final thesis as product and myself as a particular type of person and researcher.

Doctoral students engaged in various developmental opportunities not related to PhD research (4.5, 4.7 and 4.8) to gain a competitive advantage when it came to post-PhD employment. With increasing work experience alongside PhD study, doctoral students moved from 'students' to identify themselves as researchers, academics and professionals. They valued not only the additional work experience they could add to their CVs, but also the professional networks and relationships they formed (4.5). Active engagement with local and international networks was articulated as critical to becoming a professional and formed part of identity work. They afforded connections and relations that may become useful when seeking employment and, therefore, doctoral students invested significant time and effort to maintain them (4.7). Section 4.6 highlights how the campus as a workspace was strategically used by candidates to increase their physical and professional visibility and availability, and as such, their professional performance and membership in the academic community. Non-PhD related developmental activities boosted professional confidence and authority. They emerged as critical to learning the academic game, gaining broader academic work but also general professional experience, providing opportunities to build useful contacts for any career opportunities, and presenting testing ground for career pathways. Section 4.7, for instance, shows how teaching practice increased academic confidence and employability from a student's perspective, which additionally translated into confidence in one's researcher skills. However, this research also pointed to the challenges of fitting in and adding on such extra-curricular activities (4.5) in busy PhD lives, and the risk they presented to PhD progress and completion.

In summary, the findings in this thesis essentially tell stories of people, support, experiences, being and becoming, emotions, opportunities, time and space. Combined they describe the intellectual, social and emotional adventures of a PhD journey in which students grow into researchers, academics and professionals. Lyn, a young female PhD student and research participant neatly sums up what the following Findings sections individually examine in more detail:

> I think conferences really were the main thing that helped me feel like I was moving forward in the research world. I think that being in our own office, with your own research all the time, you become so focused on that project as opposed to what it's leading to. And just discussing possibilities with other researchers just made me feel like there's a whole other network and a whole other range of possibilities out there. I never thought I wanted to be an academic, and now I love teaching, because I teach, and I've taught consistently throughout my PhD, and I love it a lot more than I thought I would. And the research, I'm enjoying it. I guess I've started to see the PhD as there's ups and downs, so sometimes I'm loving my PhD, I don't really have much negative stuff to say about it. And then other times the stress kind of gets on top of me and I'm not seeing an out and I'm starting to see that flow, but I think it's helped knowing that there is a future for me in the field.

4.2 Supporting the PhD journey: insights from acknowledgements

This section presents a paper titled *Supporting the PhD journey: insights from acknowledgements* published by Mantai and Dowling (2015) in the *International Journal for Researcher Development.* Based on 79 Australian thesis acknowledgements it addresses the questions: What can acknowledgements tell us about support experienced in the PhD? More specifically, what support types and providers are acknowledged? And who is provided for what type of support? Employing an underutilised genre, i.e. thesis acknowledgements, the paper confirms the critical place of candidates' personal, academic and professional networks in the PhD journey, broadens the view of support to include social, academic and instrumental support, and identifies a wide range of support providers. Further, acknowledgements give insights into students' development as researchers and extend the thesis argument by emphasising the integral role various people and networks play in this process. The role of the article in the thesis is to provide new evidence that the PhD is indeed a highly social experience. It points to the need of investigating researcher identity development within the various social experiences and collaborative practices that are featured in thesis acknowledgements as the focal point of the PhD experience.

I was 'wandering' through thesis styles and formats, asking myself what sort of people wrote and finished these dissertations, when the idea for this paper came to me. This was the second paper I submitted to a journal although it was published one month before the *Feeling like a researcher: experiences of early doctoral students in Australia* paper. Half a year ago it was selected as a Highly Commended Paper by the Emerald Literati Network – my first research award! (I do not count my PhD scholarship as an award (although it is listed as such on my CV) because I did not work as hard to get it.) This part of my research taught me how to do quantitative and qualitative analysis. I gained insights into the challenges of mixed-method research.

A few months before thesis submission, the editor of the Doctoral Writing SIG Blog, Dr Claire Aitchison, emailed me to invite me to write a blog post on this paper (she read an early draft). I was flattered, thinking '*Wow, have I reached a point where I am one of the experts now?'*. I had first met her at the Learning and Teaching Centre at Macquarie University where I worked during my PhD. I had been following the blog and her research long beforehand. When I heard she was temporarily employed at the centre I brought up courage, knocked on her door and asked if we could schedule a coffee chat. She was incredibly approachable, open about her academic experience, and genuinely interested in me and my research. (This conversation, I think now, may have given me confidence to approach experts in my field.) I was happy to 'return the gift'. Besides, this was a good way to promote my publication. The post copied below provides a good overview of the paper.

Reading and writing the thesis acknowledgement — support, people and identity[1]

'Writing is personal. It is also social as it does not happen in isolation. Discussing and clarifying ideas with your colleagues, receiving and incorporating feedback from critical friends and reviewers are social acts that make writing collaborative. Yet, the doctoral thesis comes across as a disembodied, de-personified and de-personalised product of doctoral "training" — void of the emotions, typical PhD ups and downs, and identity crisis battled in the process. Until you read the thesis acknowledgements.

My PhD research looks at how doctoral students become researchers in the PhD journey. While reading through various theses in the early stages of my PhD, it struck me that the acknowledgement section of the thesis was just oozing with personal and "behind-the-scenes" stories. Sometimes I cringed (or even cried) because it was so intimate and personal. Other (though fewer) examples of acknowledgements were boasting about the author's achievements and left me feeling like an imposter wondering if I would ever achieve this level of competency. It became clear that acknowledgements presented a window into the

[1] Published on 17th November 2016: https://doctoralwriting.wordpress.com/2016/11/17/reading-and-writing-the-thesis-acknowledgement-support-people-and-identity/

reality that was only known to PhD students and the (mostly) one or two page-long acknowledgement might tell you more about the student/graduate and their personal and academic development than the rest of the thesis. I realised writing of thesis acknowledgements made students' identities visible.

Needless to say, I was intrigued and told my supervisor. Luckily she shared my enthusiasm so we decided to systematically analyse 79 Australian thesis acknowledgements. The aim was to explore the types of support students found critical to their success, the sort of people who provided support, and who provided what type of support.

Key findings highlighted that social support (emotional, moral, companionship, guidance) was valued higher than academic (conceptual, editorial, linguistic) and instrumental support (technical, financial, administrative). While men and women equally valued social support, they emphasised different elements of it: women identified emotional support, while men noted companionship and collegiality.

The breadth of relationships drawn upon in the PhD was overwhelming and clearly portrayed the PhD as a collaborative enterprise. One single acknowledgement named 83 individual people as being supportive and critical to PhD success. Most of the support was received from families, colleagues and supervisors to various degrees. Interestingly, none of the acknowledgement authors used the term “peer”. Staff, employees and fellow students were referred to either as “friends” or “colleagues”. The latter is perhaps intentionally used to signal professional rather than student status of the author and other PhD students. Also, supervisors were presented as providing not only academic support and guidance, as often assumed, but also social support. Although families (especially partners) and colleagues emerged as the main support providers, the sum of social relationships and networks arguably formed an extended network that helped the student persevere through the isolation, loneliness, and “emotional labour” involved in PhDs (Aitchison and Mowbray, 2013). Students used the opportunity of writing an acknowledgement to reflect on their personal and professional development. Rather than portraying themselves as competent researchers in

relation to seniors, students established their competence through the ability to “survive” the PhD challenges. Authors also vividly assumed social researcher identities as a result of collective PhD endeavours.

Naturally, emotional expressions are somewhat to be expected in an acknowledgement as marking the end of an arduous journey. Also, it is important to recognise that writing an acknowledgement is performative in nature. Supervisors and funding bodies can be thanked out of a sense of duty rather than authentic gratitude. Authors also write with a particular audience in mind, i.e., families, supervisors and future employers. This tiny section in your thesis is after all a chance to present yourself in a certain light, i.e. as a well-networked and connected professional or a certain type of researcher, but it is also a revelation of the private (and perhaps vulnerable). As such, a thesis acknowledgement is a purposefully and carefully constructed representation of oneself and can be challenging to write.’

Publication 1:

Supporting the PhD journey: insights from acknowledgements

Lilia Mantai and Robyn Dowling

Abstract

Purpose - Our aim in this paper is to explore the types of social networks and relationships that PhD candidates identify as important in a successful PhD journey.

Design/methodology/approach - We use an underutilised yet rich data source: PhD thesis acknowledgements. The paper employs a sample of 79 PhD acknowledgements drawn from diverse disciplines across Australian universities to illustrate the types of social support provided, who and what is acknowledged as providing support, and the intersections between the types and providers of support.

Findings - Key findings of the paper are that three types of support are evident — social, academic and instrumental — and that families, colleagues and supervisors, as well as others, are acknowledged for providing all three forms of support. Further, acknowledgements give insights into students' personal and professional development and identification as researchers.

Research limitations/implications - This research helps higher degree research (HDR) recognise the breadth of relationships in the PhD process to make provisions that encourage such network building. It delineates the meaning and value of social support in successful doctoral candidature. So far, little empirical research has outlined the types of support valued by students.

Originality/value -The study confirms the critical place of candidates' networks in the PhD journey, broadens the view of what constitutes support and identifies the range of individuals involved in the process. It identifies potential in acknowledgements as a source of evidence of social support and researcher development in the PhD experience.

Keywords: acknowledgements, social support, doctoral journey, PhD experience, researcher development, higher degree research

Introduction

Doctoral research does not occur in social isolation. It is a collaborative endeavour in which a variety of people and institutions, knowingly and unknowingly, contribute to the production of the thesis and the development of the doctoral candidate as a researcher (Turner & McAlpine, 2011; Baker & Lattuca, 2010; McAlpine et al., 2009; Darwin & Palmer, 2009). Social relations and networks are known to aid doctoral progress and improve the PhD experience (Jairam & Kahl Jr., 2012; Lahenius & Martinsuo, 2011; Sweitzer, 2009; Lovitts, 2001). Peers (such as postdoctoral researchers or fellow candidates) for example, are a source of emotional, social and intellectual support, and can replace or complement supervisory guidance (Kemp et al., 2013). Family, friends and other institutions, groups or places likewise support the PhD candidate through providing meals, shelter, distraction and encouragement.

Despite common recognition of the social nature of doctoral research, there remains little detailed empirical work on the social networks through which doctoral research is accomplished. This paper addresses this gap by empirically exploring the types and purposes of social connections that support PhD completion. How important are social support and social connections versus other support (e.g. technical and academic) in the PhD? And who is providing what kind of support? What do PhD graduates value most when they reflect on their PhD journeys and what can we learn about the PhD experience retrospectively? We answer these questions by looking at a unique and under-utilised information source: PhD acknowledgements. Ten years ago, Ken Hyland described thesis acknowledgements as a 'Cinderella genre', a 'practice of unrecognised and disregarded value deserving of greater attention' (Hyland, 2003, p. 243). Since then there has been increasing attention turned toward acknowledgements — in theses, research papers, case reports, books — as a form of

academic writing that provides unique insights into the practice of scholarship and in particular the socio-cognitive networks through which it occurs.

This paper contributes to research on doctoral education in two ways. First, it helps higher degree research (HDR) staff in charge of support services for doctoral students recognise the breadth of networks students employ in their PhD process, which stretch far beyond the typical supervisory dyad, and what students value about these networks. Hence, HDR staff can make provisions that allow and encourage building of such relationships early on in the PhD process. Second, it contributes to research on the PhD experience delineating the meaning and value of social support in a successful doctoral candidature. So far, a lot has been said about the importance of support and social relationships in the PhD, however, little empirical research has outlined the types of support valued by students.

The paper begins with a discussion of the ways in which PhD acknowledgements provide a window into the social relations of the PhD and describes the data and analytical techniques of the paper. The paper then turns to both a qualitative and quantitative analysis of these acknowledgements, and ends with concluding comments on the use of acknowledgements as a useful resource and the collaborative nature of the PhD.

Researcher and research as collaborative products in doctoral thesis[2]

Two key approaches to acknowledgements can be identified. First is the use of acknowledgements as a window onto the socio-cognitive networks of scholars and scholarship. Acknowledgements are approached as a rich source for accessing and examining the place of collaboration and interdependence in the enterprise of scholarship. Research paper acknowledgements, for example, are cast as 'formal records of often significant intellectual influence' (Cronin & Overfelt, 1994, p. 183), or, along with citations and authorship, an apex of a 'reward triangle' that is indicative of the intellectual indebtedness of a piece of research (Costas & van Leeuwen, 2012). In this tradition we see a burgeoning of

[2] Theses, doctoral dissertations and dissertations are used synonymously in this paper.

quantitative analyses that use acknowledgements as a data source: as a representation of a reality that is only known to the PhD student. This scholarship includes identification of increases in the length and frequency of all types of acknowledgements since the late twentieth century (Cronin, Shaw, & La Barre, 2003; Scrivener, 2009), and detailed analysis of the geographic and disciplinary differences in acknowledgement behaviour (Salager-Meyer, Alcaraz-Ariza, Briceño, & Jabbour, 2011). A small strand of this approach focuses on dissertation acknowledgements. Drawing on (Cronin, 1995) work, (Hyland, 2004) for example, uses a corpus of acknowledgements to identify who and what are referred to, and hence, to inductively characterise the forms of social support that underpin the PhD.

Taking acknowledgements at face value, as straightforward representations of reality, is criticised in the second approach to acknowledgements. Here, acknowledgements as a form of writing and as performative constructs, come to the fore. Drawing on approaches that see writing as a social construct, acknowledgements are understood as writing in which authors actively situate themselves in a discipline and construct and negotiate social relations. Acknowledgements are representations — of the writer and their world — and as such constitute that world. In this tradition, attention has focused on the ways acknowledgements construct desired academic networks or are used by scholars to bolster their academic standing. (Ben-Ari, 1987) important analysis of book acknowledgements, for example, highlights the use of acknowledgements to make connections between authors and significant figures in the relevant field. Likewise, Hyland's (2004) analysis of dissertation acknowledgements pinpoints their use to situate writers in professional circles with which they would like to be associated. The acknowledgements analysed by Hyland, for example, contain reference to prestigious conferences attended and research labs visited by the PhD scholar, not simply as reflections of the doctoral experience, but as performances of the writers' desired identity as a researcher (Hyland, 2011, 2010). In this tradition, acknowledgements are much more than records of the research process and the social

networks through which it is accomplished, but are representations of the researcher for a wider, professional audience.

In this paper we see value in, and draw from, both approaches: recognising the value of thinking about acknowledgements as sources of information about research collaborations and social networks while cognisant of their performative nature and effect. In other words, we do not deny the particularities of acknowledgements as a writing genre, especially the opportunities it provides for very public reflections on the PhD experience and constructions of an academic identity. Nonetheless, while these reflections may not be simple mirrors of the PhD experience, they are completely divorced from them either. PhD acknowledgements provide rich insights into the social networks of doctoral education because of their purpose: to express thanks to explicit people for the support provided, be it to seek closure or the need to show appreciation. Acknowledgements are not a simple reflection of the PhD experience. Acknowledgements are used to express gratitude to people who either *deserve* or *are due* thanks for the support they provided in the PhD process. Some, typically supervisors or funding bodies, can be thanked out of a sense of duty rather than authentic gratitude. Similarly, what is not being said, or who is not being thanked, can be significant. These traits do not render acknowledgements unusable as a data source — they remain a useful approximation of the social, intellectual and institutional networks that produce a successful PhD. We also consider, albeit in a more limited way, the performative function of acknowledgements. PhD acknowledgements are also expressions of 'a sense of closure at the end of a long and demanding research process' (Hyland, 2003, p. 304), giving insights into the personal challenges and experiences of the author's PhD life. Thus, in the qualitative analysis we focus on the writer's representation of the PhD journey.

Data collection, analysis and overview

Following a long tradition in citation and acknowledgement analysis (e.g. Hyland, 2003), this paper is based on both qualitative and quantitative analysis of a corpus of

acknowledgements. While use of quantitative analysis dominates in current acknowledgement literature, we add qualitative analysis as it provides context, adds weight and helps to illustrate the performative character of acknowledgements. A corpus was assembled from a digital repository, *Trove*, a collection of 1500 doctoral theses contributed by 40 Australian universities. Systematic sampling of the database was undertaken to gather a 10 percent sample. Every tenth thesis listed in the collection was accessed to retrieve the acknowledgement text. However, as not all links led to a free accessible publication (e.g. logins were required, links were broken) and a few doctoral theses not having an acknowledgement at all — in these cases the item was skipped and the successive tenth item was chosen — the audit resulted in 79 thesis acknowledgements which form the data set for this paper.

For data analysis purposes background data were collated on thesis submission date, university, department, discipline, and gender. There was a roughly equal number of acknowledgements written by women (38) and men (41), and a preponderance of acknowledgements by researchers in Sciences (STEM) (55) versus Humanities (HASS) disciplines (34). Forty acknowledgements in our sample were from theses completed in 2013, 30 from 2011–2012, and 9 from 2009–2010 combined. This distribution mirrors uptake of *Trove* as a thesis repository. Acknowledgement files were uploaded into NVivo and analysed quantitatively and qualitatively. Quantitative data were produced through a systematic NVivo coding analysis that identified: what was acknowledged (types of support); who was acknowledged (support providers); and who was acknowledged for what. Acknowledgements were analysed in semantic units and classified into types of support based on Cronin's (1995) and Wills' (1991) typologies, see Table 7. References to *guiding and mentoring* frequently emerged in the data and hence, were separately added as a new support type. The support

types were then further categorised in INSTRUMENTAL, ACADEMIC, SOCIAL and GENERAL[3] support categories.

Table 7. Categorisation of support types.

Support category	Support type	Coding includes
INSTRUMENTAL	**Financial*	scholarship, travel and conference funding
INSTRUMENTAL	*Administrative (*Clerical) support*	admin stuff, application process, paperwork
INSTRUMENTAL	**Instrumental and technical*	participation in research, taking care of kids, providing and respecting time for work and writing, statistical help, practical help, providing workspace, offering child care
ACADEMIC	**Academic and conceptual*	teaching content, wisdom and knowledge, professional support, sharing expertise, contributions, critical thinking
ACADEMIC	**Editorial and linguistic*	writing group support, comments and suggestions on drafts, translation service
SOCIAL	**Moral*	encouragement, believing in someone, inspiration, spiritual support, motivation
SOCIAL	***Emotional*	A listening ear, crying and laughing together, love, patience, passion, offering counsel
SOCIAL	*Guiding and mentoring*	giving direction, advice, leadership, being a model, mentor
SOCIAL	***Companionship and collegiality*	sense of belonging, collegiality, friendship, socialising, spending time together, networking, social activities, being there for someone, being introduced to someone, kindness and friendliness
GENERAL	*Undefined support*	referred to as 'support'

Note. *Cronin 1995. **Wills 1991.

Support providers were categorised in groups using their affiliation as identified in the textual context of the acknowledgement (Table 8). Colleagues constitute a broadly defined category including colleagues, PhD fellows, and people explicit and implicit to academic and professional contexts that are apparently related or relevant to the PhD work. Interestingly, the term 'peer' is not mentioned once in our data set. More often, staff, employees and fellow students are referred to as *colleagues.*

Table 8. Categorisation of support providers.

Support provider	Coding includes
Family	Immediate and extended family, partner, children, parents, siblings, cousins, etc.
Supervisors	Principal supervisors, associate supervisors, supervisory teams
Colleagues	People explicitly referred to as 'colleagues' (academic and professional), people implicit to academic or professional context (includes lab staff, librarians, departmental staff, committee

[3] Unspecified support in statements like 'thank you for your support' was classified as GENERAL support.

	members, writing groups), PhD fellows (home and overseas)
Friends	People explicitly referred to as 'friends' (can include PhD fellows and colleagues, but typically outside research context)
Research participants	Explicitly referred to as research participants
Institutions	Universities, research centres, scholarships, grants, funding bodies
God/Allah	God/Allah
Unspecified	Individuals' affiliation not specified
Non-human	Pets and places (e.g. cafes, cities)

In overview, our sample of 79 doctoral acknowledgements counts an impressive number of 1,148 individual names of people who are thanked for providing support. On average an acknowledgement lists 15 individuals by name — with the highest listing 83 individuals in one single acknowledgement. Acknowledgements also frequently comment on the wide range of people who support the PhD. The motivation for this thesis has resulted from the collective efforts of many dedicated professionals in (discipline) whom [sic] have supported me directly and indirectly during my doctoral studies. (Male STEM 19)

No significant differences in the types or providers of support acknowledged are apparent with respect to gender and discipline. However, we find interesting preferences of companionship and collegiality by men versus emotional support by women (Table 9). In relation to text length, we find that on average male students write 8% longer texts than females, and HASS students write 7% longer acknowledgements than STEM students (Table 9). The longest and most emotional type of acknowledgement was written by a male STEM student (1248 words), followed by a female HASS student (1087 words). The shortest acknowledgement, resembling the pure 'paying duty' model as coined by Hyland (2004), was published by a male HASS graduate (19 words), followed by a female HASS student (46 words):

> I acknowledge the supervision and editorial assistance provided by (names) from the (institution). I thank (undefined group) for their influences and creativity, in particular the cooperation of (name). (Female HASS 30)

While men and women equally value social support, they emphasise different elements of it: women identify emotional support, while men note companionship and collegiality.

Table 9. Acknowledgement type and number by gender and research field.

	Female (n=38)	**Male (n=41)**	**STEM (n=55)**	**HASS (n=34)**
Text word count (average)	341	373	350	375
ACADEMIC support (n=203)	46%*	54%*	66%*	34%*
INSTRUMENTAL support (n=172)	54%*	46%*	70%*	30%*
SOCIAL support (n=552)	48%*	52%*	72%*	28%*
TYPE of support (references)	*moral (86), emotional (75), academic & conceptual (73)*	*academic & conceptual (88), companionship & collegiality (81), moral (75)*	*moral (114), academic & conceptual (110), companionship & collegiality (108)*	*academic & conceptual (51), moral (47), emotional (43)*
PROVIDER of support (references)	*colleagues (90), family (50), supervisors (41)*	*colleagues (93), family (62), supervisors (49)*	*colleagues (59), supervisors (32), family (31)*	*people (124), family (81),supervisors (58)*

Note. *Percentage of references to the respective support category

In the remainder of the paper we present more detailed analysis of these acknowledgements. Qualitative analysis, and in particular thematic coding served to draw out the overall characteristics and themes from the data sample, as well as add depth to preceding quantitative analysis. This process revealed themes relating to personal and professional growth that we present in the following section. Then, the quantitative analysis of support types and providers is presented.

Representing the PhD as an arduous journey that involves others

Acknowledgements are textual representations of the self, and in particular, the researcher self. Our sample of acknowledgements shows candidates use the opportunity of writing an acknowledgement to reflect on their personal and professional development.

> I thank (name of institution founder) for envisioning a doctoral thesis within me, freely providing me a much-coveted and influential research and practice platform, allowing generous access - through the world of (discipline) - to his long-standing associations in (country) and abroad, orchestrating my life lessons

> about gratitude, and paving the way for my research and its outcomes. (Female STEM 9)

Hyland's point about the ways in which students use acknowledgements to position themselves in professional networks is also reflected in our data. For example:

> I am also grateful to him for encouraging me to participate in the (conference) student paper contest which was held during the (conference, location and time). I was awarded the first place winner for presenting part of this research during the competition. […] My deep appreciation goes to (names) from (company) for their technical contribution in publishing a joint journal paper. (Male STEM 34)

However, these textual moves to make known one's achievements and collaborations are rare in our sample. Much more prevalent are representations of the PhD process as a journey, albeit one with challenges. The PhD is described, for instance, as: 'hard adventure', 'path of my life', 'leisurely but costly trip', 'educational endeavour', 'this long process', 'a long passage of learning', and 'plodding ahead taking one bite at a time of the huge elephant in front of me'. Moreover, authors frequently share in acknowledgements the struggles and challenges that have been overcome throughout the PhD process:

> For the last six years, my doctoral work has all but consumed most of my spare time. My thesis has travelled with me in the car each day to and from work. It has dominated my weekends and been with me almost every waking moment. It has been my constant companion. Yet, despite the downside, the past six years have also been rewarding and enriching. (Male HASS 4)

In this respect, rather than positioning themselves as competent researchers in relation to more senior researchers, their competence is being established through an acknowledged ability to survive the PhD.

More importantly, successful journeys were themselves constructed as collaborative efforts, again not always with other researchers or academics but with peers, friends and family.

Many people have shared their time with me generously and have contributed in various ways my PhD studies:

> I owe you all my sincere thanks. Numerous others have quietly championed me from afar, and although not specifically named, each played an important role in my journey. (Female STEM 25)

> The reproductive science laboratory was a pleasure to work in mainly due to the friendly and supportive environment provided by the research assistants without whom I would have been lost several times. (Female STEM 8)

> I would also like to thank the fellow students I have met throughout my candidature who in many instances have become friends who were always ready with an understanding ear or analytic eye to help through the trials and tribulations of being a doctoral candidate. From confirmation to reading over passages from articles and thesis chapters every bit of assistance has got me to where I am today. (Female STEM 22)

At the stage of writing dissertation acknowledgements, authors present themselves as very aware and appreciative of the involvement of different individuals in the process. As such authors of acknowledgements assume a social researcher identity, a product of collective endeavour. This is aptly expressed by the following comments:

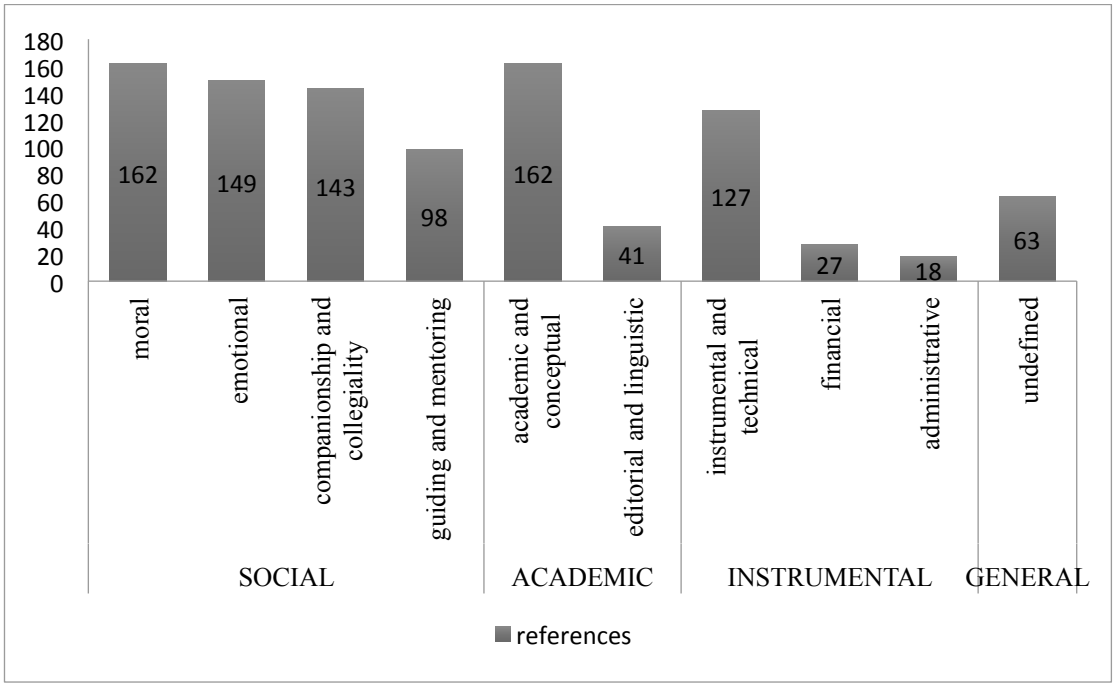
> Nothing of any great worth is accomplished in isolation or alone, and so it is with the utmost sincerity, humility and modesty that I wish to thank the many people who have seen me through this journey. (Female STEM 15)

> To complete a PhD takes more than intellectual curiosity, persistence and resilience. The support of strong academic colleagues and personal connections is equally important. (Female STEM 71)

In the following section we delve into the character and purpose of these social connections in more detail.

Constructing the PhD as a social and collective process

A total of 990 references to support were analysed in 79 thesis acknowledgements. Together, they portray the PhD as a collective journey heavily reliant on others. Figure 5 provides an overview of what is acknowledged in terms of the categories developed in Table 7. We find the most frequently referenced types of support are *moral* (162)*, academic and conceptual* (162), *emotional* (149), as well as *companionship and collegiality* (143), in order of reference frequency. Three of these define SOCIAL support as the most valued support category. This is unsurprising given that acknowledgements are an opportunity to thank people who are indirectly involved in supporting the PhD. In regards to who is providing overall support (Figure 6) we find people related and non-related to the research environment are equally important on the road to PhD success. Most mentioned groups of supportive individuals are *colleagues* (183), *families* (112), particularly partners and parents, followed by *supervisors* (91). We take each of the forms of support —INSTRUMENTAL, ACADEMIC and SOCIAL — in turn in the following discussion.



*Source: analysis of sample of acknowledgements from *Trove*'s public database

Figure 5. Overview of references to any support type grouped by categories.

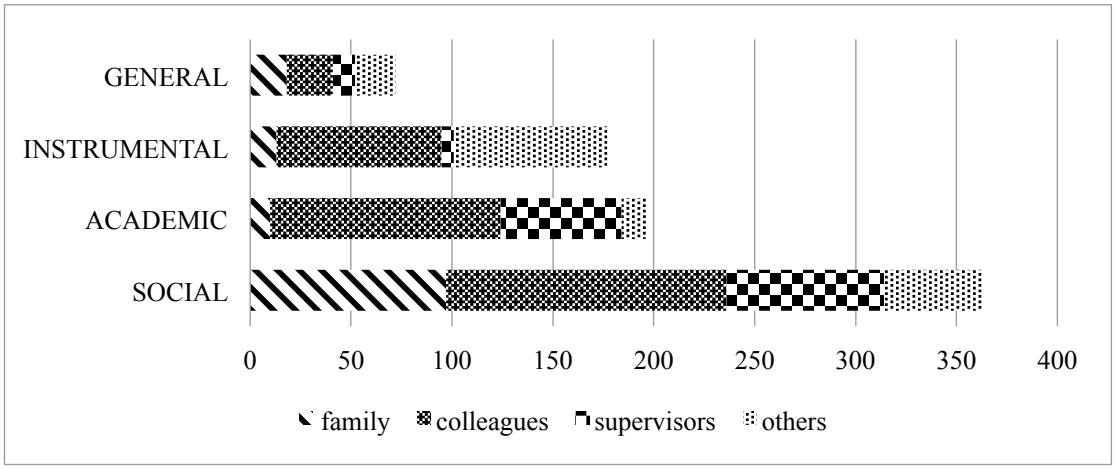


Figure 6. All support coded by main support providers (in references).

Instrumental support

INSTRUMENTAL support, which includes *instrumental and technical* (127), *financial* (27) and *administrative* (18) support, is the least frequently featured category of support in our sample. *Administrative* support was often mentioned in relation to the procedures of candidature. Research participants were frequently thanked, as were funding bodies and institutions, which fall into *others* category (Figure 6). However, colleagues are equally

involved. Interestingly, we can also see an emotional tone to acknowledgements of technical assistance:

> Thanks to (name) and (institution) for sharing their lab and equipment with me, and being so friendly and welcoming. Special thanks to (name) for helping me out so much with the instrument, for many, many useful discussions about (topic), and generally helping me get through all the sample analysis and PhD-related stress. (Female STEM 72)

Hence, providing instrumental and technical support can also be perceived as academic and emotional support, where such support is crucial to PhD progress or success.

Academic support

ACADEMIC support (comprised of *academic and conceptual* and *editorial and linguistic* support types) ranks second after social support, and is identified as crucial in the doctoral research experience. More than half of *academic and conceptual* advice is given by *colleagues* (102), while perhaps surprisingly, only about one third of references here is associated with *supervisors* (56). For example:

> I would also like to thank my friends and colleagues in both (departments) for their insights, counsel, and feedback as I progressed through the sometimes wrenching stages of examination and discovery demanded by this project's difficult subject matter: (list of colleagues). Without these individuals acting as sounding boards and confidantes, the findings in this thesis and their informed discussion would have suffered tremendously. (Male HASS 66)

> Aside from the support I have received at (institution), I owe great thanks and gratitude to my friends and colleagues at (institution) for their contributions over the years: (names). Special thanks goes to (names) for providing hours of editing, reviewing, and insight. (Male HASS 26)

In this respect the importance accorded to colleagues in these acknowledgements confirms scholarship that recognised the role of wider networks such as peers and department colleagues in the PhD process (e.g. Boud & Lee, 2005). The importance of peers is also reflected in acknowledgements of other forms of academic support. One fifth of all ACADEMIC support is associated with *editorial and linguistic* support (41), half of which is provided by *colleagues*, followed by *supervisors*. Especially in the last stages of the PhD this help is often crucial. Apart from supervisors many other individuals involved in the PhD or disciplinary research environment provide valuable learning opportunities where PhD students acquire relevant knowledge and expertise and develop as researchers:

> Included within the body of colleagues that have supported my growth as teacher– researcher are the many members of (institution) research community. Although the group disbanded many years ago, my connectivity with them remains an essential component of my ongoing development as critical educator. Of these, I would single out (names) as supportive colleagues and close friends. Since the inception of (institution), each has given me evocative, insightful critiques of my work as writer, researcher, and teacher. Their insights served to catalyse many transformative moments in my work as educator and during the writing of this thesis. (Male HASS 17)

Social support

SOCIAL support covers 60 percent of all support mentioned in acknowledgements. The most acknowledged types of social support are *emotional* and *moral*. Most references are made to *moral* support and most acknowledgements value both *moral* and *emotional* support (see Figures 5 and 7), hence, emphasising the emotional nature and value of acknowledgements. Examples of moral support are, for instance:

> I cannot fail to mention my fellow PhD and Honours students whose support, positive outlook and ability to listen have been invaluable and kept me going for the last five years. (Female STEM 8)

> I acknowledge my two girls, (names), who are my greatest achievement, and remain my greatest inspiration. I thank them for the motivation they continue to provide to me daily. (Female HASS 11)

What is significant of social support is who is providing it. We focus on the three most frequently mentioned groups of individuals. It is notable that most *emotional* and *moral* support is carried primarily by *families* and secondarily by *colleagues*. *Companionship and collegiality* are mostly offered by *colleagues*, and *guiding and mentoring* mainly occurs through *supervisors.* Figure 7 shows the exact breakdown. As expected about 40% of all *emotional* support is attributed to *families*, mainly partners. Examples such as this are not rare in our sample:

> Finally, to the beautiful (name), where were you for the first two years? While this process was meant to get harder and more frustrating as it came to an end, you managed to make it much more enjoyable. I wouldn't have made it to where I am without your love and kindness. I love you very much. (Male STEM 24)

Another example of moral support includes:

> I am indebted to my Mother (name) who has continued to support and encourage me through this journey of discovery. Your belief in me, your encouragement when the times got tough, and your assistance through this process gave me the strength to succeed. Thank you for everything. (Female HASS 11)

Whereas *families* are said to provide love and understanding, *colleagues* provide counsel, a listening ear and humour, while *supervisors* are also thanked for showing patience

and understanding. Support provision by the main individuals is similar across *moral* and *emotional* support.

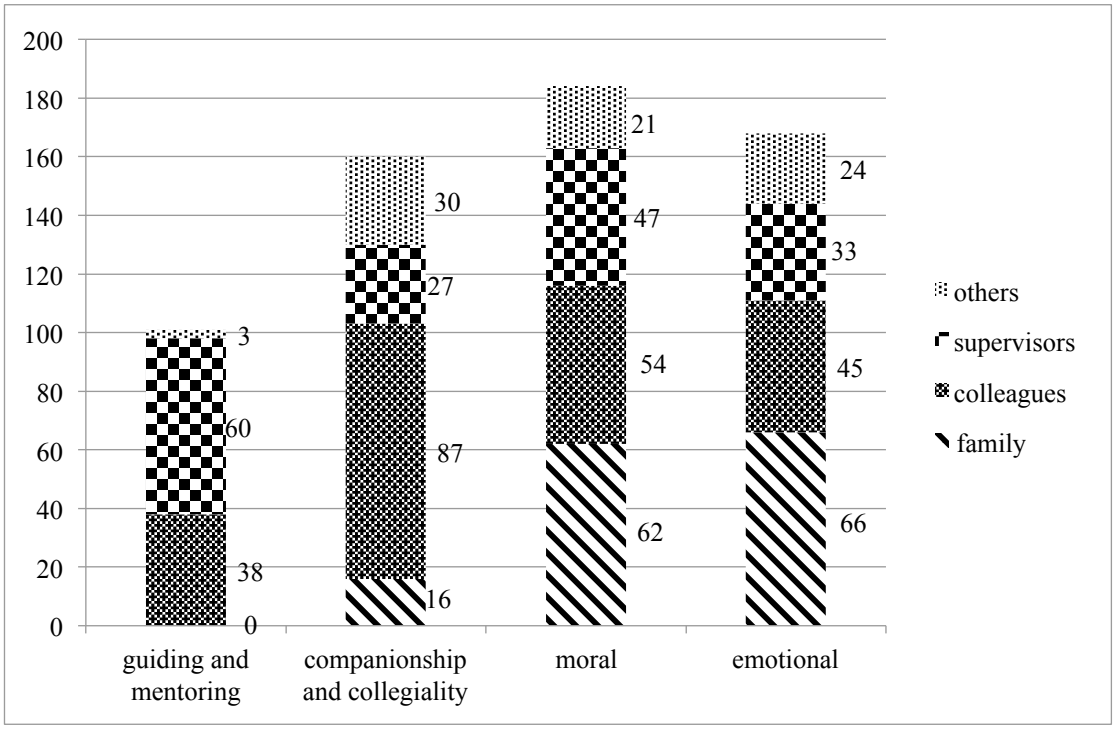


Figure 7. Main providers of different types of SOCIAL support (in references).

About 60% of *guiding and mentoring* is offered by *supervisors* highlighting the value of the supervisor's advice and guidance throughout the process:

> First and foremost, I want to extend my gratitude to my inspiring teacher and mentor (name). I want to thank (name) for giving me the encouragement to embark on this research, for giving unfailing support and guidance, for her patience and trust, and for creating the intellectual space for me to explore the issues I deal with in this study. (Male HASS 5)

> I gratefully acknowledge the support of (names of supervisors). You have been generous and inspirational mentors, continually steering me in the right direction, and asking all the right questions to provoke thoughts. Your solid advice and guidance through this challenging passage of my life has been invaluable. (Female, HASS 11)

Guiding and mentoring is the only one of all four categories we defined as SOCIAL support that is mostly carried by *supervisors*, as evident in the following examples:

> I would like to thank my supervisor (name) for the trust, assistance, motivation and inspiration he has provided me over the last 5 years. While your approach to make students think for themselves is sometimes frustrating to say the least, reflecting on this experience, I think I learnt so much by having to think on my feet. Thank you for guiding me through this process. (Male STEM 24)

> I am grateful to my Supervisor (name) for mentoring the researcher in me, persisting where I slacked, loaning books, creating learning moments for imparting invaluable teaching points, and insisting on academic reading, scholarly writing and professional presentation. (Female STEM 9)

However, *colleagues,* typically those who were co-located with the PhD graduates or were members of groups and networks that PhD graduates were part of, strongly complement the supervisory mentorship. This is very apparent in *companionship and collegiality* where more than half of all references were associated with *colleagues*. See the examples below:

> To me, the greatest gain from the (name of program), apart from the degree and the knowledge it brings, is the friendship with my 33 colleagues in (group). Early in the program, we realised that cooperative interaction rather than competition was the key to our success. As a result, we started to learn, work and socialise together. In [date] and up to now, we often gathered together in happy hours, outings, boat trips, lunches, dinners and other occasions. (Male HASS 38)

> In [date], two co-teachers (names) became part of my classroom community. Their presence provided me the resources that helped initiate my enculturation as a member of the (institution) small learning community. (Male STEM 16)

> I am especially in debt to (name), who has shown me many wonders of the universe, science, the science of meaning, the meaning of life and the life of Brian, and kept me sane, almost. (Female HASS 17)

In summary, people associated within the PhD environment and research work carry the bulk of support across all categories (Figure 7), and feature most frequently in social support. One third of all social support references are, however, associated with supervisors due to their role in providing guidance, direction and being a constant companion students rely and depend on throughout the process. Family members, as expected, are significant social support providers, as they build the emotional and moral backbone in the PhD student's life. In conclusion, this data analysis shows that not only families supply most of the social support in the PhD as often assumed. The social support network of PhD students includes a vast range of individuals who PhD students encounter throughout their PhD to seek advice or connection. This super support network may include supervisors, colleagues, PhD fellows, and any academic and professional staff at the institution of study or work and beyond.

Discussion and conclusion

Our data analysis reveals the range of support types and providers of support that PhD students acknowledge in helping them succeed. The research findings identify social support as the main support category valued by students followed by academic and instrumental support. Social support is defined as emotional, moral, collegiality and guidance support. Given that acknowledgements are sometimes the only space in which the 'behind the scenes' of the PhD are publicly aired, it is perhaps not surprising that the emotional and social registers of the PhD are most prevalent in acknowledgements. Moreover, in doctoral thesis acknowledgements social support is valued more highly than academic and instrumental support. In this respect our findings differ from extant research on acknowledgements. While paying duty and representing or performing an academic self, as identified by Hyland (2010,

2004), were evident in this sample, equally important were paying duty to both non-academic others (e.g. family) and academic colleagues conventionally silent in discussions of the PhD — colleagues and peers. This latter group was especially important in inspiring, motivating and emotionally supporting the PhD candidate. In these acknowledgements we speculate that a relational academic identity is being performed (as also noted by Hyland, 2010, 2004) but displaying more emphasis on relations and networks with families, friends and colleagues.

A second significant finding of this research is confirmation of what has long been accepted and encouraged, but little demonstrated: that the PhD thesis is a collaborative enterprise. Supervisors are important but do not act alone. Academic and professional colleagues and PhD fellows home and overseas, form a significant force leading the student to completion. However, it is perhaps not surprising to find supervisory help sometimes dominated by family support due to the 'emotional labour' of the PhD (Aitchison & Mowbray, 2013). Drawing upon family support loosens the boundaries between the formal and professional PhD world and personal life. Many different people related to the PhD work seem to cover the middle ground of support between the emotional support that only family can provide and the supervisory academic and conceptual guidance through knowledge and expertise. Colleagues, for instance, become critical in PhD success as they often assume peer-like status. However, we suggest viewing the three main support providers and many other individuals who were not specified in the data as working together towards the main goal, namely raising a researcher, rather than competing for the student's appreciation and acknowledgement. If PhD is compared to a survival course then the sum of social relationships and networks identified in our study weaves a safety net that helps the PhD student persevere and progress through 'this challenging passage of life' (Female, HASS 11). This super network, which many individuals may not realise they are part of, motivates and inspires the student and hence, builds resilience to common PhD challenges. As such, we view family, colleagues, PhD fellows and supervisors as a support triangle, and hereby redefine Costas and Leeuwen's (2012, p. 1647) notion of the 'reward triangle', that is likely

to lead to success provided every side pulls its weight. Hence, PhD supervision is not only carried by supervisors but is complemented by many other academic and professional individuals. One of the practical implications of the study is that it emphasises the importance of structures and provisions beyond the supervisory dyad. Support structures should acknowledge the role of others, especially peers and colleagues. We also hope to raise students' awareness about the importance of social networks and relationships in a positive PhD experience to prevent isolation and loneliness.

Acknowledgements

The research reported in this manuscript has been funded through the Macquarie University Research Excellence Scholarship and the Learning and Teaching Centre, Macquarie University. Thanks are also due to colleagues Dr Claire Aitchison and Dr Olga Kozar for their valuable comments and feedback on the early drafts and to the staff of the National Library of Australia for assisting with preliminary queries on the Trove database.

4.3 The role of social support for doctoral belonging and becoming

The paper presented here is currently under review, titled *The role of social support for doctoral belonging and becoming*. The paper asks: What is social support in the PhD? How and why is it important? Based on eight focus groups with 34 PhD students and 30 individual interviews it illustrates the meaning and importance of social support in the doctoral candidates' identity development. Social support is defined by candidates as social relationships and networks in and outside academia that help candidates feel accepted and part of a collective or community, i.e. belonging vs feeling 'different'. A sense of belonging in this paper is conceptualised as an outcome of social interactions and collaborative practices in everyday PhD life. The experience of belonging is viewed as a critical component of co-constructed social identities that are formed and developed in relation to others. The paper finds social interactions and institutional support can be counterproductive if distributed unequally, disregarding students' diverse circumstances and needs. More importantly it positions social support as critical to researcher identity development. This paper extends the thesis argument by highlighting the importance of belonging in becoming a researcher.

This paper was the first in conception but the last one to be written as a coherent story. My Dropbox *'Focus Group paper'* file showed several drafts in folders titled 2013, 2014, 2015 and 2016. Each draft was beyond an acceptable paper length and word count, my ideas were all over the shop, my discussion of the findings too descriptive. I struggled identifying which story I needed to focus on and connecting it to the big picture. Looking backwards, I realise I expected too much too early. I needed to mature as a researcher to see the key message and know how to package it as a paper. To mature as a researcher meant to gain a better understanding of the overall issues in my area of research, the doctoral experience and doctoral education, I needed to read and learn more. I also needed to develop as an academic writer for publication and understand how much I could tell in one paper, how and why. The story presented here is different from the story I wrote in 2013. While the initial drafts focused too

much on what social support is and what it meant to students, the final version reaches beyond the simplistic positivist interpretation and questions the role of social practices in students' identity development.

Publication 2:

The role of social support for doctoral belonging and becoming

Lilia Mantai

Abstract

This paper investigates the role of social support in the PhD. Social support benefits students' physical and emotional well-being and PhD progress. Despite universities' efforts to provide a collegial PhD experience, candidates report isolation and loneliness in doctoral education. Students' perspectives on social support during PhD study are largely missing from the literature. This paper confirms social support in the PhD extends beyond the institutional higher degree research environment, includes outside support by family, friends as well as online communities. This paper is based on focus groups and one-on-one interviews with 64 PhD candidates from two Australian metropolitan universities. Firstly, it provides a deeper understanding of what social support is in the PhD and its significance from the student perspective. Secondly, it shows how social support assists in students' researcher identity development and students' sense of belonging and community. Thirdly, it relates social support to student diversity and reveals social support is best understood through the conflicts and tensions students highlight in their PhD experience. The paper argues support afforded by candidates' personal, social and professional relationships is critical in doctoral candidates' identity development.

Keywords: social support, relationships, PhD, doctoral experience, researcher development, student diversity, belonging

Introduction

Two assumptions underpin this paper. Firstly, the purpose of a PhD has shifted from apprenticing candidates for academic professions to developing confident and independent researchers (Neumann & Tan, 2011). Secondly, the PhD is an emotionally and intellectually

challenging journey and relies on a variety of people and support (Malfroy & Yates, 2003), commonly referred to as 'social support'. National surveys, such as the annual PREQ (Postgraduate Research Experience Questionnaire) (CGA, 2010) and the NRSS (National Research Student Survey) (Edwards et al., 2011), consistently highlight the significance of collegiality, belonging and community but show relatively low scores of student satisfaction in these categories.

This paper contributes a nuanced understanding of what social support means in the candidates' development as researchers (becoming) (Mantai, 2015; McAlpine et al., 2009). Social support includes available supportive relationships and networks in and outside the PhD research environment that help students feel accepted as part of a community (belonging) as opposed to being 'other' or feeling 'out of place' (Read et al., 2003). This paper conceptualises 'belonging' as a consequence of social and collaborative practices and co-constructed identities (Ennals et al., 2016). The paper argues such support provides candidates with a sense of competence and confidence as emerging researchers and professionals more broadly, including diverse academic and non-academic identities. It argues support afforded by candidates' personal, social and professional relationships is critical in doctoral candidates' identity development.

Social support in the PhD

The PhD is frequently portrayed as an individualistic, lonely and isolating journey. Doctoral education literature is filled with accounts of isolation and loneliness (Ali et al., 2006; Carpenter, 2012; Coates & Edwards, 2009). Yet, literature on doctoral education points to various institutional support on offer in doctoral programs, e.g. research skill workshops (especially writing support), supervision, peer groups, or research seminars. These presumably aim to not only develop researcher skills but also enhance candidates' sense of community and belonging by bringing together novice and senior researchers and other university staff, academic and professional. Social relations and networks within and outside

academia have been shown to aid doctoral perseverance, combat isolation, and improve the PhD experience (Jairam and Kahl Jr., 2012; Lahenius and Martinsuo, 2011; Lovitts, 2001; Sweitzer, 2009).

A variety of people are stated to be supporting candidates. Despite the contested primacy of supervisors in the PhD (Boud & Lee, 2005; Buissink-Smith, Hart, & van der Meer, 2013) and potential conflicts involved in supervision (Green, 2005), supervisors provide significant PhD support (Mantai & Dowling, 2015). Peers, in particular, complement supervisory relationships and can strengthen students' sense of belonging and 'a safe haven to test ideas and thinking' (Devenish et al., 2009, p. 62). Peer groups help develop learning skills, while also acting as places for encouragement and mutual empowerment (Ryan, 2011; Yates, 2007; Boud & Lee, 2005; Conrad, 2003). To assist in the socialisation of doctoral students into researchers, literature in this area calls for inclusive academic and research cultures (Pearson & Brew, 2002; Weidman & Stein, 2003). Ideally, Gardner (2008) claims, PhD students should feel part of a collegial and collaborative research community as a starting point for any career they may pursue. Further, research points to students actively seeking and creating their own support (Hopwood, 2010a; McAlpine & Amundsen, 2009), on and off campus, face-to-face and increasingly online (Bennett & Folley, 2014; Mewburn & Thomson, 2013). Candidates also seek their own ways of becoming part of the academic research community (Hopwood & Stocks, 2008; Devenish et al., 2009; Hopwood, 2010; McAlpine & Amundsen, 2009), however, their agency is sometimes confined within institutional and cultural boundaries.

Despite the common recognition that PhD candidates rely on social support to succeed, the role of support received by fellow students and various others is not sufficiently recognised within the formal university discourse (Devenish et al., 2009), categorising it as an informal and possibly invisible PhD practice. This paper aims to examine what role social support plays in the PhD.

Method

This qualitative study is exploratory in nature. It follows the principle of letting empirical data tell the story rather than testing pre-formulated hypotheses (Babbie, 2015). Focus groups and one-on-one interviews were conducted with 64 doctoral students from two Australian metropolitan research-intensive universities to elicit PhD students' support needs and experiences as well as their researcher development. Participants were a diverse mix of students (see Table 10). The sample is not purposive or representative of Australia's student cohort. All were at different stages of their PhD and enrolled in a Doctor of Philosophy degree, either doing a traditional thesis or thesis by publication. One third of participants, all in their twenties, transitioned directly from Honours or Master studies into the PhD, the rest reported having had between one to 20+ years of professional and/or academic work experience before entering the PhD program. While the first two categories were self-selected in the sign-up form, the latter (Humanities or Sciences) was determined by the researcher based on the department students indicated and following the traditional definition of HASS and STEM disciplines: HASS (Humanities, Arts and Social Sciences) and STEM (Science, Technology, Engineering and Mathematics). All names are pseudonyms.

Table 10. Participant characteristics.

N=64	Enrollment status	Mode of study	Discipline	Gender	Age group
	43 domestic	53 full-time	42 HASS	45 female	36 in 20+
	21 international	11 part-time	22 STEM	19 male	16 in 30+ 12 in 40+

Focus groups

An ice-breaker activity opened each focus group by asking students to comment on four researcher-selected PhD comics ('*6/23/2007 Facebook', '10/28/1997 Calling Mum', '5/21/2004 Social',* and *'10/8/2002 You HAVE started writing'*, from phdcomics.com[4]) in order to stimulate participants' thinking about social experiences in their PhDs. This initiated

[4] see Appendix C for more details

a 20-30 minute open conversation and exchange of experiences. An interactive post-it activity followed where participants were asked to note what social support they used, valued and needed in their PhDs on individual coloured post-its and roughly sort them in institutional 'inside', personal and non-PhD related 'outside', and 'online' support categories.

Figure 8. Examples of post-it activity.

The three categories elicited a broader scope by stimulating students to consider various sources and locations of support beyond their department or university. Finally, a 15–20 minute open discussion followed on how their social support benefited them in the PhD process. Prompting was used to draw out definition and understanding of social support, its function and importance, and to ask for concrete examples.

Interviews

One-on-one and face-to-face open interviews were conducted with 30 participants, of 40–60 minutes on average, that focused on support experiences and their perceived development as researchers.

The digital recordings of all group conversations and interviews were transcribed by a professional transcription service. All transcripts were checked and proofread upon receipt and imported into NVivo 10 for coding. The data analysis employed a constant comparative approach, a process integral to constructivist grounded theory methodology which allows

grouping of similar ideas and themes in an iterative manner (Charmaz, 2014; Thorne, 2000). More specifically, data analysis followed the six-phase thematic analysis approach (Braun and Clarke 2006). The phases are 1. familiarising yourself with your data; 2. generating initial codes; 3. searching for themes; 4. reviewing themes; 5. defining and naming themes; 6. producing the report. Coding for themes in phases 2–6 was facilitated in NVivo. Some themes were predetermined by the questions asked, e.g. definition and function of social support, importance of social support, specific examples. Others emerged in re-reading and comparing across transcripts, e.g. tensions and conflicts, researcher identity development, student diversity.

Findings and discussion

Social support in the PhD

For research participants, social support is generally associated with positive and helpful experiences, and concerns the student as a whole person and ranges from technical to emotional support. Participants used phrases such as 'source of sanity', 'human interaction', 'a warm environment', or 'a sense of community'. Social support emerges as something that makes candidates feel seen and heard, accepted, part of a group or network, and recognised as professionals and researchers in development. Ben (a young STEM student) explains: 'It's more personal, it's more focused on feeling included, welcome, reassured, valued'. Lyn (a young HASS student) stresses the nurturing aspect of social support and adds the reciprocity effect, describing social support as a framework for her professional development.

> The word 'support' itself means feeling nurtured [...] giving you not only guidance and backing, but also showing you what is to come, what to expect. And just having the people around you that care for you as well that you can lean on and they can lean on you. I see it as a give and a take. I have to show support to the people if I want them to give it back to me. I see it as a framework and a network in order to help me grow and belong and just be a researcher.

Stories of social support communicate a sense of togetherness, membership and community. Anne (international STEM student) says: 'it [social support] helped me to grow along as a researcher, so it's very important.'

Support challenges

Questions about social support prompted stories where support was missing or unhelpful. Responses revealed conflicts and tensions experienced by students that provide a deeper understanding of social support in the PhD, presented in five sub-themes below.

First, *social support can be perceived as distracting and disruptive.* However, research shows peer groups, too, can be a source of conflict (Boud & Lee, 2005), despite the accepted belief that peer learning communities provide academic, social and emotional support. Critical voices highlight issues that can arise in peer groups such as intimidation, anxiety, not fitting in, intolerant behavior, competition, and peer pressure (Cumming, 2008; Conrad, 2007; Yates, 2007; Boud & Lee, 2005). To research participants social support is only helpful when required, appropriate and provided in a friendly and timely manner.

> I have that social support outside that can either distract me from it [PhD] or I can just rant about something, and even if they don't really understand I still get a sense that they're on my side. (Lyn, HASS)

Second, *peer groups can increase negativity*. Whingeing[5] with other PhD students to vent and talk off frustration and worries can be cleansing and cathartic, as students claim. Venting can indeed provide relief, help reframe difficult situations, and create a sense of 'we are in this together' (Mewburn, 2011). As Maya, a HASS student in her twenties, states: 'Social support… sometimes it's just venting. Sometimes you just sort of talk. It means not feeling like you're the only one going through it. It's also knowing that you have people to turn to and who care.' If, however, whingeing turns to continuous and repetitive co-

[5] informal term meaning 'to complain persistently'

rumination, participants say it can manifest negativity and prevailing discontentment (Mewburn, 2011).

> If we are both in a bad place we just bitch to one another and it creates this really negative atmosphere of how much we hate PhD's and it's really hard to get motivated. (Nita, HASS, 20+)

> I treat my days in actually as social days and I just come in with a view of, 'I'm going to go and see this person, I'm going to catch up with that person, have a bitch to her'. I treat my days on campus as social days. (Yvonne, full-time HASS student, 40+)

Third, *to become an independent researcher means knowing when to ask for support*. Gaining confidence as a researcher takes time and experience (Jazvac-Martek, 2009) and requires acceptance of one's reliance on others' help, academic advice and guidance, for instance. Related comments reflect feelings of imposter syndrome, a phenomenon often experienced in any new learning setting (Clance & Imes, 1978; Gardner & Holley, 2011). According to participants, feeling needy in day-to-day PhD life is common but can be demoralising to their self-esteem and threaten one's confidence as a doctoral student or a researcher. 'You're always trying to put up the best version of yourself' says Julie, a young HASS student. Other students comment:

> I've had days where I was so afraid to talk to anyone, I have that depression and anxiety. Just talking to her for five minutes made such a giant difference. Talking to people is so important and none of us do it very much. We're all very focused on looking like we know what we're doing and trying to get it right and worrying that other people are doing better. (Chin, a young international STEM student)

> I feel like there's this image that I must maintain with my supervisor. Originally, she thought I was good enough to get into the PhD, so I want to maintain that image, and not come across as being an idiot. (Ines, domestic, HASS)

Fourth, *institutional support may replace but ideally complements personal support.* While equal support opportunities are generally available to all students on campus, students' personal needs and consequent use of institutional support differ significantly. Institutional support includes student skill support, well-being service, financial support, and opportunities to meet and connect with others in e.g. workshops and seminars or supervision (Mantai & Dowling, 2015). Students who have very little support from outside (i.e. family and friends) claim to rely more on inside institutional support than students who have a large supportive network outside. On the other hand, students point out that they rely on support from different areas; inside and outside support complement and supplement each other and ideally are aligned. As a young international HASS student, Ella, says: 'I have this university life and this outside university life. So, everything goes into it [the PhD].'

Fifth, *participation in wider research culture is sometimes prohibited by time and access issues*. Some participants wish to be seen as members of the departmental staff and be involved in teaching, representative bodies, or departmental committees, for instance. Most participants express awareness that being part of the general research culture is necessary, as it creates networking opportunities, benefits career development and future research collaborations. Jane, a mature full-time HASS student, says: 'I miss out on networking opportunities. I'd love to be doing extra stuff and being more active in connecting with peers and stuff but I can't. I just don't have the time. I might have to go part time.' Most students state time is an issue and weigh up the benefits they get for investing time in non-PhD activities. For part-time candidates or those with considerable caring responsibilities, the problems are further aggravated, increasing their sense of exclusion and isolation (Neumann & Rodwell, 2009). Further, students' wider engagement is not always encouraged, easily accessible or available:

> If it comes to the attention of their supervisor that they're spending time on things outside of their projects, it's a definite black mark, a lot of supervisors really don't want to see you doing much except for just focusing on the work [PhD]. (Ben, a young STEM student)

Students complain about time and energy wasted on paperwork, bureaucracy, politics, and permission seeking (i.e. to participate in groups or activities). In relation to time, Ida (an international STEM student in her thirties) comments: 'One thing I really don't like about the system here is that there is no time to fail at all, and I really feel like failing is a huge part of everything that you do.' She deeply resents having little time available to explore and experiment with research methods, tools, etc. and more importantly to connect with people personally, socially and professionally, to gain academic and professional skills and work experience.

> I'm mostly involved because it's all networking, too, and collaboration. When you're done, I feel like you so rarely get a job that you just randomly go after - it's all about the people you know. If you really want a position, you can gear yourself up for it. I'm working on getting a position - I'm two years out but figuring out that path to get to be there and getting to know the people and getting the skills that I'll need for that position, and so it's a lot of forward thinking. But the more people you can be involved with along the way, the better you'll end up when you're done. (Ida)

These quotes strongly echo critiques of increasing time pressures, a cost-benefit approach to work, and an individualistic culture in the academy that favours productivity above all (Müller, 2014; Trevitt & Perera, 2009) as well as mainstream conceptions of research success and productivity (Archer, 2008).

Counteracting the individualist culture imposed by neoliberal structures (Müller, 2014), candidates view connection with others in and outside academia as not only support for

oneself, but as an obligation as a researcher whose mission is to contribute to society. An international HASS student in her twenties, Aisha, comments:

> I think that it's obvious that being a PhD student is isolating because you need lots of time by yourself. But I think building a career as a researcher doesn't mean that you only have to be alone all your time, because how can you produce or do something for a society if you're not integrated in society and you're just in your small office?

This comment highlights that students see their participation and membership in the wider research community as necessary to not only prevent isolation but to instigate social change. Students display great agency in seeking to connect and build meaningful relationships with fellow students, researchers and people beyond academia to promote a sense of connection and contribution to a collaborative research culture. Ida states:

> I've actually put together a social Friday afternoon - we have drinks and it's just anybody who wants to come. I initiated that because I didn't know what anybody was doing.

Becoming and belonging

The conflicts reported above point to experiences of exclusion from the academic community, lack of personal and professional connectedness, as well as a mismatch between what students need and what they get. Students see the greatest value of support in being recognised and respected for the people they are and the researchers they are becoming. Social support described here seems to strengthen one's sense of professional identity as a researcher and one's place in the research community. In contrast, misconceptions of students' personal identities cause tensions and disrupt one's sense of belonging and competence. Research participants express discontentment when viewed in a 'narrow' sense, i.e. doctoral students who want to pursue an academic career, as shown in the following focus group conversation:

There's an assumption that the system has made. That everyone is doing a PhD had no prior life. I, actually, had someone say to me, 'We're teaching you how to manage a budget.' My last job, I had a budget of $7.5 million. They've just got a very narrow view. It's almost like they think that somehow we've popped from undergraduate, to masters, to post or whatever. (…) And, that we, as a cohort, who have life experience and to treat us like we don't have any idea or to, also, make the assumption that we're preparing for an academic life. (Jane, a HASS student in her forties)

That's the changing face of postgraduate. There's a grieve, there are a lot more people getting them and they're going into really diverse areas. And, there's a disconnect between what they [institutions] think we need as candidates. (Sana, a part-time HASS student in her forties)

I feel like the system works just in the processes and structures and it doesn't account for personal circumstances. Therefore, unless you can fit in that paradigm, it's just a struggle. The idea that support is offered by the system, it may be for some, but there'll be a raft of people that, no, it's not, and it works as a set of barriers as opposed to a support system. (…) Sometimes, you feel included or they're making an effort and trying to connect. But, at times, they're just being patronising and condescending and treating me like I'm an undergraduate and I'm 20 with no life experience or capable of making decisions and living with consequences. (Jane)

These quotes convey frustration with institutions not recognising students' diverse personal identities, i.e. previous experiences, and future career aspirations. The personal does not sit easily within the institutional normative system, which students describe as a

‘disconnect’ between their needs and support available. This sentiment is aggravated for part-time students. One part-time distance student wished the university would have:

> An understanding of my situation, recognition within the department or faculty, that I'm part of the university. (…) And recognition with the work (…) I don’t feel necessarily that that’s known about, I haven’t finished my PhD like I'm only in that process but that just doesn’t seem to have quite gelled within the institution. Maybe they might know who I am when I graduate. (Cal, a part-time HASS student in his forties)

Candidates think institutions still define candidates as young and inexperienced learners wanting an academic career, contrasting with the fact that an average PhD candidate is 35 years old (GCA, 2016) and likely has professional work experience at PhD entry. The quotes above suggest it is this misconception of doctoral student identities that causes students’ struggles and stress, and restricts rather than supports students.

Participants mention being involved in various activities not directly related to their PhD research, like teaching or tutoring, working on other research projects, and sitting on committees, for instance. PhD students comment on being conflicted by different roles, especially when they are employed as staff (at the same or a different institution) while being a PhD student. The student’s self-concept is influenced by multiple role identities, for instance, between feeling competent and confident in the role of an academic employee and insecure and disconnected from academic community in the PhD role (e.g. Colbeck, 2008). How others perceive and treat oneself adds to the complexity of one’s status and self-concept (Tonso, 2006). Based on the comments presented above, it also affects students' motivation and agency. Ida, for instance, stopped organising social Friday night drinks, and Ben, a young STEM student, finds it difficult to view himself as an employee if he is not perceived and treated as such by others, while Carina (a HASS student in her thirties) feels clearly excluded from feeling part of the research community because of her student status.

> Particularly as an employee while there are contract disputes going on, the employee side of me is seeing a shift and is becoming a little bit disillusioned and that's making the student side of me less enthusiastic about participating in the university as well, which affects my research. That affects my enthusiasm towards my research. It is that tension between being an employee and being staff and student at the same time. (…) Plus, I don't feel very well supported by my supervisor so I'm looking for someone who I feel better supported by. (Ben)

> Well, in some ways, I don't feel included in the department. PhD students or research students are a different group of people in the department. They don't see you as part of the team. It's very personal. Not everyone feels that. I just feel that, sometimes, they don't look and see you. In a very subtle way. I just have the sense that they are they and we are we. You're just two groups. There is a boundary. (Carina)

This suggests that candidates' professional identities, here as a future academic or researcher, are confirmed through inclusion in the academic community and alignment between how one perceives oneself and how one is perceived by others (Tonso, 2006). The quotes also show how experiences of academic practice and changes in academia affect candidates' immediate PhD experience and their future career aspirations.

The sentiment of exclusion and 'us and them' is echoed by other participants. Tensions seem to occur through an association of different rights, responsibilities and privileges associated with 'student' vs 'academic' roles, as expressed by participants. Ben describes being a PhD student as 'a bit of a weird no man's land' and comments: 'It's funny because you're expected to work like you're an employee but without the pay, and you're expected to learn like a student but without the support [of an employee and of a student].' While Ben refers to views of PhD students in academia, other students added that they find it hard to

explain to people outside academia, such as landlords, housemates and friends, that their PhD study is essentially a job, including a work routine, income (e.g. scholarship), and a workspace. Misconceptions of PhD students in academia and misunderstandings of PhD study outside academia are common experiences adding to students' stress and isolation.

Students' comments above highlight the critical role social and supportive connections play in candidates' sense of developing as a researcher.

Student diversity

The quotes above express stories of exclusion and stress caused by misunderstood personal identities of candidates. Diverse student backgrounds, experiences, skills, circumstances and personalities potentially aggravate conflicts and challenges experienced in the PhD (Winchester-Seeto et al., 2014). While the participant sample is not intended to be representative, differences were observed in female and male, part- and full-time, international and domestic, Humanities and Science students, and between mature and young students.

Each student group faces their own challenges. Young female students are cognisant of work and family balance issues that await in the future should they follow academic careers. For two female participants in this study this is a reason to build and maintain relationships with successful female academics and to preference female to male supervisors as role models. While challenges for women in academia, and especially STEM disciplines, have previously been recognised (Carter et al., 2013), the latter point is largely absent in the literature on doctoral education. Females with dependents are often disadvantaged compared to male PhD fellows as they juggle study and care commitments (e.g. Hook, 2016). However, child caring responsibilities also affect male students, like Omar (an international STEM student): 'Now as a father and husband, I don't have any free time at home, so going to the office is kind of a shelter and escape from the routine.' The challenge to keep up personal and

professional identities by utilising different physical spaces (e.g. home and campus), as a parent and researcher, is discussed in detail elsewhere (Dowling & Mantai, 2016).

Part-time students typically juggle full-time work with PhD and possibly caring responsibilities and cannot use HDR support offerings on campus during business hours. Full-time mature students with families do not take part in HDR seminars for the same reasons. Students with conflicting commitments are conscious of time constraints and engage less in social HDR activities on campus. Instead they place higher value on technical support and academic advice rather than socialising and networking with fellow students and academic community overall. Mature students also express different concerns to young students. Due to extensive work and life experience they may be expected to be more independent than young students, but can find themselves as needy of support as young students, e.g. with technical issues.

The international student experience is reported by an extensive body of literature and this research largely confirms that international students' experiences are intensified and often complicated through language, lack of a close support network, etc. (Winchester-Seeto et al., 2014). Apart from language barriers, which noticeably hinder non-English speakers' ability to form relationships and friendships with others, cultural differences add to the challenges.

> I share the office with other seven students and I have noticed that if you aren't a New Zealander or if you aren't an Australian, they just disappear — they don't socialise with internationals. You have to build your community with internationals because it seems that the nationals or the locals are not that interested. (Aisha)

International students may struggle with connecting to others, understanding new customs and social norms, and simultaneously fitting in the new culture and academia, as Esther (an international HASS student in her thirties) admits: ‘In the beginning I found it really difficult to adapt to everything at once.’ Even if language is not an issue, loss of the social support network causes adjustment difficulties.

> When I see people from my department, I never know if I should I say hi and ask them how they're doing or not, because I feel that they don't even know me. In the beginning when I came, I asked my supervisor, 'Okay, I think I'll go from door to door and introduce myself and say, Hi I'm the new PhD student.' He said we don't really do it. So I thought, 'Okay, from now on that's it then.' I won't do it. (Esther)

> At home, we're all based in a university and we're all lecturers. So, we're all working there, we're all colleagues and we don't have courses to attend or anything. So, it's not like being a grad school student, as [...] Here I feel like a student and I really like it, but at home I don't feel like a student; I feel like a teacher at university, and on the side I have to do my PhD. (Ella)

Ella is a young international HASS student and has just moved to spend a year of her PhD study in Australia. Although she enjoys the benefits of 'being a student' for the time being she experiences a loss of status, and feels 'demoted' from teacher to student level in the Australian compared to the doctoral education system in her home country. Her sense of belonging to an academic community and her sense of independence is disrupted. In fact, Kehm (2006, p. 69) claims that PhD students in Europe (e.g. in Scandinavia and The Netherlands) are mostly seen and preferred to be called 'early career researchers', and the doctoral student is regarded as an employee (as a junior staff member) of the university with duties, rights and a regular salary'. Ella's experience points to the impact one's officially assigned status has on one's internal sense of self.

While literature conveys the impression that Science students are better connected as they often work in research teams or lab groups, Inga (a young STEM student) has a different perception:

> I think that the fact that being in Humanities, you're still connected with the real world a bit more, whereas if you're just really bogged down with your worms, or

your dirt, or whatever little bugs you're looking at, or whatever, then you kind of leave that and then you're like, all I can talk about is worms. (Inga)

The quotes above show the support available does not seem to adequately address students' diverse needs and instead undermine students' sense of belonging, confidence and competence as emerging researchers.

Conclusion

Previous research found a supportive, collegial and inclusive research environment provides a positive PhD experience, which is likely to result in the student's active engagement and participation in the research culture (Wisker et al., 2007; Yates, 2007). This paper based on focus groups and interviews with 64 PhD candidates from two Australian metropolitan universities shows candidates feel excluded and treated differently from other researchers, which disrupts their sense of belonging. Further, social support, defined as social relationships, collaborative practices and integration on academic or professional networks, empowers the student and helps evoke a sense of becoming a researcher and being recognised as one (Mantai, 2015). The paper argues such support is central to identity development as not only researchers but professionals, in general. This paper presents experiences of PhD candidates who feel their diverse identities do not neatly fit in universities' norms, hence, they are inadequately recognised and their needs inadequately supported. This results in feeling unsupported and disconnected, prohibiting a sense of belonging and researcher becoming, which is likely to result in lesser investment in PhD study and researcher careers (Weidman & Stein, 2003). While this study does not claim to be representative of the cohort it does point to difficulties candidates experience in developing a sense of 'being a researcher' and being accepted as a researcher. These difficulties are intensified with increasing diversity of candidates (e.g. female mature students, international single parent students). As Australia's doctoral cohort is becoming more and more diversified, future research could focus on the

issues that students of particular demographic experience and how to best support them if Australia continues to encourage doctoral future enrolments (Universities Australia, 2013).

Acknowledgement

I thank Macquarie University for the support that allows me to undertake this research. My Principal Supervisor Dr Agnes Bosanquet deserves special thanks in providing guidance and continuous feedback for this paper. I thank my Writing Group friends Jacqueline Mackaway and Natalie Spence for their valuable comments on the final draft. Finally, I thank all my participants for sharing their stories and wish them a successful journey to becoming researchers.

4.4 Feeling like a researcher: experiences of early doctoral students in Australia

This section presents a published paper by Mantai (2015): *Feeling like a researcher: experiences of early doctoral students in Australia* in *Studies in Higher Education*, seeking to identify what events and practices doctoral students identify as moments when they feel like researchers. In initial narrative interviews with 30 PhD students such instances are underpinned by external and internal validation of the student as a researcher. Validation is gained through research outputs (mainly publications), doing research, and talking about research. Internal validation depends on external and formal recognition by peers and senior members of the academic community. This paper contributes to the thesis by identifying the numerous and often informal and casual moments, events and activities that promote development of researcher identities by instilling an emotional experience, namely feeling what being a researcher must feel like in candidates' perceptions. This paper illustrates how external perceptions and recognition of candidates as some kind (novice researcher, a PhD student, etc.) of person and activities they engage in everyday PhD life translates to internalised self-concepts as researchers, students, or somewhere in-between.

This is the first paper I wrote and submitted. This first paper felt important to me both in content and my growing sense of being a researcher. In content, because it set the tone for the whole PhD. I was faced with questions about my methodology, theoretical framework, research questions, and importantly my assumptions. This is when I started asking myself all the hard questions: '*What do I want to find out, what is the problem, and what kind of researcher am I?'* It took me over 30 drafts to get it submission-ready. It was physical and emotional labour, and an act of persistence and evidence to myself, that I was cut out to do a PhD. My reflections on this paper while it was in the making filled many diary pages with ideas, reading notes, brainstorming, mind maps.

I recently received an opportunity to write a post on this paper for the newly introduced Taylor & Francis blog. The following blog post neatly sums up what 'my first PhD baby' is about.

Research stories: the struggle to recognise yourself as a 'researcher'[6]

'Inadequate, isolated, and intellectually disorientated: just some of the feelings described by doctoral candidates in a recent study of their journey from student to early career researcher.

In this research story, the study's author, Lilia Mantai, highlights key events which help PhD students begin to recognize themselves as 'researchers', and how important it is to have their identity validated.

Why do students struggle to call themselves "researchers"?

Many PhD students experience feeling like an imposter or inadequate, being "stuck", disoriented, and intellectually as well as socially isolated. They may not feel like capable and independent researchers at all PhD stages and struggle to legitimately call themselves "researchers". Students are able, however, to pinpoint various events or activities in their PhD when they gain a sense of researcher identity.

At what point do students gain a sense of researcher identity?

Such experiences occur early on in the PhD, can be personal and public, but the majority is of an informal and social nature. These events and activities can be broadly categorised into research outputs (formal activities such as publishing and presenting at conferences), hands-on research activities (semi-formal such as data collection and analysis) and informal conversations (with peers, colleagues etc.) about research. In this study, candidates highlight that their internal sense of feeling like a researcher and external recognition from others are instrumental in promoting their researcher identity.

[6] Published on 3rd November 2016: http://authorservices.taylorandfrancis.com/research-stories-the-struggle-to-recognize-yourself-as-a-researcher/

Why is validation important?

Receiving constructive feedback and recognition for one's work from others is critical to candidates' beliefs in their capabilities and validation of their researcher identities. Feeling validated means to be seen as knowledgeable and capable of doing (good) research. Students' internal validation is highly influenced by recognition from others, who are often superior or more knowledgeable members of the wider academic community.

What can be done to support students before they transition?

A growing focus on publishing and the increasing popularity of thesis writing by publication seems to move doctoral candidates into the public (published) space early on in their researcher journeys, well before they earn the formal recognition and status as a Doctor of Philosophy. This suggests a pressing need for academic cultures that support doctoral students' engagement in diverse academic researcher practices from the beginning of a PhD, present ample opportunities to develop identities, and explicitly communicate what it means to be a researcher or academic worker. This may also help candidates understand their capabilities and assess their personal fit with academic employment before they transition to academic, researcher or non-university careers.'

Publication 3: Feeling like a researcher: experiences of early doctoral students in Australia

Lilia Mantai

Abstract

Becoming a researcher is one of the roads travelled in the emotional, social and intellectual process of PhD journeys. As such developing a researcher identity during doctoral study is a social undertaking. This paper explores instances and practices where doctoral students identify as becoming researchers. Based on interviews with 30 PhD students from two Australian metropolitan universities this paper presents students' experiences of moments when they feel like researchers. The paper finds identification as a researcher occurs early on in the PhD, and such instances are underpinned by external and internal validation of the student as a researcher. Validation is gained through *research outputs (mainly publications), doing research,* and *talking about research*. Such experiences are often mundane, occur daily and constitute personal, social, informal and formal learning opportunities for researcher development. Supervisors are largely absent as students draw on multiple individuals on and off campus in assuming a researcher identity.

Keywords: researcher identity, researcher development, doctoral education, doctoral experience, social support in PhD, becoming a researcher

Introduction

Learning to do research and to be a researcher is a critical element of doctoral education, despite PhD graduates increasingly pursuing careers outside the academy (Barnacle, 2005; Barnacle & Mewburn, 2010; Dowling et al., 2012; Green, 2005). The PhD provides the space for candidates[7] to learn what it means to do research, and learn how to perform as a researcher. The PhD is commonly recognised as an intense process that offers a

[7] Doctoral 'students' and 'candidates' are used interchangeably in this paper and thesis.

profound learning experience and is likely to transform the individual (Barnacle & Mewburn, 2010). In becoming a researcher, PhD candidates need to 'negotiate new identities and reconceptualise themselves both as people and professionals' (Hall & Burns, 2009, p. 1) in addition to acquiring research skills. This paper takes up Dowling's and McKinnon's (Dowling & Mckinnon, 2014, p. in press) idea of identification rather than identity. Their concept of identification includes the possibility of framing researcher development as a fluid and gradual process, composed of discrete instances, activities and events.

Becoming a researcher does not happen in social isolation. Throughout the PhD, candidates interact with different individuals, develop their own support networks, learn with and from others, be it novice or expert researchers, people within the research environment and beyond (Hopwood, 2010b; Wisker et al., 2007). Even though literature on doctoral education voices students' isolation and loneliness (Ali, Kohun & Levy, 2007; Janta, Lugosi & Brown, 2014), it cannot be denied that the PhD, as a learning experience, is inherently social. Some research points to evidence that students' relationships influence their professional development in the PhD (Baker & Pifer, 2011; Pilbeam & Denyer, 2009).

The question this paper addresses is: How and when do PhD candidates themselves actually experience and feel like becoming researchers? Based on the stories of early PhD candidates, this paper presents the instances and micro-processes when PhD candidates identify themselves as researchers. It argues that researcher development occurs in mundane and daily practices early on in the PhD, and these are embedded in social settings. While many PhD candidates would hesitate to call or view themselves as researchers due to their student status, they are able to describe moments when they both perform and feel like researchers. The paper contributes to the literature on doctoral experience and researcher development by outlining instances and practices that help students to identify themselves as researchers. In doing so, it highlights the students' needs to feel validated as researchers by oneself and others. It also emphasises the social nature of such practices and hence, the social nature of researcher identification and development.

Researcher identification in doctoral education

The traditional purpose of a PhD degree is the preparation of professional researchers and independent scholars. However, literature has mostly focused on PhD related challenges and has only recently begun to explore the developmental processes in the socialisation of PhD students to professionals (Evans, 2011). However, the main focus has been on academic identity development or post-PhD and early academics and researchers (Åkerlind, 2008b; Jazvac-Martek, 2009; McAlpine et al., 2009; Sinclair et al., 2013). Murray and Cunningham (2011) suggest researcher identification does not happen through what Gardner calls a drastic transition (Gardner, 2008b), but is accumulated in several experiences along the way. Åkerlind (2008b) points out researcher identification increases with gained confidence and validation as a researcher, while Jazvac-Martek (2009) propose an oscillating development in becoming a researcher. Identity development can be understood as a continuous or incremental process but it does not mean a researcher identity is acquired as a final product at PhD completion (Archer, 2008), if we consider continuous learning and developing as professional researchers to be the very nature of doing research.

Knowledge about the types and nature of experiences conducive to researcher identification in the PhD process is limited. Existing research recognises that scholarly development takes place in multiple processes, which are diverse in nature, and usually happen in traditional and non-traditional sites of learning (Barnacle & Mewburn, 2010; McAlpine, 2012a). Research on development of PhD students shows such processes can include conference presentations, research group meetings, peer discussions and writing practices (Archer, 2008; McAlpine et al., 2009). Doctoral thesis writing, specifically, takes up a significant space in the PhD experience and in becoming a researcher as an activity particularly conducive to researcher identity formation in the PhD (Kamler & Thomson, 2014; Lee & Aitchison, 2009). Åkerlind's (2008a) research reveals different ways of defining researcher development: becoming more confident as a researcher, gaining external

recognition, becoming more productive, and becoming more sophisticated with time. Development is said to occur mainly during doctoral studies and 'continues until a threshold point of competence and confidence' or success (in form of research outputs) and recognition as a researcher has been reached (Åkerlind, 2008b, p. 252). Along the way doctoral candidates face many emotional and intellectual challenges, some of which can result in students' feelings of intellectual inferiority to their peers, described as 'imposter syndrome' (Gardner & Holley, 2011). Despite external praise, students can be inhibited from feeling successful and capable of doing well. Research points to the importance of individuals' emotions and feelings about themselves as a researcher for their development and identification as a researcher (Åkerlind, 2008b; Sinclair et al., 2013; Turner & McAlpine, 2011). Kiley (2009), on the other hand, frames the process of learning to be a researcher in terms of understanding specific research concepts (framework, theory, data analysis, etc.) and hereby crossing distinct thresholds. Kiley refers to them as transformational moments which are often marked by preceding feelings of 'stuckness'.

Other research draws attention to the value of social networks in researcher formation. Peer relationships are typically emphasised as peers are closer than supervisors and can empathise with the lived experience of doctoral candidates (Janta et al., 2014). Post-docs, work colleagues and other academics in the immediate research environment can be considered peers. Some research prescribes an even greater role of such peer networks, showing peers can at times replace or complement supervisory guidance (Kemp, et al. 2013). Social relationships promote degree progress and improve the PhD experience (Jairam & Kahl Jr., 2012; Lahenius & Martinsuo, 2011; Sweitzer, 2009). Apart from peers, family and friends are also directly or indirectly involved in the process by providing social, emotional and instrumental support, such as meals, shelter, distraction and encouragement. Some research describes such support as a developmental network because its members help develop the person behind the PhD as a professional and an individual (Baker & Lattuca, 2010; Higgins & Kram, 2001). The various individuals that make up the PhD research

environment help the socialisation of the student as a member of a researcher community, often unknowingly, and strengthen the student's sense of belonging (Curtin, Stewart & Ostrove, 2013). As such, knowledge as well as identity are socially constructed in the PhD.

Students are active rather than passive agents of learning, directing and managing their PhD success (Jazvac-Martek, Chen & McAlpine, 2011; McAlpine, 2012), and as such they actively seek out developmental experiences for themselves through the workshops they attend, groups they join, or practices they engage in. Some evidence shows that engaging in developmental activities such as writing for publication promotes self-efficacy in PhD students (Dunlap, 2006). In fact, a PhD study in the US (Albold, 2011) found self-efficacy to be a sole significant factor in researcher identification amongst education PhD students. Simple encouragement and recognition by supervisors, for example, can strengthen students' belief that they can persevere through the PhD challenges (Dunlap, 2006; Nye, Foskey & Edwards, 2013).

In sum, the body of literature on researcher identity development asserts that the PhD candidacy is where researchers are formed. However, we have insufficient understanding of the breadth of developmental activities and instances in the PhD experience that promote students' experience and identification as researchers. We also know little about how the student's social networks may play a role in acknowledging the student as a researcher. It is still unclear how instances of social, formal and informal learning provide opportunities for students to identify as developing researchers. This study focuses on the student experience and advances current understanding of researcher identification and development by a) highlighting the particular moments when PhD candidates feel and describe themselves as researchers, b) pointing out the people who are involved in these practices and their role in the researcher development process, and c) linking the experience of researcher development to the validation that candidates are seeking.

Method

The generic qualitative methodology employed in this research is grounded in the belief that all knowledge and human experience are constructed and contextual. Even though preconceived ideas about researcher development exist informed by existent research the students' subjective experiences and perceptions are given voice to allow the emergence of different realities (Caelli, Ray & Mill, 2008). This paper is based on interviews with 30 PhD candidates in two large, metropolitan and research-intensive universities in Australia (15 participants from University A and 15 from University B). Recruitment took place via poster display and emails forwarded to PhD cohorts in different faculties by HDR officers. Students were asked to register interest in participating by filling in a survey with their name and contact details, and self-identify their discipline, year and mode of study, as well as their status (domestic or international) at the time of enrolment. Participants were then selected to reflect the demographics of the PhD student population in Australia (Dobson, 2012; Norton, 2012) as far as possible. Table 11 shows all participants interviewed for this study.

Table 11. Sample characteristics.

Mode of study	Status when enrolled	Year of study	Gender	Discipline
4 part time	12 international	15 in 2nd year	12 male	18 HUM
26 full time	18 domestic	13 in 1st year 2 in 3rd year	18 female	12 STEM

All participants are enrolled in a research doctorate, a PhD, rather than a professional doctorate study or similar. One third of participants transitioned directly from Honours or Master studies into the PhD, the rest reported having had working experiences in or outside academia before entering the PhD program. Students were interviewed one-on-one and each interview lasted between 40–70 minutes. The interviews were guided by a semi-structured protocol. With participants' consent all interviews were recorded and transcribed verbatim. For the purpose of this paper all participants are assigned a pseudonym to guard anonymity.

Interview participants were asked to share instances, events or activities, when they felt like researchers and explain how these instances made them feel. Data analysis followed the six-phase thematic analysis approach (Braun & Clarke, 2006): first, data were read carefully many times to familiarise oneself with the data (1), then initial codes were generated (2), themes identified (3) and reviewed (4) before deciding on theme names (5), and finally a report was produced (6). Coding for themes in phases 2–6 was facilitated in NVivo. Data analysis was guided by the research question of this paper, highlighting students' experiences of when and how they identify themselves as researchers. Three themes were identified in this process that related to activities students engaged in and an overarching theme related to the students' development of a researcher identity through increasing validation. The findings present students' stories told through lengthy quotes to give the reader a sense of the themes emerging in students' narratives (Braun & Clarke, 2006).

Findings

Events and activities, where doctoral candidates see themselves on the cusp of becoming the professional they want to be, bring to the fore a diversity of significant moments that constitute the researcher development in the PhD. Stories about 'feeling like a researcher' moments (in short 'researcher talk') resemble researcher development as perceived and described by students. Such moments range from formal (presentation and publication) to very informal (writing, reading, peer conversations and other research-related activities) and almost invisible settings (inner realisation, aha-moments).

The findings in researcher talk show three phenomena, which are apparent across all three themes presented below. First, more often researcher talk is associated with events, which may appear accidental, casual and almost insignificant, in short, very informal. However, formal and planned events such as conferences are also significant here. Second, researcher development is a social practice driven by a range of people, related or unrelated to the PhD context. And third, researcher talk highlights the importance of validation by others

and oneself in feeling like a researcher. The following section presents three emerging themes of moments and practices when candidates gain validation of their growing identity as a researcher by means of the following activities: a) research outputs (formal), b) doing research (semi-formal), and c) talking about research (informal). The concluding section of the findings 'Growing a Researcher Identity' elaborates on the students' need of validation and describes how students gradually gain validation as a researcher by figuring things out in the PhD process and asserting that this is what they want to do.

Research outputs (formal)

Major research outputs are associated with the formal expectations of a PhD candidate: publishing and presenting at conferences or in front of the university department. Several participants assign great value to producing publications. 'Once I get this paper published, I will [feel like a researcher]' says Ines. Karl explains:

> You go through the process of getting on the paper and then that's when you'll be someone. I think your first publication is definitely when you're like 'Right. Okay. I've got something to show for it, my work's being recognised. Essentially I think publication is when you feel you've done it. You know you've got over that hurdle essentially.

When Daimen contributes to a chapter in a book he feels like a validated researcher: 'Like you are researching, that feels like you've got things in place. I think it is because you've got a product at the end and you've got something that your name's on'. Olaf wants to see himself as a researcher but does not do so yet because he has not published. He particularly attaches meaning to the peer review that often goes with publications, he says 'You want to have some objective appraisal by people outside', as he considers reviewers to be 'real' researchers.

Even though not all interviewees are pursuing a thesis by publications, many show awareness of the great value that universities supposedly attach to publications: 'Getting any

piece of written work finished or part thereof as the main output through science research is publications'(Norman). Ines places significance on public perception and ranking measures in research:

> That's just how we're measured in this world - it's all on the number of papers that you do. So, once that paper's out there I'll feel like. It's the credibility factor, too. I feel like people will see me more as a researcher once that paper is published and hopefully have that credibility.

Aysa, Daimen, Antonia, Eliza and Anna mention conferences as one of their personal events that made them feel like researchers. For Eliza it is an opportunity to contribute to the research community and to feel a part of it. Daimen attaches great significance to receiving recognition and validation from the audience at a conference. He says: 'that was quite a validation, if you like, of where things are going, and validation of myself, yes, that I have got something to say and it does fit'. Anna sees her first conference 'as a really exciting opportunity, not only for more social networking and support, but also being able to feel more like a researcher and doing this for real' as if it had all been unreal before the conference. Potential for networking and making friends but also discussing and receiving feedback are the main benefits in Aysa's opinion. She values conferences because 'just kind of hearing and seeing people working that were kind of similar but different views, kind of made it more real'.

Karl's experience of his proposal presentation reminds of the imposter syndrome (Gardner & Holley, 2011). He expresses a very strong need for external validation when he explains how much he wants to impress his supervisors and other department members at his presentation:

> What if they think I'm trying to fabricate something or whatever? Obviously irrational fears that you get and then it's always extremely daunting. I'm more nervous because I want to impress. [Referring to a presentation in front of the department] If I wasn't too bothered about it I wouldn't be nervous but it's the fact that I know I can impress them and this is my chance

[referring to a presentation in front of the department] essentially to be remembered for more than a strange accent sort of thing. They can actually see that I'm capable of doing what I'm doing at the moment and I'm just working really hard. You know you've put in this work and this is your chance to show. You get very few chances to show how much work you actually put into it.

Ingrid, an international student, experiences a difficult start in her PhD where she feels out of depth, unworthy and depressed, even considering withdrawal. For her being a good person and a good researcher go hand in hand and receiving external validation from a wider audience, her university and her peers is crucial to her persistence, as she explains:

> I have done a presentation, international presentation with an oral paper presentation, I have participated in three-minute competition and got an award, so definitely I'm a much, much better person and much more confident. (…) I could see myself in the same boat, or maybe better than them [peers]. They never expected an international student to be smarter or better than them, but when that happened, they were nice. They went ahead and came forward to me, and they congratulated me, and appreciated me.

She later highlights the importance of publications as a reflection of herself as a person: ‘no matter what you do and how much time you spend in the lab, the quality of you as a person, as a researcher, will definitely count if you have some papers’ and ‘your quality comes from the number of papers you have’. On this point, Anita adds: ‘it's just a formal acknowledgement that you're on the right track’.

As evident in these narratives, researcher talk in formal settings such as publications and presentations is highly contingent on external recognition, approval and hence, validation from established and experienced researchers. Receipt of external validation can raise or decrease the credibility factor for PhD candidates. Students inevitably attach great meaning to such events which is expressed through emotions of anxiety and enthusiasm. By the tone of these comments validation is closely linked to emotions. The external validation that

candidates seek in such instances appears to be critical to students' self-belief and self-efficacy. Being and feeling validated as doing good research, and essentially as a developing researcher, may be a factor that drives and sustains the student through the hardships of the PhD.

Doing research (semi-formal)

Obviously but importantly PhD candidates feel like researchers when engaged and immersed in various 'acts' of research. These are usually of semi-formal and mundane nature. Examples listed by participants include: lab work and reading papers, being out in the field researching and collecting data, working with participants, finishing the first draft of a paper, writing the protocol or proposal, writing the thesis and including all the references, literature and figures, sitting in the office instead of classroom, using Endnote to organise references, filling out forms for funding. Anna adds:

> Successfully finishing the first draft of my paper - that made me feel quite like a researcher. Contacting schools - so [participant] recruitment - that definitely did that as well. Being told about opportunities at conferences - thinking ahead. And also, receiving approval for funding [scholarship], knowing that people wanted me to do what I was doing and that they valued it and valued it enough to give me funding for it through the University.

Anita gains recognition while collecting data, stating: 'Reaching out to people with the data collection - there's been validation from other people that what you're doing is important. That does impact and it shapes the way that you view yourself.' For Anna, the academic role of teaching is closely related to being a researcher: 'I think also I've been made to feel more like an academic in that I tutor as well. I teach two [discipline] subjects and I think having the students look up to me, that has helped me.' Eliza identifies as a researcher when she feels like an active member of a wider research environment that extends beyond her PhD research:

> I am engaged with everything that's happening and not just looking at your own topic in a vacuum. Like my topic in particular it goes across various different [disciplines] so I feel like my role is to engage with all of what's happening in these different areas and integrate it and to be doing that very actively so not to be just waiting for things to come in but to always be searching.

For Karl being a research scientist is 'being in the lab and just churning out as much data as you can essentially'. Norman concurs: 'Doing lab work at all, it's good, [it] makes me feel like I'm actually researching'. For Igor, it is simply the studying aspect of his PhD and the fact that he does not get 'sick' of studying:

> When you don't feel sick while you're studying that means you are loving your studies, and there are very few people who actually like studying. Those who do, they are researchers, and that is the simplest way of explaining for me. So I'm actually liking it. And that's when I feel like oh my god, I am turning into one of those nerds, but I like it, it's amazing, it is fulfilling.

Daimen feels like a researcher when collaborating with overseas peers on their research, which he fondly remembers: 'That stays with me that experience of working in a completely different environment than where I come from because a different country, I didn't speak the language, they accepted me and let me in on some important business'. It is as if Daimen receives authorised access and admission to join a research community when he speaks of being 'let in'.

Interestingly, Mitch feels describing himself as a researcher in his first year of the PhD is inappropriate when he compares himself with senior academics and their knowledge and expertise: 'It's too early for yourself to brand yourself as a researcher, maybe after having this practice for the next 10 years you can actually tell yourself 'ok I'm a researcher''. Mitch believes he needs to do more research to be able to legitimately identify himself as a researcher. As he has not done enough of it yet, he does not view himself as a researcher.

Examples of what does not contribute to researcher identification highlight the significance of such practices. Science students Karl and Nadja point out that not doing hands-on research, e.g. lab work, is discouraging and stops them from identifying as researchers. Karl, for instance, 'hates' reading for long periods of time and states it does not make him feel productive but rather decreases his motivation. And Nadja prefers discussing her research with like-minded people rather than merely presenting it to others.

It is being engaged in a range of research activities and doing hands-on research when PhD students experience themselves and identify as researchers. Such activities occur in public (e.g. lab, field, office) and private spaces (e.g. home). When talking about these activities, what is notable is the way in which they also refer to other individuals such as research groups, peers, post-doctoral students, research participants and colleagues. These examples emphasise the importance of social connections and the perceived value of people as sounding boards as well as sources of feedback and validation of the student as a legitimate researcher.

Talking about research (informal)

Apart from doing research, just talking about research with someone, who either understands the process or the content, is of great value to PhD candidates. Nina says 'when they ask you about your research and how you feel about it, you know, just your normal conversations, yes, I think it makes you feel like you're contributing something'. Norman wished he could more often be 'talking with the lab group or with anyone else about research, not necessarily mine'. Nadine feels reassured when she talks to other PhD students: 'we talk about the publications, the conferences and the data analysis. When we talk about it, I think this makes me feel in this stage, that you are in research, you have to do these things as well'. Here, feeling and being 'in research' are closely related. Daimen shows appreciation for his online writing group, where he enjoys a robust discussion about research:

> Just about validating or arguing for that research design so actually having some debate, where you're almost offending and having to argue your view, where you can actually have some robust discussion about what you're saying and how you're saying it.

Natalie values the recognition and affirmation that she receives in conversations with peers and other researchers:

> And people ask me questions, which is wonderful. Oh, when other scientists ask you questions and you know the answer. Brilliant! Science is about not knowing things, most of the time but in your head, you feel like, 'I'm a scientist. I must know things,' and then sometimes you do, it's so nice. It's just so nice when you do. Because it's an acknowledgement and it's an affirmation that you do have a place there and you're allowed to be there and your peers are seeing you. Other scientists are seeing you as a scientist as well.

One practice seems particularly challenging in the PhD because it is inherently lonely: the process of writing. At times it becomes an invisible practice as writing often takes place in a closed off space, away from others. Even though candidates are aware of the need for a quiet space, they often complain about feeling isolated and lonely, and wish they had someone to talk to:

> I don't think it [feeling like a researcher] is so much being shut up in my own room and like — that just makes me feel kind of lonely inside. I'm doing this because I have to, not because I want to. The problem is I write best when I'm alone and in my own space but I don't like being alone and in my own space a lot of times. I think about how I could be engaged and working with [someone]. There're moments, too, when working with somebody every so often or a friend and we go to a different location like a cafe or library and do some work. (Aysa)

Here, tension is caused by the need for quiet time as well as for company and conversation, which highlights the social needs of PhD students. Aysa recognises the loneliness of writing and actively seeks social support (e.g. a friend) to help her.

Participants appreciate a research culture that is inclusive and welcoming of novice researchers. The quotes above stress the importance of students' immersion in a shared and collegial conversation with other researchers, peers, colleagues, etc. Researcher moments usually occur in informal settings and have strong value for participants. In talking about their own and other research with people they trust and feel comfortable with, they experience themselves as knowledgeable, capable of doing good research and capable of making a contribution to knowledge. People are a valuable source of validation, which influences how the candidates feel about themselves. The importance of talking about research highlights potential difficulties for part time, off campus and possibly international students due to geographical distance or linguistic challenges.

Growing a researcher identity

Overall, what stands out as a dominant and overarching theme in a), b) and c) is the way in which candidates gain validation of their growing identity as a researcher, through a variety of activities and from a range of people. Validation means being seen as knowledgeable (e.g. understanding and figuring out research related aspects) and capable of doing (good) research (e.g. mastering a research skill, solving problems). Candidates' stories show evidence that internal validation is highly influenced by external recognition and recognition by others. Participants gain a sense of validation and grow in confidence to assert themselves as researchers the more they learn and figure out about their research and themselves in the process. This process is rarely straight forward but is best described as moving back and forth while gradually approaching the goal of being a researcher. The ways participants see or position themselves as researchers vary. When asked 'How and when do you feel like a researcher?' some state they have always seen themselves and felt as researchers, long before

they started PhD study. They refer to a natural curiosity, positive research experience in their previous studies, work leading up to research, or not being able to imagine doing any other job. For example, Daimen says:

> I saw myself as a social researcher before I started, so the work I've been doing in community, that was leading towards doing the research, that was being active in the community development.

Some students see themselves as both, PhD student and researcher, or in a transitional role from student to researcher. Prompted to reflect on specific instances when they identify themselves as researchers, some interviewees change and contradict their statements, revealing that defining themselves as researchers is a quest in itself. Even though candidates may not always feel like capable and independent researchers at all PhD stages, or feel they have achieved this status and could legitimately call themselves 'researchers', they are able to contribute various events or activities in their PhD that make them feel that way, as shown in a), b) and c).

Such moments constitute turning points when PhD candidates realise or finally understand an essential part about their research or themselves. The concept of turning points in a candidate's conceptual thinking about research or themselves as researchers reminds of 'threshold concepts' related to learning to be a researcher (Kiley, 2009). Natalie aptly describes such a transformational moment where she felt 'stuck':

> So I've done that for bit and then not seen anything and there was one moment where I got this effect. It was just there out of nowhere. There was just that effect that I saw and I did all the numbers and I knew I'd done the experiment properly. (…) Just really with a lot of attention and I knew I'd done it properly, and then all of a sudden, all the numbers started to make sense. And it feels like, really it feels like the hand of God.

Natalie's experience specifically relates to Kiley's (2009) threshold concept of 'analysis and interpretation'. Similarly, for Olaf, Nadine, Nina and Anna, finally being able to connect

existing literature to their data and figure out their research questions and methods are significant moments marking the stage where they feel like researchers. For some students it is simply coming to understand academic discussions and writing. For instance, Anna appreciates being part of a research group where she feels 'able to understand what people are talking about when they're talking about things in their research, or what they've encountered or this statistical problem.' She expresses a gained sense of validation and asserting herself as a professional and a researcher when she speaks of her tutoring: 'It also just makes me feel - even if I think I don't know stuff - I must know things because I'm teaching them and they're not looking at me like I'm crazy so I must be saying the right things. That I find helpful too.' And Olaf's face brightens when he happily announces 'I've been improving in getting to know what these guys [in the published literature] are [saying] — all the mess they're putting together'.

For Anna and Igor, for instance, it was the moment when they realised research is all they want to do in their lives:

> When I went into the corporate environment and took that year off, realising that that wasn't for me, made me feel more like a researcher, because it cemented in my mind that that was the path that I wanted to take. (Anna)

In comparison, Eileen takes a philosophical stance in defining herself as taking 'the next step that makes a researcher', when she talks about herself feeling like a researcher:

> What view of reality have I now got? So I have some stats, let's step back from what they [the stats] tell me about this particular situation and think more about what they say about the world in general. So it's that philosophical interpretation.

Here, Eileen is trying to figure out her personal epistemological view and possibly the research paradigm which is working in — another threshold concept.

Researcher talk presented here shows significant turning points for participants. It is when the candidates finally realise and figure out an essential aspect of the PhD and

experience themselves as professional and capable in conducting research that they feel internally validated as a researcher.

Discussion and conclusion

This paper offers evidence that identification as a researcher occurs in various practices, which are a melding of personal, social, informal and formal learning instances. This paper suggests PhD study needs to be acknowledged partly as an accumulation of researcher identity shaping events of a social and predominantly informal nature. As such, it makes a number of contributions. Firstly, similarly to academic development (Jazvac-Martek, 2009; McAlpine et al., 2009) it confirms that PhD candidates develop and identify as researchers in a wide diversity of events and activities. However, while McAlpine et al.'s (2009) research highlights the importance of writing practices as a developmental activity, in this research it is the outcome of writing — publishing — that stands out as prevalent in the researcher development. Participants' references to the thesis by publication format as an emerging thesis writing option highlight the significance candidates attach to getting their research published. Entering the public space as a researcher through publication (and conference presentation) appeared pivotal in students' stories. While writing and submitting seem insufficient for PhD students to feel like they have made it, these processes are crucial in experiencing oneself as a developing researcher by acting like one. Adding on to Kiley's (Kiley, 2009) list of threshold concepts, getting published is when our participants feel they have crossed the threshold and transition from student to researcher. This is when they perceive that they can validly identify themselves as researchers. The salience of publishing in researcher development has emerged in previous research. Sinclair et al. (2013) identified publishing as a demonstration of productivity that marks the student as an active researcher. Gaining confidence, recognition as well as increasing productivity is very present in doctoral students' perceptions of being a researcher. Such perceptions were previously identified in relation to university researchers (Åkerlind, 2008a).

Secondly, researcher development in the PhD is underpinned by practices that range from social to individual, from informal to formal settings. Formal events often involve people whom PhD candidates usually regard as superior and more knowledgeable, often simply by virtue of having mastered PhD challenges. Regarding social connections associated with researcher identification, we find a wide range of individuals are mentioned, from academic members at the department, supervisors, post-doctorates, friends and peers at the university of study or at home and overseas, to external researchers from other universities. Individuals are not necessarily all related to either the PhD or the general research environment. Informal settings, in particular, involve peers and colleagues. What is striking are the relatively few references to supervisors in talking about researcher development. While the primacy of the supervisor in the PhD has been disputed (Aitchison & Guerin, 2014; Green, 2005), this research, too, finds supervisors are largely absent from researcher identification talk, in line with (Jazvac-Martek et al., 2011). The few existing references to supervisors refer to situations where students seek external validation to reassure them that they are on track, e.g. in proposal writing or presenting. One possible explanation is that supervisor's presence highlights the student's learner status. Feeling dependent and less knowledgeable may not agree with experiencing oneself as an independent researcher (Sinclair et al. 2013).

Thirdly, the lines between formal and informal, social and personal spaces where professional researcher growth occurs are blurred. All the individuals involved in the PhD process, no matter the context, relation, setting or degree of involvement, serve as an extensive developmental network to the PhD candidate, which is dynamic, fluid and always adjusting to the student's needs. Every member can play a developer role at any stage in the PhD candidate's researcher identification process (Sweitzer, 2009).

Researcher identification in the PhD is, therefore, an amalgamation of a variety of developmental opportunities that may often appear mundane and insignificant to higher degree research administrators (Evans, 2011; Kamler & Thomson, 2014). On a scale from

student to researcher, participants seem to be constantly moving back and forth between the two ends of this spectrum, crossing personal thresholds and reaching turning points, while gradually approaching the researcher status with increasing expertise, practice and confidence. This finding resembles the 'oscillating development' practice coined by Jazvac-Martek (2009).

Finally, the paper highlights the importance of the student's need for validation in researcher identification moments. Experiencing oneself as a researcher occurs through validation by oneself and others, in formal and informal activities as presented above a) research outputs (formal), b) doing research (semi-formal), and c) talking about research (informal). The student experiences presented in the findings emphasise the crucial role different people play in giving validation. Being praised by a colleague or supervisor for producing a good draft, getting recognition and approval at public presentations are such opportunities to receive recognition and validation from others, who have either lived or are still going through the PhD experience. This study provides evidence that external validation (recognition by others) influences internal validation (self-belief) and is, therefore, critical in the candidate's experience and for a positive researcher experience, as previously stated by Albold (2011). The need to believe in one's own capabilities to succeed in the PhD is prevalent in participants' stories in the current study. The importance of feeling validated as a researcher is highlighted through the positive emotions that underpin the experiences reported in researcher talk. These potentially help combatting negative feelings of isolation, disorientation and imposter syndrome. Emotional engagement is considered a key aspect in forming a researcher (Sinclair et al., 2013; Turner & McAlpine, 2011). In this context, it is the sense of validation that seems to drive, motivate and support students when facing common PhD challenges.

Acknowledgements

I thank Macquarie University for the support that allows me to undertake this research. My Principal Supervisor Prof Robyn Dowling deserves special thanks in providing guidance and continuous feedback in this research. I thank my Associate Supervisor Dr Theresa Winchester-Seeto, my colleagues Dr Agnes Bosanquet and Dr Kerry-Ann O'Sullivan, and my Writing Group for their valuable comments and feedback on the early drafts. Finally, I thank all my participants for sharing their stories and wish them a successful journey to becoming researchers.

4.5 How to become a researcher: developmental opportunities on campus and beyond

This section presents a book chapter titled *How to become a researcher: developmental opportunities on campus and beyond* to be published in *Postgraduate study in Australia: Surviving and succeeding* (in press). It builds on the findings presented in paper *Feeling like a researcher: experiences of early doctoral students in Australia* and discusses developmental opportunities for PhD students apart from PhD research and why PhD students should engage in them. It highlights the potential benefits of additional developmental opportunities and work experience for PhD progress, students' confidence and future careers. As such it further supports the thesis argument that candidates' researcher identity development can benefit from other academic and more general professional development and learning opportunities. As such, it provides research-based advice for current and future students in a student-accessible and informal tone, and author's student voice.

I became a fan of thesiswhisperer.com from day one. On August 29, 2014, the blog sent 'An invitation to whisperer readers to contribute to an edited book' for current and future PhD students written by students or recently graduated. I saw it as a great opportunity to turn lessons learned from my paper *Feeling like a researcher: experiences of early doctoral students in Australia* into a student-friendly read and advice paper. I was eager to make my research helpful to students 'ASAP'. I also liked the idea of trying a different 'style' of writing. I had just learned to write in 'journal-academese' that I struggled to simplify my language and 'tone down' to meet the book requirements. I had to unlearn. I remember reading previous thesis whisperer and other blogs to try and imitate the language, to find the right words and expressions to not be 'outed' as a non-Native speaker from the first sentence. Before completing the chapter I participated in the Mini-Mos Community fun run and remember thinking 'the PhD is so much like this run!'. After several rewrites I found the right pitch, i.e. my voice, I enjoyed this style of writing and made a mental on writing a different kind of book after the PhD!

I did not think it would make it into this thesis because it may not be 'academic' enough, but I found it more important at the time to make my research work for people, apply my findings and turn this chapter into helpful advice. I checked with my supervisor if contributing a chapter to this book was a good idea and she said yes, if I find time. We decided I would write it during the first PhD writing retreat I was organising at the time. So I did. A year after chapter submission the editors sadly informed the authors that they struggled to find a publisher and offered us to withdraw the manuscripts. I felt disheartened, wondering how many grant applications, book chapters and papers will be written by my future academic self and never read or be successful? Was this part of the being-an-academic experience, I asked myself? I found comfort in taking away a learning experience and writing practice. I am grateful to editor Dr Ben Whitburn for providing constructive feedback and helping in the writing of this chapter. Fortunately, a recent email announced a publisher was found and it is expected to be published at the end of this year.

Publication 4:

How to become a researcher: developmental opportunities on campus and beyond

Lilia Mantai

Introduction

Embarking on a PhD is not only about learning to do research but also about becoming a researcher. While the first part is somewhat obvious, the second part is not necessarily communicated to the student at the outset of the PhD. This section is about why it is important for you to seek professional development opportunities to help you grow as a researcher early on in the PhD, for example, by participating in or organising writing retreats and HDR conferences, attending HDR workshops, joining and creating study groups — to name a few.

The PhD is a feat that requires skill and perseverance. It might be said that the PhD is like a triathlon. A less or more trained person aims to get through it, while hopefully achieving a reasonable result, e.g. a decent time score and certainly bragging rights. In order to succeed in a triathlon or a PhD you will have to learn how to run or research, how to survive, and develop confidence as a runner or a researcher respectively.

At the end of your PhD you are expected to be capable of conducting independent research, but simultaneously you are just beginning your career as a professional researcher, be it in academia or elsewhere. Hence, it is vital that you start thinking about your professional development during the PhD to prepare for your career.

No matter if you are new to research or not, the PhD is *the* time to invest in your personal and professional development. Developmental activities, such as forming peer groups, convening HDR conferences, participating in writing circles, and running research discussion groups, but also teaching and research assistant work — for instance — help you grow your new 'researcher identity' and as a professional in general. Get social, join such activities where you can, or initiate your own group or network with your peers. As in a

triathlon race, you are not alone. Rather you will find yourself amongst lots of other people pursuing their own research goals while pushing you towards your own PhD objectives. Often you see runners forming little groups that push and pull each other to the finish line. If you are lucky, your PhD fellows, other researchers, family and friends will accompany you every step of the way, cheering you on, giving advice and support. Fostering supportive and social relationships is a key to survival and success in the PhD.

Developing as a researcher in the PhD

My predecessors told me: 'the PhD will transform and consume you'. A quick browse through PhD blogs and websites tells you that doing a PhD is intense. That is because doing something unique that (almost) no one else does, is bound to be isolating and lonely at times. It is uncertain where your research will take you and how you will deal with some of the challenges, while your personal life goes on and things (will!) happen. The unpredictability of PhDs creates opportunities and risks at the same time, so it is naturally a personal and an emotionally charged experience. Despite the loneliness that you may experience at times as you go about figuring out things independently (figuring out the research problem, writing a literature review, editing papers), you will rely on many other individuals to provide you with all kinds of support. Social connections do not only provide practical support in progressing your research but are also good avenues to find encouragement and recognition that you are in fact developing as a professional.

So, what or who is supportive in your PhD? And what helps you develop as a researcher? I interviewed 30 PhD students at two Australian universities asking these questions (Mantai, 2014). The answer to the first question is simple: many different people. The answer to the second question is a little more complex. You may expect that you develop as a researcher once your name is 'out there'— in publications or some other form of research output. It turns out, you become a researcher by doing day-to-day activities, e.g. lab work, casual chats about your and other research, writing, solving problems. Yes, receiving positive

feedback on one's research by a high-profile audience at an international conference provides an enormous confidence boost, especially if you are new to research. But, a random conversation with a stranger, an unexpected corridor chat, or a solid debate with peers or other colleagues about your research can work miracles in figuring out the tricky aspects of your research and leave you feeling like you are on top of the world — well, your research at least. Such informal support is rarely confined to your PhD work space, so it pays to get out there and talk to others.

Developing as a researcher does not happen overnight, though. You may receive confirmation that your paper has been approved for publication (Congrats, your friends can now find you on Google Scholar!), and the next minute you speak to your supervisors they suggest you run an experiment all over again. Once you feel you have made it, you may wake up the next day realising that you are back where you started. Ups and downs will happen. However, your confidence and self-belief will grow the more success and acknowledgement you experience (more in Albold, 2011).

My first international conference. *It was two weeks to my first international conference. Everything was sorted, travel, accommodation, my presentation — everything but my emotions. I was terrified, I could not sleep, I felt fear. All of a sudden, my research seemed weak and meaningless. My supervisor told me my data were interesting and I had something to say but it was one of those days when I struggled to believe it. I know why I was anxious, I wanted to impress others or at least, not embarrass myself. At the same time I was angry at myself for scheduling a conference when I was not feeling 100% ready or confident yet. I kept asking myself this question: Am I there yet? Can I present myself as someone who is capable of doing good research? I remembered the previous conference and how confident I felt during and after the presentation. Yes, I felt ready but torn between 'but I have still got so much to learn' and 'I have to start acting like a researcher at some point and get my research out there'. This was the moment I felt the uncomfortable tension between becoming and*

being a researcher. Suddenly, I reminded myself that I have done a great deal to prepare myself for this moment. I have visited HDR workshops on how to prepare and deliver a good presentation, I have discussed my research with university colleagues, friends and random strangers, which helped me clarify my conceptual thinking. I have taught university courses so I am comfortable with speaking to rooms full of people. And I have been involved in various research projects as a research assistant so was familiar with different ways of conducting and communicating research. And more so, my colleagues have told me I did a good job. I knew then that I was ready. Overcoming this challenge and crossing that threshold was another achievement I could add to the list of my personal stories when I felt like I was developing to be a researcher.

The benefits of engaging in developmental activities during the PhD

Just doing your PhD research may not be enough. Many PhD students feel the real pressure of participating in activities that will develop them as professionals and make them competitive in the academic job market. For me, research assistant work and casual teaching during the PhD are activities that have been providing invaluable opportunities for professional development. Firstly, I am involved in the world of academia *today.* At the same time I can see what awaits me at the end of the PhD journey, what the future in academia will be like, and what I need to do to get ready for it. It serves as a reality check each day but also reminds me that this PhD is just another phase in my career and it will pass. If you are not planning to seek work in academia this may just be another step in your professional life. Secondly, I am meeting various people and building valuable social connections. These people are happy to give advice or point me to useful resources or contacts. They share their experience, connect me with others, or simply listen to me blabbing away about my research and my insecurities over coffee. Thirdly, and perhaps most importantly, work outside of PhD gives me instantaneous sense of gratification and achievement. And this is hard to get in the PhD sometimes. Work keeps my self-confidence levels high and my self-doubts low if my

fifth draft of a paper still gets torn to pieces by the editors. If you can fit work and teaching into your busy PhD life, or even better, if they align with your PhD research, the synergies and potential future developments are invaluable, not to mention the time savings and double-dip benefits. I have managed to get two co-authored publications out of my work outside the PhD, for instance. The writing experience with the other authors was a great lesson. I learned from others on the job. I learned how to structure a paper, develop an argument, and more generally, how to collaborate with other authors. That was professional development par excellence!

You do not have to step out far of your PhD environment to engage in activities that will teach you lessons that you can apply to your PhD work. Usually, the universities' higher degree research (HDR) offices will offer a range of workshops and seminars that focus on research methods, technical learning, well-being or time management, for instance, where you can extend your skills and knowledge for your professional future. Besides, you get to meet and connect with other research students, to make friends, to whinge and share moments of despair and success, and more importantly to realise you are not the only one. Every time I went to one of the workshops no matter how little I expected to learn I left feeling part of a PhD community, a little bit less lonely, and a little bit more normal.

Some PhD practices are more isolating than others though; take writing, for instance. Opportunities, such as writing retreats, research blogging, connecting with academics on social media (Twitter, Facebook, email groups, etc.), help developing as a writer. And they *can* be done in a social setting. A writing retreat with other research students, structured in SUAW (short for Shut Up And Write: timed bursts of silent and focused writing) sessions, is a very social (and fun!) way of producing thousands of words in a few days. I got this chapter written surrounded by eight other hard-working PhD students at a writing retreat, which was organised by myself and another PhD student. Especially if you are following the thesis by publication format, where you are expected to write up your research in individual papers that are suitable for submission (more in Robins & Kanowski, 2008), you will feel the pressure to

write heaps of words and get them published as soon as possible. Some of my participants thought 'getting published' was all that mattered. This often resulted in great anxiety and loneliness as they locked themselves away for days to get papers written. Upon reflection, many students said they wish they had taken the time early on in their PhD to find their own writing style and develop as a writer. They also wished they tried different approaches to writing, such as writing with others, co-authoring papers together, and participating in writing circles. Students tend to underestimate the value of experimenting with different writing practices — including social ways of writing — to their professional development.

Often as part of the PhD, you may wear different hats. You may be a teacher or tutor, grant or project manager, or collaborator. The HDR workshops and seminars rarely prepare you for these. More likely you will learn on the job as you go. Taking leadership in developmental activities and organising an HDR conference, or a SUAW group, requesting tutoring or learning opportunities, assist in other research projects, or joining and actively building your own academic networks are all investments into your professional development. Try and accommodate these in your PhD life as they have the potential to boost your confidence, give you a sense of achievement and motivate you and your research work. Be mindful, however, that every PhD student will have a unique experience and different circumstances, so tune into opportunities that fit your needs and be brave to take up activities you think will help you develop.

Once you graduate you are no longer a student but a 'professional', be it in academia or elsewhere. And based on my conversations with early career researchers, for instance, the circle of anxiety starts all over again. Once again you are 'the new guy or girl', who 'just finished' and is 'at the start of their career'. Having capitalised on personal and professional development opportunities during your PhD will come in handy in navigating the transition into a new role. So do not forget that PhD is training for your professional career. In other words, stop and envision your life after the PhD, because there is one.

The value of supportive and social connections

PhD vs. triathlon. *Half way through my PhD I did a triathlon. I was well familiar with city and charity runs (even though less challenging) before so felt fairly confident about my ability to master this challenge. Not long into it I looked around and noticed everyone getting (or trying to get) into the 'zone', finding their rhythm, keeping focus, gaining momentum. People of different ages, physique, experience, motivations and expectations were getting into their own bubble and finding their pace and space in the athletic mass to get the job done, finish the race. The difference was palpable. For some athletes this challenge was physical and emotional. For others it was about enjoyment and just giving it a go. I felt conscious of respecting their space and not cut in front of someone unexpectedly in fear of interrupting their flow. However, half way through the race something began to change. People occasionally started calling out 'Come on, you can do it', amiably nudge each other and throw a smile in passing. All of a sudden I saw people stepping out their houses that were lined up along the race track, bringing out cookies, water, even banners with the name of a friend or family member who was participating in the race, cheering noisily. I saw 'You guys are awesome, hang in there' written in chalk on the asphalt.*

And in a few moments we were all in this together. Everyone ran at their own pace and in their own way but we were all pursuing the same goal — the finish line. I, myself, starting to feel the exhaustion (or was it boredom?) setting in, felt I needed to get out of my head. Someone gently touched me on my shoulder and shouted out 'You go girl!' Never did these words mean so much to me. I became aware of the physical presence of others, of their struggles similar to mine, and realised there was no way I would keep racing for two hours if it was not for these total strangers. A few hundred people shared this time and space aiming for the same. By the end of the race there were no strangers anymore.

It dawned on me, this triathlon was resembling my PhD experience. I started off thinking 'I can do it' based on previous work experience in research. Then I spent the first year finding my own way of doing a PhD, soon after (reminding of the infamous 2nd year dip) realising I need to get out of my PhD bubble. Connecting with other PhD students and wider research community was when I started to view the PhD as a social endeavour.

Now, re-read this passage and reflect on your own PhD experience.

If you have never read a doctoral thesis acknowledgement, I recommend you do. The most touching (and often lengthy) acknowledgements make visible the army of supportive people who made PhD completion possible, no matter how insignificant their role may appear at first. My research (Mantai & Dowling, 2015) on social support based on doctoral thesis acknowledgements shows an overwhelming number of individuals thanked for all kinds of services: providing feedback on writing, helping with the last editions of the manuscript, directing to the right resources and people, servicing one's computer and helping with the latest software, introducing someone to important networks and experts, minding children, cooking meals, bringing coffee — the list goes on and on. One single acknowledgement thanked 83 individuals for supporting the PhD! This goes to show how important social connections are and how many of them are involved on the road to PhD success.

PhD students develop as researchers incrementally, by engaging in various PhD related and unrelated activities. In doing so, they largely depend on wider social networks — including their peers, colleagues on and off campus, families and friends — to support them. Supervisors, of course, make up significant support but they are by far not all of your support network, and nor should they be. You are expected to demonstrate a certain level of independence when undertaking PhD study after all. Besides, your supervisor/s are likely to oversee other PhD projects, and believe it or not — they also have a professional *and* a personal life.

My research with PhD candidates confirms the wide variety of people involved in one's studies, including on and off campus. There will come a time, in the not so far future, where you will be glad to have this 'super support network' to help you see things through. You will have heard about the importance of your peers, other PhD fellows — wherever they may be here or overseas. Consider postdoctoral researchers, academic and research colleagues, professional staff, the administrator of your department, your HDR advisor, your librarian and your statistician as members of your support network, too. Do not underestimate their importance and take time to get to know them and build meaningful relationships. If you are lucky, they can empathise with your experience and are usually there to support you. These networks complement and supplement supervisory guidance at best, and may even replace it at times. Besides, my and other research (Baker & Lattuca, 2010; Curtin et al., 2013) stress that being connected with academic and professional staff increases a sense of belonging and promotes the student's socialisation as a member of a researcher community. More so, these people are likely to be the ones who will motivate you to persist, inspire you, and possibly tell you that you are doing well. If it is not your stubbornness it is the encouragement, approval and recognition from others that often drives you to persist through difficult times.

In conclusion, first and foremost take care of the people supporting your PhD, including friends and family. They will become very handy at times. Be mindful that the PhD is also about developing as a person and a professional. Be pro-active and get involved in activities if you think they will help your progress and develop a researcher in you. View the PhD as an organic and ever evolving process and allow yourself time to experiment, learn and grow. Remember you are a student — enjoy its privileges! And by all means avoid PhD obsession! Get out, see friends and family, relax and remember what really matters in your life. At the end it's all about your personal growth and the relationships you take from this journey.

4.6 Placing researcher identifications: labs, offices and homes in the PhD

This section presents another co-authored paper *Placing Researcher Identifications: Labs, Offices and Homes in the PhD* by Dowling and Mantai, published in the geographical journal *Area*. It poses the questions: How do the spaces of the PhD materially and imaginatively shape PhD researcher identification and experiences in the neoliberal university? Based on the focus groups and 30 initial narrative interviews it finds firstly, students associate different forms of researcher identities with the different spaces of research work. And secondly, social connections and the power relations of the campus are woven through various identifications. Its significance in the thesis is by adding 'space' and spatiality of PhD research as an additional dimension to the discussion of what promotes researcher identity development. This paper adds the importance of being visible and physically present on campus as a further aspect that supports researcher identity development.

I was half way through my initial interviews when two words kept creeping up in my analysis. Time and space. My supervisor picked up on it, too, when I shared some quotes from my data. For two years these two words were scribbled on transcript margins, marked two nodes in my coding scheme populated with quotes and examples in NVivo. For a while, I did not know how to fit 'space' and 'time' in with 'identity'. I knew there was a relation. I just could not explain it in 'academese'. Until a few things happened: my supervisor shared her research on space and spatiality, specifically the meaning of 'home'; a theme of a conference on academic identities prompted me to think about the effects of time pressures in the PhD; and I started experiencing the meaning of time and space myself. I was experimenting with different work spaces observing where I felt most productive and where I felt displaced. After I had a baby, 'time' took on a different meaning. I still think 'time' and 'space' could have been discussed together, as they stand in direct relation. The focus of this paper is solely on 'space and spaciality', although references to time shine through in students' stories of dividing and balancing their time and space with social and professional needs. A range of other spaces are missing here: online platforms and spaces in transition, e.g. trains.

Initially, this paper felt like an affair. I was flirting with the discipline of human geography to which my supervisor had briefly introduced me in passing. I was excited to try something new, learning a whole new way of thinking and seeing things. Thanks to this paper I cannot think of 'home' and 'office' as simplistic as I used to. Thanks to this paper I started documenting the workspaces I tried by taking mobile photos. In combination with PhD housing research I was involved in two years beforehand I started toying with several research ideas linked to human geography. I was and still am, fascinated with this area of research.

Publication 5:

Placing researcher identifications: labs, offices and homes in the PhD

Robyn Dowling and Lilia Mantai

Abstract

Recent and ongoing changes in university structures and desires, as well as alterations in doctoral education, are shaping new spatialities and temporalities of academic work and identities. This paper considers the spatialities of one set of researcher identities — those undertaking PhD degrees — and specifically explores the material and socio-cultural affordances of the sites in which research is practised. Based on a qualitative study (interviews with 30 PhD students and focus groups with 34 students) at two Australian metropolitan and research-intensive universities, we find students associate different forms of researcher identities with the different spaces of research work. In particular, the university campus, and specifically the office and/or laboratory are sites where research is approached as a form of work, and associated with identification as workers and researchers. Notably, social connections and the power relations of the campus are woven through these identifications. Home, in contrast, can serve as a place of respite or a quiet space to think, but more often disrupts identifications as researcher or emergent academic. This research suggests the need, firstly, to recognise the significance of a physical workspace on campus for developing researchers, and secondly for a more nuanced consideration of the notion of a neoliberalised university.

Keywords: PhD, Australia, academic identities, research spaces, doctorate, neoliberal

Introduction

Geographers have recently cast a more intense gaze on the PhD, including discussions that pose ways of rethinking the PhD in an international context (Boyle, Foote, & Gilmartin, 2015), means of creating nurturing environments for PhD researchers (Gillen, Ziegler, Friess, & Wasson, 2014), and a thorough investigation of graduate school experiences (Solem et al.,

2011). In this paper we cast a different geographical gaze on the PhD. Rather than consider the experiences of PhD students[8] in the geography discipline as in the above studies, we investigate the spatialities of the PhD experience and in particular the spatialities of researcher identifications. This reorientation of gaze is of interest for at least two reasons. First, the capacity of university environments to enrich and support learning is widely recognised by institutions and is identified in the Australian case, as underpinning the doctoral experience (Coates & Edwards, 2009). From the perspective of campus infrastructure and university concern with student experience, then, greater attention to the use and understanding of space by doctoral students is invaluable. Second, spatialities have been comparatively neglected in the burgeoning literature on academic work and identities. In geography and beyond, the imprint of neoliberal traits across university life are widely canvassed, including, for example, the shifting temporalities of academic work such as intensification, and the possibilities and constraints of 'slow science' (Mountz et al., 2015). These temporal insights are currently not paralleled by detailed examination of the ways identifications as researchers are developed in and through space and hence, remain to be more explicitly examined. Thus, in this paper we bring geographical insights to a growing literature on the ways in which identities and practices of research are performed and produced, with a specific focus on PhD research.

In the first section of the paper we briefly review relevant scholarship on the spaces of research work and outline a framework that adumbrates the key question of the paper: how do the spaces of the PhD materially and imaginatively shape PhD researcher identification and experiences in the neoliberal university? We then present answers to this question using focus groups and interviews conducted with PhD students across a number of disciplines at campuses of two Australian metropolitan universities. Our argument is that these imaginative and material spaces are essential to the PhD experience and the development of researchers,

[8] In some disciplines there is a preference to use the term 'candidates' rather than 'students' as an acknowledgement of their developing researcher status. In this paper, we use students as this was how participants identified themselves.

and that the researcher identity performed is dependent on the intersection of these spaces with research practices.

Space, research work, and researcher identifications

The spaces and practices of research work are the subject of a burgeoning literature both within and beyond geography, within which three lines of enquiry frame our analysis. The first is that the PhD, and academic work more broadly, are practices of identity formation and identification. Drawing on approaches that frame subjectivity and identity as produced by a set of social, political and material circumstances (summarised in Dowling and McKinnon (2014)), academic subjectivities are emotional and embodied performances (Dowling, 2008). In relation to the PhD, we can think of the PhD as a process through which students come to identify as researchers (Boud & Lee, 2005; Mantai, 2015). The relations of power through which identities are constituted are also important. In the academic context these include the commonly identified interplay of supervisor and student (Hemer, 2012) but also broader academic hierarchies enacted within it (Hawkins, Manzi, & Ojeda, 2014).

The second pertinent line of enquiry is that academic identities, PhD work and university spaces have increasingly neoliberal traits (Darlington et al. 2015; Dowling, 2008). At a sectoral level these changes include increasing marketisation of higher education, the shift toward temporary academic employment (Peters & Turner, 2014) and the implementation of performance measures of academic work (Birch et al., 2012). Together, these and other tendencies reframe the academic self toward one that is more entrepreneurial, atomistic and, in many cases, precariously situated (Hammett, 2012). These tendencies toward individualisation alter the social fabric of the academy and potentially render academic contexts more competitive (Waitere, Wright, Tremaine, Brown, & Pausé, 2011). Doctoral education and experiences of students have not been immune to these trends, shaping the identities of PhD and early career researchers (Berg, 2015). However, in line with dynamic conceptions of identity as outlined in the preceding paragraph, and dynamic

conceptions of neoliberalism (McGuirk & Dowling, 2009), it does not follow that academic identities are inevitably neoliberal. Rather, these traits are actively performed and therefore, potentially contested. Kern and colleagues (Kern et al., 2014) have suggested, for example, that attention needs to be paid to the permeation of tropes like joy through academic lives, as a means to highlight a more fissured and dynamic sense of academic identities in a neoliberal context. We take this point in what follows, delineating identifications and performances that are both confirming and contesting of the dominant frame.

The third line of enquiry is that researcher identities and identifications are spatial: they draw upon and re-constitute imaginaries and materialities of place. In this sense we follow Butler (1990) and in particular Gregson and Rose's (2000) integration of the spatial into theories of performativity. Through creating, inhabiting, and imagining spaces, identities are performed, and, in turn, spaces recreated. The performances of identities and the practices of the PhD — writing, scholarship, collaboration and so on — draw upon both the material character of spaces like offices and laboratories and their imagined meanings. Just as importantly, through these practices and performances these places are made and remade. While work on the spatialities of research work and identities is thus far limited (see Gillen, 2015), we draw here on McAlpine and Mitra (2015) suggestion of the important role played by institutional spaces in fostering research work and identification and Hopwood and Paulson's (2012) elaboration of the spatial constitution of PhD emotions. In particular, we are alert to the interplay of materials, meanings and identities in the spaces of the PhD.

We also extend this work through a focus on the changing spatialities of academic work and identities associated with neoliberal tendencies. The intensification of academic labour (Berg, 2012), assisted by the affordances of ICT, is connected to a multiplication of sites in which research and researcher identification occurs — offices, homes, cafes, trains, libraries, to name a few (Crang, 2007). Maintaining research output in the context of teaching and other requirements is also seen to shift the balance of academic labour between home and work places. Such a shift is more often noted than examined in detail, though a recent study of

American academics found that campus environments were devalued as places of work and associated with burnout, whereas intellectual work was performed away from campus, positively valued and identified as 'my work' (Kuntz, 2012). The extent to which such an understanding holds for early career and/or emerging researchers is unclear, as is whether it holds outside the context of the American university system. Thus, in what follows we specifically address the interplay of home and work in PhD identities.

Study overview

To explore the spaces constitutive of the PhD experience, we conducted focus groups and one-on-one interviews with 64 PhD students from two Australian metropolitan universities. For ethical reasons we cannot identify the universities, but both were research-intensive universities in which market orientations and performance cultures were in evidence. A call for participants was circulated through university email lists, inviting PhD students to volunteer for interviews and/or focus groups. In total 64 students participated in focus groups and interviews: 8 focus groups with 34 participants from one university (A) and 30 interviews with different participants from two universities (A and B). Table 12 shows the key characteristics of participants. Notably, the research design meant that no off-campus (e.g. those living in different cities; those on fieldwork) students were interviewed, though interviews did include those enrolled in a PhD part-time due to either work or domestic responsibilities. We reflect on these characteristics in the conclusions.

Table 12. Characteristics of participants.

N=64	Enrolment status	Mode of study	Discipline	Gender	Year of study
	43 domestic	53 full-time	41 Humanities	45 female	20 in 1st yr
	21 international	11 part-time	23 Sciences	19 male	25 in 2nd yr
					19 in 3rd + yr

Note. Source: authors' data

Open questions were employed in both focus groups and interviews to investigate shared and personal PhD experiences. While focus group questions focused on students' needs and the kinds of support they use or not, interview questions were interested in the

student's personal PhD story, individual support networks, meaningful activities and events students engage in, and why. All sessions were recorded and transcribed by a professional transcription service. Transcripts were checked, proofread and imported into NVivo 10 for coding. The first round of coding highlighted emerging themes and topics; one of which was the relationship between spaces, PhD practices and identities. Subsequent analysis derived the key sites, practices and identities of the PhD and intersections between them as summarised in Table 13.

Table 13. Intersecting spaces and identities in PhD research work.

Identity	Campus/Office/Lab practices	Off-campus/Home practices
PhD worker	Structured intellectual work; supervisory meetings, doing PhD paperwork Avoiding procrastination	Procrastinating writing, reading, conceptualising
Emerging academic	Juggling work and study Developing researcher skills: speaking, writing, time management Attending meetings, being a member of a committee	Juggling research and family
Isolated researcher	Working alone, focusing, procrastinating	Retreating to get work done; structuring study and writing, planning and organising
Social researcher	Social gatherings, conversations Collaborating, cooperating , complaining with peers (PhDs and post-docs)	
Other-than researcher	Employee – paid tutoring and research work	Parenting and other domestic activities

Note. Source: compilation from authors' data

The key spatial distinction identified by our participants in their description of their research practices was that between the university and home, which is hence used to guide the analysis. Within each space a number of different forms and practices of researcher identification were articulated by the PhD students, which are also summarised in the table. By 'PhD student' research participants meant identifying explicitly as a novice in the process of learning to do research, associated with, and which takes place on, campus and at home. 'Emerging academic' refers to identification as someone building the foundations of a future academic career, which occurs principally on campus. Participants also expressed different forms of researcher identifications — 'social researcher and isolated researcher' — differentiated by the extent to which practices and identifications are individually or

collaboratively oriented. The category of 'other-than researcher' refers to identities beyond researcher expressly articulated as permeating researcher identifications, in concert or in opposition. We explore these identifications and their spatialities in more detail in what follows.

Campus: becoming a productive and connected researcher

University campuses are explicitly connected to the PhD. This paper is interested in the ways in which the material university environment, e.g. offices, desks, printers, equipment, laboratories, samples, chemicals, and social and intellectual connections on campus ground researcher identifications in ways that both confirm and challenge the notion of the individualised, competitive, academic identity.

PhD student: work and a place to call home

PhD students imagined and created campus as a space where they were workers, an understanding that conveys a potentially neoliberal academic identity. Paid work like tutoring or research assistance is a component here, but more important is students' understanding of campus as the imagined and material 'home' of PhD as work. Students described 'coming in' or 'working on campus' as a means to adopt a more structured and disciplined work mode. On campus students apply job-like routine and act as employees to get work done: 'Just think of it like a job. I turn up at the place, I do some work' (Biology, female). Another student adds: 'Since I've got a room here, I've got a desk and I'm basically doing it as a job.' (Cultural Studies, female). Thus, we also see work-like descriptions of campus and the PhD. In the words of one student:

> It's (office work), for me, has been really positive, more productive, but also, you actually feel part of a university product. Otherwise at home I felt a bit 'what am I doing?' I feel that coming here, apart from being a part of something that you have a

> sense that you are at university, it's also that it's intellectual stimulation. It is what it makes you feel - part of a project. (Cultural Studies, female)

Two broader points can be drawn here. The first is the presence of more neoliberal approaches to academic work, reflected in terms like 'university product' and the pervasiveness of self- discipline. Second, spatiality is in evidence, in this case in a material sense. The spaces of the university are cast as supporting the self-disciplining worker/researcher in that being physically present lessens the feelings of guilt during unproductive PhD periods and serves as an accountability mechanism.

The power relations of the academy flowed through these identifications, where identifying as a researcher occurred in juxtaposition to those perceived to be 'lower' in the academic hierarchy. A student explicitly distinguishes herself as a PhD worker from an undergraduate because she has a designated space on campus:

> When you're an undergraduate, you're sort of just temporary. You have a place at university, but you don't have somewhere stable that's yours, that you can put your stuff and not worry about it, a bit of a nomad, whereas with the office, you're up another tier, therefore, you dress in a different way, and it accumulates some sort of stability. (Psychology, female)

Again spatialities are pertinent here. Having a 'place to call home', in material and embodied ways, promotes identification as a researcher rather than a student. The office is reflective of the interconnection of space and power in the production knowledge. The knowledge work performed by PhD students elevates their status within the university hierarchy and they are granted access to more space accordingly. Furthermore, the integration of space and power underpins an identification that is oppositional: here they are 'researchers' as opposed to 'students'.

Power relations are also played out through the experiences of campus that heighten identifications of PhD students as emerging (not yet 'proper') academics. The physical

placement of PhD students in separate offices often away from faculty staff is seen as reflective of a diminished importance and sense that they were not real academics:

> I didn't really exist until I moved on to level seven. Because you wouldn't on a daily basis see these academics. Now I see my supervisor pretty much every day (…) and literally just go and knock on his door, see him in the corridor and even just other people. I just feel alive. So, not that my other three years were terrible, but I've just noticed how important it is where you are. (Psychology, female)

Occupying office and other informal campus spaces like the tea room is critical to feeling positive and recognised as a member of an intellectual community. 'I just feel alive' and 'I love university. I love the feeling of being on the campus, being in a community' (Medicine, male).

In sum, the materials and regimen of campus spaces, in concert with acknowledgement and performances of hierarchies within the academy (undergraduate, research student, academic), are part of students' identifications as researchers. These have neoliberal traits to the extent that they associate PhD research with 'work' and are power laden through PhD students' differentiation of themselves from undergraduates — a spatially cemented phenomenon.

Emerging academic: visibility and networking

As has been found elsewhere and in the above (Mantai, 2015), PhD students identify as emerging academics. These identifications are cemented in campus-based practices of visibility and networking. Being around others and actively building foundations for possible future collaborations and an academic career post-PhD are emblematic of entrepreneurial orientations, or, in Müller's (2014) terms 'latent individualism': Coming into university, there's something about the social aspect that it's not purely a leisure time. It's actually really important for you to build networks and to establish yourself as a researcher. (Psychology, female)

Being visible is linked to hope that additional opportunities, e.g. job offers and invitations to seminars, may arise. Visibility turns campus spaces into research spaces. Campus is characterised by encounters that enable research students to transition beyond student, such through teaching or meeting the key people in their research field. A male student from geography, for instance, explains how casual conversations in the corridor and random encounters on his department floor helped him in his research, appreciating the fact he was 'lucky' to have been there and then. Another student concurs:

> I think there's also an aspect of being visible and being visibly involved as part of a research community. Which in some ways it's a professional skill but, at the same time it's a really useful and important part of being socially engaged. I found the most helpful thing the more informal groupings. That's all come about mostly through just being visible and having your body in the space. (Cultural Studies, female)

Campus environments facilitate entrepreneurial activities and offer proximity to other researchers. A female biology student states that she is actively 'popping her head in with other people and other labs on campus and trying to network as much as possible' to find out about other researchers' work and if there is any common ground for potential collaboration. The need to be proactive in seeking and maintaining supportive relationships is common in our participants' PhD experience, and is part of professional development.

The idea is that you're resourceful and you create your own social network, so, if you're like having a desk space at the university and being visible and having proximity to people. In addition, I think it's important to have those induction formal events very early on so that you actually meet people. But from that point onwards, I really think it's up to the individuals to make their own connections. Because that's an actual skill that you learn as a researcher anyway, how to network with people, how to collaborate with people. (Cultural Studies, female)

Emerging academics were proactive in seeking connection, and in a spatial sense, seen to materially and visibly occupy offices and more public research spaces like corridors.

The campus as a microcosm of the academy and the social underpinnings of researcher identifications are overshadowed by competition and anxieties about future careers. One student describes:

> Although you're working together it's a very competitive lab. It's a very competitive field. There's people that are doing similar sort of stuff to me but I've got my own job in it and I want to be constantly ahead of everything. It's pressure but it's good competition. (Medicine, male).

In this case, the lab context and space reinforces the production of 'individualised academic subjectivities' (Berg, 2012, p. 511) reflective of broader neoliberalisation of university spaces.

In sum, the university campus including offices and labs are constructed as material and imaginative support for multiple student needs: providing connection and building of meaningful relationships, sense of belonging, structure and discipline, productivity, support, skill development, motivation and empowerment. Moreover, they enable performance of what students see as emerging researcher identities — active researchers balancing a number of (often competing) activities and developing professional connections. 'Latent individualism' traits — individual motivation, work-like discipline, and an entrepreneurial attitude — are associated with the campus environment. Importantly, what it means to be an emerging researcher is developed and maintained relationally, through affiliation and reassurance from other PhD students as well as dis-identification from undergraduates.

Home: solitary researcher and dis-identifications

Research work is in some senses 'placeless': thinking and writing can occur in multiple places and times. While campus was the principal site of researcher identifications and practices for the students interviewed, it was not the only site. Students identified research work in a number of other places, including public transport, libraries and cafes. The primary off-campus site was home; which is paramount in other scholarship on research work

(Gornall & Salisbury, 2012; Kuntz, 2012). For our participants, home at times replaces and extends the traditional PhD office in fostering research work and researcher identifications. This is especially the case with writing, which is seen to require solitude. A student says: ‘If I was doing a major part of writing, I would be at home in bed, just silence, the comfort of own home, just writing, and I would write for hours and hours' (Medicine, male). And another student concurs: ‘I think creatively it is better for me to be here. Because I'm silent, if I have to write, or if I have a stack of stuff to read I just stay here (at home)' (Cultural Studies, female). PhD students mirror the experiences of established academics, associating home with solitude and silence. Home allows them to inhabit an individualised academic identity and to feel like they are being productive writers.

Yet, far more common is participants’ discussion of home as disruptive to researcher identifications. Fitting PhD work into the cracks of one’s life presents a challenge to PhD students with conflicting commitments. Caring responsibilities and family demands can render ‘home’ distracting, and even destructive to PhD work, as one mature female part-time student in Education explains: You have to work around everything else, and let's face it, if a crisis happens at home, like something happens to your daughter or your partner or something, well the PhD has to move aside.

The idea of home — not as a material site but as a metaphor for domestic obligations — is invoked here as unsettling PhD work.

Home was also materially disruptive. While offices facilitated focused research work, research work was more fractured and disrupted at home. One part-time student comments:

I get up early in the morning and do a couple of hours work before my daughter gets up, and if she's asleep that's sort of when I work on the weekends, so, it's just fitting it in, you know, little bits and pieces unfortunately. (Anthropology, female)

At home students are less able to solely identify as researchers since there they are also members of family — a mother or husband — and with the associated responsibilities that directly impact their academic identities. Home hence acts as a suitable space where research

work occurs outside the typical business hours, and research work is certainly not understood as a job in this conduct. In essence, the performance of home disrupts researcher performance.

Even when familial and other identifications fade into the background at home, the solitude of home is seen as problematic in that it is isolating, and disruptive to their identities as productive researchers. One student explains how she isolated herself from the research community by working at home for a year, saying:

> I absolutely craved human interaction and I did feel really isolated from my research centre. I didn't see my supervisor, hardly at all. After I moved from that place, what I really needed was to take up an office space to try and build some routine. I've been much happier now that I've got a space at the university. (Cultural Studies, female)

Home, and in particular its disconnection from other researchers, is more likely to foster anxieties of not being a real researcher. Students noted that doing PhD work from home prevented them from accessing the support of fellow researchers, increased their stress levels, and decreased their confidence in their ability to complete the PhD. At home students were unable to quickly get reassurance.

Thus, while the spatialities of campus offered consistent material and metaphorical support to PhD students and their identifications as researchers, to perform as researchers PhD students required distance from the materialities and imaginaries of home. Home carries risks to researcher identification in that it fosters procrastination, loneliness and disorientation. This is due to the physical absence of other researchers and conflicts with other-than-researcher identities at home. In essence, these students struggle to perform academic identities outside the university.

Conclusions

In this paper we have explored the ways in which the spaces of home and campus figure in the researcher identifications of PhD students in an increasingly marketised and competitive research context. We make two key findings in relation to the ways that the two

key sites of PhD research work — university offices/laboratories and students' homes — are entwined with researcher identifications. The first is that the understanding of the PhD as a job shapes the way in which university campuses are used and of students' identification as emerging researchers. Being disciplined, proactive in networking, and materially occupying a space to distinguish themselves as authentic researchers rather than students is associated with, and occurs on, campus. The second finding is that while home may be supportive of solitary research work it works against a sense of being a productive researcher, both because of an ability to juggle competing identities (e.g. parent, researcher) and uncertainties about the capacity of non-university spaces to support the disciplined, focused and productive researcher. These conclusions are likely influenced by the specificity of our interviewees. As a group they were predominantly full-time and with strong connections to the research environments provided on campus, and thus more likely to mobilise the affordances of campus environments. This does imply, nonetheless, that institutional concerns with improving the attributes (both material and symbolic) are well founded, not just for the oft-discussed research student experience, but also for research student progression.

More broadly, we find that the neoliberal academic, and the neoliberal university, are spatial and incomplete accomplishments. Individualist research agendas and identities are certainly in evidence for these emerging researchers, as has been found in other work (Hammett 2012). Moreover, the power relations of the academy, manifest in hierarchical distinctions between undergraduate student, PhD student and tenured academic staff member are both keenly felt and spatialised. Where PhD students are located gives them a home to enact a more secure researcher identity, further bolstered by access to the ephemeral spaces (e.g. tea rooms) where academic discussion occurs. Yet, this research also reveals that such individualist orientations are dynamic rather than fixed: simultaneously made (e.g. through networking) and challenged (such as through peer support networks). Indeed, these researcher identifications, and their spatial dependence on the campus environment, are strongly linked to a desire for social connection and peer support. Campus enabled students to more quickly

and easily build researcher relationships and navigate the political landscape of research and researchers. Whereas established researchers may seek solitude (Kuntz, 2012), these developing researchers seek workspaces that simultaneously fulfil a need to feel connected and empowered, productive, visible and more individualistic. It is through these networking practices, in these environments, that an emerging researcher identity, and a future academic career, can be forged. How this spatiality evolves as this twenty-first century cohort carve out academic careers needs to the subject of ongoing investigation.

Acknowledgement

This research has been financially supported by Macquarie University. We are grateful to two referees for their helpful comments on an earlier draft, and to Sophia Maalsen for sharpening our argument.

4.7 Feeling more academic now — PhD stories of becoming an academic

This section presents a paper by Mantai (forthcoming): *Feeling more academic now — PhD stories of becoming an academic,* currently under review. It examines how students perceive their researcher identities approaching submission and the end of their PhD, and what facilitates identity shifts. Highlighting two cases from 30 initial narrative interviews and 15 follow-up interviews, it presents in-depth narratives of doctoral student identity development towards academics. It reveals teaching practice is critical to students' academic identities and benefits researcher identity development. Students seek academic work experience and strive to develop more than research skills to improve their employability in academia. This paper builds on paper *Feeling like a researcher: experiences of early doctoral students in Australia* and adds longitudinal insights and in-depth experiences by focusing on two contrasting PhD student experiences. It highlights the need to extend researcher development to include academic development in this thesis more broadly.

By now I deeply understood the power of narrative research and personal stories. While previous papers dealt with masses of data, in this paper I wanted to zoom in on selected students' experiences and understand what sort of people they were and who they were becoming. I struggled deciding which ones to pick — the black and white or the grey shades in-between? One of the reviewers pointed out, rightly so, that these perhaps less juxtaposed stories could afford narrative richness. I sighed. I could not fit it all in one paper, so I decided to go with the obviously compelling and contrasting stories to highlight the individuality, the diversity and the great gap between students who, to the outsider, are both PhD students travelling the same journey.

I presented this paper that my new principal supervisor Dr Agnes Bosanquet helped me conceptualise, at the Academic Identities Conference in June—July 2016 with a conference theme '*Academic Life in the measured universities'*. As I approached the reception desk, the conference convenor greeted me by name and handed me my name tag. I could not hide my surprised face and said '*You know my name?'* She replied '*Of course, you're famous!'* I

remember feeling paralysed for a moment. I did not know how to interpret this. Did she try to make me feel welcome, given there were not many PhD students attending? Have I done or tweeted something embarrassing people remembered me for? I cursed the imposter syndrome, convincing myself that I may not be famous but people knew me as I was active on Twitter, I had published in doctoral education, I cited many of the conference attendees and have met them at previous conferences. This was my academic home. I felt comfortable and enjoyed talking to other delegates and initiated conversations. However, this conference opened my eyes to the reality of academic life, which was filled with narratives of struggle, resistance and rejection. The last keynote by Associate Professor Ruth Barcan, titled '*Weighing up Futures: Experiences of Giving up an Academic Career'* provided vivid evidence. Although 'finally' feeling like I belonged and I found my research community I believed I was now able to contribute to, I left immediately after the keynote, not wanting to discuss what I just heard, doubting about my academic future and a mental note to look into other careers.

Presentation title: Pressed for time: developing an academic identity while becoming a researcher in busy PhD life[9]

'The traditional purpose of a PhD degree is the preparation and development of researchers. To date, researcher development focusses on post-PhD and early career academics (McAlpine et al., 2009; Sinclair et al., 2013). In the PhD context, academic development in terms of teaching skills, for instance, is hardly recognised, yet experiencing a broad field of academic practice is said to be integral to researcher development (Lee & Boud, 2003). This research contributes to the conference theme by exploring how PhD candidates develop an academic identity; it asks: does the PhD adequately prepare graduates for academic careers in the context of the measured university?

Using a theoretical framework that casts academic development as a continuous and incremental process (Åkerlind, 2008a; Jazvac-Martek, 2009), this study is based on

[9] Published in May 2016: https://sydney.edu.au/education-portfolio/ei/cms/files/1B_Mantai.pdf

qualitative interviews with 30 PhD candidates from two Australian metropolitan universities in the first two years of their study and follow-up interviews with 15 of them after a year. Questions asked concerned the personal PhD experience, the activities candidates engaged in, and support forms available during the PhD. This longitudinal study uncovers how effectively candidates are prepared during the PhD, often forming the beginning of a university career, to meet expectations and measure up to standards set for academic careers today.

The findings confirm that academic development goes hand in hand with researcher development, and begins early on in the PhD. Engaging in academic practice while doing a PhD increases candidates' confidence and hence, promotes an academic identity. However, the study reveals limited support or provision for academic development of PhD students, concluding that it is primarily left to candidates themselves to learn how to be an academic. In a context that emphasises the measurement of research (through publications, citations, h-index, etc.), are PhD students focused on a narrow academic identity? This paper presents case studies to illustrate the kinds of practices candidates engage in to identify as academics, and how these change over time due to increasing PhD pressures. It suggests strategies for supervisors and HDR staff supporting candidates to develop as researchers and academics, as well as encouraging HDR candidates to be proactive in this regard.'

Publication 6:

'Feeling more academic now' — PhD stories of becoming an academic

Lilia Mantai

Abstract

It is commonly believed that the doctorate prepares students for academic careers. While there is wide-ranging literature on the development of doctoral students as researchers, preparation for the other aspects of academic careers, e.g. teaching, is mostly absent from discussion. This qualitative longitudinal study investigates the shift from doctoral identities to academic identities using narrative inquiry. It examines the narratives of 15 PhD students from two large Australian universities, who are approaching thesis submission and aspire to academic employment. Two contrasting stories present an in-depth account of how academic identities are developed and experienced. This paper finds that students define their identities and assess their development in relation to imagined employability in academia. To increase employability they engage in university teaching and focus on strategic networking. Students regard researcher development within the PhD as insufficient for an academic career. This paper argues doctoral education needs to address student agency, synergies between teaching and research, and non-academic development opportunities.

Keywords*:* doctoral identity, doctoral education, PhD student, researcher development, academic identity, identity trajectory, employability

Introduction

Doctoral students are expected to become academics in the course of the PhD. Some evidence argues the PhD may be less effective for this purpose than widely assumed (Brew et al., 2011; Greer et al., 2016). This paper investigates PhD students' shifts from doctoral to academic identities and their perceptions of their academic identities as they approach thesis

submission and aspire to academic employment. In Australia, the doctoral research degree takes on average three to four years and culminates in a written thesis of about 100,000 words. It does not require an oral examination or viva, and there is no mandated program of coursework unlike in other countries. Although, higher degree research workshops and seminars may be offered to students. This paper finds that students seek academic work experience and strive to develop more than research skills to improve their employability in academia. This paper reveals teaching practice as critical to students' learning and confidence, although it is not integrated in Australian doctoral programs. The findings contribute to a nuanced understanding of what facilitates academic identity formation in the doctorate and questions whether the current PhD adequately prepares students if they wish to pursue academic careers. It aims to inform higher degree research support and stimulate a reconsideration of the ways research degrees educate future academics.

Literature review

This paper is situated within the literature on researcher development of PhD students. Specifically, it discusses how the nature of academic practice, changing academic roles, and the current academic employment context contribute to the understanding of how doctoral students increasingly and gradually assume academic identities. Figure 9 presents an overview that helps locate this paper in current research. The different strands of literature are positioned to visualise the argument of this paper. The discussion on doctoral identities (on the left) positions students as 'being' and 'becoming' researchers while the right hand side sees students in the enactment ('doing') of future academic identities. Narrative inquiry is used as a methodology to create a dialogue between the bodies of literature, hence, is illustrated as a background circle that connects both sides of the figure. Doctoral students gradually move from left to right, a process that evolves around personal circumstances and professional aspirations.

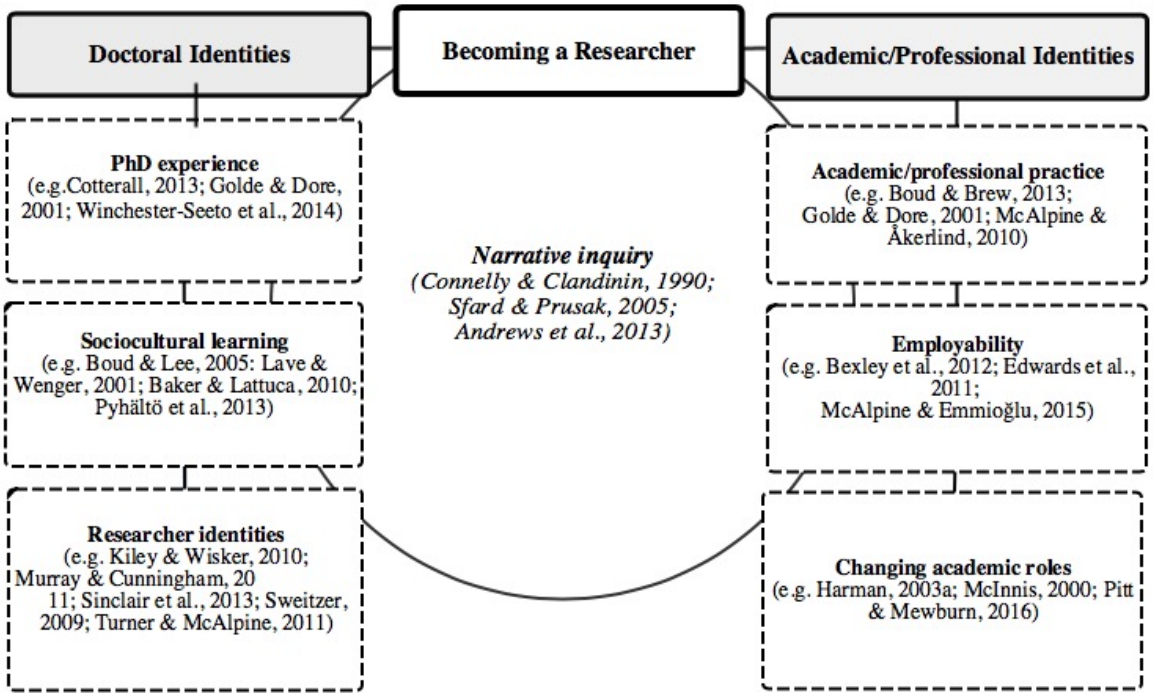


Figure 9. Overview of literature.

Doctoral student identities

The PhD experience is commonly known to be a challenging and simultaneously exhilarating journey. Doctoral student identities are a patchwork 'enacted in the gaps of everyday life' (Barnacle & Mewburn, 2010). Students reconcile various identities on a daily basis (e.g. care responsibilities, academia or industry employment) while finding their place in academia. Their life experiences and career aspirations significantly impact their development. This is broadly described as 'identity-trajectory' by McAlpine (2012a).

Doctoral identity development is generally conceptualised as a sociocultural learning process of becoming an independent researcher. Theoretical constructs, such as community of practice (Lave & Wenger, 2001), community of learning (Pearson & Brew, 2002), developmental networks (Baker & Lattuca, 2010), learning networks (Barnacle & Mewburn, 2010), help explain the socialisation processes of PhD students. They describe how doctoral students move from novice to expert via various social and community settings embedded in departmental and institutional structures (Boud & Lee, 2005).

Recent research provides insights into how researcher identities are formed during the PhD and highlights significant events, activities and structures that enable students to identify

as emerging researchers (Turner & McAlpine, 2011; Mantai, 2015; McAlpine et al., 2009; Sinclair et al., 2013; Sweitzer, 2009). This literature highlights how an institutional focus on research outputs (Rond & Miller, 2005) dominates the doctoral experience. It primarily positions the student as a research student and, while recognising students' involvement in other (often paid) activities alongside their study, largely neglects emerging academic identities. Recent literature raises concerns about PhD students' readiness for professional employment, and proposes reshaping doctoral training to include more generic skill development to suit diverse employment settings (Walker et al., 2009).

Academic identities of doctoral students

Although doctoral graduates increasingly choose work outside academia, many graduates aspire to academic work (Edwards et al., 2011). Today's academic employment market is highly casualised, with few continuing positions (Bexley et al., 2012). Besides, academic roles are changing, become increasingly diverse, encompass research, tertiary teaching, project management, curriculum design, community engagement, entrepreneurship, etc. (Boud & Brew, 2013). An academic role involves roughly 40–60% of activities related to teaching; this is higher for casuals (Golde & Dore, 2001; McInnis, 2000). This can add up to over 30 hours per week of wide-ranging activities related to teaching (Pitt & Mewburn, 2016). Yet, teaching development is rarely integrated into the PhD process and academic development, including teaching, is rarely taken up post-PhD (Brew et al., 2011).

In contrast to the research-focused Researcher Skill Development framework (Willison & O'Regan, 2008), the Statement on Skills Development for Research Students by the Council of Australian Deans and Directors of Graduate Studies (in Gilbert, Balatti, Turner, & Whitehouse, 2004) includes 'generic skills' for PhD students. The last point is professional development including tertiary teaching, and developing employment and career opportunities. However, research shows PhDs inadequately prepare for academic (Brew et al., 2011) and industry employment (Walker et al., 2009).

In sum, research on the lived PhD experience discusses issues pertaining to research and researcher development (lack of support, problematic supervision, imposter syndrome, writing difficulties), but less so students' engagement or disengagement in academic practices (learning and teaching, career planning, organisational work, service and committee work, supervising and mentoring students, etc.). This paper identifies teaching and supervising students as academic practices that can transcend doctoral identities from 'research student' to 'academic'.

Identity-trajectories

The concept of identity-trajectory (McAlpine, 2012) helps to explain doctoral student identity development towards academic identities as embedded in personal lives and experiences. The concept of identity is a 'vexed question' (Clegg, 2008) with multiple definitions. This paper uses 'identity' in relation to doctoral 'doing', i.e. the more one engages in academic work, the stronger identification with being an academic (McAlpine et al., 2009). Academic identities are informed by roles and responsibilities, which include research activities (shaping researcher identities) alongside non-research practices, teaching and administration (Vitae, 2010).

Positioning the student as an active agent in the development of academic identity, this paper applies the notion of identity-trajectory, which highlights the role of personal circumstances in directing career opportunities over time and space (McAlpine, 2012; McAlpine, Amundsen, & Turner, 2014). Narrative research presents widely accepted methodology to investigate the concept of 'identity', as stories of identities make the abstract graspable (Connelly & Clandinin, 1990). This paper utilises narrative inquiry based on the belief that people's identities are of discursive nature, constantly evolving, and expressed through stories of their experiences (Sfard & Prusak, 2005; Connelly & Clandinin, 1990).

Students' stories of activities undertaken during the PhD, in order to develop professional identities and increase employability, relate to concepts of opportunity structures

and horizons for action (Hodkinson & Sparkes, 1997). Opportunity structures, a key construct of identity-trajectory, explain students' perceived future career possibilities. Horizons for action define viable career options given personal circumstances and degrees of freedom in acting towards such opportunities. In bringing these concepts together, this paper examines how students view, develop and articulate their professional identities during their PhD. Students' narratives and perceptions are used to understand the shifts from doctoral to professional academic identities.

Participants

Fifteen PhD students from two research-intensive universities in Australia were interviewed in year one or two of their PhD, and again one and a half years later. As the PhD experience is marked by ups and downs it was important to capture not only students' initial enthusiasm at the start of their PhD but also students' lived experience close to submission, often the most challenging PhD stage (Grover & Conger, 2007). The same open interview questions were asked each time inviting participants to share their PhD experience with a focus on their researcher development. The group reflected the diversity of the Australian PhD population but does not claim to be representative (see Table 14). All but one participant expressed a desire for academic employment post-PhD but were open to outside opportunities given the difficult academic job market.

Table 14. Participants.

Mode **of study**	**Status at time of enrolment**	**Gender**	**Discipline**	**Year of study (at 1st interview)**
1 part time	4 international	6 male	8 Humanities	9 in 2nd year
14 full time	11 domestic	9 female	7 Sciences	6 in 1st year

Data analysis

Narrative inquiry as utilised in sociocultural research on learning reveals stories as constructions of identity. 'Stories, even if individually told, are products of a collective storytelling', state Sfard and Prusak (2005, p. 14). As McCormack (2004) attests, stories are

both a mirror revealing ourselves and a window revealing others. This paper embraces the idea of a narrative-defined identity, and locates identity-building in stories of lived experience (Connelly & Clandinin, 1990). It views identity-making as a communicational practice, a discursive as opposed to a fixed construct. As such, identity is an ever-changing, never complete, and subject to social and cultural influences (Sfard & Prusak, 2005). To capture this complexity, two types of thematic analysis, adapted from Saldaña (2015), were conducted: a) thematic coding and b) mapping of events to students.

Thematic coding

Applying the six-phase thematic analysis approach by Braun and Clarke (2006), several themes pertaining to doctoral identities emerged (Mantai, 2015). A key theme of this research is that doctoral students do not only identify as researchers but increasingly see themselves as academics in the course of the PhD. For this paper, all coded text relating to the theme 'identity development' was revisited. In line with narrative inquiry the purpose is to preserve participants' voices to convey an authentic account of how PhD students discuss their development as academics, so lengthy quotes are used to keep narratives intact.

Mapping of events to students

Narratives have two foci: events and experience (Andrews et al., 2013). Students report stories of critical events with positive or negative consequences. Positive events, for instance, create social support, skill development opportunities, publications, and helpful supervision, while negative events include juggling research and paid work, time pressures, financial troubles, administrative and technical issues. In this paper such events are intensifiers (Winchester-Seeto et al., 2014) that magnify difficult or reveal uncomplicated PhD experiences. In order to identify representative portraits, all events reported by PhD students (events occurred during the PhD and perceived to impact their PhD experience positively or negatively) were mapped to students in a researcher-constructed matrix (Table 15 shows a

simplified version of the complete matrix displayed in Appendix E). While re-reading interview transcripts reported events were listed on the left (bold print) as they emerged, categorised either in the positive or negative experience category, with an X indicator linking experiences to participants.

Table 15. Simplified matrix.

	Intensifiers/Events reported by students	**Partici-pant 1: Ann**	**Partici-pant 2**	**Partici-pant 3**	**Partici-pant 4**	**Partici-pant 5: Jacob**
Negative	**Supervision**	x	x			
	Peer network					
	Teaching	x		x		
Positive	**Supervision**				x	x
	Peer network	x		x		x
	Teaching					x

This approach retained students' individual contexts and highlighted personal life circumstances while structuring the data for analytical purposes. The matrix proved to be a useful exercise as it enabled comparison of PhD experiences. Where students reported a higher proportion of negative events, they expressed dissatisfaction with their PhD and struggled to view themselves as academics. Where events showed support and reassurance, students articulated overall satisfaction, personal and professional confidence. This data analysis approach identified two contrasting PhD experiences that represent the range of participants' academic identity development experiences. Below are the stories of full-time students Ann and Jacob, presented as researcher-constructed cameos (McAlpine et al., 2014). While this approach sidelines the stories of other research participants the decision to explore two-ends-of-the-spectrum voices in detail is necessary to clearly illustrate the point that for some students gaining academic work experience, alongside PhD research, benefits their researcher development.

Findings

Ann's story. Ann's PhD in Humanities is marked by struggles and tensions between her social and academic needs. She starts off working at home but soon

feels lonely and craves social interaction, so she takes up an office space on campus. She says her supervisors were often unavailable and cancel meetings, do not respond to emails, or are away on long service leave. Ann lacks direction and is frustrated. After signing up for a lunchtime reading and discussion group, her support network grows. In her third year, her department is disestablished unexpectedly. This causes major disruption to her progress and confidence:

It felt like we were a bit stranded. And we were in a way, because we did not have [reading group] sessions any more. The academics seemed quite palpably stressed and no one really knew what was going on, or no one told the PhD students what was really going on, so we're all just floating around trying to work on our own projects without any sense of being a part of any thing.

With reluctance Ann changes university and supervisor, resulting in multiple losses: time, energy, social networks, top-up scholarship. She also has to give up a teaching opportunity. She struggles to settle in as the new department follows a different interpretation of the discipline, which challenges the views she has previously adopted. This puts enormous pressure on her progress. She is concerned about being behind on writing, not yet having publications, with no teaching experience. Now somewhat settled at the new university, she feels 'rushed' through the PhD process and does not have time to invest in friendships or professional networks. She admits this is detrimental to her future job opportunities. With resignation she explains: 'I do not have the time to be a new student'. Ann mourns the loss of an immediate support network that she had in her old office. She describes her new office as isolating, 'hostile', 'unwelcome', making her feel 'like a stranger'. She looks forward to Fridays when she meets her peers from the previous institution for Shut Up and Write at a local café that

is ‘quite homely’. This writing group is her main support group and she values it dearly. These events have not only impacted progress but also development: ‘my confidence has been knocked around quite a bit’. With noticeable sadness she shares a lesson learned: ‘You’re the only one who really has your project’s best interest at heart, and you really have to be your own resource, you have to make your own opportunities.

Jacob’s story. Jacob’s PhD is marked by optimism and tells a story of support, enjoyment, passion for teaching, as well as personal and professional development. He is in Science but identifies as a ‘human researcher’ and does not work in a lab group setting. Despite initial setbacks, including a relationship break-up and health issues, Jacob starts his PhD journey with close friends from undergraduate studies. He prides himself on being a ‘people’ person and a confident speaker. He wins a 3 Minute Thesis competition in his faculty. Rather than participate in PhD seminars or workshops, Jacob prefers to hang out with his friends. His support network consists of a group of close friends supervised by the same academic who study and live together. Jacob explains how they all like to compete, but also celebrate each other’s successes. Jacob repeatedly states ‘teaching is my favourite part of the PhD’, saying he learns best through teaching others. ‘I feel like my teaching is also an incredibly important part of my academic development.’ After being invited to speak on a panel and presenting at an international conference, he feels academics in his department ‘treat him differently’, with more respect. Jacob is helping two Honours students with fieldwork, research participant recruitment and writing. Supervising students is a professional development opportunity for Jacob. He explains his colleagues ‘see me as an academic now’ and that makes him feel ‘more academic’, ‘more professional’ and like he has ‘earned that’. He also feels like a stronger

> researcher after mastering statistical analysis. As he describes it, he plays by the rules of academia by focusing on 'publishing and conferencing', and is strategic in his interactions and activities. Hoping to build a ground for job opportunities post-PhD he makes himself 'available to help superior people in the event that I need someone in the future'. Jacob is the only participant who speaks with confidence about positioning himself successfully for a post-doctoral fellowship. Overall he feels 'very content, cautiously optimistic' about his PhD, looking forward to 'where the next portion of my life will be'.

Developing an academic identity: Ann versus Jacob

In their second year, Ann and Jacob tell a similar story of how they think they will become researchers: through publishing. A track record of publications and successful conference presentations provide evidence of acceptance and recognition as a peer by the research community. Achieving this is their primary goal. Ann views collaboration and networking as an opportunity for external validation but also to build supportive relationships. She comments:

> It's really important for you to build networks and establish yourself as a researcher. It's an actual skill that you learn as a researcher, how to network with people, how to collaborate with people. You learn how to present in front of an audience, you learn how to be a researcher.

In the first interview, Ann adds that participation in research groups is expected in her department because 'you'll be part of the research community'. In regard to future employment, Jacob and Ann hope to become more independent, more autonomous, and more professional in the process. Both hope to find work in academia post-PhD, but realise the scarcity of positions so make alternate plans: Ann in industry, and Jacob in further study.

Both students report growing in confidence as researchers as they capitalise on external recognition over a one-year period. In his second interview, Jacob attributes his confidence to his growing publication track record:

> I've got a publication coming out and I'm working on two others, so that is establishing myself in the future to pursue a post-doctoral fellowship. Having two other Honours students; the one from last year is about to publish, so that's another one for me. I've gone into a number of quite prestigious conferences, too. I guess all this is to establish myself, make it likely that I will be able, to achieve a post-doctoral fellowship.

Although Jacob seems naturally more confident than Ann, praising his 'people and communication skills', both show initial insecurity that is typical of people learning new skills. Ann says: 'I feel like it's an apprenticeship and I'm an apprentice researcher. What does a PhD student have to offer, at this stage anyway? I still feel quite junior.' Her research proposal approval and speaking with colleagues on a panel at her first international conference were a 'formal demarcation':

> [It is a] formal acknowledgement that you're on the right track. For me at least, it gave me that boost to be like 'okay, I'm not just floundering around here'. I have some purpose and I know what I'm researching. All of those more formal parts of academics where you're contributing to writing papers and giving papers. That does impact and shape the way that you view yourself.

At the conference she gains recognition as a peer researcher due to 'a different environment', she says, 'the hierarchies might not have been as set, everything was a bit new for everyone'.

Jacob describes himself as a strong communicator, but admits being very anxious about his first conference presentation. Its success gives him a confidence boost and he describes himself as 'a stronger researcher' a year later, despite struggling with writing difficulties.

Teaching (including tutoring) and helping students learn is a reoccurring theme in participants' stories. Jacob comments on his love for teaching in the first interview, saying 'there's no better feeling than seeing a person's face light up when they learn something. I love that feeling, that elation when they've learnt.' A year later he attributes significant value to his teaching experience, describing it as academic development of himself, and resents that it is undervalued:

> What gets drilled into me by academics is 'publish or perish'. And you hear it everywhere: you need to go talk, you need to write, blah, blah. But the teaching I love (...) I feel like my teaching is also an incredibly important part of my academic development. I know that I've learnt far more through teaching than I ever did in undergrad. So I do think while publication and conferencing is super-duper important, your research and learning how to do statistics, whilst also teaching, I think, is just as important.

On the topic of supervising Honours students in their research, he adds:

> I had an academic in the last year who was really struggling with one of their students, so they asked, because I was working for them as a teacher, as one of the demonstrators, 'Oh could you just see how they're going?' And we worked out what the issue was and the student ended up getting first class Honours. It was a nice feeling and then I got an extra class to teach (…) I went out of my way to help, and they made sure I had an opportunity to develop as a teacher. I appreciated that.

Ann, in contrast, laments not getting another opportunity to gain teaching experience:

> I felt like it [teaching] would be really important if I wanted to get a job in academia, you need to have that experience. And for your own work [research] it's really good to teach because it really solidifies your knowledge, if you have to clarify what you know and teach undergraduates who are new to the field. It's

> really helpful for your own work but I already feel quite set back, I just can't see that I'd be able to take on teaching.

Echoing the need for external recognition in developing a professional identity, Jacob aptly describes the importance of being seen as an academic by other colleagues. He talks about how they view and treat him differently in his third year:

> I'm certainly feeling a lot more confident, and in the least big-headed way I'm feeling more like an academic now. Actual academics go, 'Oh could you help me out with this?' And of course I'll come and help, or a last-minute tutorial … that wouldn't have been dumped in my lap a year ago, because the superior people wouldn't have thought I was up to it. So that is a nice feeling, I feel like I've earned that.

Ann and Jacob talk about 'feeling' like an academic, a researcher or a professional. While both feel a stronger identification as researchers due to experience with research practice over the year, the difference lies in the way they perceive and define their academic identities. Ann's perception of herself as an academic is threatened by PhD disruptions. She regards herself as a researcher in relation to the research community. As it falls apart her sense of academic identity is challenged, which is expressed in her insecurity and frustration about the PhD completion and career options. She feels rushed towards completion, not feeling ready to call herself an academic. In contrast, Jacob's identification as a researcher is fuelled by his experience and ability to present and publish his research. In addition, his teaching experience earns him recognition as an academic. As opportunities increase so does his perceived development as an academic.

What facilitates the shift from doctoral to academic identities?

Ann and Jacob define academic identity in terms of their own employability. They develop an academic identity by increasing their 'market value' through engaging in academic practices such as teaching and supervising Honours students. The two stories

highlight two approaches to feeling more employable, in Jacob's words 'more academic': capitalising on various academic work experiences, professional relationships and networks. Table 16 below provides a summary of both students' experiences relating to these aspects.

Table 16. Overview of students' views and experiences.

Ann	Domain of experience	Jacob
Through research groups; wished she had teaching experience; lack of publications risks academic career	**Learning and developing**	Mainly through teaching; confident about getting a post-doc due to publications
Negative, not confident; considering alternatives in industry	**Academic employability**	Confident and 'cautiously optimistic'; strategic preparation for post-doc fellowship
Discontent; supervisors unavailable; PhD groups as social support and professional development; loss of community after changing universities	**Community and relationships**	Very content; helpful supervision; close PhD friends; PhD workshops are 'waste of time'
Communicator; collaborator; networker; publishing; accepted and validated by the research community	**An academic researcher is (a)...**	Confident communicator and presenter; good teacher; undertaking academic development; 'good' researcher if publishing

How do these findings relate to the larger participant sample? Research participants suggest their learning, and hence, their personal and professional development, is closely linked to teaching or mentoring others for two reasons. Firstly, the ability to explain complex concepts to others helps cement one's own learning. PhD students claim that teaching develops their confidence and is often a source of satisfaction. Secondly, helping others is payback for help received as Honours students.

However, many express disappointment with the extent of learning achieved before submission, as they assess their employability:

> The sad thing is that I've realised that I will not be able to do a PhD that is my best work, and I will not be able to learn all of the stuff that I was really hoping

> to learn. I will need to cut back to a more realistic level. And that's a bit disappointing. (Ellen)

The second theme is the context of today's academic job market. Students assess their employability in comparison with fellow PhD students (mainly comparing their publication track record) and against expectations of academic roles mandated by institutions and media. Some students consider avenues to increase their market value, often focusing on honing their teaching skills. Others talk about turning to industry or private education providers. Students seek developmental activities or not, depending on how they view their readiness for an academic career:

> My supervisor said, 'Look, to be completely honest, there's not a lot of work in academia. And you have to take into account your age.' He didn't say that, but he said, 'You have to take into account a lot of factors. Perhaps you need to think outside the box.' (Annabelle)

> Once you get to the end of your PhD, you have your thesis but you don't necessarily have something to go on to. I may get a job. I may stay in academia. I don't know what I'm going to do. (Nicole)

> I saw PhD students, who are sacrificing their [current industry] jobs because they have committed to this unproductive journey [PhD], they're definitely losing money, they're losing prospects in their earlier job, so after they finish the PhD they have to start a new thing. (Mitch)

Finally, participation in research groups and active engagement with local and international research communities is articulated as critical to academic learning. They afford professional connections and relations that may become useful when seeking employment and, therefore, are highly valued by doctoral students:

> The worst thing that you can do as a PhD student is shoot yourself in the foot. Science is obviously massive about communication, that's externally as well as internally. So, you need to be able to form collaborations externally, in your lab, and be a people person. My supervisor would look out for me, if I needed [a job], he would sort me out, and he would get me involved. I think everyone else likes me and knows I work hard, and obviously they know I fit into the daily workings of the lab. They would probably rather have me than someone they have a CV from. But, obviously, it's a really competitive lab. (Karl)

In summary, doctoral students engage in various developmental opportunities not related to PhD research to gain a competitive advantage when it comes to post-PhD employment. They value not only the additional work experience they can add to their CVs but also the professional networks and relationships they form. With increasing work experience alongside PhD study, doctoral students move from 'students' to identify themselves as 'researchers' and 'academics'.

Discussion

The desire to learn and grow as a person drives personal and professional development in the PhD. Daily activities (lab work, reading, writing), formal activities (presenting and publishing) and relationships with other researchers, peers, supervisors, are prominent aspects of doctoral learning and becoming a researcher (Mantai, 2015; McAlpine et al., 2009). Students also attribute high value to teaching for their academic learning and identity formation. Teaching during the PhD is a neglected site of doctoral learning (Golde & Dore, 2001; Greer et al., 2016; Jepsen et al., 2012). Such practices build significant horizons for action as they open up new opportunity structures for students. Although doctoral graduates are expected to develop skills in tertiary teaching, development opportunities are not formally offered or facilitated in Australian research education. Although the research-teaching-nexus is notoriously difficult to measure and substantiate (Brew & Boud, 1995; Healey, Jordan, Pell,

& Short, 2010; Neumann, 1994) the findings in this paper show a very real connection and valuable synergies between teaching and researcher identities for PhD students' academic identity development.

However, it is important to consider that teaching experience is not positive or beneficial to everyone and not every student can invest the time, i.e. part-time students, even if they were offered or wanted to teach. For them, other ways of engaging with academic practice and community might be explored. Given the Australian doctorate is research-focused, students need to be pro-active in seeking teaching opportunities and in balancing research with teaching. Some students teach to increase their employability but the experience can add to PhD stress and anxiety (Greer et al., 2016; Wenstone & Burrett, 2013). Students are also under risk of being exploited as (cheap) labour (Wenstone & Burrett, 2013). The cost and benefits of teaching ought to be carefully considered in the individual context.

In line with identity-trajectory (McAlpine, 2012a), the desire to learn and find academic or other employment mandates what activities, events and people a PhD student chooses to engage with. Doctoral students in this paper report actively seeking teaching opportunities, through colleagues or supervisors, to increase academic market value. Capitalising on professional relationships is how students extend their horizons for action (Hodkinson & Sparkes, 1997; McAlpine, 2012a; McAlpine & Emmioğlu, 2015). Doctoral students estimate the strength of future career opportunities in terms of interpersonal connections.

Doctoral experiences shape academic opportunities post PhD. If students experience reassurance and support during their PhD they are likely to be optimistic and confident about their academic future. The narratives presented here echo discussions of gender related differences in academic identity construction (Archer, 2008; Huang, 2012). Female students are reported to undermine their capabilities, more often experience the imposter syndrome (Clance & Imes, 1978; Dinkins & Sorrell, 2014) and experience lower levels of satisfaction (Gardner, 2008a).

This paper presents a rare account of teaching practice adding immediate and perceived future value for PhD students. In these findings, PhD students emerge as active agents in their own academic practice development. Student agency is, however, constrained by disciplinary, departmental and institutional structures. This role deserves more recognition and targeted support for academic identities to be effectively developed during the PhD.

Students' stories bring to the fore the importance of experiencing oneself as and feeling like an academic during the PhD, and how this enables the imagining of academic careers. The close relationships between feeling and identifying as a researcher have been reported previously (Mantai, 2015). A deeper analysis of what students talk about here raises important points about academic being and becoming, as well as the quality of doctoral education. Students are attuned to the individualistic and competitive nature of academic career paths. The everyday pressures of academics are vivid. Students exercise significant agency in self-development, producing outputs and finding their place against the odds of time and money pressures and poor employment chances. If Ann had not actively engaged in creating her personal social structures, her PhD may well be a story of attrition. Given the significant need for agency in completing a PhD, questions arise about the adequacy of doctoral support structures. Is doctoral education as it stands today fit for purpose?

Conclusion

Overall this paper contributes a nuanced understanding of identity formation of academics during the doctorate. Utilising narrative inquiry, two contrasting stories portray how students perceive themselves as becoming academics. This paper applies the theoretical concepts of identity-trajectories (McAlpine, 2012a), horizons for action and opportunity structures (adapted from Hodkinson & Sparkes (1997)) to better understand the PhD experiences. It highlights the forces that drive identity development of PhD students across disciplines: desire to learn, gain experience useful for various employment contexts and build professional relationships in order to find academic employment post-PhD. Students go as far

as sacrificing time, money and well-being to make themselves more employable. In the context of a highly uncertain and casualised academic job market, a PhD is perceived as not enough, and developing a professional identity is built on uncertainty and risk. However, students are active agents in seeking resources and making opportunities albeit systemic constraints. This paper affirms the importance of social and professional relationships in academic identity development to help students learn, experience themselves as academics, and imagine future employment, in and outside the academy.

Acknowledgement

This work was supported by Macquarie University Research Excellence Scholarship. My supervisors Dr Agnes Bosanquet, Prof Robyn Dowling and Dr Theresa Winchester-Seeto deserve special thanks for their generous feedback and guidance in the writing of this paper.

4.8 Autoethnography

This autoethnographic section describes my own PhD experience. It declares my insider status and provides an additional set of data, i.e. my diary notes, experience and reflections, to inform the question of how researcher identities are developed during the PhD. Specifically, in writing this part I asked myself what facilitated my own researcher and academic identity development? I describe and reflect upon numerous, informal and mundane moments in my PhD time that define instances of shifts in assuming doctoral, researcher, academic and professional identities. In the Postlude I draw comparisons between my experiences and those of my research participants, as presented in the findings of this thesis.

Writing this autoethnography section prompted reflections not only on my identity development but also on my understanding and interpretation of the findings, the experiences of my research participants, and how my experiences influence their stories and how their stories in turn impact on my experience and perception of researcher, academic and student identities. This was challenging at times as the boundaries blurred the further I progressed on my own PhD journey and the more I experienced of what my research participants as well as other peers experienced on their journeys. Keeping a diary and writing this autoethnography provided a means to make sense of the emotions and perceptions I experienced and understand that I, too, was a research subject and was closely connected to the PhD experiences of my research participants.

My personal PhD story makes a contribution to this thesis by showing how closely academic and researcher identity development are interwoven with personal identities. Moreover, it highlights how reflection, e.g. facilitated by a diary, supports the understanding of one's professional and personal identities, and the depth of identity developmental processes.

This is my story.

An autoethnographic account of my PhD journey

I have kept a diary three times in my life. First, when I was 12, at the time when all girls kept a diary. Second, when I had my baby (in third year of my PhD). And third, during my PhD. Each time I kept a diary because I did not want to forget. I felt something very important was happening and I needed to preserve it. This section is my story of becoming a doctoral student, a researcher and an academic. It is told through numerous small stories, written about everyday PhD life, events, conversations, thoughts and feelings. Small stories have great power. Reflecting on the small stories enables me to see how I grew to identify myself as a doctoral student, a researcher and an academic. The following is a construction of a new me, myself as an academic and researcher. It is fragmented, which is necessary to keep it short. It is non-linear to reflect the messiness of the research process and researcher's identity development. It brings some experiences to life and forgets others. Most stories cover the first two years of my PhD, the most troublesome and formative time. You cannot have one without the other, I now realise. I only include stories about my researcher and academic becoming. Many other stories of my PhD experience remain silent.

Prelude (doctoral student in the making): my university story

For me, embarking on a PhD was like entering a new country that has new rules, a different culture and speaks a different language. I had experienced a cultural dislocation three times in my life before I enrolled in the PhD degree.

I was born in Kazakhstan and raised in Russia and Germany. I went to school in Russia for four years before emigrating to Germany when I was 12 years old. The move was not only a significant cultural adjustment, the difference in education methods presented a very different school experience and took a toll on my confidence.

Doing research is all about asking questions. In Russia asking questions was not genuinely encouraged. Asking questions was seen as a sign of weakness and deficiency. A quiet student was considered a good student, obedient and conforming. I was the best in the

class. I remember doing additional, often advanced, book exercises, as I enjoyed solving new problems on my own and wanted to learn more quickly. My teachers and parents took enormous pride in my achievements, which built up my confidence. I had a reputation to lose if I was to admit I did not understand something. I got by without asking much.

The move to Germany was a significant disruption to my sense of competence. Suddenly I was asked to raise my hand, speak out and ask questions. Obedience and quietness did not count for anything, and instead, were detrimental to my achievements. I got marks subtracted for being too quiet. Quickly, I developed a fear of asking questions. Speaking broken German in front of the whole class was emotional torture. I developed coping strategies and avoided asking questions in class by asking fellow students for help and approaching teachers after class, but often seeking information independently. I studied textbooks in search of answers. I did not own a computer until I was 19 and did not discover the internet as an information source until I went to university. I was determined to reclaim my identity as 'a smart student' and worked very hard on my vocabulary and grammar. After only one year in Germany I was again best in class thanks to my writing. Public speaking continued to be challenging for many years. Even today, I have to gently force myself to bring up courage and speak up (in English) at meetings and seminars.

Retrospectively, I can see that the seeds for my PhD were planted during my university teaching degree. I had friends who did PhDs in different disciplines. They were usually employed as part or full-time staff, were teaching, lecturing, and assisting their supervisors with their work (research, reviews, committee work, etc.). They even had Master and undergraduate students doing work for their PhDs. They sat on departmental meetings and faculty committees. I thought that was an impressive career, and that clearly they were very smart. I did not think I could do what they did. I was the first in my family to go to university. I had no role models and the possibility to undertake the highest degree available did not occur to me, nor did it seem necessary. I studied to be a high school teacher (majoring in

English and Physical Education) and that was seen as a prestigious, respectful and secure career path in my family.

My teaching degree required a nine months teaching assistantship so I went to England in 2006. Although being able to converse in English upon arrival, my memories brought back the German immigration experience. This time, however, I took a different approach. I worked hard to ignore my embarrassment of speaking in broken English and reminded myself I was there to learn. This time I was in for the journey not the outcome, determined to learn about England's culture, people and language and not be distracted by what people thought of me. This was the best learning experience. Nine years of English study could not teach me what I learned in one year abroad. By the end of it my spoken English naturally improved but more importantly, I gained enormous confidence in my abilities, was comfortable with who I was, and learned to value learning through experience. From then, I found it easy to adapt to new situations and felt a strong trust that I could figure things out.

My academic story

After I finished my degree I came to Australia, following my partner who received a scholarship to finish his PhD in Sydney. I was offered a tutoring job in International Studies in the first week of arrival. Thus began my academic career.

Teaching sparked my first interest in research. I remember specifically reflecting on how my students approached the final essay assignment in such different ways. I was curious about what went on in their heads before deciding to structure their essay in a certain way and give prominence to some arguments or literature and not others. Nine months later I took up a research assistant role at the university's learning and teaching centre, while continuing to teach. I was involved in various projects from beginning to end. I also enrolled in the Postgraduate Certificate of Higher Education. This was my introduction to tertiary education system and Australian academic culture, which I consider to be the formative years of my early academic life.

My roles involved organising two major conferences, working groups and other events, reviewing papers, writing newsletters, reports and journal articles, overseeing grant budgets, committee work, updating websites, creating resources for academic staff, designing units on learning management system, data collection and analysis, and many other activities. During this time I gained knowledge and skills through work experience, an identity as an academic employee through membership and participation in academic activities, groups and events, as well as an idea of what an academic career entails. Although I held a professional role, I started imagining myself as a researcher and more broadly as an academic.

One of my closest colleagues then suggested it was time I did my own research and that I would need to gain a 'Dr' to my name if I wanted to keep working and advancing in academia. Being immersed in the university's community and doing academic work made it possible to imagine myself as a PhD student and even an academic. I enrolled in the PhD two years after arriving in Australia and continued most of this work throughout the first three years of my degree.

Lessons learned from academics

Not only did my work during these three years involve various aspects of academic work, I also met and worked with many interesting and inspiring people, passionate about good learning and teaching. From talking and observing, I learned several things about being an academic. Soon I noticed that research and teaching activities were in constant tension. Academic work involved activities that were hard to quantify or explain to non-academic people. It involved tasks that were not part of the position description, tasks that academics learned on the job without (much) formal training, i.e. supervising, reviewing papers, examining PhD theses. Being an academic was not confined to a 9–5 pm, Monday-to-Friday schedule and conflicted with personal life and responsibilities, especially for women. It seemed that successful academics were the ones who actively published and received awards and formal recognition for teaching but, more importantly, for research. I felt that if one was

to be successful and happy in academia, academic work needed to be more than a job and worth the sacrifices. Most female colleagues, casual and part-time academic staff, more or less seemed to struggle to meet institutional requirements and improve their research track record or their 'impact' to move up on the academic career ladder or keep their positions.

Reflecting back, I realise that although at my workplace people seemed to collaborate, cooperate, co-author, co-facilitate and co-teach, academic advancement was an individualistic endeavour. From the experience of my colleagues who were doing their PhDs at the time or had just completed, I learned the PhD would be a lonely journey, an initiation to academia, a rite of passage, challenging, emotional, exhausting, and stressful. I was not sure that I wanted an academic career that much.

And so it begins…Dear Diary

I did not keep a PhD diary to share it with others. This was not part of the PhD plan. Now, that I am at the end of my journey, I cannot withhold it. I feel I have to declare what I experienced, how I *grew up* to be a researcher and an academic. I have shared the stories of my research participants, sad, happy and embarrassing. It is only fair that I share the sad, happy and embarrassing stories of my academic becoming.

Also, it is necessary. This thesis is a story about the researcher identity development of doctoral students told from the students' perspectives, written by a PhD student. The rest of the thesis would tell little about my own development process and what sort of a researcher I am today. Without this section, I believe the thesis would only be half the story. Diary entries drawn upon in the following are at times hard to decipher and include German words or expressions, wrong or awkward wording, shorthand, abbreviations, acronyms and all kinds of punctuation. I present photos of notes in some parts and transcribed notes in others, to help readability, preserve authenticity, and de-identify people I mentioned.

Great expectations

I asked myself: *Why do a PhD?* While looking for answers, I realised I had some conditions. I wrote a pro and con list on the first page of my PhD diary. This would serve as a constant reminder why I decided to pursue doctoral research and what I wanted it to be:

Pros	***Cons***
It's a job, hopefully more meaningful, I am bored of my current job	*Starting a family might have to wait if it gets too hard*
I only want to do PhD if I can continue working (save for house/baby/travel home)	*Lifestyle cuts (Can I afford it? Won't be able to travel so much ☹)*
To keep in touch with work and people, in case I quit	*Will have to face my worst fears: 'not good or smart enough'*
Lifestyle, flexibility of work time and space, work-life balance?	*The final year sounds difficult*
Conference (national and international) travel (juhu!)	
Personal development	
Professional development	
Promising career opportunities, I can't apply for higher level roles although I'm doing high level academic work	
Prove to myself I can do it (sense of accomplishment)	
Completion (finish another degree), to add to my CV	

At the start of my PhD I was excited about new opportunities, learning new things, meeting and working with interesting and inspiring people, and felt proud and privileged to have been given the chance to become an *intellectual*, as my Dad said over Christmas dinner. He was beaming, I could tell he was proud. I listed things that I hoped the PhD would allow me to do:

December 2012
After PhD — write an easy-to-read kind of book of my PhD, e.g. 'How to survive the PhD'.

3 December 2012
I hope PhD will let me:
Travel
Learn other languages
Learn other cultures
Grow
Contribute to community
Accommodate family/personal life

18 January 2013
2 things I want from my PhD:

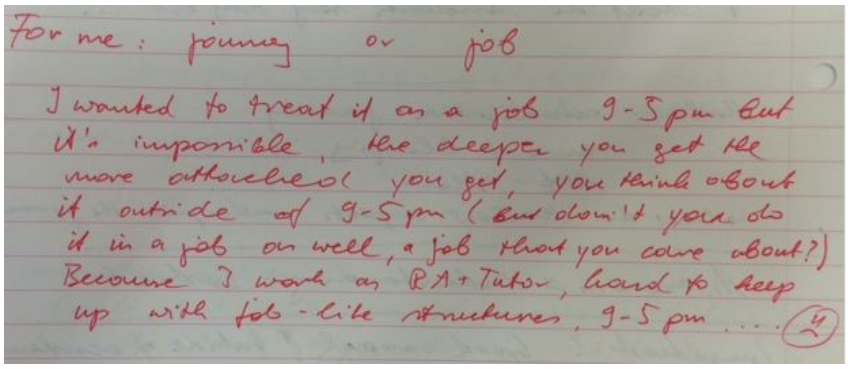
-it's got to be interesting (for me) & relevant (for others)

Clearly, I had great expectations. At this stage I had not yet understood what exactly was involved and how much could really be achieved in one PhD. I had been warned the PhD could take over, so life would have to fit in the cracks.

What did I even mean by *'help', 'supportive', 'making a contribution'* anyway? Only a few months into the PhD I had to question how I and others defined these terms and concepts. Some of these things I gave up soon after PhD enrolment. Studying abroad seemed too difficult. Designing a project to fit my topic and include offsite research seemed impossible. Besides, I felt the time pressure from the start, there was no time to dream, I had to make decisions and progress to the next stage. It was '*go, go, go'* from the start. Conference travel was limited and requests for funding proved cumbersome, so I tried not to get my hopes up for much international travel. Finally, I realised '*making a contribution'* has many meanings and I continued to seek and find different ones in my research.

PhD as a job

My initial approach and attitude towards the PhD was pragmatic. I decided to treat it as a job, perhaps just another job along the ones I was already doing. *Why would it be any different, I thought?* A job, by my definition, was work that was expected to be done even if I did not want to do it some days. I decided to be purposefully '*uncommitted*', I wrote, to avoid '*emotional breakdowns'* I heard and read about. In addition, doing a thesis by publication somewhat justified/excused emotional detachment. If I realised well into the PhD that this (doctoral research and academia) is not for me I could leave and potentially have something to show for it, i.e. published articles. Doing a PhD by publication felt less of an all-or-nothing investment, because a mid-PhD exit seemed less threatening. However, one month into the PhD I wrote about my worries that part-time work may take me away from PhD, physically and mentally. I was still determined to not let the PhD take over my life so I established strict work and PhD routines and schedules.


For me: journey or job

I wanted to treat it as a job 9-5 pm but it's impossible, the deeper you get the more obsessed you get, you think about it outside of 9-5 pm (but don't you do it in a job as well, a job that you care about?) Because I work as RA + Tutor, hard to keep up with job-like structures, 9-5 pm ...

Not getting attached to the PhD was never realistic. It is unavoidable. Academic work and research is a way of thinking and being that cannot be pressed between 9–5 pm. Personal and professional commitments naturally bleed and merge into each other. The PhD gets into your night dreams, occupies your thoughts on holidays, and takes over your life approaching deadlines and final submission.

28 December 2014
How do I feel about baby and PhD?
It's more that I'm trying to plan my new life as a Mum+family. PhD will fit in, like any other work would.

Applying for PhD candidature and scholarship

I had two attempts at applying to do a PhD. The first time I was an international student with no publications. I got a spot but no scholarship, which meant I could not afford to study. I reapplied after I became a permanent resident and had two publications. For the scholarship application I had to write a 1000 word statement about what made me fit to do a PhD, and how my previous research experience would benefit my topic, which was 'technology enhanced education' at the time. I approached a colleague at the centre, where I worked, who was an expert in this field and asked her if she would supervise me. She helped me through the application process.

Finding the right supervisor/s

After I enrolled and it was time to start on the research proposal, I reconsidered my topic. Although my main motivation was to learn how to do research, I did not want to investigate a topic I was not invested in. Three to four years is a long time. I talked to various people about my ideas. My close colleague was critical of my decision to research the doctoral student experience, but encouraged me to consider a topic I was passionate about. I

remember a long conversation in a meeting room where we stayed back after our project group meeting. This conversation was essentially about my own educational experience, how I got to where I was then, and my interests and my personal values. I decided I would research PhD students' experiences.

Change of topic required a change of supervisor. My colleague recommended to work with her colleague who I had never spoken with before, saying '*she would be great'*. I trusted my colleague, she was well established and probably knew my future supervisor well. I made an appointment. I remember feeling nervous before the first meeting, thinking she will probably expect me to know *exactly* what I am interested in.

I was lucky with my supervision. Although I had to change both my principal and associate supervisors in my final year I had the best PhD supervision I could possibly wish for. All my supervisors did what was expected of a good supervisor very well: they were reliable, took our meetings seriously, always provided timely and constructive feedback. More than that, they never made me feel stupid, excluded, or not good enough. They were patient and allowed time for me to figure things out, showing possibilities but never pushing to take a particular pathway and disregard another. I believe they made me a better researcher.

Seeking research questions

My research interests evolved from online education to doctoral education. At the time of applying for a PhD, my work context sparked my interest for the affordances that technology provided in education. Also at that time, I identified myself as an international student, and in conversations with friends and colleagues I was encouraged to reflect on my own international education experiences and make it the subject of my research. After some reading, I decided that in a multicultural place like Australia my story was not that different from other international student experiences and that it would not be of much interest. In the process, however, I discovered an interest in the doctoral student experience in Australia. The image of the PhD I had from my German friends was vividly contrasting to the painful and

stressful experience of my Australian PhD friends. Besides, literature and blogs like The Thesis Whisperer were filled with accounts of isolation and loneliness experienced by research students around the world and calls for more support. I knew in that meeting room that I made up my mind. I would talk to PhD students and ask them about social support. I would research their PhD experience while doing a PhD myself. Simple. *This would be fun!* By that time three months had passed and I felt the pressure to make a decision and stick to one topic of interest and start preparing my research proposal.

8 March 2013
Still looking for research questions. I think I struggle with finding the GAP because:
I haven't read enough & Don't know what, who or how to question. But I don't mind this status yet. I'll get there. [My supervisor] says so.

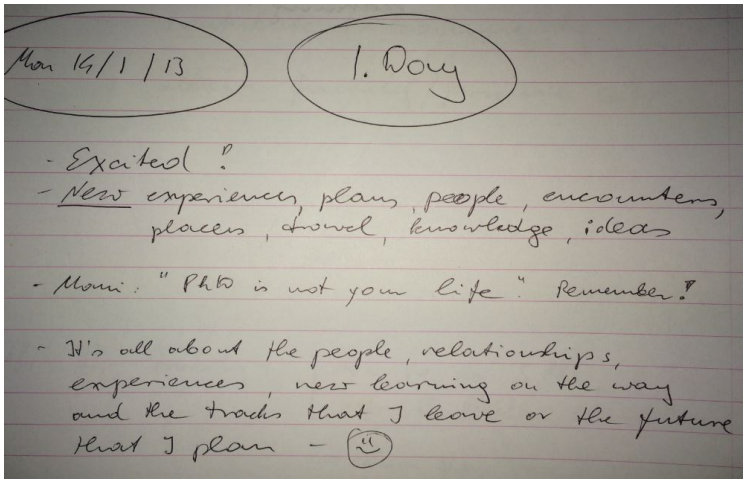
12 March 2013
Yesterday for the first time I felt frustration of not finding my research question, not even a narrower topic.

2 June 2014
On my way to uni. I am comfortable with insecurity and not knowing what will be next year. Is one of the PhD purposes to learn to go with the flow, accept the organic nature of research, forever changing and evolving???

16 December 2014
You only understand what you've done at the end of the PhD, people say. I think I finally learned to be and sit comfortably with the insecurity, not knowing.

My research questions continued to be vague until the end. I struggled to accept that I may not find concrete questions until the end, that seeking questions was a PhD outcome in itself. This contributed to my imposter feelings in the first two years. By *insecurity*, I meant I did not know if I and my research were good enough. Yet, I felt I had some control over these two factors by working hard, learning and developing. However, I also felt at this stage that PhD completion involved factors outside my control and this *scared* me.

Early days

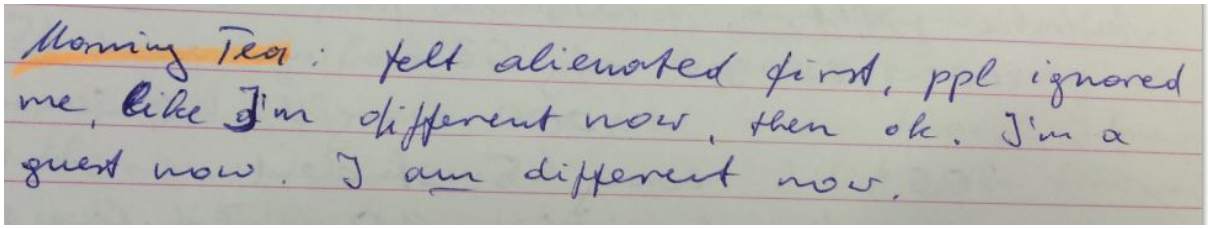

Mon 14/1/13

1. Day

- Excited!
- New experiences, plans, people, encounters, places, travel, knowledge, ideas
- Mom: "PhD is not your life." Remember!
- It's all about the people, relationships, experiences, new learning on the way and the tracks that I leave or the future that I plan - ☺

On my 'first day of school' I was euphoric. I looked forward to new experiences, making plans, discovery, meeting interesting people, stimulating encounters, visiting places, conference travel, gaining new knowledge, and developing new ideas. I wrote *'Excited!'* but at the same time a word of caution to not let it take over my life, quoting my husband's words. I posted a photo on Facebook that day of me with a stack of books on *How to do a PhD, How to do a better PhD,* etc., tagged *'My first day of school'*. '*School*' put me straight back in student shoes. I could have hugged the world, I was so excited.

I went to staff morning tea that day at my old workplace and felt something was different. I took a quick note in my diary. I felt people treated me differently. I thought that was silly.


Morning Tea: felt alienated first, ppl ignored me, like I'm different now, then ok. I'm a guest now. I am different now.

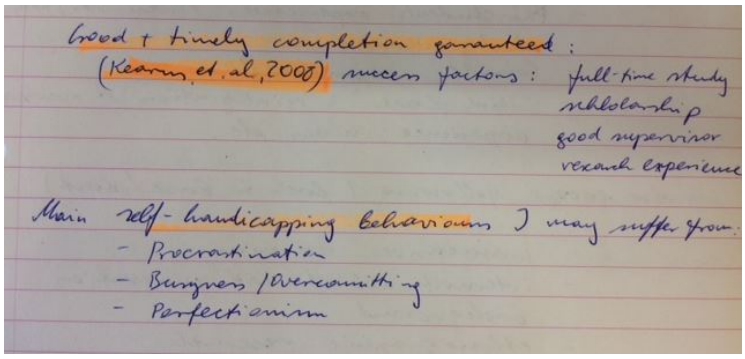
I started off by excessively reading any papers I could find on Google Scholar that were related to my (very broad) interests at this point, brainstorming and drawing mind maps.

I remember enjoying this freedom to think and read and write. After juggling several jobs at the time, the first PhD weeks felt like a luxury. I looked forward to dedicating my

focus on one thing. Reading, writing, thinking, have stimulating ideas, being creative, I imagined, was what researchers did all day, every day.

Apart from reading about other research, I read a variety of How To PhD books, guides and blogs, for success and motivation tips for PhD students. For instance, I learned the need to choose a good supervisor, on procrastination, overcommitment and perfectionism. I gathered what was needed to finish a PhD was persistence, organisational skills and discipline. I felt I had demonstrated these qualities in the past, which was a source of confidence. By this stage I felt like I knew what it meant to be a PhD student and felt prepared.

I sorted out the paperwork and studied PhD regulations and requirements. In my initial (unfocused) literature review I developed first ideas of methods to use, how to do research and what is involved in the process. I realised that there was an expectation of having undergone formal research training. While I had completed a Masters teaching degree and wrote a Master thesis, I realised I never understood what critical thinking really was and that it involved knowing and thinking about multiple perspectives to a problem, for instance, and justifying the selected solution approach. It involved a deep reflection on one's epistemological and ontological position. These were concepts completely foreign to me at this stage. *I had to google them!* I did not feel adequately 'trained'. I had read warnings about 'imposter syndrome' and believed I started experiencing it before I even properly began. *This PhD would be quite a ride, I thought.* I was determined to learn.



I also realised I was learning a whole new language, the academic language, on top of continuing to improve my general English skills, especially writing. The academic language, I discovered, was full of words that represented concepts and held different definitions for different people. Many have

challenged my assumptions from the start. *What was meant by doctoral 'training', 'identity', 'social support', 'scholar'?*

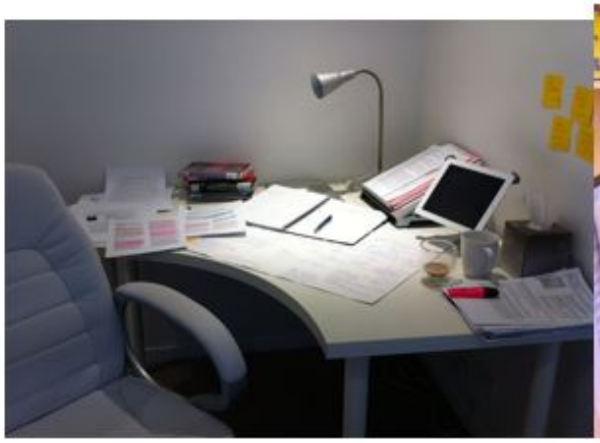
Setting up camp

I set out to organise myself, 'set up camp' and arrange my office on day one. I installed Zotero and set up a new Dropbox file 'PhD'. I scheduled a strict plan of separating days and times for PhD and paid work. I occupied three workstations in different offices across campus, for teaching, RA work and PhD. I was determined to continue working alongside PhD study, to maintain work experience, professional relationships and income. I imagined being organised and keeping things separate would help me focus on one thing at a time.

I know now that this is not how my brain works, nor does work at university. Keeping things separately, especially office-wise, was often impossible, because it was inefficient and wasted time. I ended up working everywhere and anytime, setting up 'camp' more than once. The photo below shows the various places I occupied to do PhD work. I remember taking those photos because I did not want to forget those moments. Each photo was symbolic, telling a story of who I was. For instance, my baby sleeping in my arms, physically attached to me and close to my heart, while my brain was doing intellectual work, far away from him. I still remember the heat his tiny body radiated and feeling proud to be *on top of things*, managing study and mothering. The marriage between my academic and personal identities could not be any stronger. These were also places where valuable work happened, that was enjoyable at the same time, where I was happy to do what I did (think, read and write), where I would have called myself a writer, a researcher, or an academic. Some of these snapshots were taken when I experienced breakthroughs, tiny AHA moments, which are only visible to myself. I described these places as *'spaces of brilliance'* in my conversation with my supervisor about an early draft of the autoethnography.


Lilia Mantai
PhDing & mothering: Responding to reviewers' feedback while rocking bub to sleep #PhDlife #survivephd15 #phdchat


Lilia Mantai
Thinking, reading & writing about PhD research workspaces while setting up office away from office #thankgod4coffee



Sticky conversations

At the start of my PhD I received various advices from my supervisor, colleagues and my husband, who just finished a PhD, on how to navigate the process and how to make the most of the experience. In retrospect, I was attuned to advice from the start. Although I was excited and hopeful and generally forward looking, my internal and reflective focus was intense as I was constantly trying to gauge if I was cut out for this.

I took note on some of the things people said to me that have stuck with me throughout the PhD and reassured me that I was capable of finishing. My supervisor, for instance, said '*Students are accepted into the PhD program because they have high potential to finish it.'* These words have encouraged me up to this point. They kept reminding me that someone had decided that I was good and capable enough, although I did not believe it.

On 12 March 2013 I noted another conversation: *I said to [my colleague] today: 'I can see what things I'm interested in but I don't know how to connect it.' My [colleague] replied: 'That's why you're doing a PhD, to find out. It's not meant to be easy.'* I struggled here with asking questions about things I did not know. While I was expected to present clear research questions at my proposal, at this stage I had only vague ideas of questions to ask, but lots of *things* I found interesting about the doctoral student experience and PhD education in general. How would I spend years working on something before having concrete research questions to stick to? It took me two years to accept that this is part of the research process — the more I learn about my field the more my research questions change in nuance and meaning. My colleague's words reminded me to be patient with myself.

An HDR person said at one point, '*this may be the only time you will be able to pursue your personal interests, focused and uncompromised, perhaps the only time in a researcher's career.'* I am sure she meant to motivate me, but I could not help thinking it sounded like a warning at the time. Other colleagues encouraged me to follow my passion and what I wanted to do. My mother-in-law was pragmatic and warned me that the topic must be relevant: *'Think about life after the PhD before the PhD'*. Even more strategic was the advice of a

colleague, a recent PhD graduate, who suggested to align my research interests with university's strategy to ensure financial support, continuation of research and future career. I thought about the divide in academic generations. The pragmatic advice by early career academics foreshadowed a lesser academic freedom and privilege that the senior colleagues have experienced perhaps. Now looking at the academic job market and the scarcity of research fellowships, I can see the disappointment expressed in those comments. Aligning one's research strategies seems risky considering how quickly they can change, but it is part of playing the game, especially when it comes to applying for funding. I felt I had to brace myself for an academic career, if I still wanted one after the PhD. I recorded many other conversations with diverse people in the years to come. A more recent one I noted after my first conference: *[My academic friend]: 'you've got the skill that you need and all reqs [requirements] to succeed, but you need to believe it, believe in yourself'.*

These conversations have stuck with me during the PhD and formed my first views of academia and academic practice.

Peers

When I initially considered investigating the role of social support in PhD progress, I wondered who *peers* were and what *peer support* was. To me, it was, and still is, an awkward term. I would never introduce my PhD friend as my *peer*, or email to the PhD group in my department *'Hi peers!'. Was I a 'peer' to them?* It seemed to be a term used to describe peers when they were absent.

15 May 2013
Example of peer support:
[My office mate] and me, chatting first thing when I come in. She said I was brave and advanced enough to produce something on paper [as I was writing about PhD journeys]. Then we talked about her research, ideas, concepts. That was a good learning experience for me, to think through other research ideas, give feedback in the way I'd want it. Talked about examiners, who to choose, how to interact with them so they don't get ruled out as examiners. It's ok to know them from conferences, etc. but can't have any work done together or anything. If they blind reviewed my stuff that's fine, I wouldn't know. This part can be quite political and strategic as well. Need to learn. Talking helps, I guess.

I remember thinking*, Oh boy, like I didn't have anything else to worry about! Now, I needed to learn about politics, and start thinking about examiners before I even properly began.* I grew very close and fond of my PhD friend, because we shared an office. We would share the good and the ugly, the gossip, unwritten rules and advice to help each other along.

At the time there were not many opportunities to get to know other PhD students in the department. I wanted to learn from other students' research so I scheduled regular lunches together and invited all PhD students from my department. I also felt the obligation to initiate this, what I considered 'support', because of my research. At the end of the year the department HDR coordinator suggested we organise a student-led HDR conference. I put my hand up to lead the team. I had just organised a second undergraduate research conference in my RA work, so I thought this would be a *piece of cake.* My main motivation was to grow a sense of togetherness amongst us, the PhD students, which was missing. This time reminded me of my final school years when I grew really close to my fellow students because we had studied late into the nights or worked all weekend to organise the school gala, charity concerts, school parties, etc. I also hoped to gain some visibility amongst the department academic staff. On 14 May 2014 I wrote: *I realised today, Education Department has no clue what I'm doing, as they don't sponsor my conferences-they don't know about QPR, etc.*

A few months later I organised a writing retreat in the Blue Mountains with a PhD student from a different faculty for a small interdisciplinary group of doctoral students. It was a lot of work, but was very rewarding. I could see myself doing this as a job: facilitating writing retreats off-campus. I considered applying for a grant. I wrote an outline, detailed procedures of setting up writing retreats, and compiled resources. I titled it *'Making thesis writing social'*. I was determined to change the assumption that writing was a lonely enterprise. However, this is one of the things I could not fit in my PhD. Sadly. I did, however, forward my *'Organising a Writing Retreat Toolkit'* to the HDR director at my department hoping future Education students may benefit from it.

Research proposal

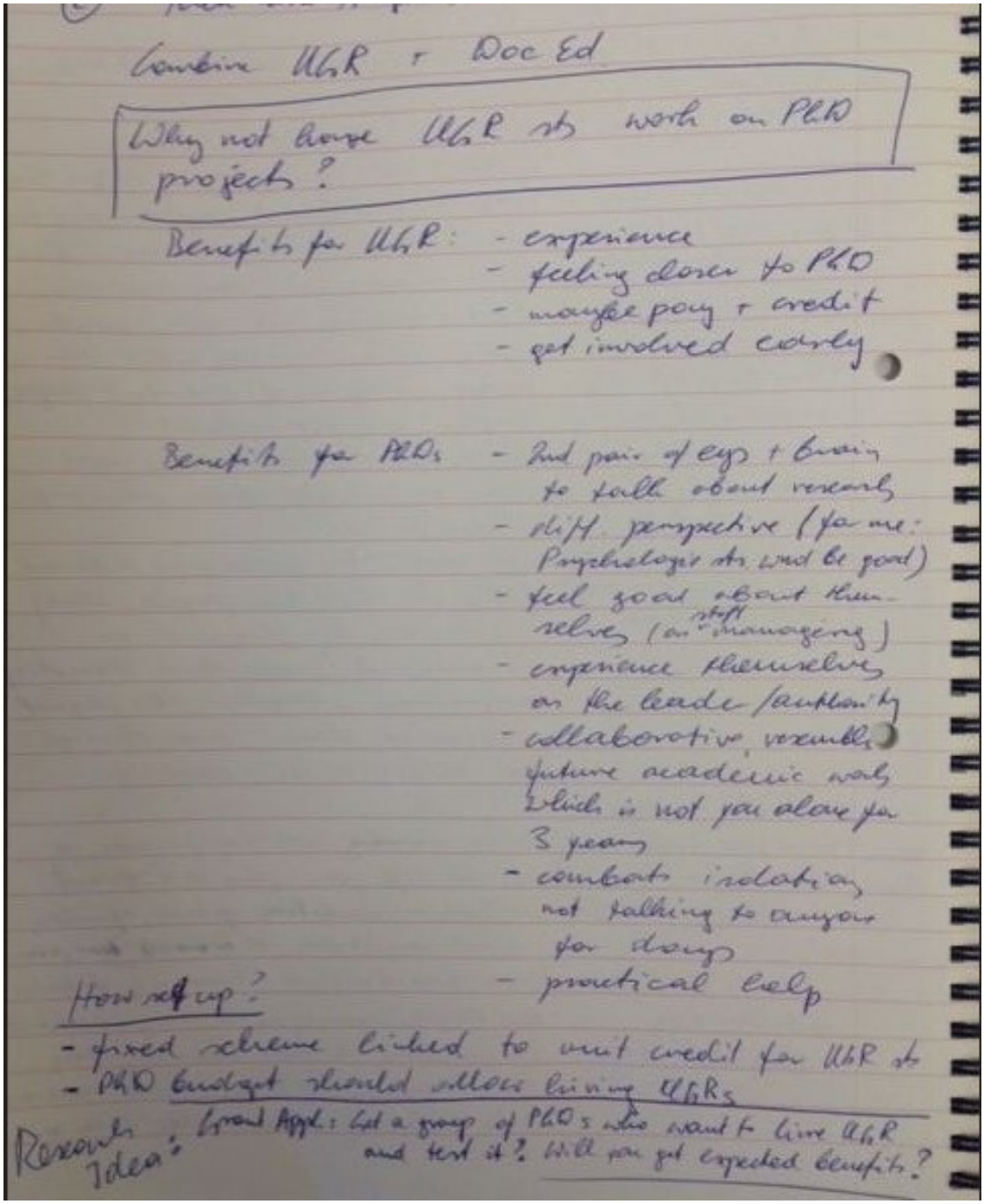
My research proposal seems insignificant now because it reads as being naïve and premature, but it felt like an important step forward at the time. Between sending the proposal to reviewers and later orally presenting it, my ideas began shifting and I questioned some of the things I wrote. On 24 July 2016 I commented on *'flaws in wording + structure + thinking + clarity that I didn't notice before. It's because I wrote so many drafts (too many) that I didn't see the details at the end.'* Also, I added a note to myself for the future highlighted by a box *'You can actually write too many drafts!!!'*

I marked the day of proposal as '*Research Proposal-checkmark! →success ☺ '* followed by a list of comments received in my diary on 7 August 2013. The feedback I received was positive, apparently I came across as confident in presenting. One of the reviewers wrote on the report: '*A well-crafted, well argued, and a beautifully written proposal. Lilia has set a very high bar for her peers.*' I proudly posted it on Facebook. I took note in my diary that day *'this will give me wings in times of doubt + despair'* and added a smiley. It meant a lot to me coming from a senior and experienced academic who probably sat through hundreds of proposal presentations. It also showed me that I perceived myself very differently from how others perceived me. Overall, it was an acknowledgement 'I was cut out to do a PhD', and a licence to continue. I celebrated by going out for dinner with my partner that day.

One person in the audience, I considered a colleague/friend at the time, made remarks about my idea of 'social support' that came across as patronising and somewhat rude. It was not only my personal perception, others, including my supervisor, commented on it, too. My supervisor mentioned, '*it'll be interesting to see what you make of it when you finish'.* It was personal then, but now that I am more confident I would be less attached to such critique. That experience also made me again question who peers were and what they did, e.g. whether they were always supportive, for instance.

Work alongside PhD — valuable synergies

I was determined to keep working while studying to capitalise on academic work experience and to maintain my networks. My work on promoting undergraduate research experiences opened my eyes to the potential of learning through research experience early on. Later, well into my PhD, I devised an idea, which I thought could potentially be my future career, my life's work.


Combine UGR + Doc Ed

Why not have UGR students work on PhD projects?

Benefits for UGR:
- experience
- feeling closer to PhD
- maybe pay + credit
- get involved early

Benefits for PhDs
- 2nd pair of eyes + brain to talk about research
- shift perspective (for me: Psychologist students would be good)
- feel good about themselves (as staff managing)
- experience themselves as the leader/authority
- collaborative, resembles future academic work which is not you alone for 3 years
- combats isolation, not talking to anyone for days
- practical help

How set up?
- fixed scheme linked to unit credit for UGR students
- PhD budget should allow hiring UGRs

Research Idea: Grant Appl.: Get a group of PhDs who want to hire UGR and test it? Will you get expected benefits?

At another stage, I worked with an academic on her data analysis and based on my research on doctoral identities I felt proud and competent I could help her interpret things *differently.*

14 May 2014
Doing research [on a project]. Today we had first data discussion and it was great. She loved my ideas! She was excited! Made me feel 'I can do it' — why can't I apply it to my research? Seems too complex, muddy.
[work on this project] gave me a confidence boost, which I need at the moment. I feel I'm quite needy at the moment, need more confirmation. I feel I'm just doing alright. But [my PhD supervisor] says "I will get it done in time, there will be a few bumps along the way but we'll do it'.
So what do I learn from [this project]?
Look at data again from scratch, focus on Researcher Identity (RI), Focus Groups only. Or look again at my theory/existing research first, work out conceptual framework.

Because I worked as a research assistant on this project, I was 'staff' and got invited to the department Christmas party that year. That was the first occasion to get to know the department academics and learn about their research.

I worked on two projects related to doctoral students and education. I enjoyed gaining additional insights in my area of interest. This research pointed to my participants' stories and stimulated further research questions, e.g. PhD work spaces. In the first project I was closely working with my supervisor and could observe how she approached research questions, interpreted the findings, and wrote reports. I remember being *sad* that the PhD did not allow enough time to work more often closely with one's supervisors. *I could have learned so much more!*

In the second project, I was employed to independently conduct an evaluation of supervision resources. I was given complete autonomy with the goal to advise the project team on how to proceed. I was pregnant and due in four months. My supervisor was concerned I was taking on too much, and rightly so. I had just come 'unstuck' after months of feeling lost, and I had my doubts, too. At this point I gained enough confidence, but I also felt the pressure to achieve *something else* to add to my CV, to add to my skills and work experience, in case this baby would make me 'unfunctional' for longer than I expected. If I had to quit after giving birth, I wanted to ensure that I had more avenues and professional connections at a different university, to find work in the future. But I felt like I was cheating

on [my supervisor], it was difficult for me to go against her advice when I needed her on my side and to be my friend.

5 February 2014
Feeling guilty for ignoring [supervisor's] advice, she was not happy and I behaved like an idiot stuttering sth [something] without confidence as if I had cheated.
All of a sudden I feel like maybe we're a team after all and I let her down. Are we supposed to make all decisions (even if not-PhD related or career-related) together? I hadn't realised so far that she cared much about what I do besides my PhD.
Are we a Team or no-Team?
Again, I feel the pressure to get involved in work and think about what's after PhD, PhD is not enough anymore.

When I successfully delivered the final report and met with the committee four weeks before the due date, I had never felt more professional in my life. Needless to say, it was an enormous confidence boost that translated into my self-efficacy and belief that I am doing something right, and that I can finish my PhD.

PhD and research events

I learned what is formally expected of doctoral students at HDR events, and other cross-faculty research seminars, workshops and visiting scholar talks. The central commencement one-day event, the official 'Welcome to PhD', marked the actual beginning of my PhD. I met my community of 'reference', other PhD students, and HDR support staff and learned about student services. From this day on, I identified more strongly with being a PhD student. I heard, once again, '*it won't be easy'*. The event facilitators presented the PhD as a journey and a rite of passage.

19 March 2013
[Researcher] visiting from the UK. [Supervisor] recommended going to her presentation on doctoral education. It was great! I struggled to form my question, first time I was acting as an inquiring researcher (even though a small group and [centre staff] only). I was also invited for lunch, later I shared cake with [supervisor, visiting scholar, and colleague]. Plus Working Group meeting that day. It was full on. Lots of networking and reflecting on my presence, how did I perform, what did I say, how did I say it? What impression did I leave. Always concerned, not to appear stupid. Because you feel stupid not knowing 'everything' they know. Knowing you can't know everything. Good experience.

I remember feeling *stupid* because I mostly listened. I did not understand the jargon, the acronyms of governmental and funding bodies they talked about. The preceding presentation, however, cemented my interest in doctoral education and researcher identity development research.

The first HDR seminars I attended were on well-being, motivation strategies, time management and life-work balance. I was told *'start writing lots and early'* so I signed up for a writing course to find out that I had to wait until my second year. I made a case for doing a thesis by publication and hence, my needs to learn academic writing sooner rather than later, and luckily I got in early. This gave me confidence in writing for publication early on.

Later on I got invited to attend a research workshop series facilitated by my centre colleagues and associate supervisor in cooperation with a different (non-HDR) unit on campus. In this series, I gained practical knowledge and skills as the workshops were practical, involved small group work and provided useful resources and references. I learned about different ways of doing research and knowledge pertinent to my research, e.g. interview techniques, qualitative methodologies, how to analyse narratives, etc.

Occasionally I would sign up for an all-welcome seminar or workshop at different faculties that I thought I could learn something from. For instance, I once signed up for an Early Career Researcher (ECR) training day, even though I wasn't sure if I was considered to be an ECR. Very few PhD students attended, in fact, probably thinking the same. That day I gained valuable knowledge on what grants to apply for as an ECR, tips on how to navigate careers, especially as a woman with a family, and how to network online, etc. I was so excited about all these insights that I wrote them up in a neat list of recommendations for PhD students. First I shared them with my ECR colleague, then my PhD roommates and other PhD students, and eventually I ended up writing posts for The Thesis Whisperer and the university's Learning and Teaching blog. This was a stimulating experience because it was about helping doctoral students.

To support PhD students is essentially why I set out to do this research. After the second focus group one of the participants said 'I feel liberated, I wish I had this every week'. Other participants sent emails thanking me for including them in my research. One international student in particular, whose experience reminded me so much of my own, wrote in her email:

'Even though these interviews are a part of your project, I actually feel like I get just as much support from you during this time as I do with many of my good friends in my program. Through talking with you, it helped me better realise the things that frustrate me and the things that motivate me. You have a very genuine disposition and interest that makes back and forth dialog very easy and friendly, which is sometimes exactly what you need on the difficult days of PhD life!'

It occurred to me, that my 'data collection phase' was in fact doctoral student support in itself, since it involved council sessions and opportunities to reflect with like-minded people. Participants saw in it an opportunity to talk, vent, whinge, reflect and exchange ideas and views on support that they used and needed. I tried to keep the 'whinging' at bay by being 'professional', keeping to schedule and allowing everyone to contribute to the discussion, cautiously ending each focus group session with a recent positive example of social support. Focus group participants exchanged contact details, advice and motivation tips. I felt, they left the group generally feeling 'it's not all negative', and that plenty of social support is available. As it became clear to me that I had a sense of mission (i.e. to improve students' PhD experience *now*), I felt my participants had one, too. One international student said that they wanted to voice issues they experienced in the hope that the situation would improve. This experience compelled me to start 'giving back' and being useful now, instead of after the PhD. From then on I regularly thought of what else could be done to support PhD students, starting with changing a few things at my department. I created a file where I would collect ideas. They included:

Pin up printouts of students' papers and abstracts in visible places
Have online profiles of students on the department website

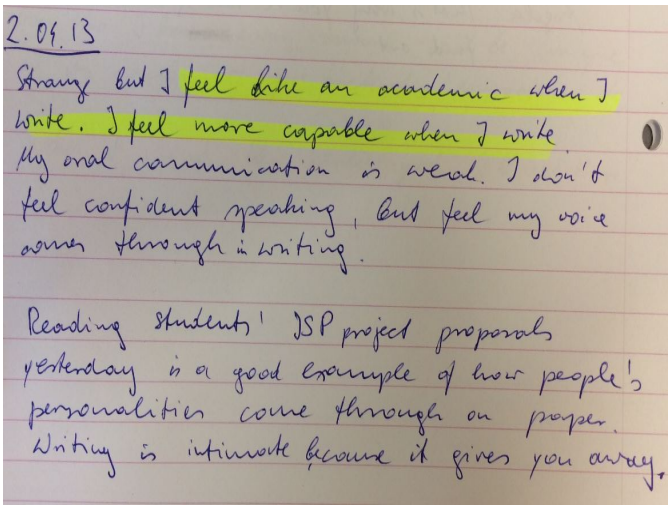
Put up PhD research posters in the corridors
Regular morning teas or other social events
Form accountability groups (how many words typed today? etc.)
Regular research group Q&A sessions
Write a presentation or a paper together (e.g. on collaborative practices in the PhD)
Have an online student forum
Buddy up old and new students, local and international students
Get PhDs involved in research planning meetings with faculty members
Book and journal clubs
Writing groups and boot camps
Regular Shut Up and Write groups

I realise now, most of these ideas are to increase students' visibility in the academic culture and to better connect students. I never shared these ideas with my department because I did not feel I was in the position to tell them what to do. Some of the things I listed may not have been feasible or required resources that were not there, nor were they original ideas. I thought if someone wanted to change the situation for students, surely they would have done it.

In my third year, when I was still working from home with a newborn, I signed up for and completed the 'How To Survive PhD' MOOC with The Thesis Whisperer, Inger Mewburn. The online unit focused on the emotional aspects and overcoming them in the PhD journey. I remember feeling a sense of community and being connected to PhD students worldwide, while I participated in discussion forums and the active Twitter thread. Not only did I find it helpful to understand my own experience better, but also my project. At that time, I juggled work as an academic developer (facilitating an online program on learning and teaching foundations), PhD research (specifically, writing up two papers), and mothering (specifically, sleep deprivation and a newborn).

These workshops and the writing course were my social support network on the one hand. On the other hand they constituted my personal researcher development program as they provided me with knowledge, information and skill training, beyond my topic or discipline. I saw it as my responsibility to seek research knowledge beyond the scope of my PhD.

Becoming a writer


2.04.13
Strange but I feel like an academic when I write. I feel more capable when I write. My oral communication is weak. I don't feel confident speaking, but feel my voice comes through in writing.

Reading students' ISP project proposals yesterday is a good example of how people's personalities come through on paper. Writing is intimate because it gives you away.

2 April 2013
Strange but I feel like an academic when I write. I feel more capable when I write. My oral communication is weak. I don't feel confident speaking, but feel my voice comes through in writing. Reading students' [...] project proposals yesterday is a good example of how people's personalities come through on paper. Writing is intimate because it gives you away.

This diary entry from 2 April 2013 describes a moment I experienced thinking, acting, and hence, feeling like a researcher. I still feel my writing will reveal if I understand a concept, if I am clear about the meaning of my words, if I am confident in my claims, no matter how hard I try to hide behind sophisticated words. Both my identity and competence as a researcher shine through my writing. There is nowhere to hide. I realised in that moment that writing was personal, no matter how much was hidden behind academic jargon and writing norms.

16 December 2014
Just found 1st draft of Res.Dev. paper — OMG total rubbish. I have to remember I am progressing and learning, it's a process of development. I am more mindful of that now, I should remind myself every time and not try to compress time as Greg said in reflection session.

28 December 2014
I used to think writing needs quiet space, lots of time and highest concentration, and luck and inspiration. Like all stars must be aligned for it to happen.
The more I read about writing (How to write a lot) and do writing, I realise it can (and must) be planned, scheduled, and simply done for it to happen, no rocket science. The ease and flow will come with practice. Trust!

29 November 2016
Now, close to submitting, I feel I can call myself a writer, which to me is just one element of being researcher. If anyone asked me today, I'd say I'm a writer.

I did not write for my PhD regularly, but I wrote a lot. Little of it was presentable. Doing a thesis by publication forces you early in the process to start writing, figure out what sort of writer you are, and what strategies work for you. I wrote for different audiences and purposes — journals, blogs, grant applications, and funding requests. I experimented with

different writing approaches. I tried to draft, re-draft, and re-re-draft. I prepared outlines before writing. Sometimes I started a draft by imagining I was talking to a friend. The first draft of my thesis discussion was a rant, I loved writing it! Other times I imagined writing a novel, plotting, adding suspense, developing characters. Most of the creative stuff was usually edited out to make it more 'academic', to my regret. I recall waking up, thinking of PhD or writing mental notes. I would get up, write ideas in my diary and formulate whole paragraphs that I would edit the next day.

I made writing social, in cafes, writing retreats, *Shut Up and Write* sessions, etc. I wrote a solid first draft of my book chapter for the *Postgraduate Guide* surrounded by other PhD students, food and coffee at an off-campus writing retreat. *It was fun and stimulating. I felt creative.* As I grow increasingly confident in my English and writing, I am becoming more adventurous, creative. I enjoy toying with writing and feel I will miss it when this is over.

Becoming an inquisitive reader

22 November 2013
While reading paper: Navigating the Doctoral Experience…
my thoughts:
I find I can navigate thru papers faster, read faster, move thru better, because Writing Course taught me the paper structure. I recognise the 'skeleton' and paragraph themes, signalling sentences, etc.
It took me almost a year to understand what 'theoretical concepts or underpinnings' are and how they fit into studies.
Throughout the year I learned to think more analytically, questioning more, toying with ideas. I learned to enjoy the thinking process, which (thinking) requires time and privacy and quiet place.

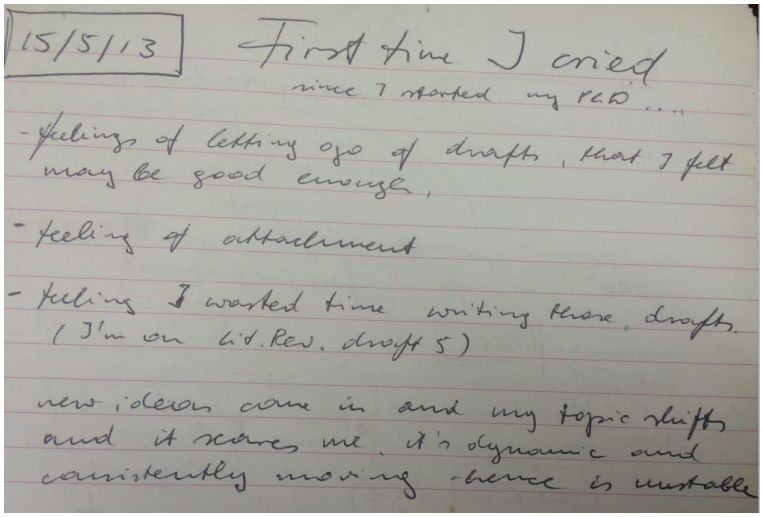
28 December 2014
I love the feeling of learning.
If that's the only thing that a PhD gives me, then that's ok. I'm feeling smarter than 2 yrs ago, I think.

I finished reading 'Wife Drought' and I felt I learned sth. I could see the weaknesses and the strengths of the book. I can say why I liked it and why not. Previously I struggled with that. Anyway, that's just a side note.

Through the PhD I have grown to be more inquisitive. I noted this in several entries, commenting that this is perhaps the best lesson learned from the PhD. I felt critical thinking and questioning would benefit not only my professional or academic life, but also in making important personal decisions. For me, it meant questioning the status quo, not taking for granted things 'because they have always been like that', asking 'what if', and exploring alternatives. I wondered if this ability to question and the drive to look for better ways was in essence, the meaning of life. My new, more inquisitive, mind has provided me with plenty of stimulating and inspiring conversations during the PhD and I felt like this was just the beginning.

Tears

I suspected that I may cry at some point, when it all seemed too hard. Most PhD stories I read suggested it was part of the journey. However, I did not expect I would cry because I had to let go of drafts I had written.

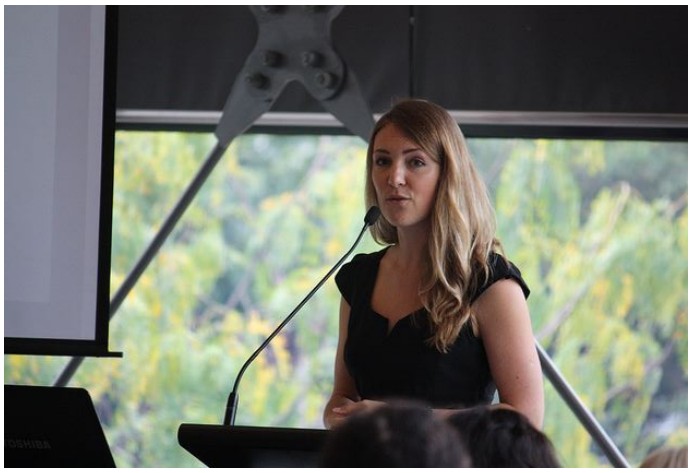

15/5/13 First time I cried since I started my PhD ....
- feelings of letting go of drafts, that I felt may be good enough,
- feeling of attachment
- feeling I wasted time writing those drafts. (I'm on Lit. Rev. draft 5)
new ideas come in and my topic shifts and it scares me. it's dynamic and consistently moving. hence is unstable

It seems like an overreaction now, because those were early and premature ideas far removed from my current argument, but back then the sadness was deep. Letting go of drafts and starting all over again felt like a waste of working hours that the PhD allowed no time for. Doing all of this other work and essentially not dedicating myself full time to PhD research meant I had to get it right, and that there was no time to waste. I cried three more times. The next time I was angry. I was submitting a request for funding to my department to use as

transcription credit in the following year. There were no precedents of advance transcription credits in the department. My research, based on numerous interviews and focus groups, relied on funding, that I was eligible to request, to pay student participation incentives and transcription costs.

November 2013
I understand [their] workload, stress, pressures, doesn't change the fact that I feel terrible, being treated like least priority, nuisance. It was probably bad timing, I tell myself.
I told others [PhD friends], and they reminded me to be aware of [their] workload and pressures. Bad timing.
This just really spoils my feeling of accomplishment and feeling good about this year (I've done two HDR conferences, my PhD proposal) before leaving [home for Christmas]. Feeling nervous and anxious about losing $1500 of credit for next year.

I cried two other times in my second year. After my second presentation at my first international conference on doctoral education, I was very emotional. I ran into my supervisor and my colleague/mentor and saw them smiling at me congratulating on a job well done. I dissolved in an instant. I physically could not stop the tears, the sobbing. I had to explain the breakdown because I did not want them to think I was not resilient enough. I confided that I have just recently experienced a miscarriage and that I felt silly for crying now although the presentations went reasonably well. The few challenging questions I got asked at the presentations were just a tipping point. I felt like I was talking to close friends or parents, they hugged me, we laughed. This photo was taken of me at the conference. One can perhaps sense a little tension, but only I can tell the insecurity I felt during that presentation. I performed as was expected, pushing all doubts and emotions aside. I still think this kind of 'performance' is the hardest thing to do in the PhD. After the event, I took photos with my supervisor and



colleague like a fan with her celebrities. We celebrated with margaritas and Mexican food. From then on, I felt my supervisory relationship was more personal.

Just before my second international conference in Hong Kong, I was stressed, stuck and felt I had no idea what I was doing. Besides, I was working through a personal loss. I remember taking this photo of a hanging tree I saw on a conference poster because it resembled my feelings at the time. It was struggling to stay rooted, grounded, trying to hold on to the edge of the cliff as if to escape the abyss. In a way, that was my new identity I was working on. I was a student, but worked hard to act like an expert, a researcher who knows what they are doing, as was expected of me as a presenter at an international conference. For me, it also represented the identity-trajectory idea of holding on to past and present to move forward. I had booked a flight home immediately after the conference to see family in Germany and get as far as possible away from the PhD. I was in desperate need of comfort only my family could provide.

Fear and panic

Rereading my diary, it seems emotions dominated a great part of my PhD. Most times I kept emotions to myself or shared them with my husband. Others would probably say *I composed myself really well during the PhD.* At the start I tried not to show my anxiety to my supervisors, because I needed them to trust in me when I could not. Later, I felt it was important that they knew I was panicky, anxious or lost.

24 June 2014
Emotions that drive me:
I want to be known for something
Pride
I'm not a quitter
Prove sth. to myself
Comparing myself with peers and participants

I admitted, and added with a different pen, later that I also wanted to impress my supervisors.

I circled '*Emotions*' and added '*change daily: yesterday tears, thinking I'm stupid; today LOL.'*

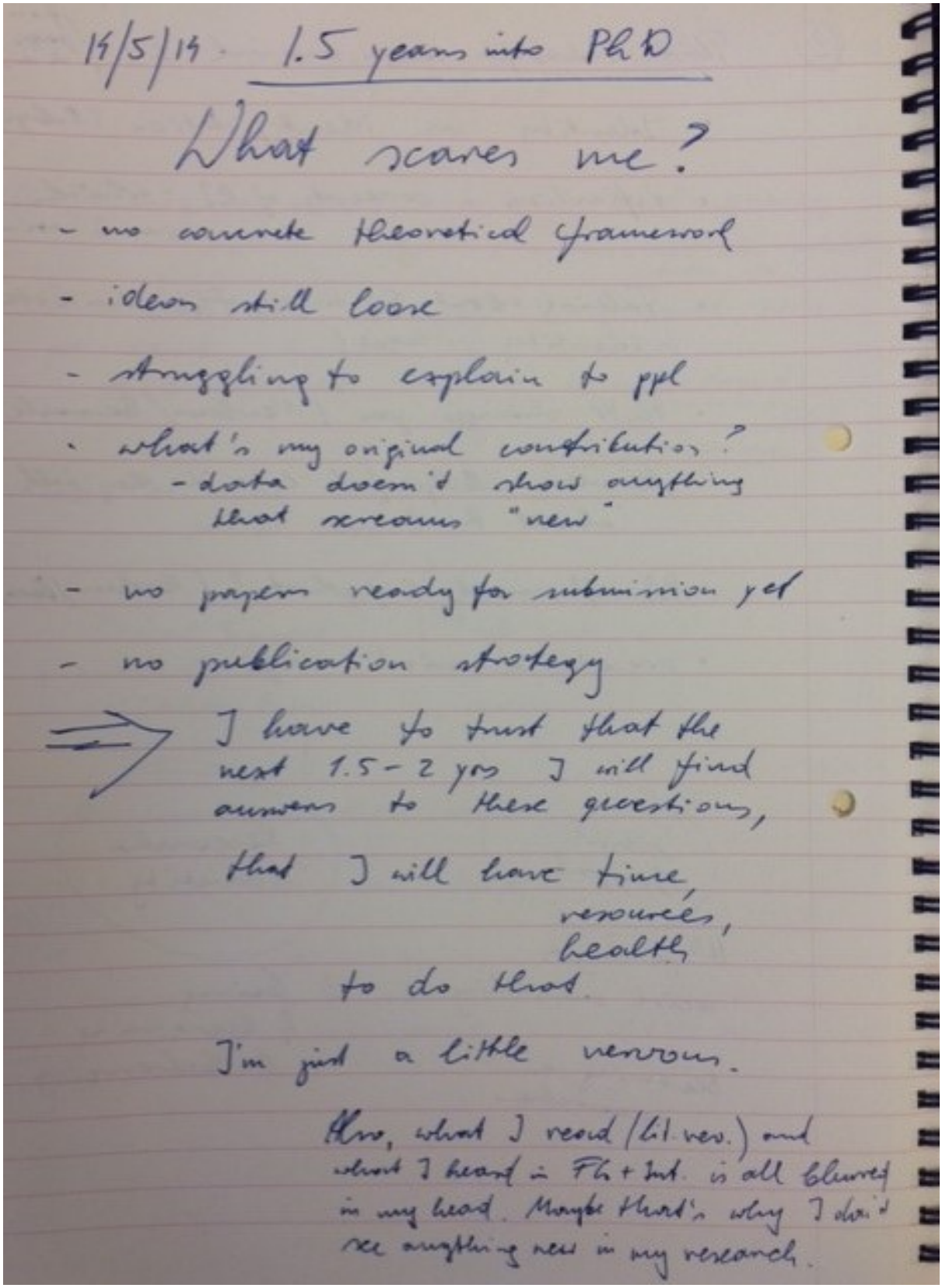
24 July 2014
2 weeks to HERDSA
Panic attack, fear, can't sleep
Need to submit sth to [supervisor] by tomorrow lunchtime-anxious. I don't have anything substantial.
Emotions (driven by pride and fear): 1) I want to impress (cos my data are interesting I need to present it, show it). 2) more than that I don't want to embarrass myself.
Feeling anger at the PhD, time pressures, myself for scheduling a conference again (maybe too soon), that it consumes me, stresses me.
Need to relax to have ideas coming
As soon as I stop pressuring myself or resist the stress I'm fine and clear
The walk to work, fresh air, tea, music helped me relax, seeing photos of family/[my nephew] with strawberries on my computer screen, I'll see them in 3 weeks. Need to earn it.

I am on the edge, verge of breaking down, I am worried for my mental and physical health. What if I faint now ([my husband] was sleeping).

At the time of writing this section I aim to submit in eight weeks (December 2016). In contrast to 2014, I feel calm now.

Stuck

I did not know it at the time, but I experienced the infamous 'second year dip or crisis'.



15/5/14 1.5 years into PhD

What scares me?

- no concrete theoretical framework
- ideas still loose
- struggling to explain to ppl
- what's my original contribution?
  - data doesn't show anything that screams "new"
- no papers ready for submission yet
- no publication strategy

⇒ I have to trust that the next 1.5 – 2 yrs I will find answers to these questions, that I will have time, resources, health to do that.

I'm just a little nervous.

Also, what I read (lit. rev.) and what I heard in Ph + Int. is all blurred in my head. Maybe that's why I don'd see anything new in my research.

On 15/ August 2014 I wrote:

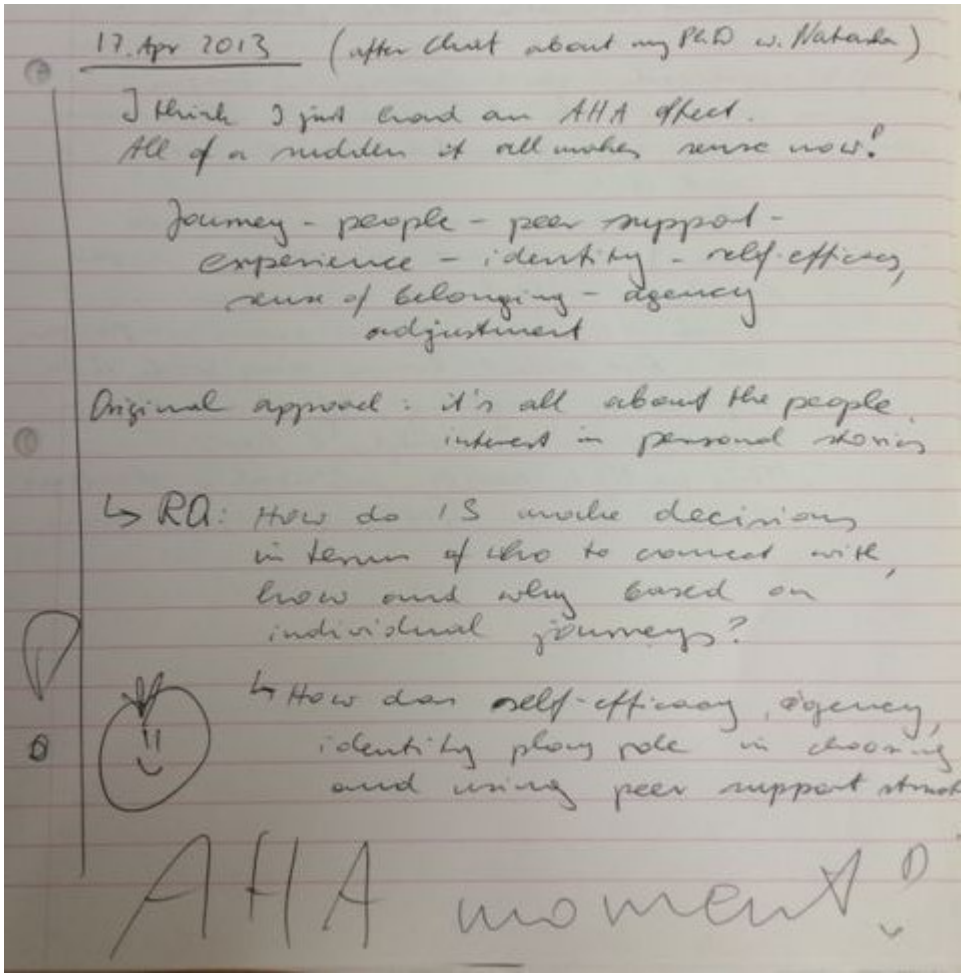
Feeling lost for months now. ☹Today, two things motivate me to keep going: 1. If I fail, I'll go and work for an NGO and actually help people. 2. I need a BIG clean-up, start-over: organise Zotero, Dropbox PhD file, my reading. I need a systematic approach, possibly new systematic lit review. Haven't written much lately. So a quick wrap-up: I still have my doubts, no idea where this is all going. Focusing on one paper (that makes sense) helps. Other thoughts: What's all the fuss about the PhD? It's a job. Go in, get it done. Do your job or get fired. Cf. to publish or perish (in academia). Just do it! (Doctoral Writing Blog)

9 December 2014
It's been 3 months since last entry ☹. I didn't feel the need to write but should have. In this time I reflected a lot, but through my writing (Res. Dev. [on Researcher Development] paper). I did a mindfulness course for PhD students (I helped organise it) and reflection research with [academic], reflecting on how I work, think, making decisions. Plus two writing retreats, on campus and in the Blue Mountains. Res. Dev. and ACK [on theses acknowledgements] paper take forever! ☹

15 December 2014
Came back from Fairmont, Blue Mountains, lots of PhD baby talk this weekend. Need to focus on Res. Dev. paper tomorrow.
Disappointed I won't get it out before Xmas, oh well, c'est la vie. Same with ACK paper.
Found Åkerlind's paper, now reworking.
For next time: do an outline, otherwise I'll spend 30 drafts again rewriting.
I'm clearer about what I do (PhD). I realise the first paper approach (think on paper/thru writing/ was necessary.
Why?
-test writing style
-test different ideas
-observe editing process and learn from feedback (based on reviews from supervisors)

Sometimes I got unstuck slowly. Sometimes it felt like a sudden epiphany.

2 July 2014
Halleluja! Eureka moment! I googled it, there is science behind Eureka and AHA moments! Comes from being stuck and then relaxing your mind. I just love learning things like that.


17. Apr 2013 (after chat about my PhD w. Natasha)

I think I just had an AHA effect.
All of a sudden it all makes sense now!

Journey - people - peer support -
experience - identity - self-efficacy,
sense of belonging - agency
adjustment

Original approach: it's all about the people,
interest in personal stories

↳ RQ: How do IS make decisions
in terms of who to connect with,
how and why based on
individual journeys?

↳ How does self-efficacy, agency,
identity play role in choosing
and using peer support struct

AHA moment!

I smiled as I read this. It seems naïve now to have claimed three months into my PhD that *'all of a sudden it all makes sense now!*', but that is how it felt at the time.

Identity-building

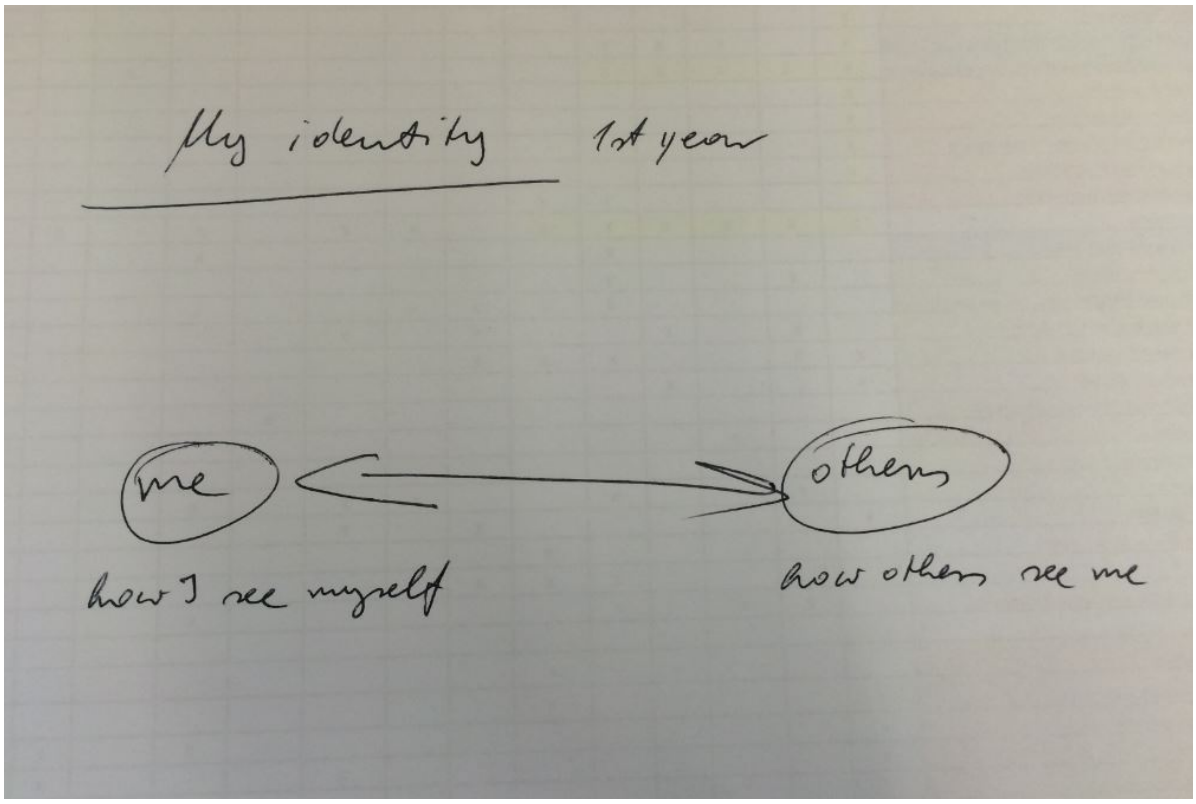
In my third year I began identifying myself more strongly as a researcher in doctoral education. I was still cautious to call myself an expert, but I certainly began noticing I had something to say that others found interesting.

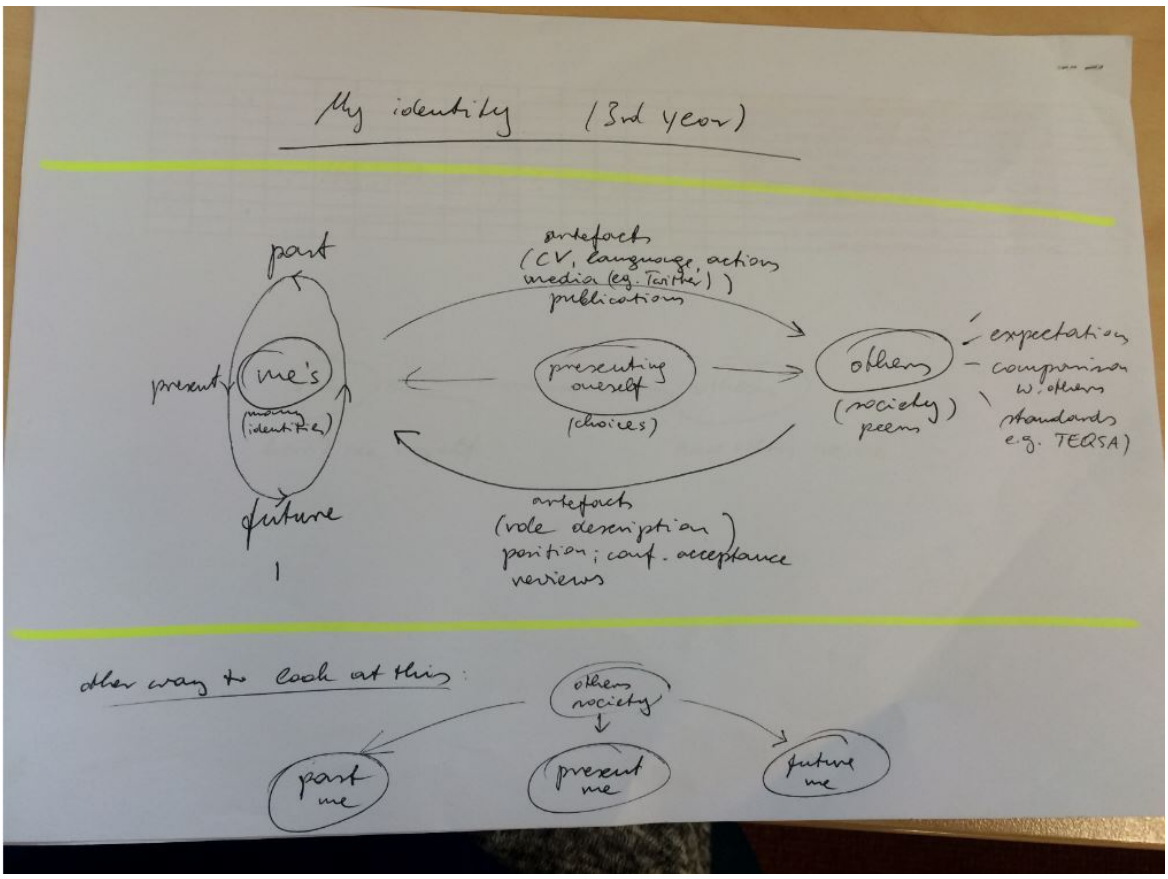
I was invited to a few talks. First was a panel on *'How to network at conferences and online'*. I realised then that I was doing a better than average job in networking. Then I was asked to share my PhD story and success tips on a panel in a Master of Research unit. HDR staff invited me to give a short presentation on the PhD experience as part of the PhD movie night event on campus. My personal highlight was when my supervisor offered me a part in her keynote titled *'PhD student: doing, being and moving on'* at the Research Futures Forum

for higher degree research students at the University of Western Sydney. Her confidence in me and sharing her 'spotlight' meant a great deal to my sense of competence and identity. It also showed that my research was valued. I regarded these events useful because:

- they offered a chance to promote my research and myself as an expert in this area
- the audience could potentially be my future colleagues
- they offered an opportunity to consolidate my research and key messages for different audiences
- they were opportunities to practise and perform what it means to be an academic researcher, feel less like a student and more like part of the academic community, and hence, experience myself as confident and knowledgeable
- they also felt like 'giving back' to community and a contribution to knowledge. It gave *us*, i.e. myself and my research, meaning.

Around that time, I reflected on how simple my ideas were at the start. I found two contrasting sketches I drew of how I viewed 'identity'. To me, they present a vivid image of how far I have come.



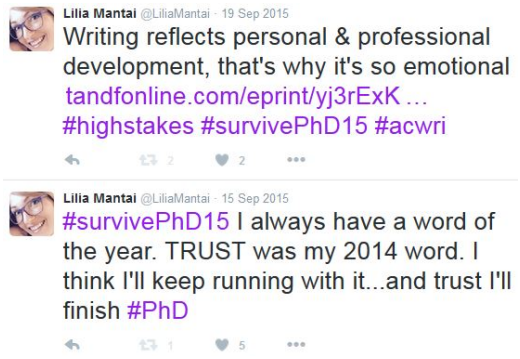


Online identity as a researcher

In my second year I grew increasingly aware of the benefits of social media for professional, and specifically academic, career purposes. I got on Twitter before I attended my first international conference. The timing could not have been better. I knew most of my academic celebrities, i.e. experts in my field, would be there, many of whom were actively tweeting. I included the person in one of my first conference tweets, whom I desperately wanted to meet face-to-face. During the coffee break, I was breaking my head over what to say if I had a chance to introduce myself, when all of a sudden she turned around and said: *'Hi, I saw you on Twitter, welcome!'* Instantaneously, I felt one of 'them', no longer anonymous, I felt that sense of community and belonging that PhD students should feel in a best-case PhD scenario. I felt like a researcher.

Since then, I have been actively involved on Twitter, particularly during conferences or special events. Soon after my Twitter and public researcher identity debut I joined

researchgate.net and academia.com to be able to follow the work of the prominent researchers in my field and connect with them online and uncommitted. Seeing researchers across the planet follow my work, for me, also generates a sense of purpose and meaning for my research, although few requests have resulted in mutual interactions or conversations so far. They can present real professional opportunities as well. For instance, recently I was contacted by someone from a fairly well-known organisation asking if I would be interested in working with them. On 20 May 2014, I noted that I joined the LinkedIn group of AERA-SIG doctoral research and the IDERN network that I stumbled upon while specifically searching professional networks related to my topic. When the first emails I received from IDERN came from people I recognised as the authors of most papers I read, I felt like I hit a gold mine. Being informed through the conversations and exchange of ideas and new resources (papers, reports, and initiatives) shared through via the IDERN email group was priceless.



Through tweeting and carefully grooming, e.g. updating publications on my profile, participating in discussions, following other researchers' work, my academic online profiles have become part of my identity work. Constructing one's researcher identity in public online space has become one of the key accountabilities of my PhD role. How do I present myself as a researcher? How do I describe myself as a person? Should I disclose my personal identities, e.g. as a new mum, for instance? How do I communicate my research and invite others to connect with me? Who am I and how do I want to be perceived? How can I promote my research without being 'shamelessly' engaging in 'self-promotion' when no one else will promote my research for me. Finally, do I have something important enough to say that others should know about? Such questions, I noted in several entries, are essential to identity work. Identity work, for me, includes internal imagining and external constructing of who I am as a researcher.

Constructing, performing and promoting an external (i.e. public) identity as a researcher or academic seems to have become more and more important when looking for employment. The last question, I increasingly realise, is a tricky one for PhD students like myself. As my overall argument crystallises, I grow in confidence that I have something to say and contribute to knowledge and the research community.

Constructing one's identity starts with an email signature. On several occasions and while working in various roles across campus, I struggled to decide how I should sign off, what role I identified with most, what would adequately describe me as a member of the university's working community without confusing people. I found different solutions at different stages, sometimes I would list the role that was prominent at that point in time, or the one I was most proud of, or the one that would (conveniently) assign me greater authority or credibility. For instance, in my final year I did not do any university work and signed off as a 'PhD candidate', even though I felt that this only presented a miniscule part of who I was and what I could contribute in terms of skills and knowledge. In the previous year, 'academic developer' proudly preceded 'PhD candidate'. Now, my email signature additionally links to my recent publications and invites people to '*Connect with me via Researchgate, Academia, LinkedIn and Twitter'*. Looking back and forward to the end of the PhD, my focus begins to turn from inward self-concept to public self-presentation and communication of my multiple researcher identities, as a writer, thinker, etc.

Thesis by publication

Choosing to do a PhD by publication was beneficial to experiencing myself as a researcher sooner in the process. I saw the advantage for my academic career and found the prospect of publishing exhilarating.

I submitted my first paper on Christmas Eve 2014 to *Studies of Higher Education*, a top journal in higher education, two years into my PhD. It took me about thirty drafts, numerous discussions with my supervisor, several feedback rounds on her and other people's behalf, and

approximately six months to get to that point. I prayed that I had not exhausted my supervisor's patience mid-PhD. At the end I felt I had nothing new to say, because I had said it so many times in so many ways that I doubted it would be of interest to anyone. Yet, I felt proud at submission stage because I had demonstrated resilience and persistence — it was about taking one step, writing one page, editing one draft at the time. That was a valuable lesson learned and from then on I rarely thought about the end of the PhD, and instead, thought about the next step and the next paper.

Getting the first paper out of the way felt like an enormous achievement regardless of its outcome. From there I could confidently say I was a researcher, and not just a PhD student. Yes, I had done it with my supervisor's help, but it was my work, my data, my thoughts, and my language. In hindsight, I am even more grateful to her for letting me own this first paper. The first paper was important in content because it set the tone for the whole PhD. It urged you to figure out your methodology, theoretical framework, your research questions, and importantly question your assumptions. This is when I started asking myself all the hard questions, *what do I want to find out, what is the problem, and what kind of researcher am I?* I certainly felt I was entering the world of my *gurus* (this is what I called them in my diary), asking for their permission to be included. I could not wait for the feedback.

Three months later I received a conditional acceptance email with very clear and constructive feedback. *Was I lucky? Had I earned it by writing those 30 drafts?* That positive feedback on my very first PhD publication, I realise now, was a tipping point. I felt I was welcome, I had something to say and I was certainly cut out for this. Although doubts and imposter feelings crept up on me from time to time in the years to come, I always had this first acceptance to fall back on. If it had been a rejection, or worse for me, negative feedback saying something along the lines *'this is far from good enough'* and *'I have never seen a worse paper',* I would most certainly not have recovered from it, not for a long time, at least.

I was not always *lucky*. I received a 'desk rejection' of my paper on thesis acknowledgements, explaining that the journal did not see a valuable contribution in the

research. It was published elsewhere and was recently awarded as a Highly Commended Paper by the publisher's network. Academia is full of contradictions, I learned.

Reaching the end and the beginning

Now that I am approaching the end of my PhD journey and the beginning of my hopefully academic career, my gaze turns back and forward. I review the journey travelled and reflect on who I have come to be and what I have learned. This diary has enabled me to reconstruct the events of my PhD and my becoming as a researcher, a writer, an academic, a professional. Re-reading the individual notes felt like receiving letters to myself from the previous version of me. I now realise that the thesis is less important, and that it is the personal and professional growth that are the main outcomes of this PhD. I ask myself: How am I different today than I was before? What have I learned about myself? How did the process empower me in my work, and in my life? I did not have the words to respond until I read the Thesis Whisperer blog on 23 October. I listed that day:

I learned to write (in English), read faster, and think critically.
I enjoy writing, it is a craft, a puzzle and play with words
I learned that I enjoy mind stimulating work
I learned I am capable
I learned how I work best (with others!), get to know myself better, and what I still need to learn
I learned other skills to help me in any prof [professional] context, too
Not afraid to appear stupid.
I can learn anything because I work hard and I'm committed.
I learned Methods make knowledge.

In reconstructing myself in this section, my PhD research emerged as an organic process, changing from page to page. I now understand the true depth of what the 'researcher's role in research' means as I ask myself these questions: What sort of researcher, academic and professional has my PhD (its methodology and topic) made me? I realise both, the topic chosen and methodology are extensions of myself, my beliefs and values. Also, I started off wanting to make a contribution and add value, to myself and others. This has driven many of the activities I participated in throughout the PhD.

I have one regret, I wished I had wandered more. I wished I had more time at the beginning to learn alternative ways of being and doing. Just as how reading the blog gave me the words to express what I felt, I learned that ideas come at random moments, triggered by different people, places — but they need time.

What now?

Reflecting on what I have learned leads me to ask 'learned for what'? How can I apply my knowledge to various settings and employment outside academia. How can I make a difference to the things I learned to care about when I finish? Who will read this thesis? I could turn my PhD into something creative, visible and practical, I wonder, perhaps a comic book, a video, a documentary, an exhibition of stories, art... what else? I catch myself wishing I had more time.

Whilst busy writing up, my mind wanders off to thinking about the future. I noted on 30 October 2016:

I want to stay and ponder and figure out what I want but there is no time! But what's next? Do I want to be an academic? If not, what other options do I have (as I don't see any)? Although I gained various work experience at university, gained some ideas about academia, I don't see opportunities outside, my horizons are limited, shift in my efficacy and confidence.
What do I do now to differentiate myself, to be more compatible? Why would anyone care about my research, no one reads it!

I find little comfort in all the things I have done: I can be a researcher, an academic and a professional. I feel I am all in one. Luckily, I was offered a professional position immediately following my submission. I wonder though: How can I keep up my research, and importantly, my research 'track record'? I have booked a visit in Europe with a professor I met at the QPR (Quality in Postgraduate Research) conference dinner. She wants to do research with me. We get along so well, we talk about the differences in doctoral education and student support, and have discovered that we share a love for food and chai.

I have had two papers accepted with my colleague on undergraduate research. Various other research and writing tasks are lined up with people across the planet. I realise I will have

to find 'research and writing' time while I am working full-time and raising a toddler, in the hope it will help me get a research role further down the track. I am nervous.

Postlude

Writing autoethnography was emotional. I have never written anything so personal for the public, nor did I intend to at the start of the PhD, but I felt I owed it to my participants. The small stories above are all connected. Similarly to my research participants' stories presented in sections 4.4 and 4.7, these small stories describe tipping points, shifts in my self-concept, in how I saw myself as a growing professional, and how my personal identities fit in. For instance, receiving encouragement after a successful presentation as a formal recognition of my growing researcher identity boosted my confidence. I, too, felt part of the academic community and growing sense of being and performing like a university professional when I was teaching while studying. When my sense of self was reduced to 'just a student' such experiences lifted my self-worth, reenergised and reassured me that this line of work was for me and I was capable of doing it. Writing 'Feeling like a researcher' paper helped me learn that my ideas of identity at the start of my PhD, including my own identities as a researcher and an early academic, were too simple and have now evolved to become rich in complexity. Reflecting and rereading my diary highlighted moments of agency, where I took initiative or used opportunities and avenues to learn about being a researcher and an academic outside my PhD research, e.g. attending research seminars at other departments, teaching, helping others with their research projects (as documented in section 4.5). As my participants, I also learned agency and initiative were paramount in getting successfully through the PhD and building valuable social and professional connections. At the same time we collectively realised that sometimes higher forces were at work, of personal and structural nature. Sections 4.3 and 4.7, in particular, highlighted multiple PhD events and experiences that can be considered either enabling or restricting to students' agency, growth and progress. For instance, events such as absent supervision and inflexible funding regulations (institutional), or family issues and

sickness (personal), are likely to have some negative impact on PhD students' experience, progress as well as identities and are outside students' control. .'Luckily', I had not experienced too many events that were outside my control and I was often able to exercise agency and direct my PhD journey the way I wanted. And still, I also experienced pitfalls, rejections, inflexibility, unanswered emails. Part of agency, I learned then, is how one chooses to respond to hardships, learn from it and move on. Although I read and heard that '*the PhD would be hard',* nothing could fully prepare me for it. I felt reminded of childbirth and parenting — you can only learn by experiencing it yourself and dealing with it in your own ways. The small stories above tell about my coming-of-age, my growing-up as a researcher and an academic, and how I am gradually beginning to assert myself as a professional in general.

My PhD took me places, shared every hour of my time, day or night, and connected me with people. I did my PhD not only at Macquarie University; I worked online and offline, in libraries in the city and at other universities across Sydney, hotel rooms and lobbies, airport lounges, conference venues, cafes, parks, my dining table, on trains and planes, in Australia, Germany, and Hong Kong. *Thinking* about the PhD happened while I was also at countless other places. The physical distribution of my identities was again called into realisation by the importance of space and place raised by my research participants, in the 'Spaces' paper (section 4.6). While I felt like a researcher whenever I settled into a space to think, I was externally affirmed as a researcher, when I was in spatial and social proximity to other thinkers, researchers and academics.

My PhD was social. I worked alone, but also often with others, feeding from their motivation, commitment, conversation breaks, and their physical presence. I got work done in writing groups, Shut Up and Write sessions, writing retreats, workshops, one-on-one and side-by-side, with family on Skype, and a baby on my chest or in arm's reach. The distribution of PhD work in its broadest sense, e.g. thinking and writing, seems to know no boundaries. The PhD was my constant companion even if I fought it now and then.

Numerous people on and off campus have supported my development along the way, knowingly and unknowingly. I realise now that their kindness, friendship, good will, genuine care for my development, and academic collegiality is what I mean when I say 'I feel supported'. The 'Acknowledgements' paper (section 4.2) and the 'Social Support' paper (section 4.3) assert this is the case for many other participants. The social and professional support networks of PhD students cross institutional and national boundaries and include family, friends, supervisors, colleagues, research participants, and many other people inside or outside students' PhD research context. Without reflection, as prompted by this autoethnography and writing thesis acknowledgements at the end of the PhD in general, much of this support can remain forgotten in the persevering view that the PhD is a one individual's work.

Most diary quotes stem from the first two years of my PhD. It was a time busy with identity work: searching, hoping, trusting, reflecting, assessing, constructing, imagining and performing. My diary entries in the last two years are dominated by reading notes, paper outlines, argument structures, to-do lists, writing and research ideas. It seems the first half of my PhD was a time to find the researcher in me, while the second half was about performing and practicing as one. This observation reflects two other things. Firstly, I had a baby in 2015 and my priorities shifted, I was now learning to be a mum in the first place. Second, I felt I have done enough for my CV and my future as well as for my 'professional ego' and 'reputation' through various work experiences, it was time to trust and focus on completing of what was expected and move on.

This section tells my story of being and becoming in the PhD, but I realise it is told not through my experience alone but through the voices of my participants and my fellow students. Autoethnography fittingly portrays research and identity development as a researcher in the PhD as a messy and confusing process, quite the opposite of what research publications and dissertations make us believe. Autoethnography brings to the fore the great power of small stories, and the power of the personal. Manguso's *Ongoingness* (2015) and

Academic Diary by Les Back (2011) offer great examples of the power of the diary and small everyday experiences documented in journaling. *Ongoingness* reminds us that writing is as much about not forgetting, and communicating to the future self and others. Les Back opens up the possibility of academic (i.e. supported by previous research) argument to merge with personal realities and lived experiences. This sense of mourning post-PhD in relation to the doctorate as a profound period of discovery, thinking and reflection has been documented by Grant (2007). Writing this section feels like a gift to myself. It also feels like a thesis acknowledgement. It allows me to pause, reflect and appreciate what the PhD has done for me. I feel I am about to say *Thank you and Goodbye* to a close friend, and let go. I will miss it.

Chapter 5

Discussion and conclusion

The previous chapter have shown that the PhD is a social and collaborative journey of researcher identity development, and that candidates' past experiences and future aspirations play an important role in how they navigate this journey and how they perceive their diverse doctoral identities. The thesis aims to demystify the development of doctoral candidates' identities, with a special focus on researcher identities according to the purpose of the PhD. Its findings provide a nuanced understanding of the inherently social and collaborative nature of the identity development process. They also point to evidence that candidates seek to gain broader professional development for various employment contexts, which further benefits the development of researcher identities. Based on the findings, this thesis highlights the role of social, cultural and spatial elements in researcher identity development. It demonstrates how PhD candidates' researcher identity development is facilitated through social interactions, relationships and networks, social support and a sense of belonging, visibility and presence on campus, broader academic and professional development, and general work experience. All this facilitates an internal sense (hence, the word choice 'feeling') of an identity as a researcher. In short, connections and wider professional learning helps candidates become researchers. The individual points are argued in separate Findings sections and publications. The findings raise questions in regards to the purpose, and fit of doctoral programs and support for doctoral candidates. This chapter discusses the implications of the thesis findings.

In contrast to the traditional purpose of the PhD degree as an apprenticeship for academia, the focus of the doctorate today is on developing researchers. This thesis proposes, however, doctoral identities need to be viewed as acquiring professional rather than 'only' researcher identities. The doctoral student cohort is growing and diversifying. The academic employment market accommodates less than half of all doctoral graduates (GCA, 2014) and PhD graduates' career destinations are increasingly diverse, e.g. in industry, government, and

community (Neumann & Tan, 2011; Nowviskie, 2011). However, many candidates desire academic employment (Roach & Sauermann, 2010; Russo, 2011; Waaijer, 2016), yet experiences of research and academic work during PhD study as individualistic and isolated endeavours and a shortage of stable academic employment give rise to significant dissatisfaction amongst graduates and early career academics and researchers (Harman, 2003b). As Australian universities continue to promote their doctoral degrees and recruit more candidates (Universities Australia, 2013), they have an obligation to provide candidates with skills and attributes that prepare them for a variety of employment contexts. In light of graduates' diverse careers versus their desires, it seems important to focus not only on what PhD graduates get in terms of careers, but equally on what they want, do and get in the PhD.

Keeping in mind PhD graduates' diverse professional trajectories, the following elaborates on the thesis findings: a) the critical role of social interactions and connectedness, and b) the importance of non-PhD research-related (i.e. professional) experiences in doctoral researcher identity development. This thesis shows that the PhD journey emerges as a process in which students seek to develop researcher, academic and professional identities. This chapter highlights the contribution of the thesis by discussing implications of the findings and making recommendations for doctoral students, higher degree research supervisors, higher degree research support staff, doctoral student services, and institutions.

5.1 The need to connect

The candidate's socialisation context is important to all candidates, irrespective of their future career aspirations, whether it involves becoming a researcher, an academic, or a professional in a general sense. The academic culture essentially forms the socialisation context of doctoral candidates, also referred to as the 'scholarly climate' by Deem and Brehony (2000) and 'research learning environment' (Pearson & Brew, 2002). The literature suggests that the academic culture should be collegial, welcoming and inclusive to new members, such as doctoral candidates (Deem & Brehony, 2000; Gardner, 2008b; Pearson & Brew, 2002; Weidman & Stein, 2003) to strengthen their confidence and support their

emerging identities as researchers. However, the literature and this research point to evidence that, in reality, candidates are not always well embedded in academic cultures, and nor do they always feel connected and included in academic research communities (Carpenter, 2012; Coates & Edwards, 2009). These figures and the accounts of isolation and exclusion reported in this thesis cannot be ignored as they point to issues that impact on the PhD experience and candidates' sense of confidence, connectedness, and ultimately their researcher and professional identities.

This thesis claims candidates can benefit from personal and professional connections with people in the academic research community for three reasons. Firstly, for university careers, learning the subtle and hidden rules of academia (Brause, 2000; Smith, 2010) is one of the benefits of having close and meaningful relationships with members of the academic community. A lot of the learning about what a career in academia entails and what other options are available to PhD graduates happens in casual everyday conversations with people. Such learning includes knowledge about one's research field, procedures and stages of a research process, norms and values of disciplines, departments and institutions, and the tacit rules of academia. Members of the academic research community can teach candidates what a doctoral program alone cannot, e.g. review research and writing, navigate power relations, the hidden aspects of the academic game (e.g. how to publish and promote one's research), interdisciplinary research, curriculum design, policy writing, etc. These elements are essential to understanding one's fit and interest in working as an academic, a researcher or any other professional. Research shows candidates are overly optimistic about the outcomes of a PhD qualification (Woolston, 2015). They also know little of the inner workings of the academy (Golde & Dore, 2001), unless they have previously gained experience in or are still in academic employment alongside their PhD study. The PhD alone offers limited insights into the academy, its structures and academic work life. Having close colleagues and friends in academia may help gain a clearer and fuller picture of the variety of academic and professional careers at university and employment options beyond.

Secondly, a higher degree of connectedness can improve a PhD student's imminent experience by making them feel accepted, included and supported (Deem & Brehony, 2000; Gardner, 2008a; Pearson & Brew, 2002). The challenging and isolating nature of doctoral research conflicts with the candidate's need to connect. The status and role of 'student' seems to create real barriers, as it demarcates doctoral candidates as lesser and lower than academic staff. In this thesis, candidates reported a perception of distinct difference between 'students' and 'academics'. There are examples of this division in this thesis, including the exclusion of PhD students from departmental or other representative meetings unless students work as staff, even if meeting discussions may concern doctoral students, e.g. allocation of office space and supplies, teaching and tutoring classes, or marking hours. This thesis shows such instances are viewed by students as evidence of power relations and hierarchies, and inhibit candidates' sense of belonging. Previous research has shown that if candidates feel intellectually and socially excluded or marginalised, they are likely to be less invested in academic careers (Russo, 2011), which can prohibit early or timely PhD completion. This thesis sheds light on the socio-spatial dimension of researcher identity development. Where research students work and study influences how they experience themselves as researchers. Physical separation may increase emotional disconnection, limiting how far one can envision oneself doing this type of work for life. This manifests in the physical dislocation of PhD candidates to offices or areas separated from academic staff (see 4.6). On the other hand, greater connectedness with a range of supportive individuals and groups increases the possibility of receiving encouragement, validation and external recognition. These were identified as critical factors in developing a sense of confidence and authority as a researcher in this thesis (see 4.4 and 4.7). Candidates' sentiments of feeling unequal and invisible (e.g. 'maybe they might know who I am when I graduate' (4.3)) may suggest candidates hope for a better future if they stay in academia once they graduate. However, hierarchical structures are inherent in universities' systems and are perpetuated after the PhD, such that they are deeply felt by long time casual or part-time academics (Harman, 2003b).

Thirdly, candidates strategically and actively seek connections to the professional community in their socialisation context (which for doctoral candidates is the academic research community), in order to establish professional connections that could lead to paid work opportunities during the PhD, research collaborations, and future employment. It is for these reasons, candidates take on teaching, like Jacob in 4.7, and invest considerable personal time into creating a social, supportive and collegial culture in their department and in maintaining connections with others, like Ida in 4.7. In addition, the autoethnography (4.8) strongly suggests, that uptake of professional and academic work opportunities during the PhD may not be optional, but rather essential, if the candidate is pursuing an academic career. Social and informal gatherings in the department, for example, are generally regarded as great opportunities for networking and enhancing one's connectedness (4.3). It has been found previously, that personal and professional relationships provide a positive foundation for a productive or committed career (Weidman & Stein, 2003) in any professional context. However, with the traditional PhD degree being situated in academia, opportunities to establish professional relationships and networks are often limited to academia. For instance, supervisors usually holding academic positions with little non-academic professional work experience are often not in a position to advise candidates and show alternative career options. Wider connections and networks with various individuals in and outside academia may be beneficial to candidates' professional futures.

Overall, candidates' personal and professional identities are social as they are developed in direct relation to others, e.g. in everyday interactions and work settings. This thesis indicates PhD candidates need to be better connected with peers, professional networks and communities. Universities' academics and researchers are often the main and closest, although not the only, professional community candidates encounter and learn from. Essentially, people develop people, and professional learning occurs through meaningful connections with those who had learned the ropes previously and are invested in sharing their knowledge with newcomers. Collaborating, networking, and forming social relationships with members in the

academic research community enable possibilities of professional learning and development, for research-based careers and beyond.

5.2 The need for professional development

The longitudinal comparison of initial and follow-up interviews revealed candidates actively engage in other-than-PhD activities, suggesting that 'just doing the PhD' may not be enough for a future career, in academia and beyond. This warrants further discussion of what candidates need from the PhD today.

Since research candidates' employment destinations are varied, supervisors and HDR staff supporting candidates need to acknowledge the need for wider engagement in academic and non-academic communities and support candidates' agency in seeking the experiences they want. Wider professional development is also important for those candidates aspiring to academic careers, as academic work is increasingly diversifying and requires broadly applicable and transferrable skills, e.g. leadership, communication and persuasion skills, project management, and entrepreneurship (Harman, 2003b). This seems particularly important in any professional sector that is marked by casual or part-time, contracted and project-based employment, a phenomenon not only increasingly observed in academia but in other sectors as well (Burgess, Campbell & May, 2008). PhD candidates cannot assume to have one stable form of employment, but may juggle several roles and projects at times or change jobs frequently. As such, researcher, academic and professional identities are becoming even more diverse and multi-layered, demanding diverse knowledge and skills from PhD graduates beyond research for their theses. Professional, as well as personal, identities are not mutually exclusive but are intimately interwoven and develop simultaneously (Colbeck, 2008). This thesis raises the question of how the PhD can future-proof PhD graduates and prepare them for academic and non-academic careers, in other words, what those PhD graduates' identities should be.

Previous research found academic practice and researcher development benefit each other, e.g. in writing groups, and where research, teaching and service work are integrated

(Colbeck, 2008; Lee & Boud, 2003). The findings in this thesis confirm that gaining academic work experience goes hand in hand with developing as a researcher. They show that much of what candidates, including myself, learn about research and researcher practice occurs through activities not only related to candidates' PhD research. Moreover, researcher identity development is facilitated in wider engagement with academic culture, through candidates' social networks, supportive and collegial relationships, collaborative practices, and wider professional development. These experiences, in turn, help candidates internalise a sense of confidence and competence, and eventually of feeling like a researcher. Activities where candidates feel like researchers include teaching, tutoring, supervising and mentoring undergraduate candidates, attending research seminars, discussing someone else's research, reading, research assistantship work, reviewing papers, organising events such as conferences and social gatherings, etc. (4.4 and 4.5). Here, academia and research intercept and the synergies of academic and researcher identities become clear. Although the traditional purpose of a PhD degree is to provide an apprenticeship for academia, the importance of academic work experience like teaching during the PhD is hardly recognised and undervalued (Golde & Dore, 2001; Greer et al., 2016; Jepsen et al., 2012).

This thesis shows that candidates who engage in academic practice such as teaching during their PhD gain greater confidence and are more likely to identify themselves as academics (4.7). Those who do not teach, struggle to identify themselves academics, and view themselves as researchers in training. This implies that students feel readily prepared for researcher positions only, which arguably limits their future employment options. In this context, participating in academic work practices and university life during the PhD may have the potential to break down the perceived hierarchical barriers between 'students' and university staff. Candidates, who teach for instance, feel an advantage when applying for academic posts (Blouin & Moss, 2015). Participants in this research who stated being engaged in other-than-PhD activities and as part of university staff, were generally more positive in relation to their perception of feeling supported, socially and professionally

connected, and more hopeful in regards to future employment (4.7). Re-reading my PhD diary, I realise my experience aligns with that of my research participants and as such, strengthens the evidence supporting the argument for teaching integration in PhD programs. Teaching is not limited to face-to-face classroom time. It involves a range of tasks, such as marking, the creation of online resources, maintaining an online presence of the unit, designing learning activities, facilitating project or group work online and in and outside the classroom, and consultation hours (Brew et al., 2011). Brew and others (Boud & Brew, 2013; Brew & Boud, 1996; Brew et al., 2011) discuss a range of other activities, broadly summarised under academic development needs, that academics are expected to do and need help with developing. Their research finds that academics are less invested in formal training of these practices after their doctorates. This suggests that the doctorate is a critical time to develop skills beyond research or to at least gain diverse academic work experiences if the goal is to educate productive and versatile academics. This thesis points to limited opportunities and support of academic and general professional development for PhD candidates that would prepare them for jobs other than research-only roles.

Wider research training seems particularly pressing considering the trend towards interdisciplinary research (Holley, 2015; Kehm, 2006), where broad knowledge of different research procedures and methodologies, for instance, as well as collaborative skills are required. Interdisciplinary research, while bearing complexities and challenges, nevertheless offers scope for broader research education and acquiring generic and transferable skills (Holley, 2015). Collaborative, problem-solving and critical thinking skills, for instance, are critical in any employment context.

Through an opening up of PhD programs to incorporate non-academic opportunities or enabling authentic professional work and engagement opportunities with academic and professional staff (e.g. industry, governmental bodies, community, etc.), institutions could provide important benefits to candidates, which may unearth possibilities of a research-based career in and outside academia. Even more importantly, candidates potentially would gain

confidence and experiences with various professional practices, when it comes to applying for post-PhD employment.

With PhD research being the core developmental context, it is limited in what skills and capabilities it aims to develop in candidates. PhD candidates can be seen as assuming narrow professional identities, scoped within the theoretical and methodological knowledge and respective skills of their research. The 'narrow' identity may be stronger perceived by candidates who cannot envisage options for research-based professional careers outside of academia, simply because they have not been exposed to opportunities. In light of limited employment opportunities in their academic discipline and broader skill sets required for academic and non-academic positions, PhD candidates rely on their agency to gain skills and experience that would increase their employability.

5.3 Benefits and challenges of professional development in PhD

This thesis argues that researcher identity development is a social and collaborative process, yet doctoral researchers experience emotional and physical disconnections from the academic community as their first-point-of contact professional community. This chapter argues that doctoral candidates may gain greater benefits if they were well connected, socially and spatially, to academic communities and engaged in diverse professional and non-academic practices during the PhD. The need is strengthened by the findings that candidates perceived their PhD to be insufficient to make them competitive in the precarious academic labour market. This perception was expressed in focus groups and interviews, where candidates actively sought out and participated in practices that extended beyond PhD research. Candidates stated that they endeavoured to be physically ‘more visible’ and that they engaged with wider networks and other professional learning opportunities to extend their skills, get to know more people and increase their chances of getting a job (discussed in detail in sections 4.3, 4.6 and 4.7 of this thesis).

This research highlights several benefits of candidates’ engagement in other-than-PhD activities. Firstly, through exposure to diverse work practices, doctoral researchers can test

and assess if the career they envision, with its benefits and challenges, aligns with personal life trajectories and is a feasible career pathway. Secondly, work experience results in additional skills or qualifications (e.g. not-PhD related publications, familiarity with statistical analysis programs) to add to one's CV as ongoing work experience as opposed to study. This and the confidence, authority and self-belief potentially gained in the process help the candidate to more likely see themselves as a professional or an expert, e.g. a well-rounded academic researcher. Thirdly, meeting and working with various people across different employment sectors may lead to lasting professional connections and future employment, collaborations or partnerships. Besides, accomplishing academic tasks places candidates on a more equal footing with other university staff as they contribute to the university's achievements and are part of the university's collective. This can be beneficial to their sense of belonging and membership in the university's community during study. Moreover, working doctoral researchers make an immediate contribution and provide immediate return, economically speaking, for instance, to university life by being part of the university's workforce in teaching undergraduates. This sense of contribution and 'giving back' is important to the candidate's sense of competence, self-efficacy and professionalism (4.3). And last but not least, such work experience, if remunerated appropriately, generates income, another factor separating a 'student' from an 'employee'. The thesis' findings suggest that promoting academic and professional identities of PhD candidates seems to shape early career researchers, who feel better prepared and confident in their skills and knowledge. This lays the foundation for commitment, dedication and productivity (Weidman & Stein, 2003) in one's future career as well as leads to content employees. Universities and governments who are highly invested in doctoral education will welcome such outcomes.

There are challenges with opening up PhDs to broader academic experiences. Firstly, opportunities to gain other than PhD-research experience must not mean to add on to candidates' workload, but to integrate experiences that allow for synergies between research and other work practices. For instance, this could involve offering candidates the opportunity

to give talks or guest lectures on their topic of research to an academic audience or a local community. Secondly, a certain degree of formalisation and regulation of such opportunities may be required to facilitate such experiences appropriately and equitably to assure accessibility and availability for the diversity of PhD candidates who want to work during study. This may be the case if continuous partnerships with industry and temporary placements for doctoral students are considered. This brings with it bureaucratic necessities, paperwork, staff resources, etc. Thirdly, real work experience opportunities can only be limited as not every candidate can be meaningfully engaging with the whole range of university work without jeopardising their research project and timely completion. Work and non-PhD projects that candidates would engage in could be closely related to the candidate's topic or include familiar methodologies or research tools, for instance. Besides, university (e.g. academic) work is diverse and its practices are constantly changing. Although the majority of PhD candidates wish to pursue an academic career (Edwards et al., 2011), many do not. These candidates would benefit from work opportunities that connect their research and skills with non-academic bodies, e.g. industry or government. Hence, academic work opportunities cannot be mandated to all candidates, but they may need institutional support in seeking such opportunities. This may include consulting candidates' personal and professional relationships, connections and networks. Further, suggesting to let students seek their own work experience in whatever professional context they choose assumes a certain type of candidate: a self-determined and pro-active individual. It assumes someone who knows how to exercise their agency and is able to balance work and PhD study. Not every PhD student knows what they want, or how to navigate careers and/or political and power relations. They may need support and advice from supervisors and others involved in their PhDs in channelling their agency and using their time wisely. Other candidates, e.g. international candidates or non-English speakers, may be naturally and physically inhibited in showing initiative. Even the most pro-active candidates may be undergoing personal challenges (e.g. mental health issues, a relationship break-up, poor or negligent supervision,

or bullying) at some point of their PhD journey, as evidenced in research participants' diverse PhD experiences.

This thesis provides a starting point for exploring how to navigate the PhD journey through the consideration of candidates' personalities and their individual identity-trajectories, as well as their lived experiences before and their imagined futures (McAlpine, 2012) after the PhD. Doctoral education as supervision needs to incorporate conversations about past achievements as well as future plans and career aspirations. In this context, discussion and planning could focus on which activities to do, events to attend, work experience to test, people to connect with, etc. As such, career planning for doctoral candidates ideally starts at PhD entry (McAlpine & Åkerlind, 2010) and includes authentic hands-on experience, engagement with relevant people and networks, and gaining realistic views of preferred careers. This way, student's agency and efforts can be used and directed more purposefully and efficiently. The result could perhaps be a more satisfying and less isolated PhD experience, filled with career opportunities and viable employment options, as candidates feel better prepared, skilled, confident and capable to relate what they have learned on their journeys to various professional careers. The following sections revisit the PhD journey to draw conclusions from the discussion presented above.

5.4 Research in company: travelling together

This thesis makes clear that researcher identities do not develop in social nor spatial isolation, nor in an individualistic manner. Students engage in non-PhD related practices and learn more than research procedures and research skills. In this context, there seems to be a need to re-assess the conceptualisation of the PhD degree as an individualistic process. It is worth contemplating whether institutional guidelines on doctoral programs, PhD guides, books and blogs that present the PhD as a necessarily individualistic (and hence, lonely) journey perhaps prevent candidates from considering collaborative practices through overly negative prophesies and the false assumption of the PhD being an individualistic process. Doctoral study requirements could perhaps open up to possibilities of including collaborative

practices, e.g. data collection with the help of undergraduate research students, and data analysis in research peer groups. Understandably, to earn the title of Doctor of Philosophy, one needs to be able to claim responsibility for the doctoral research. However, various collaborative practices can be accommodated during the PhD, which should be communicated by institutions and supervisors.

Researchers today are expected to be networked, collaborative, pro-active and entrepreneurial in promoting their research agendas, and self-marketing (Harman, 2003b). Yet, the PhD thesis is still assessed as an individual's work and largely disregards the collaborative practices that co-shape the writing and thinking invested in its production stage. The abundance of social and collaborative practices that contribute to PhD research are evidenced in thesis acknowledgements (see 4.2). Mentions of helpful individuals in thesis acknowledgements hardly does their contributions any justice. Collaborative and collective practices that shape any PhD need to be better acknowledged. The collective contribution makes the PhD richer than the work of an individual. Some research offers evidence that more collaborative forms of doctoral education exist and are working. Research on group and team supervision (Robertson, 2016; Yates, 2007) and interdisciplinary research (Reisz, 2016) offers evidence of benefits to all stakeholders of working together and with various others across disciplines and borders.

5.5 Reaching destination: assessing the candidate

The variety of developmental activities candidates engage in, that significantly shape what sort of professionals (e.g. researcher) they become, are invisible and non-existent in the assessment form of the thesis. Perhaps more appropriate assessment methods need to be explored if the purpose of the PhD is to develop the researcher identity of candidates. For instance, reflections on the process and PhD journals potentially offer better insights into the kinds of researcher and academic identities candidates develop before completion and how they got there. As reflection consolidates learning, it seems particularly important to facilitate or formalise reflection practice in the PhD (e.g. diaries, ePortfolios), where little formal

learning and reflecting occurs. The exercise of keeping a diary and writing the autoethnography section manifested for me the kinds of instances, places, people that facilitated my moments of feeling like a researcher, an academic and a professional. My research prompted participants to reflect on their identity development and recognise that they have come a long way despite insecurities and imposter feelings. Without it they may have missed an opportunity to recognise themselves as researchers. Kiley (2014) offers a list of ideas on alternative assessment forms in the PhD without further elaboration. They include self-assessment/reflection, milestones that include assessable activities, assessment of key activities during candidature, a portfolio, an oral component, a required number of publications, a thesis by compilation and an exegesis (Kiley, 2014, p. 16). A key finding of the recent ACOLA report concurs where McGagh et al. (2016, p. xvi) suggest that 'a statement of the skills and knowledge gained by the candidate is also needed', and is further detailed in recommendations to introduce 'a skills portfolio, seminar presentations, industry and international placements, and oral examinations'. Other research looks beyond the traditional dissertation mode, essentially suggesting that the dissertation document is outdated and PhD assessment needs to be revolutionised (Nowviskie, 2011).

The doctoral student cohort is changing and can be expected to continue diversifying. Yet, this diversity is still largely ignored in broad brush statements of policy, support provision, supervision models, and assessment (Gardner, 2008a; Hook, 2016; Miller & Brimicombe, 2004). Addressing students' individual needs in light of increasing PhD enrolments is challenging, but there are ways to move in the right direction. Supervision in one-on-one and small groups has the benefit of allowing the supervisor to determine what the candidate wants and needs. For instance, at the start of the PhD and in the context of a supervisory meeting, an individual goal assessment can be conducted to assess where the candidate stands and how they envision the process, life and work after the PhD. The whole of the candidate's life-trajectory must be considered.

Another possible strategy includes preparation of a portfolio or ePortfolio of work and life experiences, including reflection thereof, that may be relevant to the PhD process and common challenges expected before PhD entry or even as part of the required paperwork for enrolment. Such a portfolio could include a reflection piece that addresses the candidates' suitability for research education. Not only would this provide institutions and supervisors with a detailed and individual picture of the person embarking on their PhD, including their knowledge, skills, resources, support and writing skills, it could also be beneficial to the candidate. Some challenging experiences, e.g. liminality, stuckness, and the imposter syndrome, are part of the creative learning in the PhD process to a certain extent (Clance & Imes, 1978; Keefer, 2015; Kiley, 2009; Kiley & Wisker, 2010). Having a portfolio that reminds the candidate of their strengths and the past challenges overcome may be just the kind of personal support and reassurance needed in times of doubt. Such a bottom up approach requires a close and meaningful relationship with the supervisor(s). Such relationships take time and effort to establish, which may compete with supervisors' professional aspirations and pressures to produce outcomes (Brabazon, 2016).

Further suggestions relate to program structures. Ideally, some flexibility exists and loose regulations are in place around funding timelines, and allow for more flexibility in project timelines and the workplace in the PhD process. Thesis findings point to a need to minimise limitations and barriers to student agency and pro-activeness, presenting options and possibilities rather than closed doors or narrow guidelines. Student agency is widely discussed in doctoral education literature as a critical ingredient or success strategy in PhD progress and completion (e.g. Hopwood, 2010; Jazvac-Martek et al., 2011; McAlpine & Amundsen, 2009). Agency, however, is contingent on internal and external circumstances. Although constrained by structures and barriers created by disciplinary beliefs and values, departmental structures and organisation, institutional agendas, hierarchies and power relations (Read et al., 2003), student agency and mobilisation of their personal and professional (and often pre-existing) resources, skills and knowledge are powerful. Much of

PhD success is attributed to student agency and should not be underestimated. The thesis findings add evidence to show that many candidates act as their own professional developers and navigators. However, student agency can be even further promoted by institutional support, for instance, by embedding candidates in professional communities and encouraging opportunities of authentic professional development and learning.

5.6 Promising directions: looking ahead

During the time in which I have been undertaking this research, several initiatives have developed that aim to reshape the doctorate to meet the changing needs and requirements of various stakeholders involved in doctoral education. Some of them point to issues discussed in this thesis. The projects and publications briefly outlined below support the thesis findings and recommendations, as they carry potential to improve the PhD experience and professional outcomes for doctoral graduates.

In the last decades different doctoral program models emerged that cater to different PhD students' needs; professional doctorates, creative PhDs, etc. Indeed, to accommodate candidates who want to apply their research to industry contexts, some doctoral education proponents suggest to split the PhD into an academic track and industry track. Such models already exist in the UK, the US and Europe in some disciplines (Gould, 2015). The 'progressive PhD' in Germany, for instance, prepares candidates for both, academia and other careers (Cyranoski, Gilbert, Ledford, Nayar, & Yahia, 2011). In response to the knowledge economy, professional doctorates are increasing in popularity because of closer links to industry, better integration of academic and professional knowledge (Malloch, 2010; McWilliam et al., 2002), professional development opportunities (Gill & Hoppe, 2009), and workplace learning (Malfroy, 2005). Although bearing potential conflict between academic and professional identities (Loxley & Seery, 2012; Thune, 2009), the principles applied in professional PhDs could inform traditional PhD practices. These include, for instance, industry-led and application-focused research problems, closer links between academic and professional work environments, and the candidate's community of learning consisting of

academic and profession-based individuals (McWilliam et al., 2002). Professional doctorate models may be better promoted to candidates whose career preferences and research interests lean towards industry engagement.

A recent project 'Reframing the PhD', funded by the Australian Office for Learning and Teaching, is a cross-institutional project that builds on the idea of stewardship (Golde & Walker, 2006) to redesign the PhD to prepare PhD students as disciplinary stewards for academic and non-academic careers, both arguably diverse (Dobson & Conway, 2003; Nowviskie, 2011). One particular focus is on including teaching and teaching development of candidates for various audiences, not only university Undergraduate or Master students, but practitioners in industry, government and community, for instance. The developmental areas of this project are defined in four domains: supervision, PhD research project, skill and attribute development, and department context. The learning experiences that populate these four areas are intended to be 'framed and conceptualised by the context of employment destination' of the candidates (Peseta, 2016). The thesis findings confirm the positive benefits that experiences of wider academic and professional practices in the PhD, which includes teaching experience and development amongst others, bring to candidates. Such teaching, however, needs to include not only teaching in academia but also broader audiences, i.e. non-academic, community, industry.

The 2016 report by the Australian Council of Learned Academies (ACOLA) (McGagh et al., 2016) makes important recommendations to doctoral education. The council is funded by the Australian Research Council and Department of Education and promotes interdisciplinary cooperation across Australia, e.g. effective doctoral education practices nationwide. Effective communication of PhD program outcomes, content and performance is the number one finding and recommendation of the report. Many candidates feel stimulated by academic work and express a desire to take up academic employment, however, the reality of a competitive and highly casualised labour market limits access to a continuing academic career to only few. The report strongly recommends to clearly communicate to PhD

candidates before PhD commencement the current situation of academic employment and likely outcomes to adjust expectations so candidates can make informed decisions. Such decisions concern the navigation of the PhD process and what they want to get out of it. This may prompt candidates to seek opportunities to prepare for non-academic career pathways.

Other report findings point to the need to increase Australia's industry-university collaboration performance (key finding 5) and improve candidates' transferable skill development (key finding 4). The report highlights the need for transferable skill development to be better embedded in the current research training systems and to be flexible and candidate-centred in line with student diversity. The need is explained with the finding that industry employers do not perceive doctoral graduates to be adequately trained for industry employment (Universities Australia, 2013). The authors propose that Australia's doctoral education can learn from the UK Vitae Researcher Development Framework (Vitae, 2010). Key finding 6 goes further and proposes an implementation of a national industry-placement scheme, stating that such placements benefit candidates' employability and show industry partners the value of employing academically-trained researchers (McGagh et al., 2016). Research showing how doctoral student-industry linkages and collaboration during the PhD benefit students' research experiences, training and career outcomes, such as that undertaken by Thune (2009), strengthens the argument for a more social and collaborative PhD model.

Initiatives suggested above have potential to more adequately address candidates' personal and professional trajectories and identities. Both advocate for more integration and inclusion of PhD candidates in both, academic and professional communities. For instance, the significant number of PhD candidates who aspire to gain academic employment (Edwards et al., 2011; Pitt & Mewburn, 2016) are likely to benefit more from being embedded in academic culture rather than participating in doctoral learning skill workshops. This and the thesis findings (e.g. 4.7) speak against renewed debates about introducing coursework (Kiley, 2014), unless it directly benefits candidates' employability instead of teaching academic or generic skills in isolation. This thesis suggests instead an opening of doctoral programs to

help candidates gain wider research skills and academic practice opportunities. The findings in this thesis lead to conclude that a meaningful immersion in the immediate study environment, e.g. academic culture of the institution, affords greater benefits for candidates' professional development. I take Gardner's (2008b) suggestion that PhD students should feel part of and actively contribute to broader research culture, one step further. Doctoral programs could provide candidates with opportunities to do authentic work in any sector of university and outside as far as possible and if they wish, and be assigned primarily staff status, including staff privileges and responsibilities, if they are employed during PhD study.

Finally, although issues pointed to in this thesis are experienced in other countries, too, Australia's doctoral education can learn valuable lessons from international doctoral model examples, specifically those that place candidates on a more equal footing with academic and professional communities. In the US graduate teaching assistantships model, doctoral candidates form part of the institutional teaching force (Blouin & Moss, 2015; Park, 2004). In many European countries following the American trend, doctoral programs mandate teaching, and offer some sort of teaching training to support doctoral learning and to address student demand for pedagogical training (Pleschova & Simon, 2009). PhD students are supposedly employed and remunerated if they are teaching, and officially act as staff and university employees while being students. Kehm (2006, p. 69) claims that PhD students are mostly seen as and preferred to be called 'early career researchers'. She (2006, p. 69) further claims that 'in some European countries (e.g. in Scandinavia and The Netherlands), the doctoral student is regarded as an employee (as a junior staff member) of the university with duties, rights and a regular salary'. The divide between students and academics may be less prevalent in a university context where the status of doctoral candidates goes beyond 'student'. Perhaps looking to such models and possibilities of assigning a more equal status to candidates by integrating them differently in the academic community may help in addressing PhD experiences of feeling excluded, which were observed and discussed in this thesis.

The doctorate does more than educate for the academy, and doctoral candidates are more than just ‘students’. While this thesis provides evidence that much more than learning for an academic career is taking place during the PhD, it is not clear how purposeful such ‘extracurricular’ activities, are and who or what facilitates these. Such activities essentially form professional development opportunities as their focus is on extending the candidate’s skills and experiences beyond doctoral research training. If such professional development opportunities are considered essential for candidates’ career preferences, the question then arises about who is and should be responsible for the initiation and facilitation of such activities. This thesis suggests that, currently, much of it happens due to students' initiatives and the social as well as professional connections they build in the PhD.

This thesis makes a few contributions to the initiatives described above and any others which aim to transform Australia’s doctoral programs. Firstly, it is the need to include social and collaborative practices that promote researcher as well as professional learning and development. Secondly, and related to the first point, it is important to enhance candidates’ sense of connectedness and belonging to any such community that they aim to join early in the process, be it researcher, academic, or any other professional community. Thirdly, it provides a nuanced understanding of identity development during the doctorate by presenting a relatively large set of empirical data, namely candidates’ personal and diverse narratives. Investing in students is not only an investment in their personal professional development, but an investment into Australia’s future, as doctoral candidates of today will form research groups, academic cultures, professionals and leaders of tomorrow. Efforts to make improvements are likely to be more effective if a holistic approach to changes in doctoral programs is followed. Any changes to the doctorate will likely involve engagement at various levels: the candidate, the candidate’s discipline, department, institution, and the higher education sector as a whole.

5.7 Summary of thesis travels

This thesis set out to investigate social practices in researcher identity development in doctoral education. It presented a complex and multi-faceted picture of practices and processes involved in doctoral candidates' journey of developing diverse identities: researcher, academic and professional.

Chapter 2 of this thesis presented an extensive review of previous research and literature that set up the research documented in this thesis. It particularly outlined the diversity and complexity of doctoral identities, which need to go beyond researcher identities and include academic and professional identities, as this thesis suggests. The literature review located and explained theoretical key concepts that underpin identity development in the doctorate, with a special focus on researcher identity development as the primary aim of the doctorate. It framed identity, as a self-concept, as well as a social construct and process, constantly changing and multiple in nature as one occupies different roles and positions in any given context and in relation to others. Some previously researched identity development markers were presented (e.g. threshold crossing and liminality), identifying the process of becoming a researcher and a general professional in the PhD as vague and unclear. Doctoral researcher identities were framed in the review as being composed of candidates' pasts, presents and futures, as well as being enabled and constrained by the socialisation context candidates were embedded in. Section 2.3 mapped the journey from doctoral student to academic and professional, based on insights from current doctoral research literature. In doing so, the review explored the terrain of doctoral learning and development practices and activities, which were mainly situated in the academic or university context. Next, it highlighted candidates' various support relationships and networks that formed candidates' travel companions, leading to conclude that identity development in the PhD is inherently a collaborative process. The review reached its final point by discussing doctoral attrition, completion and graduates' various career destinations as the end of being a 'student' and beginning of being a 'professional'.

The methodology, Chapter 3, presented the study design and described in detail the steps and procedures followed in individual research phases and in regards to three lines of evidence: focus groups and interviews, doctoral thesis acknowledgements, and autoethnography. This research positioned narrative inquiry within a mixed methods approach and followed exploratory and interpretivist orientation. It also positioned the researcher as an insider. Narrative inquiry served to locate identity-formative processes in participants' diverse PhD experiences. Autoethnography as an additional narrative and reflexive account of my PhD experience extended participants' stories and thesis findings and revealed a multitude of instances that mark identity shifts. It highlighted the agency, support and connections required for PhD success and an internal sense of being all three simultaneously: a researcher, an academic and a professional.

The thesis findings in Chapter 4 provided a nuanced understanding of how doctoral students develop as researchers, academics and professionals in the PhD, and outlined the social and contextual influences experienced by doctoral students. The main findings related to the social and collaborative nature of doctoral identity development in the PhD, and the critical role of professional learning and development opportunities during the PhD in preparation for diverse careers of PhD graduates. Essentially, this thesis showed that the doctorate should do more than educating for the academy, and doctoral candidates need to be viewed as more than just 'students'. Currently, this primarily relies on candidates' agency and initiative. The findings raised questions in regards to the purpose, and fit of doctoral programs in adequately supporting doctoral candidates.

The thesis discussed implications of the findings and suggested to invest efforts in future PhD models that provide opportunities for more collaborative research processes, practices and outcomes. It also pointed to the need for more opportunities for professional learning and development to future-proof PhD candidates. Benefits and challenges of both were stated. The concluding chapter made recommendations and pointed to promising initiatives that have recently emerged in the doctoral education landscape. These initiatives

reflect a view of doctoral students as integrated, networked and professional individuals and an understanding of how doctoral programs can be reshaped to meet the needs of candidates, graduates and their employers.

In conclusion, this thesis problematises and highlights the complexity doctoral education faces today. It serves to provoke discussion and stimulate further thinking about alternative and more collaborative ways of doing PhDs, as well as the purpose and fitness of current doctoral models. In doing so, it points to promising initiatives already underway. The thesis advocates for issues and processes to be addressed, and provides starting points and strategies to move forward and work within the complexities and conflicting contexts presented in this thesis.

References

Acker, S., & Haque, E. (2015). The struggle to make sense of doctoral study. *Higher Education Research & Development*, *34*(2), 229–241. https://doi.org/10.1080/07294360.2014.956699

Aitchison, C. (2009). Writing groups for doctoral education. *Studies in Higher Education*, *34*(8), 905–916.

Aitchison, C., & Guerin, C. (2014). Writing groups, pedagogy, theory and practice. *Writing Groups for Doctoral Education and Beyond: Innovations in Practice and Theory*, 4.

Aitchison, C., & Lee, A. (2006). Research writing: Problems and pedagogies. *Teaching in Higher Education*, *11*(3), 265–278.

Aitchison, C., & Mowbray, S. (2013). Doctoral women: Managing emotions, managing doctoral studies. *Teaching in Higher Education*, *18*(8), 859–870. https://doi.org/10.1080/13562517.2013.827642

Aitchison, C., Catterall, J., Ross, P., & Burgin, S. (2012). "Tough love and tears": Learning doctoral writing in the sciences. *Higher Education Research & Development*, *31*(4), 435–447. https://doi.org/10.1080/07294360.2011.559195

Åkerlind, G. S. (2008a). An academic perspective on research and being a researcher: An integration of the literature. *Studies in Higher Education*, *33*(1), 17–31. https://doi.org/10.1080/03075070701794775

Åkerlind, G. S. (2008b). Growing and developing as a university researcher. *Higher Education*, *55*(2), 241–254.

Albold, C. A. (2011). Emerging scholars: Predictors of independent researcher identification in education PhD students. Retrieved from http://libres.uncg.edu/ir/uncg/listing.aspx?id=7334

Alexander, P., Harris-Huemmert, S., & McAlpine, L. (2014). Tools for reflection on the academic identities of doctoral students. *International Journal for Academic Development*, *19*(3), 162–173. https://doi.org/10.1080/1360144X.2013.817333

Ali, A., Kohun, F., & Cohen, E. (2006). Dealing with isolation feelings in IS doctoral programs. *International Journal of Doctoral Studies*, *1*(1), 21–33.

Ali, A., Kohun, F., & Levy, Y. (2007). Dealing with social isolation to minimize doctoral attrition — A four stage framework. *International Journal of Doctoral Studies*, *2*(1), 33–49.

Alvesson, M., & Sköldberg, K. (2009). *Reflexive methodology: New vistas for qualitative research*. Sage. Retrieved from https://books.google.com.au/books?hl=en&lr=&id=32G4M7-20xgC&oi=fnd&pg=PP2&dq=alvesson+reflexive+methodology&ots=G2PrreTxUH&sig=_eSsNyu_oxQGZn7NjHSixhDo2OE

Andersson, A., & Kalman, H. (2010). Reflections on learning in interdisciplinary settings. *International Journal of Teaching and Learning in Higher Education*, *22*(2), 204–208.

Andrews, M., Squire, C., & Tamboukou, M. (2013). *Doing narrative research*. Sage. Retrieved from https://books.google.com.au/books?hl=en&lr=&id=RbMDAAAAQBAJ&oi=fnd&pg=PP2&dq=squire,+andrews+tsamboukou+doing+narrative+research&ots=pYhDY8eN35&sig=uGOSahK9qAD7r6ng2l_ZoAuc-E0

Appel, M. L., & Dahlgren, L. G. (2003). Swedish doctoral students' experiences on their journey towards a PhD: Obstacles and opportunities inside and outside the academic building. *Scandinavian Journal of Educational Research*, *47*(1), 89–110. https://doi.org/10.1080/00313830308608

Archer, L. (2008). Younger academics' constructions of "authenticity", "success" and professional identity. *Studies in Higher Education*, *33*(4), 385–403. https://doi.org/10.1080/03075070802211729

Austin, A. E. (2002). Preparing the next generation of faculty: Graduate school as socialization to the academic career. *The Journal of Higher Education*, *73*(1), 94–122. https://doi.org/10.1353/jhe.2002.0001

Austin, A. E. (2010). Reform efforts in STEM doctoral education: Strengthening preparation for scholarly careers. In *Higher education: Handbook of theory and research* (pp. 91–128). Springer. Retrieved from http://link.springer.com/chapter/10.1007/978-90-481-8598-6_3

Babbie, E. R. (2015). *The practice of social research*. Nelson Education.

Back, L. (2016). *Academic Diary: Or Why Higher Education Still Matters*. Cambridge, MA: Goldsmiths Press.

Baker, V. L., & Lattuca, L. R. (2010). Developmental networks and learning: Toward an interdisciplinary perspective on identity development during doctoral study. *Studies in Higher Education*, *35*(7), 807–827. https://doi.org/10.1080/03075070903501887

Baker, V. L., & Pifer, M. J. (2011). The role of relationships in the transition from doctoral student to independent scholar. *Studies in Continuing Education*, *33*(1), 5–17. https://doi.org/10.1080/0158037X.2010.515569

Barak, M. E. M., & Brekke, J. S. (2014). Social work science and identity formation for doctoral scholars within intellectual communities. *Research on Social Work Practice*, *24*(5), 616–624. https://doi.org/10.1177/1049731514528047

Barnacle, R. (2005). Research education ontologies: Exploring doctoral becoming. *Higher Education Research and Development*, *24*(2), 179–188. https://doi.org/10.1080/07294360500062995

Barnacle, R., & Mewburn, I. (2010). Learning networks and the journey of "becoming doctor." *Studies in Higher Education*, *35*(4), 433–444. https://doi.org/10.1080/03075070903131214

Bauer, M. (1996). *The narrative interview: Comments on a technique for qualitative data collection*. Methodology Institute. Retrieved from http://www.opengrey.eu/item/display/10068/537304

Becher, T., & Trowler, P. (2001). *Academic tribes and territories: Intellectual enquiry and the culture of disciplines*. McGraw-Hill Education (UK). Retrieved from https://books.google.com.au/books?hl=en&lr=&id=oXTlAAAAQBAJ&oi=fnd&pg=PP1&dq=becher+trowler+2001&ots=s23dTMD7W3&sig=19cJMrxzlJwEGllxP12zqMaJkKE

Ben-Ari, E. (1987). On acknowledgements in ethnographies. *Journal of Anthropological Research*, 43(1), 63–84.

Bennett, L., & Folley, S. (2014). A tale of two doctoral students: Social media tools and hybridised identities. *Research in Learning Technology*, *22*. Retrieved from http://journals.co-action.net/index.php/rlt/article/view/23791

Berg, L. D. (2012). Geographies of identity I Geography–(neo) liberalism–white supremacy. *Progress in Human Geography*, *36*(4), 508–517.

Berg, L. D. (2015). Rethinking the PhD in the age of neoliberalization. *GeoJournal*, *2*(80), 219–224.

Bexley, E., Arkoudis, S., & James, R. (2012). The motivations, values and future plans of Australian academics. *Higher Education*, *65*(3), 385–400. https://doi.org/10.1007/s10734-012-9550-3

Bieber, J. P., & Worley, L. K. (2006). Conceptualizing the academic life: Graduate students' perspectives. *The Journal of Higher Education*, *77*(6), 1009–1035. https://doi.org/10.1353/jhe.2006.0046

Birch, K., Bond, S., Harris, T., Hoogeveen, D., Laliberte, N., Rosol, M., & others. (2012). What can we do? The challenge of being new academics in neoliberal universities. *Antipode*, *44*(4), 1055–1058.

Bitzer, E., & Van den Bergh, S. (2014). Doctoral identity change towards researcher autonomy during research journeys across disciplines. *South African Journal of Higher Education*, *28*(3), 1047-1068. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&profile=ehost&scope=site&authtype=crawler&jrnl=10113487&AN=110022394&h=ZnTnAbAengWsO%2BrBhgrJsK%2B8DWfyFqjlCHs1NMz50oJb3StnQvJ9tvmimFFrskcQoKmR8Fr343ukHIZ0ab7pqw%3D%3D&crl=c

Blaj-Ward, L. (2011). Skills versus pedagogy? Doctoral research training in the UK Arts and Humanities. *Higher Education Research & Development*, *30*(6), 697–708. https://doi.org/10.1080/07294360.2010.535507

Blessinger, P., & Stockley, D. (2016). *Emerging directions in doctoral education* (Vol. 6). Emerald Group Publishing. Retrieved from https://books.google.com.au/books?hl=en&lr=&id=XWb6CwAAQBAJ&oi=fnd&pg=PP1&dq=Emerging+Directions+in+Doctoral+Education.&ots=X8fUpuxlil&sig=q-zeIPcrhkijHNhj7ruZ2CdlTlU

Blouin, D. D., & Moss, A. R. (2015). Graduate student teacher training still relevant (and missing?) 20 years later. *Teaching Sociology*, *43*(2), 126–136.

Borg, S. (2001). The research journal: A tool for promoting and understanding researcher development. *Language Teaching Research,* 5(2), 156–177.

Bosanquet, A. (2017). Academic, woman, mother: Negotiating multiple subjectivities during early career. In *Being an Early Career Feminist Academic* (pp. 73-91). Palgrave Macmillan UK.

Boud, D. (1999). Situating academic development in professional work: using peer learning. *The International Journal for Academic Development*, *4*(1), 3–10.

Boud, D., & Brew, A. (2013). Reconceptualising academic work as professional practice: Implications for academic development. *International Journal for Academic Development*, *18*(3), 208–221.

Boud, D., & Lee, A. (2005). “Peer learning” as pedagogic discourse for research education. *Studies in Higher Education*, *30*(5), 501–516. https://doi.org/10.1080/03075070500249138

Boud, D., & Lee, A. (2009). *Changing practices of doctoral education*. Routledge.

Boud, D., & Walker, D. (1998). Promoting reflection in professional courses: The challenge of context. *Studies in Higher Education*, *23*(2), 191–206.

Boud, D., Cohen, R., & Sampson, J. (2001). *Peer learning in higher education: Learning from & with each other.* ERIC. Retrieved from http://www.eric.ed.gov/ERICWebPortal/recordDetail?accno=ED457773

Boud, D., Keogh, R., & Walker, D. (2013). *Reflection: Turning experience into learning*. Routledge. Retrieved from https://books.google.com.au/books?hl=en&lr=&id=XuBEAQAAQBAJ&oi=fnd&pg=PP1&dq=boud+reflection+&ots=Tt0w5Vni5W&sig=59G9C9wfQVn_4yO23fdNnTobpBc

Boyle, M., Foote, K. E., & Gilmartin, M. (2015). Rethinking the PhD in geography: Overview and introduction. *GeoJournal*, *80*(2), 159–168.

Brabazon, T. (2016). Winter is coming: Doctoral supervision in the neoliberal university. *International Journal of Social Sciences & Educational Studies*, 14.

Brailsford, I. (2010). Motives and aspirations for doctoral study: Career, personal, and interpersonal factors in the decision to embark on a history PhD. *International Journal of Doctoral Studies*, *5*(1), 16–27.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101.

Brause, R. S. (2000). *Writing your doctoral dissertation: Invisible rules for success*. Routledge.

Brew, A. (2001). Conceptions of research: A phenomenographic study. *Studies in Higher Education*, *26*(3), 271–285. https://doi.org/10.1080/03075070120076255

Brew, A., & Boud, D. (1996). Preparing for new academic roles: An holistic approach to development. *The International Journal for Academic Development*, *1*(2), 17–25.

Brew, A., Boud, D., & Un Namgung, S. (2011). Influences on the formation of academics: The role of the doctorate and structured development opportunities. *Studies in Continuing Education*, *33*(1), 51–66.

Brown, L., & Holloway, I. (2008). The adjustment journey of international postgraduate students at an English university: An ethnographic study. *Journal of Research in International Education*, *7*(2), 232–249.

Buissink-Smith, N., Hart, S., & van der Meer, J. (2013). "There are other people out there!" Successful postgraduate peer groups and research communities at a New Zealand university. *Higher Education Research & Development*, *32*(5), 695–705. https://doi.org/10.1080/07294360.2013.777034

Burford, J. (2014). Doctoral writing as an affective practice: Keep calm and carry on. In E. Bitzer, R. Albertyn, L. Frick, B. Grant & F. Kelly (Eds.). *Pushing Boundaries in Postgraduate Supervision*, 69–84.

Burford, J. (2015). Querying the affective politics of doctoral education: Toward complex visions of agency and affect. *Higher Education Research & Development*, *34*(4), 776–787. https://doi.org/10.1080/07294360.2015.1051005

Burgess, J., Campbell, I., & May, R. (2008). Pathways from casual employment to economic security: the Australian experience. *Social Indicators Research*, *88*(1), 161–178.

Burnapp, D. (2006). Trajectories of adjustment of international students: U-curve, learning curve, or Third Space 1. *Intercultural Education*, *17*(1), 81–93. https://doi.org/10.1080/14675980500502412

Butler, J. (1990). *Gender trouble. New York and London*. Routledge.

Caelli, K., Ray, L., & Mill, J. (2008). "Clear as Mud": Toward greater clarity in generic qualitative research. *International Journal of Qualitative Methods*, *2*(2), 1–13.

Carpenter, J. (2012). Researchers of tomorrow: The research behaviour of Generation Y doctoral students. *Information Services & Use*, *32*(1/2), 3–17.

Carter, S., Blumenstein, M., & Cook, C. (2013). Different for women? The challenges of doctoral studies. *Teaching in Higher Education*, *18*(4), 339–351. https://doi.org/10.1080/13562517.2012.719159

Charmaz, K. (2014). *Constructing grounded theory*. SAGE.

Chen, S. (2012). *Making sense of the public PhD dissertation defense: A qualitative multi-case study of education students' experiences*. McGill University. Retrieved from http://www.collectionscanada.gc.ca/obj/thesescanada/vol2/QMM/TC-QMM-114288.pdf

Clance, P. R., & Imes, S. A. (1978). The imposter phenomenon in high achieving women: Dynamics and therapeutic intervention. *Psychotherapy: Theory, Research & Practice*, *15*(3), 241–247. https://doi.org/10.1037/h0086006

Clandinin, D. J., & Connelly, F. M. (2000). *Narrative inquiry*. San Francisco: Jossey-Bass. Retrieved from http://benjaminbolden.ca/wp-content/uploads/2015/09/2008-Narrative-Inquiry-Sage-encyclopedia.pdf

Clegg, S. (2008). Academic identities under threat? *British Educational Research Journal*, *34*(3), 329–345. https://doi.org/10.1080/01411920701532269

Clegg, S., & Gall, I. (1998). The discourse of research degrees supervision: A case study of supervisor training. *Higher Education Research & Development*, *17*(3), 323–332. https://doi.org/10.1080/0729436980170305

Clegg, S., & Stevenson, J. (2013). The interview reconsidered: Context, genre, reflexivity and interpretation in sociological approaches to interviews in higher education research. *Higher Education Research & Development*, *32*(1), 5–16. https://doi.org/10.1080/07294360.2012.750277

Coates, H. B., & Edwards, D. (2009). Postgraduate research experience 2008: The report of the postgraduate research experience questionnaire. Retrieved from http://works.bepress.com/daniel_edwards/80/

Cohen, L., Manion, L., & Morrison, K. (2007). Research methods in education. Retrieved from http://www.citeulike.org/group/10888/article/3446955

Colbeck, C. L. (2002). *Evaluating faculty performance*. Jossey-Bass.

Colbeck, C. L. (2008). Professional identity development theory and doctoral education. *New Directions for Teaching and Learning*, *2008*(113), 9–16.

Connelly, F. M., & Clandinin, D. J. (1990). Stories of experience and narrative inquiry. *Educational Researcher*, *19*(5), 2–14. https://doi.org/10.3102/0013189X019005002

Conrad, L. (2003). Five ways of enhancing the postgraduate community: Student perceptions of effective supervision and support. In *Actas de la Conferencia Anual* (pp. 6–9). Retrieved from http://www.herdsa.org.au/wp-content/uploads/conference/2003/PDF/HERDSA57.pdf

Conrad, L. (2007). Developing the intellectual and emotional climate for candidates. *Supervising Doctorates Downunder: Keys to Effective Supervision in Australia and New Zealand*, 36.

Coryell, J. E., Wagner, S., Clark, M. C., & Stuessy, C. (2014). Becoming "real": Adult student impressions of developing an educational researcher identity. *Journal of Further and Higher Education*, *37*(3), 367–383. https://doi.org/10.1080/0309877X.2011.645456

Costas, R., & van Leeuwen, T. N. (2012). Approaching the "reward triangle": General analysis of the presence of funding acknowledgments and "peer interactive communication" in scientific publications. *Journal of the American Society for Information Science and Technology*, *63*(8), 1647–1661. https://doi.org/10.1002/asi.22692

Cotterall, S. (2013). More than just a brain: Emotions and the doctoral experience. *Higher Education Research & Development*, *32*(2), 174–187. https://doi.org/10.1080/07294360.2012.680017

Cotterall, S. (2015). The rich get richer: International doctoral candidates and scholarly identity. *Innovations in Education and Teaching International*, *52*(4), 360–370. https://doi.org/10.1080/14703297.2013.839124

Crang, M. (2007). Flexible and fixed times working in the academy. *Environment and Planning A.*, *39*(3), 509–514.

Craswell, G. (2007). Deconstructing the skills training debate in doctoral education. *Higher Education Research & Development*, *26*(4), 377–391.

Creswell, J. W. (2008). *Research design: Qualitative, quantitative, and mixed methods approaches*. SAGE Publications, Incorporated.

Creswell, J. W. (2012). *Qualitative inquiry and research design: Choosing among five approaches*. SAGE Publications.

Creswell, J. W., & Clark, V. L. P. (2007). *Designing and conducting mixed methods research*. Wiley Online Library. Retrieved from http://onlinelibrary.wiley.com/doi/10.1111/j.1753-6405.2007.00097.x/full

Cronin, B., & Overfelt, K. (1994). The scholar's courtesy: A survey of acknowledgement behaviour. *Journal of Documentation*, *50*(3), 165–196. https://doi.org/10.1108/eb026929

Cronin, B., Shaw, D., & La Barre, K. (2003). A cast of thousands: Coauthorship and subauthorship collaboration in the 20th century as manifested in the scholarly journal literature of psychology and philosophy. *Journal of the American Society for Information Science and Technology*, *54*(9), 855–871.

Crossouard, B., & Pryor, J. (2008). Becoming researchers: A sociocultural perspective on assessment, learning and the construction of identity in a professional doctorate. *Pedagogy, Culture & Society*, *16*(3), 221–237.

Cumming, J. (2007). *Representing the complexity, diversity and particularity of the doctoral enterprise in Australia.* The Australian National University. Retrieved from https://openresearch-repository.anu.edu.au/handle/1885/46612.

Cumming, J. (2008). Acknowledging conflict in communities of practice: a case study from doctoral education. In *Proceedings of the 31st HERDSA Annual Conference, Rotorua, 1-4 July 2008,"Engaging Communities". Milperra, NSW: Higher Education Research and Development Society of Australasia Inc., 117* (Vol. 125). Retrieved from http://www.educationalsolutions.com.au/attachments/article/62/Cumming-HERDSA%202008.pdf

Curtin, N., Stewart, A. J., & Ostrove, J. M. (2013). Fostering academic self-concept advisor support and sense of belonging among international and domestic graduate students. *American Educational Research Journal*, *50*(1), 108–137. https://doi.org/10.3102/0002831212446662

Cuthbert, D., & Molla, T. (2014). PhD crisis discourse: A critical approach to the framing of the problem and some Australian "solutions." *Higher Education*, *69*(1), 33–53. https://doi.org/10.1007/s10734-014-9760-y

Cuthbert, D., Spark, C., & Burke, E. (2009). Disciplining writing: The case for multi-disciplinary writing groups to support writing for publication by higher degree by research candidates in the humanities, arts and social sciences. *Higher Education Research & Development*, *28*(2), 137–149. https://doi.org/10.1080/07294360902725025

Cyranoski, D., Gilbert, N., Ledford, H., Nayar, A., & Yahia, M. (2011). Education: The PhD factory. *Nature News*, *472*(7343), 276–279. https://doi.org/10.1038/472276a

Darlington, E., Waite, C., & Balsdon, S. (2015). Postgraduate events as a building block for interdisciplinary research. *Area*. Retrieved from http://onlinelibrary.wiley.com/doi/10.1111/area.12227/full

Darwin, A., & Palmer, E. (2009). Mentoring circles in higher education. *Higher Education Research & Development*, *28*(2), 125–136.

Deem, R., & Brehony, K. J. (2000). Doctoral students' access to research cultures — Are some more unequal than others? *Studies in Higher Education*, *25*(2), 149–165. https://doi.org/10.1080/713696138

Delamont, S., & Atkinson, P. (2001). Doctoring uncertainty: Mastering craft knowledge. *Social Studies of Science*, *31*(1), 87–107.

Delamont, S., Atkinson, P., & Parry, O. (2000). The doctoral experience success and failure in graduate school.

Deutsch, N. L. (2004). Positionality and the pen: Reflections on the process of becoming a feminist researcher and writer. *Qualitative Inquiry*, *10*(6), 885–902. https://doi.org/10.1177/1077800404265723

Devenish, R., Dyer, S., Jefferson, T., Lord, L., van Leeuwen, S., & Fazakerley, V. (2009). Peer to peer support: The disappearing work in the doctoral student experience. *Higher Education Research & Development*, *28*(1), 59–70.

Dinkins, C. S., & Sorrell, J. M. (2014). Transformation of the self. In *Our dissertations, ourselves* (pp. 75–102). Springer. Retrieved from http://link.springer.com/chapter/10.1057/9781137390233_4

Dobson, I. R. (2012). PhDs in Australia, from the beginning. *Australian Universities' Review*, *54*(1), 94.

Dobson, I. R., & Conway, M. (2003). Fear and loathing in university staffing: The case of Australian academic and general staff. *Journal of Higher Education Policy and Management, 15*(3), 27–27.

Dowling, R. (2008). Geographies of identity: Labouring in the `neoliberal' university. *Progress in Human Geography*, *32*(6), 812–820. https://doi.org/10.1177/0309132507088032

Dowling, R., & Mckinnon, K. (2014). Identities. In *The SAGE handbook of progress in human geography*. London: Sage.

Dowling, R., & Wilson, M. (2017). Digital doctorates? An exploratory study of PhD candidates' use of online tools. *Innovations in Education and Teaching International, 54*(1), 76–86. https://doi.org/10.1080/14703297.2015.1058720

Dowling, R., Gorman-Murray, A., Power, E., & Luzia, K. (2012). Critical reflections on doctoral research and supervision in human geography: The "PhD by publication." *Journal of Geography in Higher Education*, *36*(2), 293–305. https://doi.org/10.1080/03098265.2011.638368

Dunlap, J. (2006). The effect of a problem-centered, enculturating experience on doctoral students' self-efficacy. *Interdisciplinary Journal of Problem-Based Learning*, *1*(2). https://doi.org/10.7771/1541-5015.1025

Edwards, D., Bexley, E., & Richardson, S. (2011). Regenerating the academic workforce: The careers, intentions and motivations of higher degree research students in Australia: Findings of the National Research Student Survey (NRSS). *Higher Education Research*. Retrieved from http://research.acer.edu.au/higher_education/23

Ellis, C. S., & Bochner, A. (2000). Autoethnography, personal narrative, reflexivity: Researcher as subject. Retrieved from https://works.bepress.com/carolyn_ellis/49/

Ellis, C. S., Adams, T. E., & Bochner, A. P. (2011). Autoethnography: An overview. *Historical Social Research / Historische Sozialforschung*, *36*(4 (138)), 273–290.

Engin, M. (2011). Research diary: A tool for scaffolding. *International Journal of Qualitative Methods*, *10*(3), 296–306. https://doi.org/10.1177/160940691101000308

Ennals, P., Fortune, T., Williams, A., & D'Cruz, K. (2016). Shifting occupational identity: Doing, being, becoming and belonging in the academy. *Higher Education Research & Development*, *35*(3), 433–446. https://doi.org/10.1080/07294360.2015.1107884

Evans, L. (2011). The scholarship of researcher development: Mapping the terrain and pushing back boundaries. *International Journal for Researcher Development*, *2*(2), 75–98.

Evans, T., & Liou, I. Y. (2011). Institutional pedagogical waypoints: Reflections on doctoral journeys between Taiwan and Australia. *Innovations in Education and Teaching International*, *48*(4), 401–411.

Fataar, A. (2005). Negotiating student identity in the doctoral proposal development process: A personal reflective account. *Journal of Education*, *36*, 37–58.

Feldon, D. F., Maher, M. A., Roksa, J., & Peugh, J. (2015). Cumulative advantage in the skill development of STEM graduate students: A mixed-methods study. *American Educational Research Journal*, *53*(1), 132-161.

Flick, U. (2009). *An introduction to qualitative research.* Sage.

Fortune, A. E., Reid, W. J., & Miller, R. (2013). *Qualitative Research in Social Work.* Columbia University Press.

Fritz, M. V., Chin, D., & DeMarinis, V. (2008). Stressors, anxiety, acculturation and adjustment among international and North American students. *International Journal of Intercultural Relations*, *32*(3), 244–259.

Gardner, S. K. (2006). "I Heard it through the grapevine": Doctoral student socialization in chemistry and history. *Higher Education*, *54*(5), 723–740. https://doi.org/10.1007/s10734-006-9020-x

Gardner, S. K. (2008a). Fitting the mold of graduate school: A qualitative study of socialization in doctoral education. *Innovative Higher Education*, *33*(2), 125–138.

Gardner, S. K. (2008b). "What's too much and what's too little?": The process of becoming an independent researcher in doctoral education. *The Journal of Higher Education*, *79*(3), 326–350. https://doi.org/10.1353/jhe.0.0007

Gardner, S. K., & Holley, K. A. (2011). “Those invisible barriers are real”: The progression of first-generation students through doctoral education. *Equity & Excellence in Education*, *44*(1), 77–92. https://doi.org/10.1080/10665684.2011.529791

Gee, J. P. (2000). Identity as an Analytic Lens for Research in Education. *Review of Research in Education*, *25*, 99–125. https://doi.org/10.2307/1167322

Gibbs, G. (1988). *Learning by doing: A guide to teaching and learning methods.* London: Further Education Unit.

Gilbert, R., Balatti, J., Turner, P., & Whitehouse, H. (2004). The generic skills debate in research higher degrees. *Higher Education Research & Development*, *23*(3), 375–388. https://doi.org/10.1080/0729436042000235454

Gill, T. G., & Hoppe, U. (2009). The business professional doctorate as an informing channel: A survey and analysis. *International Journal of Doctoral Studies*, *4*(1), 27–57.

Gillen, J. (2015). On the spatiality of the academic job market in critical human geography. *Social & Cultural Geography*, *16*(7), 721–729.

Gillen, J., Ziegler, A. D., Friess, D. A., & Wasson, R. (2014). Geography’s role in nurturing postgraduate students. *The Geographical Journal*. Retrieved from http://onlinelibrary.wiley.com/doi/10.1111/geoj.12100/full

Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Aldine de Gruyter. Retrieved from http://books.google.com.au/books?hl=en&lr=&id=rtiNK68Xt08C&oi=fnd&pg=PA1&dq=Glaser+and+Strauss+(1967)+&ots=UUzR_gWFWM&sig=zuBamyj_Pxzczzq0jIhm-PQydP4

Golde, C. M. (2000). Should I stay or should I go? Student descriptions of the doctoral attrition process. *The Review of Higher Education*, *23*(2), 199–227.

Golde, C. M. (2005). The role of the department and discipline in doctoral student attrition: Lessons from four departments. *The Journal of Higher Education*, *76*(6), 669–700. https://doi.org/10.1353/jhe.2005.0039

Golde, C. M., & Dore, T. M. (2001). At cross purposes: What the experiences of today's doctoral students reveal about doctoral education. *Philadelphia: Pew charitable trusts*. Retrieved from http://www.ssc.wisc.edu/~oliver/sociology/PhDEducationreport.pdf

Golde, C. M., & Walker, G. E. (2006). *Envisioning the future of doctoral education: Preparing stewards of the discipline-Carnegie essays on the doctorate* (Vol. 3). San Francisco, CA: Jossey-Bass.

Gornall, L., & Salisbury, J. (2012). Compulsive working, "hyperprofessionality" and the unseen pleasures of academic work. *Higher Education Quarterly*, *66*(2), 135–154. https://doi.org/10.1111/j.1468-2273.2012.00512.x

Gould, J. (2015). How to build a better PhD. *Nature News*, *528*(7580), 22. https://doi.org/10.1038/528022a

Graduate Careers Australia (GCA). (2014). *Postgraduate Research Experience*.

Grant, B. M. (2007). The Mourning After: Academic development in a time of doubt. *International Journal for Academic Development*, *12*(1), 35–43. https://doi.org/10.1080/13601440701217303

Grant, B., Mitchell, C., Okai, E., Burford, J., Xu, L., Ingram, T., & Cameron-Lewis, V. (2016). Doctoral supervisor and student identities. In *Identity work in the contemporary university* (pp. 129–142). Springer. Retrieved from http://link.springer.com/chapter/10.1007/978-94-6300-310-0_10

Green, B. (2005). Unfinished business: Subjectivity and supervision. *Higher Education Research & Development*, *24*(2), 151–163. https://doi.org/10.1080/07294360500062953

Greene, J. C. (2012). Engaging critical issues in social inquiry by mixing methods. *American Behavioral Scientist*, *56*(6), 755–773.

Greene, J. C., Caracelli, V. J., & Graham, W. F. (1989). Toward a conceptual framework for mixed-method evaluation designs. *Educational Evaluation and Policy Analysis*, *11*(3), 255–274. https://doi.org/10.3102/01623737011003255

Greer, D. A., Cathcart, A., & Neale, L. (2016). Helping doctoral students teach: Transitioning to early career academia through cognitive apprenticeship. *Higher Education Research & Development*, *35*(4), 712-726. https://doi.org/10.1080/07294360.2015.1137873

Greer, D. A., Cathcart, A., & Neale, L. (2016). Helping doctoral students teach: transitioning to early career academia through cognitive apprenticeship. *Higher Education Research & Development*, 1–15. https://doi.org/10.1080/07294360.2015.1137873

Gregson, N., & Rose, G. (2000). Taking butler elsewhere: Performativities, spatialities and subjectivities. *Environment and Planning D: Society and Space*, *18*(4), 433–452.

Grindstaff, K., & Richmond, G. (2008). Learners' perceptions of the role of peers in a research experience: Implications for the apprenticeship process, scientific inquiry, and collaborative work. *Journal of Research in Science Teaching*, *45*(2), 251–271.

Group of Eight. (2013). The changing PhD. Retrieved from http://www.voced.edu.au/content/ngv56232?utm_source=twitterfeed&utm_medium=twitter

Grover, V., & Conger, S. (2007). Successfully navigating the stages of doctoral study. *International Journal of Doctoral Studies*, *2*, 9–21.

Guerin, C. (2015). Connecting the dots: Writing a doctoral thesis by publication. In *Research Literacies and Writing Pedagogies for Masters and Doctoral Writers* (pp. 31–50). Brill. Retrieved from http://booksandjournals.brillonline.com/content/books/b9789004304338_003/?crawler=true&mimetype=application/pdf

Gunzenhauser, M. G., & Gerstl-Pepin, C. I. (2006). Engaging graduate education: A pedagogy for epistemological and theoretical diversity. *The Review of Higher Education*, *29*(3), 319–346. https://doi.org/10.1353/rhe.2006.0008

Hall, L. A., & Burns, L. D. (2009). Identity development and mentoring in doctoral education. *Harvard Educational Review*, *79*(1), 49–70.

Halter, M. J., Kleiner, C., & Hess, R. F. (2006). The experience of nursing students in an online doctoral program in nursing: A phenomenological study. *International Journal of Nursing Studies*, *43*(1), 99–105. https://doi.org/10.1016/j.ijnurstu.2005.03.001

Hammett, D. (2012). Tales from the road: Reflections on power and disciplining within the academy. *Environment and Planning A*, *44*(2), 445–457.

Hancock, S., Clegg, S., Crossouard, B., Kahn, P., & Weller, S. (2016). Who is the newer researcher into higher education? Locating ourselves in shifting terrains. *Higher Education Research & Development*, *35*(2), 282–295. https://doi.org/10.1080/07294360.2015.1087384

Harman, G. (2003a). Australian academics and prospective academics. *Higher Education Management and Policy*, *15*(3), 105–122. https://doi.org/10.1787/hemp-v15-art26-en

Harman, G. (2003b). International PhD students in Australian universities: Financial support, course experience and career plans. *International Journal of Educational Development*, *23*(3), 339–351. https://doi.org/10.1016/S0738-0593(02)00054-8

Harrison, L. (2009). A tinker's quest: Embarking on an autoethnographic journey in learning 'doctoralness'. *Counterpoints*, *357*, 253–267.

Harrison, R. L. (2008). Scaling the ivory tower: Engaging emergent identity as researcher. *Canadian Journal of Counselling*, *42*(4), 237.

Hawkins, R., Manzi, M., & Ojeda, D. (2014). Lives in the making: Power, academia and the everyday. *ACME: An International E-Journal for Critical Geographies*, *13*(2), 328–351.

Healey, M., Jordan, F., Pell, B., & Short, C. (2010). The research–teaching nexus: a case study of students' awareness, experiences and perceptions of research. *Innovations in Education and Teaching International*, *47*(2), 235–246.

Heinrich, K. T. (2000). The passionate scholar: A mid-life, woman doctoral student's quest for voice. *International Journal of Qualitative Studies in Education*, *13*(1), 63–83.

Hellstén, M. (2002). Students in transition: Needs and Experiences of International Students in Australia. *In 16th Australian International Education Conference.* IDP Education Australia.

Hemer, S. R. (2012). Informality, power and relationships in postgraduate supervision: Supervising PhD candidates over coffee. *Higher Education Research & Development*, *31*(6), 827–839.

Higgins, M. C., & Kram, K. E. (2001). Reconceptualizing mentoring at work: A developmental network perspective. *Academy of Management Review*, *26*(2), 264–288. https://doi.org/10.5465/AMR.2001.4378023

Hodkinson, P., & Sparkes, A. C. (1997). Careership: A sociological theory of career decision making. *British Journal of Sociology of Education*, *18*(1), 29–44. https://doi.org/10.1080/0142569970180102

Holland, D. (2001). *Identity and Agency in Cultural Worlds*. Harvard University Press.

Holley, K. A. (2009). Animal research practices and doctoral student identity development in a scientific community. *Studies in Higher Education*, *34*(5), 577–591.

Holley, K. A. (2015). Doctoral education and the development of an interdisciplinary identity. *Innovations in Education and Teaching International*, *52*(6), 642–652. https://doi.org/10.1080/14703297.2013.847796

Hook, G. A. (2016). *Sole parent students and higher education*. London: Palgrave Macmillan UK. Retrieved from http://link.springer.com/10.1057/978-1-137-59887-5

Hopwood, N. (2010a). A sociocultural view of doctoral students' relationships and agency. *Studies in Continuing Education*, *32*(2), 103–117.

Hopwood, N. (2010b). Doctoral experience and learning from a sociocultural perspective. *Studies in Higher Education*, *35*(7), 829–843. https://doi.org/10.1080/03075070903348412

Hopwood, N., & Paulson, J. (2012). Bodies in narratives of doctoral students' learning and experience. *Studies in Higher Education*, *37*(6), 667–681. https://doi.org/10.1080/03075079.2010.537320

Hopwood, N., & Stocks, C. (2008). Teaching development for doctoral students: What can we learn from activity theory? *International Journal for Academic Development*, *13*(3), 187–198. https://doi.org/10.1080/13601440802242358

Huang, C. (2012). Gender differences in academic self-efficacy: A meta-analysis. *European Journal of Psychology of Education*, *28*(1), 1–35. https://doi.org/10.1007/s10212-011-0097-y

Hughes, C., & Tight, M. (2013). The metaphors we study by: the doctorate as a journey and/or as work. *Higher Education Research & Development*, *32*(5), 765–775. https://doi.org/10.1080/07294360.2013.777031

Hyland, K. (2003). Dissertation acknowledgements: The anatomy of a Cinderella genre. *Written Communication*, *20*(3), 242–268. https://doi.org/10.1177/0741088303257276

Hyland, K. (2004). Graduates' gratitude: The generic structure of dissertation acknowledgements. *English for Specific Purposes*, *23*(3), 303–324.

Hyland, K. (2010). Community and individuality: Performing identity in applied linguistics. *Written Communication*, *27*(2), 159–188.

Hyland, K. (2011). Projecting an academic identity in some reflective genres. *Ibérica: Revista de La Asociación Europea de Lenguas Para Fines Específicos (AELFE)*, *21*, 9–30.

Jairam, D., & Kahl Jr., D. H. (2012). Navigating the doctoral experience: The role of social support in successful degree completion. *International Journal of Doctoral Studies*, *7*, 311–329.

James, B. (2012). Becoming an “authorised” postgraduate research writer. *Innovations in Education and Teaching International*, *49*(1), 41–50. https://doi.org/10.1080/14703297.2012.647782

James, B. (2013). Researching student becoming in higher education. *Higher Education Research & Development*, *32*(1), 109–121. https://doi.org/10.1080/07294360.2012.751089

Janta, H., Lugosi, P., & Brown, L. (2014). Coping with loneliness: A netnographic study of doctoral students. *Journal of Further and Higher Education*, *38*(4), 553–571. https://doi.org/10.1080/0309877X.2012.726972

Jazvac-Martek, M. (2009). Oscillating role identities: The academic experiences of education doctoral students. *Innovations in Education and Teaching International*, *46*(3), 253–264. https://doi.org/10.1080/14703290903068862

Jazvac-Martek, M., Chen, S., & McAlpine, L. (2011). Tracking the doctoral student experience over time: Cultivating agency in diverse spaces. In *Doctoral education: Research-based strategies for doctoral students, supervisors and administrators* (pp. 17–36). Netherlands: Springer. Retrieved from http://link.springer.com/chapter/10.1007/978-94-007-0507-4_2

Jepsen, D. M., Varhegyi, M. M., & Edwards, D. (2012). Academics’ attitudes towards PhD students’ teaching: Preparing research higher degree students for an academic career. *Journal of Higher Education Policy and Management*, *34*(6), 629–645.

Johnson, L., Lee, A., & Green, B. (2000). The PhD and the autonomous self: Gender, rationality and postgraduate pedagogy. *Studies in Higher Education*, *25*(2), 135–147. https://doi.org/10.1080/713696141

Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, *33*(7), 14–26.

Kamler, B. (2008). Rethinking doctoral publication practices: writing from and beyond the thesis. *Studies in Higher Education*, *33*(3), 283–294. https://doi.org/10.1080/03075070802049236

Kamler, B., & Thomson, P. (2004). Driven to abstraction: Doctoral supervision and writing pedagogies. *Teaching in Higher Education*, *9*(2), 195–209.

Kamler, B., & Thomson, P. (2014). *Helping doctoral students write: Pedagogies for supervision*. New York: Routledge.

Keefer, J. M. (2015). Experiencing doctoral liminality as a conceptual threshold and how supervisors can use it. *Innovations in Education and Teaching International*, *52*(1), 17–28. https://doi.org/10.1080/14703297.2014.981839

Kehm, B. M. (2006). Doctoral education in Europe and North America: a comparative analysis. *Wenner Gren International Series*, *83*, 67.

Kemp, M. W., Molloy, T. J., Pajic, M., & Chapman, E. (2013). Peer relationships and the biomedical doctorate: A key component of the contemporary learning environment. *Journal of Higher Education Policy and Management*, *35*(4), 370–385. https://doi.org/10.1080/1360080X.2013.812055

Kern, L., Hawkins, R., Al-Hindi, K. F., & Moss, P. (2014). A collective biography of joy in academic practice. *Social & Cultural Geography*, *15*(7), 834–851.

Kiley, M. (2009). Identifying threshold concepts and proposing strategies to support doctoral candidates. *Innovations in Education and Teaching International*, *46*(3), 293–304. https://doi.org/10.1080/14703290903069001

Kiley, M. (2014). *Coursework in Australian doctoral education: What's happening, why, and future directions?* (OLT). The Australian National University. Retrieved from http://chelt.anu.edu.au/doctoral-coursework

Kiley, M., & Wisker, G. (2009). Threshold concepts in research education and evidence of threshold crossing. *Higher Education Research & Development*, *28*(4), 431–441. https://doi.org/10.1080/07294360903067930

Kiley, M., & Wisker, G. (2010). Learning to be a researcher: The concepts and crossings. *Threshold Concepts and Transformational Learning.* Rotterdam: Sense Publishers.

Kim, H. Y. (2011). International graduate students' difficulties: Graduate classes as a community of practices. *Teaching in Higher Education*, *16*(3), 281–292. https://doi.org/10.1080/13562517.2010.524922

Kolb, D. A. (2014). *Experiential learning: Experience as the source of learning and development*. FT Press.

Kolb, D. A., & Fry, R. E. (1974). *Toward an applied theory of experiential learning*. Massachusetts: MIT Alfred P. Sloan School of Management.

Kumar, S., Johnson, M., & Hardemon, T. (2013). Dissertations at a distance: Students' perceptions of online mentoring in a doctoral program. *International Journal of E-Learning & Distance Education*, *27*(1). Retrieved from http://ijede.ca/index.php/jde/article/view/835

Kuntz, A. M. (2012). Reconsidering the workplace: Faculty perceptions of their work and working environments. *Studies in Higher Education*, *37*(7), 769–782.

Lahenius, K., & Martinsuo, M. (2011). Different types of doctoral study processes. *Scandinavian Journal of Educational Research*, *55*(6), 609–623.

Lakoff, G., & Johnson, M. (1980). *Metaphors we live by* (Vol. 111). Chicago London. Retrieved from http://books.google.com.au/books?hl=en&lr=&id=29gyLFV6VkQC&oi=fnd&pg=PA103&dq=lakoff+and+johnson+metaphor&ots=Cri_quezip&sig=2EZveRqLJAYbuiNtHcvP8gQkumA

Lave, J., & Wenger, E. (2001). Legitimate peripheral participation in communities of practice. *Supporting Lifelong Learning: Perspectives on Learning and Teaching*, *1*, 111.

Layder, D. (1993). *New strategies in social research: An introduction and guide*. Polity Press.

Lee, A., & Aitchison, C. (2009). Writing for the doctorate and beyond. *Changing Practices of Doctoral Education*, 87–99.

Lee, A., & Boud, D. (2003). Writing groups, change and academic identity: Research development as local practice. *Studies in Higher Education*, *28*(2), 187–200. https://doi.org/10.1080/0307507032000058109

Lee, A., & Kamler, B. (2008). Bringing pedagogy to doctoral publishing. *Teaching in Higher Education*, *13*(5), 511–523.

Lovitts, B. E. (2001). *Leaving the ivory tower: The causes and consequences of departure from doctoral study*. Rowman & Littlefield. Retrieved from http://books.google.com.au/books?hl=en&lr=&id=gMNC3NhxryUC&oi=fnd&pg=PR6&dq=+identity+in+doctoral+study&ots=6GSDORTX9U&sig=rx0R6eAH45RMMUSSGYzvJfuoOjo

Loxley, A., & Seery, A. (2012). The role of the professional doctorate in Ireland from the student perspective. *Studies in Higher Education*, *37*(1), 3–17. https://doi.org/10.1080/03075079.2010.489148

Macbeth, D. (2001). On "reflexivity" in qualitative research: Two readings, and a third. *Qualitative Inquiry*, *7*(1), 35–68. https://doi.org/10.1177/107780040100700103

Mack, L. (2010). The philosophical underpinnings of educational research. *Polyglossia*, *19*, 1–11.

Malfroy, J. (2005). Doctoral supervision, workplace research and changing pedagogic practices. *Higher Education Research & Development*, *24*(2), 165–178.

Malfroy, J., & Yates, L. (2003). Knowledge in action: Doctoral programmes forging new identities. *Journal of Higher Education Policy and Management*, *25*(2), 119–129. https://doi.org/10.1080/1360080032000122606

Malloch, M. (2010). Professional doctorates: An Australian perspective. *Work Based Learning E-Journal*, *1*(1), 35–58.

Manathunga, C. (2007). Intercultural postgraduate supervision: ethnographic journeys of identity and power. In *Learning and teaching across cultures in higher education* (pp. 93-113). Palgrave Macmillan UK.

Manathunga, C. (2010). Intercultural postgraduate supervision: Post-colonial explorations and reflections on Southern positionings. *New Zealand Annual Review of Education*, *20*, 5–23.

Mantai, L. (2015). Feeling like a researcher: Experiences of early doctoral students in Australia. *Studies in Higher Education*, 1–15. https://doi.org/10.1080/03075079.2015.1067603

Mantai, L., & Dowling, R. (2015). Supporting the PhD journey: Insights from acknowledgements. *International Journal for Researcher Development*, *6*(2), 106–121. https://doi.org/10.1108/IJRD-03-2015-0007

Maréchal, G. (2010). Autoethnography. *Encyclopedia of case study research*, *2*, 43-45.

Mayuzumi, K., Motobayashi, K., Nagayama, C., & Takeuchi, M. (2007). Transforming diversity in Canadian higher education: A dialogue of Japanese women graduate students. *Teaching in Higher Education*, *12*(5–6), 581–592. https://doi.org/10.1080/13562510701595200

McAlpine, L. (2012a). Identity-trajectories: Doctoral journeys from past to present to future. *Australian Universities' Review*, *54*(1), 38–46.

McAlpine, L. (2012b). Shining a light on doctoral reading: Implications for doctoral identities and pedagogies. *Innovations in Education and Teaching International*, *49*(4), 351–361. https://doi.org/10.1080/14703297.2012.728875

McAlpine, L., & Åkerlind, G. (2010). *Becoming an academic*. Palgrave Macmillan. Retrieved from https://books.google.com.au/books?hl=de&lr=&id=9ZhiAQAAQBAJ&oi=fnd&pg=PP1&dq=becoming+an+academic&ots=T0gQ_WCoGe&sig=npzj91ewUqcgn6WKH8cg202Db5E

McAlpine, L., & Amundsen, C. (2009). Identity and agency: Pleasures and collegiality among the challenges of the doctoral journey. *Studies in Continuing Education*, *31*(2), 109–125. https://doi.org/10.1080/01580370902927378

McAlpine, L., & Asghar, A. (2010). Enhancing academic climate: Doctoral students as their own developers. *International Journal for Academic Development*, *15*(2), 167–178.

McAlpine, L., & Emmioğlu, E. (2015). Navigating careers: Perceptions of sciences doctoral students, post-PhD researchers and pre-tenure academics. *Studies in Higher Education*, *40*(10), 1770–1785. https://doi.org/10.1080/03075079.2014.914908

McAlpine, L., & Lucas, L. (2011). Different places, different specialisms: Similar questions of doctoral identities under construction. *Teaching in Higher Education*, *16*(6), 695–706.

McAlpine, L., & Mitra, M. (2015). Becoming a scientist: PhD workplaces and other sites of learning. *International Journal of Doctoral Studies*, *10*. Retrieved from http://ijds.org/Volume10/IJDSv10p111-128McAlpine0768.pdf

McAlpine, L., & Norton, J. (2006). Reframing our approach to doctoral programs: An integrative framework for action and research. *Higher Education Research & Development*, *25*(1), 3–17. https://doi.org/10.1080/07294360500453012

McAlpine, L., & Weston, C. (2000). Reflection: Issues related to improving professors' teaching and students' learning. *Instructional Science*, *28*(5), 363–385.

McAlpine, L., Amundsen, C., & Turner, G. (2014). Identity-trajectory: Reframing early career academic experience. *British Educational Research Journal*, *40*(6), 952–969. https://doi.org/10.1002/berj.3123

McAlpine, L., Jazvac-Martek, M., & Hopwood, N. (2009). Doctoral student experience in education: Activities and difficulties influencing identity development. *International Journal for Researcher Development*, *1*(1), 97–109.

McCormack, C. (2004). Storying stories: A narrative approach to in-depth interview conversations. *International Journal of Social Research Methodology*, *7*(3), 219–236. https://doi.org/10.1080/13645570210166382

McCulloch, A. (2013). The quest for the PhD: A better metaphor for doctoral education. *International Journal for Researcher Development*, *4*(1), 55–66.

McGagh, J, Marsh, H, Western, M, Thomas, P, Hastings, A, Mihailova, M. (2016). Review of Australia's research training system. Report for the Australian Council of Learned Academies. Retrieved September 29, 2016, from http://www.acola.org.au/PDF/SAF13/SAF13%20RTS%20report.pdf

McGuirk, P., & Dowling, R. (2009). Neoliberal privatisation? Remapping the public and the private in Sydney's masterplanned residential estates. *Political Geography*, *28*(3), 174–185.

McInnis, C. (2000). Changing Academic Work Roles: The everyday realities challenging quality in teaching. *Quality in Higher Education*, *6*(2), 143–152. https://doi.org/10.1080/713692738

McWilliam, E. L., Taylor, P., Thomson, P., Green, B., Maxwell, T., Wildy, H., & Simons, D. (2002). *Research training in doctoral programs —What can be learned from professional doctorates?* (Report). Commonwealth of Australia. Retrieved from http://eprints.qut.edu.au/10710/

Merga, M. (2015). Thesis by publication in education: An autoethnographic perspective for educational researchers. *Issues in Educational Research*, *25*(3), 291–308.

Metcalfe, M., & Kiley, M. (2000). Arguing for PhD coursework. *Australasian Journal of Information Systems*, *7*(2). Retrieved from http://journal.acs.org.au/index.php/ajis/article/viewArticle/276?ads=

Mewburn, I. (2011). Troubling talk: Assembling the PhD candidate. *Studies in Continuing Education*, *33*(3), 321–332. https://doi.org/10.1080/0158037X.2011.585151

Mewburn, I., & Thomson, P. (2013). Why do academics blog? An analysis of audiences, purposes and challenges. *Studies in Higher Education*, *38*(8), 1105–1119.

Meyer-Parsons, B. (2007). Exploding heads, doing school and intangible work: An ethnographic case study of first year education doctoral students becoming education researchers. Retrieved from https://dspace.library.colostate.edu/handle/10217/70454

Meyer, J. H., & Land, R. (2006). Threshold concepts and troublesome knowledge. *Overcoming Barriers to Student Understanding: Threshold Concepts and Troublesome Knowledge*, 3–18.

Miller, N., & Brimicombe, A. (2004). Mapping research journeys across complex terrain with heavy baggage. *Studies in Continuing Education*, *26*(3), 405–417.

Milne, M. J., Kearins, K., & Walton, S. (2006). Creating adventures in wonderland: The journey metaphor and environmental sustainability. *Organization*, *13*(6), 801–839.

Morse, J. M. (2003). Principles of mixed methods and multimethod research design. *Handbook of Mixed Methods in Social and Behavioral Research*, 189–208.

Mountz, A., Bonds, A., Mansfield, B., Loyd, J., Hyndman, J., Walton-Roberts, M., … Curran, W. (2015). For slow scholarship: A feminist politics of resistance through collective action in the neoliberal university. *ACME: An International E-Journal for Critical Geographies*, *14*(4), 1235–1259.

Müller, R. (2014). Racing for what? Anticipation and acceleration in the work and career practices of academic life science post-docs. In *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research* (Vol. 15 3). Retrieved from http://www.qualitative-research.net/index.php/fqs/article/view/2245

Murakami-Ramalho, E., Piert, J., & Militello, M. (2008). The wanderer, the chameleon, and the warrior experiences of doctoral students of color developing a research identity in educational administration. *Qualitative Inquiry*, *14*(5), 806–834.

Murray, R., & Cunningham, E. (2011). Managing researcher development: "Drastic transition"? *Studies in Higher Education*, *36*(7), 831–845. https://doi.org/10.1080/03075079.2010.482204

Nadin, S., & Cassell, C. (2006). The use of a research diary as a tool for reflexive practice: Some reflections from management research. *Qualitative Research in Accounting & Management*, *3*(3), 208–217. https://doi.org/10.1108/11766090610705407

National Health and Medical Research Council (Australia). (2007*). National statement on ethical conduct in human research*. National Health and Medical Research Council.

Nerad, M., & Heggelund, M. (2011). *Toward a global PhD?: Forces and forms in doctoral education worldwide*. Seattle: University of Washington Press.

Neumann, R. (1994). The teaching-research nexus: Applying a framework to university students' learning experiences. *European Journal of Education*, 323–338.

Neumann, R., & Rodwell, J. (2009). The "invisible"part-time research students: A case study of satisfaction and completion. *Studies in Higher Education*, *34*(1), 55–68.

Neumann, R., & Tan, K. K. (2011). From PhD to initial employment: The doctorate in a knowledge economy. *Studies in Higher Education*, *36*(5), 601–614. https://doi.org/10.1080/03075079.2011.594596

Neumann, R., Kiley, M., & Mullins, G. (2008). Australian doctoral graduates: Where are they going. *Quality in Postgraduate Research: Research Education in the New Global Environment*, 84–89.

Norton, A. (2012). Mapping Australian higher education. *Carlton, Victoria, Australia: Grattan Institute. Retrieved June*, *12*, 2012.

Nowviskie, B. (2011). *#Alt-Academy 01: Alternative academic careers for humanities scholars* (Vol. 1). Retrieved from http://mediacommons.futureofthebook.org/alt-ac/sites/mediacommons.futureofthebook.org.alt-ac/files/alt-academy01.pdf

Nye, A., Foskey, R., & Edwards, H. (2013). Collegial reflection on the meaning of metaphors in learning: Emerging theory and practice. *Studies in Continuing Education*, *36*(2), 132–146. https://doi.org/10.1080/0158037X.2013.796921

Ollerenshaw, J. A., & Creswell, J. W. (2002). Narrative research: A comparison of two restorying data analysis approaches. *Qualitative Inquiry*, *8*(3), 329–347.

Paglis, L. L., Green, S. G., & Bauer, T. N. (2006). Does adviser mentoring add value? A longitudinal study of mentoring and doctoral student outcomes. *Research in Higher Education*, *47*(4), 451–476. https://doi.org/10.1007/s11162-005-9003-2

Park, C. (2004). The graduate teaching assistant (GTA): Lessons from North American experience. *Teaching in Higher Education*, *9*(3), 349–361. https://doi.org/10.1080/1356251042000216660

Park, C. (2005a). New Variant PhD: The changing nature of the doctorate in the UK. *Journal of Higher Education Policy and Management*, *27*(2), 189–207.

Park, C. (2005b). War of attrition: Patterns of non-completion amongst postgraduate research students. *Higher Education Review*, *38*(1), 48–53.

Park, C. (2007). Redefining the doctorate. Retrieved from http://eprints.lancs.ac.uk/435

Parry, S. (2007). *Disciplines and doctorates* (Vol. 16). Springer. Retrieved from http://link.springer.com/content/pdf/10.1007/1-4020-5312-6.pdf

Pearson, M. (1999). The changing environment for doctoral education in Australia: implications for quality management, improvement and innovation. *Higher Education Research & Development*, *18*(3), 269–287. https://doi.org/10.1080/0729436990180301

Pearson, M., & Brew, A. (2002). Research training and supervision development. *Studies in Higher Education*, *27*(2), 135–150.

Peseta, T. (2016). Reframing the PhD. Briefing Paper 2. Retrieved from http://reframingphd.com.au/wp-content/uploads/2016/07/Briefing-Paper-2-Stewardship-Final.pdf

Peters, K., & Turner, J. (2014). Fixed-term and temporary: Teaching fellows, tactics, and the negotiation of contingent labour in the UK higher education system. *Environment and Planning A*, *46*(10), 2317–2331.

Pickering, C., Grignon, J., Steven, R., Guitart, D., & Byrne, J. (2015). Publishing not perishing: How research students transition from novice to knowledgeable using systematic quantitative literature reviews. *Studies in Higher Education*, 40(10), 1756-1769.

Pifer, M. J., & Baker, V. L. (2014). “It could be just because I’m different”: Otherness and its outcomes in doctoral education. *Journal of Diversity in Higher Education*, *7*(1), 14–30. https://doi.org/10.1037/a0035858

Pilbeam, C., & Denyer, D. (2009). Lone scholar or community member? The role of student networks in doctoral education in a UK management school. *Studies in Higher Education*, *34*(3), 301–318. https://doi.org/10.1080/03075070802597077

Pitt, R., & Mewburn, I. (2016). Academic superheroes? A critical analysis of academic job descriptions. *Journal of Higher Education Policy and Management*, *38*(1), 88–101. https://doi.org/10.1080/1360080X.2015.1126896

Pleschová, G., & Simon, E. (2009). Teacher Training for Political Science PhD Students in Europe Determinants of a Tool for Enhanced Teaching in Higher Education. *Journal of Political Science Education*, *5*(3), 233–249. https://doi.org/10.1080/15512160903038116

Pretorius, M. (2016). Paper-based theses as the silver bullet for increased research outputs: First hear my story as a supervisor. *Higher Education Research & Development*, *0*(0), 1–15. https://doi.org/10.1080/07294360.2016.1208639

Pyhältö, K., Stubb, J., & Lonka, K. (2009). Developing scholarly communities as learning environments for doctoral students. *International Journal for Academic Development*, *14*(3), 221–232. https://doi.org/10.1080/13601440903106551

Quaye, S. J. (2007). Voice of the researcher: Extending the limits of what counts as research. *Journal of Research Practice*, *3*(1), 3.

Read, B., Archer, L., & Leathwood, C. (2003). Challenging cultures? Student conceptions of “belonging” and “isolation” at a post-1992 university. *Studies in Higher Education*, *28*(3), 261–277. https://doi.org/10.1080/03075070309290

Reisz, M. (2016, October 25). British Academy warns over “disincentives” to interdisciplinarity. Retrieved from

https://www.timeshighereducation.com/news/british-academy-warns-over-disincentives-to-interdisciplinarity.

Reybold, L. E. (2003). Pathways to the professorate: The development of faculty identity in education. *Innovative Higher Education*, *27*(4), 235–252.

Riessman, C. K. (2008). *Narrative methods for the human sciences*. Sage.

Roach, M., & Sauermann, H. (2010). A taste for science? PhD scientists' academic orientation and self-selection into research careers in industry. *Research Policy*, *39*(3), 422–434. https://doi.org/10.1016/j.respol.2010.01.004

Robertson, M. J. (2016). Team modes and power: Supervision of doctoral students. *Higher Education Research & Development*, 1–14. https://doi.org/10.1080/07294360.2016.1208157

Robins, L., & Kanowski, P. (2008). PhD by publication: A student's perspective. *Journal of Research Practice*, *4*(2), M4.

Rockinson-Szapkiw, A. (2011). Improving doctoral candidates' persistence in the online dissertation process. *Faculty Publications and Presentations*. Retrieved from http://digitalcommons.liberty.edu/educ_fac_pubs/184

Rolfe, G. (2006). Validity, trustworthiness and rigour: Quality and the idea of qualitative research. *Journal of Advanced Nursing*, *53*(3), 304–310. https://doi.org/10.1111/j.1365-2648.2006.03727.x

Rond, M. D., & Miller, A. N. (2005). Publish or perish bane or boon of academic life? *Journal of Management Inquiry*, *14*(4), 321–329. https://doi.org/10.1177/1056492605276850

Russo, G. (2011). Graduate students: Aspirations and anxieties. *Nature*, *475*(7357), 533–535. https://doi.org/10.1038/nj7357-533a

Ryan-Flood, R., & Gill, R. (2013). *Secrecy and silence in the research process: Feminist reflections*. New York: Routledge. Retrieved from https://books.google.com.au/books?hl=en&lr=&id=I4B1JfYcdaYC&oi=fnd&pg=PR

1&dq=Breaking+the+silence:+The+hidden+injuries+of+the+neoliberal+university&ots=OrWQTRULNe&sig=cSyh77_g72Wn1GvHtPFDgcBohnI

Ryan, J. (2011). Teaching and learning for international students: towards a transcultural approach. *Teachers and Teaching*, *17*(6), 631–648.

Salager-Meyer, F., Alcaraz-Ariza, M. Á., Briceño, M. L., & Jabbour, G. (2011). Scholarly gratitude in five geographical contexts: A diachronic and cross-generic approach of the acknowledgment paratext in medical discourse (1950–2010). *Scientometrics*, *86*(3), 763–784.

Saldaña, J. (2015). *The coding manual for qualitative researchers*. Sage. Retrieved from https://books.google.com.au/books?hl=en&lr=&id=jh1iCgAAQBAJ&oi=fnd&pg=PT13&dq=coding+manual+saldana+2013&ots=OuBtTeWcrS&sig=ZTbQywTPqy92FjbSppkDxOzsVXc

Sallee, M. W. (2011). Performing masculinity: Considering gender in doctoral student socialization. *The Journal of Higher Education*, *82*(2), 187–216.

Sandelowski, M., & Barroso, J. (2002). Finding the findings in qualitative studies. *Journal of Nursing Scholarship*, *34*(3), 213–219.

Schütze, F. (1987). *Das narrative Interview in Interaktionsfeldstudien*. Fernuniv., Gesamthochsch., Fachbereich Erziehungs-, Sozial-u. Geisteswiss.

Schwandt, T. A. (1994). Constructivist, interpretivist approaches to human inquiry. Retrieved from http://psycnet.apa.org/psycinfo/1994-98625-006

Scrivener, L. (2009). An exploratory analysis of history students' dissertation acknowledgments. *The Journal of Academic Librarianship*, *35*(3), 241–251.

Sfard, A., & Prusak, A. (2005). Telling identities: In search of an analytic tool for investigating learning as a culturally shaped activity. *Educational Researcher*, *34*(4), 14–22.

Sharmini, S., Spronken-Smith, R., Golding, C., & Harland, T. (2015). Assessing the doctoral thesis when it includes published work. *Assessment & Evaluation in Higher Education*, *40*(1), 89–102.

Silverman, D. (2006). *Interpreting qualitative data: Methods for analyzing talk, text and interaction*. SAGE.

Sinclair, J., Barnacle, R., & Cuthbert, D. (2013). How the doctorate contributes to the formation of active researchers: What the research tells us. *Studies in Higher Education*, *39*(10), 1972–1986. https://doi.org/10.1080/03075079.2013.806460

Smith, J. (2010). Forging identities: The experiences of probationary lecturers in the UK. *Studies in Higher Education*, *35*(5), 577–591. https://doi.org/10.1080/03075070903216650

Solem, M., Hopwood, N., & Schlemper, M. B. (2011). Experiencing graduate school: A comparative analysis of students in geography programs. *The Professional Geographer*, *63*(1), 1–17.

Soong, H., Thi Tran, L., & Hoa Hiep, P. (2015). Being and becoming an intercultural doctoral student: Reflective autobiographical narratives. *Reflective Practice*, *16*(4), 435–448.

Stebbins, R. (2001). *Exploratory research in the social sciences* (Vol. 48). SAGE. Retrieved from https://scholar.google.com.au/scholar?hl=en&q=exploratory+research&btnG=&as_sdt=1%2C5&as_sdtp=

Stinson, A. B. (2009). An autoethnography: A mathematics teacher's journey of identity construction and change. Retrieved from http://scholarworks.gsu.edu/msit_diss/43/

Sweitzer, V. L. (2009). Towards a theory of doctoral student professional identity development: A developmental networks approach. *The Journal of Higher Education*, *80*(1), 1–33.

Sweitzer, V. L. (2008). Networking to develop a professional identity: A look at the first-semester experience of doctoral students in business. *New Directions for Teaching and Learning*, (113), 43–56. https://doi.org/10.1002/tl.307

Sword, H. (2012). *Stylish academic writing*. Massachusetts: Harvard University Press.

Taylor, K. B. (2008). Mapping the Intricacies of young adults' developmental journey from socially prescribed to internally defined identities, relationships, and beliefs. *Journal of College Student Development*, *49*(3), 215–234. https://doi.org/10.1353/csd.0.0005

Tenenbaum, H. R., Crosby, F. J., & Gliner, M. D. (2001). Mentoring relationships in graduate school. *Journal of Vocational Behavior*, *59*(3), 326–341. https://doi.org/10.1006/jvbe.2001.1804

Thomas, G., & James, D. (2006). Reinventing grounded theory: Some questions about theory, ground and discovery. *British Educational Research Journal*, *32*(6), 767–795.

Thorne, S. (2000). Data analysis in qualitative research. *Evidence Based Nursing*, *3*(3), 68–70. https://doi.org/10.1136/ebn.3.3.68

Thune, T. (2009). Doctoral students on the university–industry interface: A review of the literature. *Higher Education*, *58*(5), 637. https://doi.org/10.1007/s10734-009-9214-0

Tonso, K. L. (2006). Student engineers and engineer identity: Campus engineer identities as figured world. *Cultural Studies of Science Education*, *1*(2), 273–307.

Trafford, V., & Leshem, S. (2009). Doctorateness as a threshold concept. *Innovations in Education and Teaching International*, *46*(3), 305–316. https://doi.org/10.1080/14703290903069027

Trahar, S. (2009). Beyond the story itself: Narrative inquiry and autoethnography in intercultural research in higher education. In *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research* (Vol. 10). Retrieved from http://www.qualitative-research.net/index.php/fqs/article/viewArticle/1218

Trahar, S. (2013). Autoethnographic journeys in learning and teaching in higher education. *European Educational Research Journal*, *12*(3), 367–375.

Trevitt, C., & Perera, C. (2009). Self and continuing professional learning (development): Issues of curriculum and identity in developing academic practice. *Teaching in Higher Education*, *14*(4), 347–359. https://doi.org/10.1080/13562510903050095

Trigwell, K. (2016). Reframing the PhD. Briefing Paper 1. Retrieved from http://reframingphd.com.au/wp-content/uploads/2016/07/Briefing-Paper-1-Teacher-development-strategies-and-the-PhD-Final.pdf

Turner, G., & McAlpine, L. (2011). Doctoral experience as researcher preparation: Activities, passion, status. *International Journal for Researcher Development*, *2*(1), 46–60. https://doi.org/10.1108/17597511111178014

Universities Australia. (2013). *A smarter Australia: an agenda for Australian higher education 2013-2016*. Canberra: Universities Australia. Retrieved from http://universitiesaustralia.s3.amazonaws.com/wp-content/uploads/2013/02/Universities-Australia-A-Smarter-Australia.pdf

Vitae. (2010). Vitae researcher development statement (RDS), *Careers Research and Advisory Centre (CRAC) Limited.* Retrieved from https://www.vitae.ac.uk/vitae-publications/rdf-related/researcher-development-statement-rds-vitae.pdf

Waaijer, C. J. F. (2016). Perceived career prospects and their influence on the sector of employment of recent PhD graduates. *Science and Public Policy*, scw007. https://doi.org/10.1093/scipol/scw007

Waitere, H. J., Wright, J., Tremaine, M., Brown, S., & Pausé, C. J. (2011). Choosing whether to resist or reinforce the new managerialism: the impact of performance-based research funding on academic identity. *Higher Education Research & Development*, *30*(2), 205–217. https://doi.org/10.1080/07294360.2010.509760

Walker, G. E., Golde, C. M., Jones, L., Bueschel, A. C., & Hutchings, P. (2009). *The Formation of Scholars: Rethinking Doctoral Education for the Twenty-First Century*. John Wiley & Sons.

Weidman, J. C., & Stein, E. L. (2003). Socialization of doctoral students to academic norms. *Research in Higher Education*, *44*(6), 641–656.

Weidman, J. C., Twale, D. J., & Stein, E. L. (2001). *Socialization of graduate and professional students in higher education: A perilous passage? ASHE-ERIC Higher Education Report, Volume 28, Number 3.* Jossey-Bass. Retrieved from http://eric.ed.gov/?id=ED457710

Wenstone, R., & Burrett, R. (2013). Postgraduates who teach. *National Union of Students*, 7-29.

Wiles, R., Durrant, G., Broe, S. D., & Powell, J. (2009). Methodological approaches at PhD and skills sought for research posts in academia: A mismatch? *International Journal of Social Research Methodology*, *12*(3), 257–269. https://doi.org/10.1080/13645570701708550

Willison, J., & O'Regan, K. (2008). *Researcher skill development framework*.

Wills, T. A. (1991). Social support and interpersonal relationships. Retrieved from http://psycnet.apa.org/psycinfo/1991-97117-010

Winchester-Seeto, T., Homewood, J., Thogersen, J., Jacenyik-Trawoger, C., Manathunga, C., Reid, A., & Holbrook, A. (2014). Doctoral supervision in a cross-cultural context: Issues affecting supervisors and candidates. *Higher Education Research & Development*, *33*(3), 610–626. https://doi.org/10.1080/07294360.2013.841648

Wisker, G., & Robinson, G. (2013). Doctoral "orphans": Nurturing and supporting the success of postgraduates who have lost their supervisors. *Higher Education Research & Development*, *32*(2), 300–313. https://doi.org/10.1080/07294360.2012.657160

Wisker, G., & Robinson, G. (2014). Experiences of the creative doctorate: Minstrels and white lines. *Critical Studies in Teaching and Learning*, *2*(2), 49–67.

Wisker, G., Robinson, G., & Shacham, M. (2007). Postgraduate research success: Communities of practice involving cohorts, guardian supervisors and online

communities. *Innovations in Education and Teaching International*, *44*(3), 301–320. https://doi.org/10.1080/14703290701486720

Woolston, C. (2015). Graduate survey: Uncertain futures. *Nature*, *526*(7574), 597–600. https://doi.org/10.1038/nj7574-597a

Yates, B. (2007). Integrating doctoral candidates into research teams. Supervising Doctorates Downunder: Keys to Effective Supervision in Australia and New Zealand.

Appendix A: Call for participants

Department of Education
Faculty of Human Sciences
MACQUARIE UNIVERSITY NSW 2109
Phone: +61 (0) 9850-8664
2109

Research Participants Wanted!

"Tell me your PhD story!"

The Role of Social Support in the HDR Journey

We are looking for HDR candidates who want to share their PhD story and talk about their needs, experiences and use of social support in higher degree research education. This is an opportunity to reflect on your PhD journey and your social support needs in the research training process. The purpose of the study is to analyse the role and significance of social support in HDR (higher degree research). The findings will propose guidelines for support services and practices in doctoral education, in order to enhance the HDR experience.

You can choose to **participate in a focus group, an interview, or both** (each will take max. 60 minutes). You will be o**ffered a $20 gift card per session** for your time invested in this study.

Participation is confidential and all responses and information will remain anonymous. You may withdraw from the study at any time without having to give a reason. This project has been approved by Macquarie University's Human Research Ethics Committee (Ref: 5201300597).

This research project is conducted by Lilia Mantai as a requirement for the Doctor of Philosophy degree. Please email Lilia Mantai (lilia.mantai@mq.edu.au) or call 9850-8664 for further information and if you wish to participate.

Thank you for your interest and feel free to tell your friends about the study!

Appendix B: Participant information and consent form

Department of Education
Faculty of Human Sciences
MACQUARIE UNIVERSITY NSW 2109
Phone: +61 (0) 9850-8664

Email: lilia.mantai@mq.edu.au
Chief Investigator's / Supervisor's Name: Robyn Dowling
Chief Investigator's / Supervisor's Title: Professor

Participant Information and Consent Form

Name of Project: The Role of Social Support in the HDR Journey

You are invited to participate in a study of social support in the higher degree research training. The purpose of the study is to analyse the role of social support and delineate its significance in the HDR (higher degree research) process. The findings will propose guidelines for support services and practices in doctoral education, in order to enhance the HDR experience and contribute to a more collaborative and inclusive HDR practice. The thesis will make a conceptual contribution by rethinking the notion of social support in the HDR space.

This research project is conducted by Lilia Mantai as a requirement for the Doctor of Philosophy degree under the supervision of Prof. Robyn Dowling (email: robyn.dowling@mq.edu.au, phone: 9850-9780) from the Learning and Teaching Centre, Macquarie University.

If you decide to participate, you will be asked to participate in a focus group and a narrative interview about your needs, experiences and use of social support in your higher degree research education. The focus group and the interview will each take a maximum of one hour. The interview can follow after the focus group or whenever is most convenient to you. All sessions will be audio recorded and transcribed by a professionally certified transcription service. In the focus group as well as the interview you will have an opportunity to reflect on your PhD journey with the focus on social support. Participation in this research may raise your awareness of your social support needs in the research training process. If you experience any discomfort during the focus groups or interviews, please let the researcher know and available support services will be provided. Macquarie University participants may contact the Campus Well-being and Support Services on 9850-7497 if required. Every participant will be offered a $20 gift card for their time invested in this study.

Any information or personal details gathered in the course of the study are strictly confidential, except as required by law. No individual will be identified in any publication of the results. Only the researchers listed above will have access to the collected data. If you wish, you will be offered the opportunity to review your interview transcript prior to our data

analysis. Reports of the study may be submitted for publication, but individual participants will be de-identified and pseudonyms will be used in direct quotations. A summary of the results of the data can be made available and sent to you via email upon request.

Participation in this study is entirely voluntary: you are not obliged to participate and if you decide to participate, you are free to withdraw at any time without having to give a reason and without consequence. You can tell other people about the study if you wish.

I, _____have read and understood the information above and any questions I have asked have been answered to my satisfaction. I agree to participate in this research, knowing that I can withdraw from further participation in the research at any time without consequence. I have been given a copy of this form to keep.

Please indicate which stages of this research you wish and agree to participate in:

☐ I wish to participate in a **focus group**.

☐ I wish to participate in an **interview**.

☐ I wish to participate in a **follow-up interview.**
Please provide your email:_____
(The follow-up interviews will be conducted in a year's time. You will receive an email to arrange a time. You have the right to withdraw from the study at any point if you wish.)

Participant's Name:_____
(Block letters)

Participant's Signature: _____Date:_____

Investigator's Name: **Lilia Mantai** _____
(Block letters)

Investigator's Signature: _____ ___Date:_____

The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics (telephone (02) 9850 7854; email ethics@mq.edu.au. Ref: 5201300597). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

Appendix C: Focus group questions

Activity 1 — Cartoon:

Please comment on the cartoons presented to you at the session (see also email attachment):

a. 6/23/2007 Facebook: http://www.phdcomics.com/comics/archive.php?comicid=877
b. 10/28/1997 Calling Mum: http://www.phdcomics.com/comics/archive.php?comicid=2
c. 5/21/2004 Social: http://www.phdcomics.com/comics/archive.php?comicid=458
d. 10/8/2002 You HAVE started writing, have you: http://www.phdcomics.com/comics/archive.php?comicid=315

Activity 2 — Model and cards:

1. Discuss in your group and write down on individual cards/post-its what social support you *need*, *know of*, and *use* in your PhD.
2. You will be presented with the social support model that was developed in this research.
3. In your group, discuss and sort the cards/post-its you have written under the three categories presented to you.
4. Discuss how these types of social support help you in the HDR process. What benefits and issues do you experience with any of these?

Activity 3 — Discussion:

- What aspects of your PhD need social support?
- How important is social support for you in doing a PhD?
- Can you define social support in the context of a PhD? What does social support mean in your PhD?
- What role do your peers play in regards to providing social support? Who are your peers?
- What does successful social support look like?

Appendix D: Interview questions

P1: Pathway to PhD

Tell me how you came to do a PhD. Why? And what are your future career plans?

Why did you choose [your university] to do your PhD?

P2: Understanding and definition of *social support* in your PhD?

Tell me what social support means to you in your own words?

How would you describe the PhD process in one word? Why this particular word?

P3: Social support in your *PhD* and *Developing a Researcher Identity*

Tell me about support in your PhD.
Who (and what) provides support in your PhD?
What people are involved in your PhD study?

Other Prompts:
How do you see yourself as a PhD student? How do you see yourself as a researcher?

Thinking of your PhD from the start up to now, how did you feel and think about yourself (what were you like) at the beginning, and how do you feel and think about yourself now? Who and what is responsible for these changes?

Can you recall moments, events, activities during your PhD when you felt like a researcher or an academic? (prompt if necessary, e.g. proposal, writing up a paper)

What aspects of your PhD help you feel like a researcher? What aspects prohibited you from feeling like a researcher?

Pivotal moment in your PhD so far?

Particular needs as International Student, mature student, etc.?

What do you wish you had (more of) in regards to social support in your PhD?

<u>Follow-up interview schedule</u>

Same as initial interview questions, prompts and follow-ups depending on candidates' responses.

Appendix E: Matrix of data analysis

			less confident/negative experience														
			more confident/positive experience														
	clusters	events	Ann	Ida	Olaf	Norman	Annabelle	Ellen	Nicole	Antonia	Eliza W	Elisabeth	Mitch	Noah	Karl	Anna	Jacob
positive	**research work**	writing group, SUAW or boot camp	X			X							X				
	research work	writing at home or off campus	X	X			X	X	X						X		
	research work	lab work/hands on				X	X					X			X		
	space	PhD office space	X		X	X	X				X	X	X				
	social support	friends with other PhDs (from 1st year or before)	X	X			X		X	X	X	X	X	X	X	X	X
	social support	friends with post-docs, seniors		X	X	X		X				X	X	X	X	X	
	social support	participating in HDR/PhD training/groups		X		X			X			X	X				
	social support	internal PhD groups												X			
	social support	not participating in HDR training												X	X		X
	social support	good supervisory relationship					X	X	X	X	X	X	X	X	X	X	X
	social support	generally sufficient social support					X		X			X	X	X	X	X	X
	social support	fun with PhD students/staff/lifestyle		X		X				X			X	X	X	X	X
	social support	family support							X				X			X	X
	social support	friends support		X	X			X	X	X	X		X		X		X
	social support	participating in informal groups	X										X	X	X		X
	professional	networking		X					X			X	X		X	X	X
	professional	supervising students				X				X	X						X
	professional	teaching	X			X	X			X	X	X	X			X	X
	professional	healthy competition with peers													X		X
	professional	applying for grants								X	X	X					
	presenting/publishing	successful presentations								X	X		X	X			X
	presenting/publishing	publications or submissions						X	X		X	X			X		X
	presenting/publishing	conference attendance (local, national)		X			X		X	X		X	X			X	X
	presenting/publishing	conference attendance (international)	X	X							X			X		X	X
	financial support	scholarship	X	X	X	X	X		X	X	X	X	X	X	X	X	X
	technical support	technical support improved												X			
	predisposition	being international student													X		
negative	**research work**	change of topic or research			X								X				
	research work	writing difficulties	X	X		X	X								X		X
	research work	nature of research (creative, industry-bound)	X				X		X			X					
	social	supervisor unavailable, or difficult	X	X	X	X	X		X					X			
	social	change of supervisor	X			X	X										
	social	breakup of research group (leaving or finishing)	X	X							X		X				
	social	not participating in HDR training	X					X									X
	social	loss of office with peers (or staff social space)	X								X		X				
	social	no supervisor as mentor	X														X
	social	relationship breakup or divorce	X					X	X								X
	social	lack of social support		X				X									
	professional	lack of networking	X				X										
	professional	supervising students (voluntary, time away from PhD)		X		X					X	X					
	professional	loss of teaching post	X														
	presenting/publishing	no conference attendance (over a year)	X		X	X	X										
	presenting/publishing	no or insign. publication (lack of progress)	X	X	X	X	X							X			
	administrative	change of university	X														
	administrative	amendment of Ethics forms	X														
	administrative	change of disciplinary/departmental culture	X														
	administrative	disestablishment of department	X														
	administrative	admin, paperwork, bureaucracy					X	X									
	time	time pressures	X	X	X	X	X	X		X	X		X		X	X	
	space	separating work and home					X						X				X
	personal	death of family member		X			X										
	personal	caring responsibility (time schedule, sole parent)					X	X	X	X			X				
	personal	health issues (oneself, dependents)		X		X		X	X		X						X
	personal	moving house/house sitting	X	X			X	X	X								X
	structural	lack of program structure	X			X											
	structural	can't present/publish because industry job										X					
	technical	technical issues			X												
	financial	loss of scholarship	X														
	financial	money issues		X			X			X	X		X				
	financial	work outside PhD	X						X		X						
	predisposition	being part-time or off-site student						X									
	predisposition	age					X	X	X								
	predisposition	being international student (family, language)		X	X		X						X				

Approved- Ethics application- Dowling (Ref No: 5201300597)

Ethics Secretariat <ethics.secretariat@mq.edu.au> Mon, Oct 14, 2013 at 10:43 AM To: Professor Robyn Dowling <robyn.dowling@mq.edu.au> Cc: Dr Theresa Wincester-Seeto <theresa.winchesterseeto@mq.edu.au>, Ms Lilia Mantai <lilia.mantai@students.mq.edu.au>

Dear Associate Professor Dowling

Re: "The role of social support in the HDR journey" (Ethics Ref: 5201300597)

Thank you for your recent correspondence. Your response has addressed the issues raised by the Human Research Ethics Committee (Human Sciences and Humanities), effective 14-Oct-13. This email constitutes ethical approval only.

This research meets the requirements of the National Statement on Ethical Conduct in Human Research (2007). The National Statement is available at the following web site:

http://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/e72.pdf. The following personnel are authorised to conduct this research:

Associate Professor Robyn Dowling Dr Theresa Wincester-Seeto Ms Lilia Mantai

NB. STUDENTS: IT IS YOUR RESPONSIBILITY TO KEEP A COPY OF THIS APPROVAL EMAIL TO SUBMIT WITH YOUR THESIS.

Please note the following standard requirements of approval:

1. The approval of this project is conditional upon your continuing compliance with the National Statement on Ethical Conduct in Human Research (2007).

2. Approval will be for a period of five (5) years subject to the provision of annual reports.

Progress Report 1 Due: 14 October 2014 Progress Report 2 Due: 14 October 2015 Progress Report 3 Due: 14 October 2016 Progress Report 4 Due: 14 October 2017 Final Report Due: 14 October 2018

NB. If you complete the work earlier than you had planned you must submit a Final Report as soon as the work is completed. If the project has been discontinued or not commenced for any reason, you are also required to

submit a Final Report for the project.

Progress reports and Final Reports are available at the following website:

http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/ human_research_ethics/forms

---

3. If the project has run for more than five (5) years you cannot renew approval for the project. You will need to complete and submit a Final Report and submit a new application for the project. (The five year limit on renewal of approvals allows the Committee to fully re-review research in an environment where legislation, guidelines and requirements are continually changing, for example, new child protection and privacy laws).

4. All amendments to the project must be reviewed and approved by the Committee before implementation. Please complete and submit a Request for Amendment Form available at the following website:

http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/ human_research_ethics/forms

5. Please notify the Committee immediately in the event of any adverse effects on participants or of any unforeseen events that affect the continued ethical acceptability of the project.

6. At all times you are responsible for the ethical conduct of your research in accordance with the guidelines established by the University. This information is available at the following websites:

http://www.mq.edu.au/policy/

http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/ human_research_ethics/policy

If you will be applying for or have applied for internal or external funding for the above project it is your responsibility to provide the Macquarie University's Research Grants Management Assistant with a copy of this email as soon as possible. Internal and External funding agencies will not be informed that you have approval for your project and funds will not be released until the Research Grants Management Assistant has received a copy of this email.

If you need to provide a hard copy letter of approval to an external organisation as evidence that you have approval, please do not hesitate to

contact the Ethics Secretariat at the address below.

Please retain a copy of this email as this is your official notification of ethics approval.

Yours sincerely

Dr Karolyn White Director of Research Ethics Chair, Human Research Ethics Committees

----- Office of the Deputy Vice Chancellor (Research)

Ethics Secretariat Research Office Level 3, Research Hub, Building C5C East Macquarie University NSW 2109 Australia T: +61 2 9850 6848 F: +61 2 9850 4465 http://www.mq.edu.au/research

CRICOS Provider Number 00002J

Please consider the environment before printing this email. This email (including all attachments) is confidential. It may be subject to legal professional privilege and/or protected by copyright. If you receive it in error do not use it or disclose it, notify the sender immediately, delete it from your system and destroy any copies. The University does not guarantee that any email or attachment is secure or free from viruses or other defects. The University is not responsible for emails that are personal or unrelated to the University's functions.

Office of the Deputy Vice-Chancellor (Research)

Research Office
C5C Research HUB East, Level 3, Room 324
MACQUARIE UNIVERSITY NSW 2109 AUSTRALIA

Phone **+61 (0)2 9850 7850**
Fax +61 (0)2 9850 4465
Email ethics.secretariat@mq.edu.au

21 August 2014

Professor Robyn Dowling
Learning and Teaching Centre
Macquarie University
NSW 2109

Dear Professor Dowling

RE: The role of social support in the HDR journey

Thank you for your correspondence dated 13/08/2014 submitting an amendment request to the above study. The Human Research Ethics Committee (HREC) (Human Sciences and Humanities) delegated review of these changes to the Ethics Secretariat.

I am pleased to advise that ethical approval of the following amendments to the above study has been granted:

1. The addition of three other Australian universities as sites for the research: University of New South Wales, University of Sydney and the University of Technology, Sydney.

This research meets the requirements set out in the *National Statement on Ethical Conduct in Human Research* (2007 – Updated March 2014) (the *National Statement*). This letter constitutes ethical and scientific approval only.

Details of this approval are as follows:

Reference No: 5201300597

Approval Date: 20 August 2014

The following documentation submitted with your email correspondence has been reviewed and approved by the HREC (Human Sciences and Humanities):

Documents reviewed	Version no.	Date
Macquarie University HREC Request for Amendment Form	2.0	Received 13/08/2014
Email correspondence from Ms Lilia Mantai responding to feedback from the Ethics Secretariat		Received 18/08/2014

The HREC (Human Sciences and Humanities) Terms of Reference and Standard Operating Procedures are available from the Research Office website at:

http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics

Please do not hesitate to contact the Ethics Secretariat should you have any questions regarding your ethics application.

The HREC (Human Sciences and Humanities) wishes you every success in your research.

Yours sincerely

Dr Karolyn White
Director, Research Ethics & Integrity
Chair, Human Research Ethics Committee (Human Sciences and Humanities)

This HREC is constituted and operates in accordance with the National Health and Medical Research Council's (NHMRC) National Statement on Ethical Conduct in Human Research (2007) (the National Statement) and the CPMP/ICH Note for Guidance on Good Clinical Practice.

APPROVED
By Fran Thorp at 3:26 pm, Feb 11, 2016

Fran Thorp

Human Research Ethics Committee

REQUEST FOR AMENDMENT FORM

Please complete this form for all amendments/modifications including extensions to approved ethics projects.

For quick and efficient review of your amendment, please provide sufficient information in this document to allow the amendment to be reviewed as a standalone document (i.e. it does not require the Ethics Secretariat or HREC reviewing the original application).

Please attach tracked and clean copies of all amended documents to the amendment request. Documents could include participant information and consent forms (PICF), advertising material, surveys, interview questions, verbal scripts, support letters from external organizations.

Submitting this form:

HREC approved applications: Please send this form to ethics.secretariat@mq.edu.au.

Faculty/School-approved applications:
Please send this form to the ethics subcommittee administrator of the relevant Faculty/School
Faculty of Human Sciences: fhs.ethics@mq.edu.au
Faculty of Science and Engineering: sci.ethics@mq.edu.au
Faculty of Arts: artsro@mq.edu.au
Faculty of Business and Economics: fbe-ethics@mq.edu.au
MGSM: ethics@mgsm.edu.au
PACE: pace.ethics@mq.edu.au
Faculty of Medicine and Health Sciences: ethics.secretariat@mq.edu.au.

Handwritten forms will not be accepted.

---

1. **Human Research Ethics Committee Reference No:** 5201300597

2. **Chief Investigator/Supervisor:** Dr Agnes Bosanquet

   Faculty: Learning and Teaching Centre

   Department: Learning and Teaching Centre

   Email: agnes.bosanquet@mq.edu.au

   Date of amendment: 1.02.16

3. **Names of Co-Investigators/Associate Supervisors/Research Assistants:** Lilia Mantai

(Note: If the project is to be undertaken by an Honours/postgraduate/HDR student, the supervisor will be considered the Chief Investigator. The student may be named as a co-investigator.)

4. **Project Title:** The role of social support in the PhD

5. **Description of the amendment/s:**
Please clearly explain the changes that have occurred or are intended. Please describe what is currently approved and how the amendment(s) alter this.

My Principal Supervisor Prof Robyn Dowling has left Macquarie University, my new Principal Supervisor as of 1.12.15 is Dr Agnes Bosanquet from the Learning and Teaching Centre. Agnes needs to be added on the Ethics forms concerning my PhD research.

6. **Rationale for the amendment(s):**
Clearly describe the reason for the changes listed in section 5

Due to change of supervisors, Dr Agnes Bosanquet needs permission to access and view the data collected for the research in question.

7. **Changes to study documents:**
Describe what changes have been made to the study documents as a result of the amendment request(s) listed in section 5 (e.g. Consent form, advertisement or protocol).

Please attach tracked (where possible) and clean copies of documents.

As the data collection stage was completed before Agnes became the Principal Supervisor, no changes to such documents were needed.

8. Potential inconveniences or risks to participants:

Please outline any potential inconveniences or risks to participants arising from changes in section 5. Risks include any changes to confidentiality provisions, psychological or physical risks, increased time commitments, etc.

Please explain how you will reduce potential inconveniences and/or risks to participants.

No risks or inconveniences are expected for participants because of change of supervisors.

9. Expected date of implementation of the amendments:

Date: 1.02.16

10. Adding Research Personnel

Include the below details for new research personnel being added to the study.

Name:	Agnes Bosanquet
Title:	Dr
Personnel type:	**X** Staff ← OR → ☐ Student
Staff / Student no	MQ20006103
Qualifications:	BA (Hons), MHed, PhD (Macquarie University)
Positions held: (if student, specify Faculty, Department, degree and course in which enrolled)	Lecturer, Higher Education Development
Has the new personnel received a copy of the approved application?	yes
Describe the role of the new personnel in this study	New Principal Supervisor
Does the new personnel require any training or supervision. If so please describe.	no
E-mail address:	agnes.bosanquet@mq.edu.au

(Students: Please use your MQ student email address)	
Tel No. (W):	9850-9790
Tel No: (H):	
Mobile No:	
Fax number:	
Does the PICF/Study documents require updating	**x** No ← OR → ☐ Yes (if yes please attach tracked and clean copies of the amended documents)
Working with children and young people (please mark one with an X)	N/A **x** Working with children check – details attached ☐ Prohibited Employment Declaration Form attached ☐ Currently employed as a teacher in Australia ☐ Other evidence attached ☐

Please copy and paste this section for more than one personnel change.

11. Removing research personnel:

Include the below details for new research personnel being removed from the study.

Name:	
Title:	
Personnel type:	☐Staff ← OR → ☐ Student
Does the PICF/Study documents require updating	☐ No ← OR → ☐ Yes (if yes please attach tracked and clean copies of the amended documents)

Please copy and paste this section for more than one personnel change.

12. Documents:

List all amended documents to be reviewed. These must match the documents submitted as part of this amendment.

Document Title	*Version Number (if applicable)*	*Date (if applicable)*
HREC application form		9.8.2013
HREC amendment form		15.8.2014

IMPORTANT NOTICE: ELECTRONIC SUBMISSION OF THIS FORM IS EQUIVALENT TO THE SIGNATURE OF THE CHIEF INVESTIGATOR.