Students’ perspectives on impacts of the PhD process:

The PhD as the acquisition of intellectual virtues

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Statement of Originality

The work presented in this thesis is, to the best of my knowledge and belief, original, except as acknowledged in the text. I hereby declare that I have not submitted this material, either in whole or in part, for a degree at this or any other institution.

Signature and Date
I’d like to put in a story at the start of each chapter . . . so they could understand that there’s so much more going into this three years than the results data that you see.

Bob

To Bob and the other students who, in generously sharing their experiences, illuminated so much more about the processes and impacts of PhD candidature.
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# Table of Contents

1 **Introduction** ............................................................................................................. 1
   
   1.1 The research context ................................................................................................. 1
   
   1.2 The research problem and the research questions..................................................... 5
   
   1.3 The research methodology and methods ..................................................................... 6
   
   1.4 The scope of the research ............................................................................................ 8
   
   1.5 The significance of the research .................................................................................. 9
   
   1.6 The presentation of the research ................................................................................ 11

2 **The research context: A policy perspective** ................................................................. 13
   
   2.1 Introduction ................................................................................................................ 13
   
   2.2 Impacts of changing societal contexts on doctoral education ................................... 13
      
      2.2.1 The contested nature of knowledge ........................................................................ 14
   
   2.3 Impacts of changing political contexts on doctoral education ................................... 18
      
      2.3.1 The rise of neo-liberalism ....................................................................................... 18
   
   2.4 Impacts of changing institutional contexts on doctoral education ............................. 29
   
   2.5 Conclusion .................................................................................................................. 34

3 **The research context: Students’ perspectives** ............................................................... 35
   
   3.1 Introduction ................................................................................................................ 35
   
   3.2 The PhD experience .................................................................................................... 36
      
      3.2.1 Supervision ............................................................................................................ 36
      
      3.2.2 Socialisation ............................................................................................................ 41
      
      3.2.3 Relationships and personal life .............................................................................. 45
   
   3.3 Theorising the PhD experience ................................................................................... 50
   
   3.4 Conclusion .................................................................................................................. 52

4 **The research design** .................................................................................................... 55
   
   4.1 Introduction ................................................................................................................ 55
   
   4.2 Research methodology and methods ......................................................................... 56
      
      4.2.1 Grounded theory methodology .............................................................................. 56
      
      4.2.2 Grounded theory methods ..................................................................................... 59
   
   4.3 Research procedures .................................................................................................. 66
      
      4.3.1 The research setting ............................................................................................... 66
      
      4.3.2 The research participants ...................................................................................... 67
      
      4.3.3 Ethical considerations ............................................................................................ 69
      
      4.3.4 Data management ................................................................................................. 69
      
      4.3.5 Data trustworthiness ............................................................................................... 70
   
   4.4 Research implementation ............................................................................................. 70
      
      4.4.1 Data collection ....................................................................................................... 71
      
      4.4.2 Data analysis .......................................................................................................... 74
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Start Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5</td>
<td>Conclusion</td>
<td>87</td>
</tr>
<tr>
<td>5</td>
<td>Acquiring phronesis</td>
<td>89</td>
</tr>
<tr>
<td>5.1</td>
<td>Introduction</td>
<td>89</td>
</tr>
<tr>
<td>5.2</td>
<td>Developing personal resourcefulness: Acquiring phronesis</td>
<td>90</td>
</tr>
<tr>
<td>5.2.1</td>
<td>Supervision</td>
<td>90</td>
</tr>
<tr>
<td>5.2.2</td>
<td>Institutional support</td>
<td>102</td>
</tr>
<tr>
<td>5.2.3</td>
<td>Personal life</td>
<td>113</td>
</tr>
<tr>
<td>5.3</td>
<td>Conclusion</td>
<td>122</td>
</tr>
<tr>
<td>6</td>
<td>Acquiring sophia</td>
<td>124</td>
</tr>
<tr>
<td>6.1</td>
<td>Introduction</td>
<td>124</td>
</tr>
<tr>
<td>6.2</td>
<td>Developing intellectual understandings: Acquiring sophia</td>
<td>125</td>
</tr>
<tr>
<td>6.3</td>
<td>Conclusion</td>
<td>138</td>
</tr>
<tr>
<td>7</td>
<td>Acquiring technè</td>
<td>140</td>
</tr>
<tr>
<td>7.1</td>
<td>Introduction</td>
<td>140</td>
</tr>
<tr>
<td>7.2</td>
<td>Developing productive knowledges; acquiring technè</td>
<td>141</td>
</tr>
<tr>
<td>7.2.1</td>
<td>Research capacity</td>
<td>141</td>
</tr>
<tr>
<td>7.2.2</td>
<td>Organisation and leadership and project management</td>
<td>146</td>
</tr>
<tr>
<td>7.2.3</td>
<td>Communication</td>
<td>150</td>
</tr>
<tr>
<td>7.2.4</td>
<td>Career and workplace management</td>
<td>157</td>
</tr>
<tr>
<td>7.3</td>
<td>Conclusion</td>
<td>159</td>
</tr>
<tr>
<td>8</td>
<td>Conclusion</td>
<td>161</td>
</tr>
<tr>
<td>8.1</td>
<td>Introduction</td>
<td>161</td>
</tr>
<tr>
<td>8.2</td>
<td>A review of the substantive theory</td>
<td>161</td>
</tr>
<tr>
<td>8.2.1</td>
<td>Reconceptualising impacts of the PhD as a process</td>
<td>162</td>
</tr>
<tr>
<td>8.2.2</td>
<td>A new theoretical framework for understanding impacts of the PhD process</td>
<td>167</td>
</tr>
<tr>
<td>8.3</td>
<td>Future research</td>
<td>168</td>
</tr>
<tr>
<td>8.4</td>
<td>Conclusion</td>
<td>170</td>
</tr>
<tr>
<td>References</td>
<td></td>
<td>172</td>
</tr>
<tr>
<td>Appendices</td>
<td></td>
<td>188</td>
</tr>
<tr>
<td>Appendix 1</td>
<td>Main publication from the thesis Mowbray &amp; Halse (in press). The purpose of the PhD: Theorising the skills acquired by students</td>
<td>188</td>
</tr>
<tr>
<td>Appendix 2</td>
<td>Information for potential participants</td>
<td>206</td>
</tr>
<tr>
<td>Appendix 3</td>
<td>Semi-structured interview schedule</td>
<td>210</td>
</tr>
<tr>
<td>Appendix 4</td>
<td>The 49 coding categories</td>
<td>212</td>
</tr>
<tr>
<td>Appendix 5</td>
<td>Beginning hypothesis</td>
<td>219</td>
</tr>
</tbody>
</table>
List of Tables

Table 1: An overview of the research participants...69

Table 2: An example of the coding process...77

Table 3: Examining the fit, workability and relevance of using learning as the core concept...81
**List of Abbreviations**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUQA</td>
<td>Australian University Quality Agency</td>
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<tr>
<td>BSP</td>
<td>Basic social processes</td>
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<td>CoC</td>
<td>Confirmation of Candidature</td>
</tr>
<tr>
<td>DEST</td>
<td>Australian Department of Education, Science and Training</td>
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<td>DETYA</td>
<td>Australian Department of Education, Training and Youth Affairs</td>
</tr>
<tr>
<td>DEEWR</td>
<td>Australian Department of Education, Employment and Workplace Relations</td>
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<tr>
<td>ERA</td>
<td>Excellence in Research for Australia Initiative</td>
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<td>EUA</td>
<td>European University Association</td>
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<tr>
<td>HDR</td>
<td>Higher degree research</td>
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<td>HREC</td>
<td>Human Research Ethics Committee</td>
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<tr>
<td>NE</td>
<td>The <em>Nicomachean Ethics</em> of Aristotle</td>
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<tr>
<td>NHMRC</td>
<td>National Health and Medical Research Council (Australia)</td>
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<tr>
<td>OECD</td>
<td>Organisation for Economic Development and Cooperation</td>
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<tr>
<td>QPR</td>
<td>Quality in Postgraduate Research</td>
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<td>RQF</td>
<td>Research Quality Framework</td>
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<td>RTS</td>
<td>Research Training Scheme</td>
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<tr>
<td>UKAHRB</td>
<td>United Kingdom Research Councils &amp; UK Arts and Humanities Research Board</td>
</tr>
<tr>
<td>UNESCO</td>
<td>United Nations Educational Scientific and Cultural Organisation</td>
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<td>UWS</td>
<td>University of Western Sydney</td>
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</tbody>
</table>
Abstract

In the last two decades, interest in doctoral education has prompted wide-ranging debate among stakeholders on the purposes of doctoral education in general, and the Doctor of Philosophy (PhD) in particular. Although this swelling interest has triggered an exponential growth in research and literature on doctoral education and the PhD, an integrated theorisation of students’ perspectives of the impacts that occur during the PhD process has not yet been developed. The aim of this thesis is to address this gap in knowledge. Using grounded theory methodology and methods, the research examined the impacts of the PhD process from the perspective of 23 full-time students attending a large metropolitan university in Sydney, Australia.

Through the simultaneous processes of data collection, constant comparison and theory generation, learning emerged as the core impact of the PhD process across the different contexts, conditions and circumstances of students’ candidature. This learning comprised seven sub-categories: personal resourcefulness, intellectual understandings, research skills, workplace and career management, leadership and organisation, communication (written and oral) and project management. Working inductively and deductively (abductively) generated insights into relationships between the categories of learning that emerged from the data and Aristotle’s concept of intellectual virtues. From the processes of exploring and constantly comparing these inter-relationships, this thesis proposes that the learning students experienced as impacts of the PhD process can be theorised as the acquisition of the intellectual virtues of *phronesis*, *sophia* and *technè*. Specifically, through the complex processes involved in undertaking a PhD, students develop the personal resourcefulness to accumulate *phronesis* (practical knowledge), enhance their cognition to acquire *sophia* (intellectual knowledge), and obtain the intellectual virtue of *technè* (productive knowledge) by developing their research, workplace and career management, leadership, and organisational, communication (written and oral), and project management skills.

It is proposed that theorising the PhD process as the acquisition of intellectual virtues offers a more comprehensive and integrated insight into the impacts that occur during the processes of the PhD.
1

Introduction

Students are the key participants in doctoral education and research training, but discussions about higher degree research often omit students’ perspectives of their experiences.

Halse & Gearsdie (2005, p. 36)

This Australian study draws on data gathered from interviews with 23 final year, full-time PhD students attending a large metropolitan university in Sydney, Australia to present a grassroots account of the day to day processes of the PhD that impacted this group of students during candidature. This focus on students’ perspectives illuminates some of the “complex interactions” (Pearson, 2005, p. 119) that impact doctoral students’ experiences and perceptions of the PhD process, which are underrepresented in the wider literature (Park, 2007). This chapter establishes the research context and the purposes and scope of the study, which are explicated in the following chapters.

1.1 The research context

In the last 40 years, four concomitant global shifts have significantly changed the landscape of doctoral education policy and practice and influenced the purposes of doctoral education. In the language of higher and doctoral education discourses, these shifts are referred to as “knowledge economy”, “managerialism”, “competition”, and “massification” respectively (Meek, Teichler, & Kearney, 2009, p.1). First was the emergence of a global knowledge society and the associated changes in perception of what knowledge is, and how knowledge is best produced, managed and valued (Bleiklie & Powell, 2005). Second was the global shift toward neo-liberal political rationales, that have increasingly altered the academic culture of universities to incorporate a managerial culture that privileges accountability and
performance measures (Barnett, 2004). Third was the growing number of political, academic, social and industry stakeholders who contribute to the discourses informing and impacting directions and policy decisions on doctoral education (Bleiklie & Powell, 2005; Halse & Gearside, 2005; Pearson, Evans, & Macauley, 2008). Fourth was the unprecedented expansion of people undertaking study at the doctoral level worldwide (Pearson, Evans et al., 2008).

These four shifts have also prompted an unprecedented interest in doctoral education by a growing number of stakeholders. These stakeholders include supra-national agencies, governments, business and industry, universities, academics and PhD students—all of whom generally hold particular understandings of the purposes of the PhD that can inform and influence future directions in and policy decisions on doctoral education, to varying degrees (Bleiklie & Powell, 2005; Pearson, Evans et al., 2008). For example, the recommendations of supranational agencies such as the World Bank and the Organisation for Economic Development and Cooperation (OECD) aim to increase the effectiveness of PhD programmes (e.g. OECD 1996a; The World Bank, 1998). Arguably, the capacity that supranational agencies have acquired to persuade nation states towards certain priorities exacerbates the drive to ensure the relative value of the PhD in contemporary society (Henry, Lingard, Rizvi, & Taylor, 1991; Lingard & Rizvi, 2009; Pearson, 2005). For example, the logic and rhetoric of the OECD and World Bank documents have fed concerns amongst governments and policy leaders, particularly in Western countries, about the effectiveness of the PhD, how it promotes the employability of graduates, contributes to the knowledge economy and adds to the social, cultural and economic development of nation states (Peters, 2007; Servage, 2009). The influence of this position is enacted in different initiatives on the PhD such as the Bologna Process in the European Union (EU), The Carnegie Initiative on the Doctorate in the United States (US) and the UKGrad Programme in the United Kingdom (UK). These projects are committed to improving the outcomes of doctoral education and the PhD and to promoting in doctoral students the attributes and competencies that governments, universities and industry leaders around the world believe doctoral graduates should acquire during the PhD process (Nyquist & Woodford, 2000; Servage, 2009; UK Research Councils & UK Arts and Humanities Research Board (AHRB), 2001).
In Australia, since the 1990s, government policy statements and funding initiatives on the PhD have emphasised the need for PhD graduates to contribute to the nation’s intellectual capital, knowledge economy, industry and national innovation (Kemp, 1999a). The productivity of the PhD and the acquisition of industry relevant skills has been advocated as a primary purpose of the PhD (Department of Education Science and Training (DEST), 2006; Department of Education Training and Youth Affairs (DETYA), 1998, 2003). The emphasis on ensuring the relevance of the PhD has not tempered with time, and government policy in Australia continues to advocate the acquisition of industry-relevant skills and the need to contribute to increasing Australia’s international economic competitiveness as key purposes and impacts of the PhD (Department of Education Employment and Workplace Relations (DEEWR), 2008; Precision Consultancy, 2007). Thus, in relation to the PhD, impacts are often understood by these stakeholders as measurable, economic outcomes.

Other stakeholders have challenged the creeping hegemony of such economically driven understandings of the purposes and impacts of the PhD. Senior academics and commentators in Australia are concerned about the focus on the productivity, performance, and commercialisation of PhD research. They argue that such an approach narrows the nation’s research capacity, stunts academic cultures and inhibits the wider social, educational and cultural goals and impacts of the PhD process and of PhD research (Barnacle, 2005; Boud & Lee, 2009a; Evans & Kamler, 2005; Green & Lee, 1995; Marginson, 2004; Neumann, 2003; Pearson, 2005). To combat this narrow approach, they advocate a broader understanding of the purposes and impacts of the PhD; one that recognises the social and human changes and processes of the impacts of the PhD that government and industry stakeholders generally omit but which are usually evident in the literature written by PhD students.

The small, but growing literature on students’ accounts of the PhD illuminates the broader contexts of doctoral education and conveys other, non-monetary impacts of the PhD (e.g. Bradbury-Jones, 2007; Cumming & Ryland, 2004; Haggis, 2002; Salmon, 1992; Wall, 2008). While this literature is predominantly descriptive, it also implies how different processes and experiences during the PhD can promote the
development of different and diverse types of knowledge and understanding. These include personal impacts of candidature that build students’ confidence, resilience and tenacity and which are increasingly recognised as crucial to facilitating students’ learning, development and progression throughout their studies and as critical life skills (Craswell, 2007; Kearns, Gardiner, & Marshall, 2008; Lovitts, 2008). These traits arguably represent products of the PhD also, yet their significance is often overlooked in current approaches to understanding the impacts of candidature because they generally fall outside the tangible types of knowledge that are commonly privileged as products of the PhD.

Although interest in doctoral education has grown exponentially in recent decades, as a broad field of study it tends to be descriptive and atheoretical (Lee & Boud, 2009; Leonard, Metcalfe, Becker, & Evans, 2006; McAlpine & Amunsden, 2007). Studies on doctoral education are often de-contextualised and fragmented by a focus on particular aspects of the PhD process (Lee & Boud, 2009; Pearson, 2005). These include, for example, popular research areas such as supervision, socialisation or the skills PhD students should acquire during candidature (e.g. Austin, 2002; Bradbury-Jones, 2007; Craswell, 2007; Deuchar, 2008; Gilbert, Balatti, Turner, & Whitehouse, 2004; Grant, 2003; Parry, 2007). While such studies offer insights into certain features of the doctoral experience and promote better understandings of the PhD, a strong theoretical base is absent from much of the research and literature (Lee & Boud, 2009; Leonard et al., 2006; McAlpine & Amunsden, 2007). Nor has much attention been given to conceptualising the processes of doctoral education as a complex, interrelated range of different activities, processes and activities between different actors that promote different impacts and thereby, develop abilities across multiple areas in different ways (Lee & Boud, 2009).

It is plausible that the widespread use of quantitative measures to account for the productivity of the PhD exacerbates the fragmentation of the field. These measures tend to separate the products of the PhD from the processes of candidature that enabled them, and as such, they are vulnerable to narrowly defining impacts of the PhD in terms of measures that provide an incomplete picture of the different ways the doctoral process may impact students. Further, straightforward, linear understandings of the purpose and products of the PhD process risk failing to
recognise more nuanced impacts of PhD candidature. These may include, for example, the complex and multi-dimensional learning that occurs during the PhD process, the distinctions and similarities between students, programmes, institutions and disciplines and the complex considerations inherent in choosing to undertake further study (Pearson, Evans et al., 2008). The epistemological and ontological impacts of the PhD process on students are also susceptible to being overlooked in quantitative measures. These include the personal “lived knowledge” (McWilliam et al., 2002, p. 31) students acquire as an impact during candidature and the social and human capital they accrue during their studies that may contribute to the public and social good of society (Barnacle & Usher, 2003; Kayrooz, Akerlind, & Tight, 2007; Lee & Boud, 2009; Marginson, 2004; McAlpine & Norton, 2006; The Allen Consulting Group, 2006; The British Academy, 2004; Walker, Golde, Jones, Conklin Bueschel, & Hutchings, 2008). These factors suggest therefore, as Pearson (2005) observes, that “more complementary macro- and micro-level studies, more critical analysis grounded in empirical data, more fine-grained analysis of local activity and agency and more recognition of the broad range of stakeholder interests” (p. 130) in the PhD may help provide a more integrated understanding of the changes that can occur in students during the PhD. This research responds to Pearson’s call and explores students’ perspectives on the changes, or impacts, they experience during the processes of undertaking their doctoral studies.

1.2 The research problem and the research questions

This introduction highlights some of the limitations in current approaches to the PhD that may impede the development of a comprehensive and integrated understanding of impacts of the PhD process. It also highlights that, although research into doctoral education is growing and diversifying, there is limited research that theorises the doctoral experience and presents different conceptualisations that promote new ways of explaining and understanding impacts of the PhD process. In combination, these factors motivated and informed this research, and they underpin the central research questions this thesis is concerned to explore:

- How do the processes of PhD candidature impact students?
• How can the impacts students describe be theorised to capture a more integrated and comprehensive understanding of the impacts of the PhD process?

1.3 The research methodology and methods

Given the research questions, grounded theory was selected as the most suitable research approach because of its mandate to explore issues of importance to people and discover relationships between concepts in the data that can be organised into an explanatory theoretical framework (Glaser & Strauss, 1967; Strauss & Corbin, 1998). Grounded theory is an interpretivist methodology that is premised on the belief that knowledge and understandings are informed by and through everyday actions and practices that feed into each other to inform and develop an individual’s commonsense thinking and more analytical types of knowledge (Glaser & Strauss, 1967; Strauss & Corbin, 1998). Grounded theory therefore uses empirical data, the extant literature, constant comparison and the researcher’s theoretical and anecdotal sensitivity to identify, describe, conceptualise and theorise the area under study to show what is going on for the participants, and do so in a way that is relevant, realistic and consistent with the empirical data and with their interactions, experiences and concerns. Thus a grounded theory stays close to the data to provide a believable interpretation of the data but it does not claim to present “the truth” (Glaser, 1978; Glaser & Strauss, 1967; Strauss & Corbin, 1998). Rather, the theory that is developed proffers a relevant and robust explanatory and interpretive framework for understanding and seeing things in a new and different way (Glaser, 1978; Glaser & Strauss, 1967; Strauss & Corbin, 1998).

A central tenet of grounded theory research is to privilege the participants’ voices and represent them as accurately as possible (Glaser, 1978; Glaser & Strauss, 1967; Strauss & Corbin, 1998). This research upholds this tenet. It also recognises however, that every piece of research has an element of subjectivity (Glaser & Strauss, 1967; Strauss & Corbin, 1998). It is therefore important to acknowledge that the research procedures and analysis presented in the following pages are implicitly shaped and critically informed by my life experiences. These include, but are not limited to, being a woman of Anglo descent and my experiences as a wife, mother,
daughter, sister, friend, active community member and an external PhD student enrolled full-time within the same institution as the participants. In grounded theory, such subjective elements contribute to a productive tension: they often enhance the theoretical sensitivity of the researcher, yet they also potentially bias the researcher and could thereby derail the research from its purpose. These tensions are acknowledged and addressed (see Chapter 4), yet as a grounded theory study this research does not explicitly present and explore the subjective experiences of this PhD. While recognising that my experiences during candidature were my own, their content was very similar to the participants and usually no more or less substantial than those described by the students. This research therefore avoids presenting an individualised account of the doctoral experience, as often happens in the literature on the doctoral education experience (Malfroy & Yates, 2003). Rather, it is concerned to theorise the processes and experiences of the group of students that participated in the study.

To achieve this, this research used the classic processes of grounded theory to conceptualise and abstract these students’ subjective perspectives of impacts of the PhD process to “discover theory from data” (Glaser & Strauss, 1967, p. 1) and provide another way to view and understand impacts of the PhD process. Thus, the grounded theory developed in this research seeks “to de-familiarise present practices and categories, to make them seem less self-evident and necessary, and to open up spaces for the invention of new forms of experience” (Ball, 1995, p. 266) in order to develop a relevant, useful and comprehensive theory that can elicit fresh understandings of impacts of the PhD process.

As a grounded theory study, the concepts and theory that are discussed in the following chapters are grounded in the empirical data. They were conceptualised from the ongoing and simultaneous processes of data collection and analysis, as described by Glaser and Strauss (Glaser, 1978; Glaser & Strauss, 1967) and detailed in Chapter 4. For the sake of advanced clarity and accessibility however, and because an exact rendition of them would result in a protracted and messy account of the research process, the recursive procedures involved in developing a grounded theory on students’ perspectives of impacts of the PhD process are reported in advance and
in a traditional, linear fashion. The overview that is provided later in this introductory chapter is therefore a preview to the detailed discussions presented in later chapters.

1.4 The scope of the research

Doctoral education as a focus opens up many other considerations (Pearson, 2005). It is therefore important to establish the parameters of this study. This research aims to illuminate how the day to day processes of undertaking a PhD impacted a group of 23 full-time Australian doctoral students. The 23 students all attended the same large metropolitan university in Sydney, Australia and were enrolled across the Colleges of Humanities (13), Health and Sciences (8) and Business (2). In Australia, the majority of doctoral candidates undertake a PhD as full-time students (Pearson, Evans et al., 2008) and the research PhD continues to attract a larger percentage of enrolments than other doctoral degrees, including professional doctorates. This is despite the development of different doctoral models and increased part-time enrolments in recent years (Evans, 2002). Because of these factors, this research interviewed full-time, final year doctoral students to gather their perspectives of impacts of the PhD process.

An Australian research PhD is undertaken by postgraduate students generally over a period of three to four years full-time. In Australia, a research PhD is 70% or more research that is undertaken primarily independently yet under the guidance of a supervisor, or supervisory panel, who are equivalent in position to advisors. Most Australian universities offer a range of workshops to support PhD students throughout candidature and many PhD students are members of formal (institutional or discipline based) or informal postgraduate student groups that meet regularly to discuss work, share ideas and provide support (Boud & Lee, 2005; Craswell, 2007; Kearns et al., 2008). In contrast to its American, British and Canadian counterparts, an Australian PhD does not usually include an oral viva or contain any mandatory coursework component. At the end of the PhD period, Australian students submit a written thesis for marking which, depending on the discipline, is usually between 80,000 to 100,000 words. The thesis is examined by two or three markers who are
outside the student’s advisory panel and external to the university. These markers are determined by the university and are recognised as experts in the field.

As in any research endeavour, wider social and political issues influence the research context (Strauss and Corbin, 1998). Recognising this, and considering the impacts of global shifts on doctoral education policy and practice in recent decades, the study examines how the concomitant rise of neo-liberal political rationales and a knowledge society have broadly influenced higher and doctoral education policies that shape the doctoral process. Drawing purposefully on the extant literature, the thesis discusses these issues generally before specifically examining how they have impacted and directed Australian higher education policies on doctoral education.

Although concerned with the perceptions and experiences of a group of Australian PhD students, the study draws on the international literature on doctoral education to examine areas of concern and interest. In this regard, the study builds on the scholarship of previous research to generate insights into students’ perspectives of impacts of the PhD process and experience. The research may therefore be of interest to stakeholders in the PhD who seek to broaden their understandings of how the PhD process can impact PhD students during candidature. However, this thesis draws from a particular place and time and reports the experiences of a particular group of students, both collectively and individually. It is therefore important to acknowledge that while the experiences of this group of students may resonate with those of other PhD students, they cannot be presumed representative of the experiences of the wider PhD student population.

1.5 The significance of the research

This research is significant for two broad reasons. First, it acknowledges PhD students as major stakeholders in the PhD process and recognises them as experts in informing broader understandings of the multiple impacts of the PhD process. It thus contributes students’ voices to the broader debates on impacts of the PhD process. Second, it proposes a theoretical framework, grounded in empirical data, to provide a new and more integrated way to understand the range of impacts the PhD process facilitates. Potentially, such a holistic, theoretical framing can inform and capture a
better understanding of the changes and development that students experience during candidature.

Drawing on empirical data, this research illuminates how different processes during candidature impacted 23 full-time, Australian PhD students. The analysis of the students’ perspectives captures the complex interrelationships and multi-faceted nature of the PhD undertaking. The research also identifies learning as the core category of impacts and captures the different types of learning and knowledge students acquired as impacts of the PhD process, using seven interrelated categories of learning. In order of their frequency in the data (highest to lowest) the categories are personal resourcefulness, intellectual understandings, research skills, workplace and career management, leadership and organisation, written and oral communication, and project management. This integrated view of the impacts of the PhD process aims to supplement current approaches by highlighting the significance of the learning processes of the PhD undertaking and thereby promoting a broader understanding of the raft of impacts the PhD process facilitates.

Using a grounded theory analysis, this study explores the “plausible interrelations” (Glaser & Strauss, 1967, p. 245) between the categories of learning and Aristotle’s (trans. 2002) five interrelated intellectual virtues, or types of knowledge that he describes in the *Nicomachean Ethics* (hereafter NE), Book 6 (Aristotle, 2002). These are *phronesis*, *sophia*, *epistêmè*, *nous* and *technè* and are more commonly understood as practical knowledge (phronesis), intellectual knowledge (sophia), scientific knowledge (epistêmè), perceptual knowledge (nous) and productive knowledge (technè) (Broadie & Rowe, 2002; Nussbaum, 1990; Saugstad, 2002). Due to their interrelatedness, the five virtues coalesce into phronesis, sophia and technè. From this analysis, the research proposes the grounded theory that students’ perspectives of impacts of the PhD process may be understood as the acquisition of the intellectual virtues of phronesis, sophia and technè. This theoretical framing recognises more nuanced impacts of the PhD process, as well as the practical and productive impacts students experience during their doctoral studies. Thus the research proffers a more integrated understanding of the personal, practical, productive, social, moral and intellectual impacts the processes of PhD candidature can enable.
1.6 The presentation of the research

The following six chapters build on this introductory chapter. Chapter 2 examines how the shift to neo-liberal rationales and the emergence of the notions of a knowledge society and human capital have influenced policy and practice for PhD research over recent decades. The chapter reviews how these changes have influenced what knowledge and outcomes are valued as impacts of the PhD in general, before focusing on the PhD in Australia.

Chapter 3 reviews the literature that presents students’ experiences of the PhD process. This chapter serves to broaden understandings of the impacts of the PhD process as detailed in Chapter 2 and signals where this research fits within the field of doctoral education research.

Chapter 4 presents the research design. It identifies the grounded theory methodology that was used and details the methods underpinning the research project. The chapter specifies the particulars of the research setting and details the iterative processes involved in developing a suitable framework to analyse and theorise the empirical data.

Chapters 5, 6 and 7 are the discussion chapters. These chapters explore the students’ accounts of the impacts of candidature in relation to Aristotle’s intellectual virtues. Chapter 5 identifies that the impact students valued most during the PhD process was their increased personal resourcefulness. The chapter relates the development of students’ personal resourcefulness during the PhD to the acquisition of practical knowledge, as captured in the intellectual virtue of phronesis. Chapter 6 explores the intellectual learning the students experienced during the PhD. It identifies how the processes during candidature impacted students’ theoretical (epistemē) and intuitive (nous) knowledge and promoted the acquisition of intellectual knowledge, or the intellectual virtue of sophia. Chapter 7 correlates the other categories of learning with the acquisition of productive knowledge, or the intellectual virtue of technē.

Chapter 8, as the concluding chapter, examines how theorising students’ perspectives of impacts of the PhD process as the acquisition of a suite of interrelated intellectual
virtues provides a new way to conceptualise and understand the contributions the processes of the PhD make, particularly in terms of the broader trends and debates discussed in Chapters 2 and 3. In conclusion, the chapter identifies avenues of future research that may beneficially build upon the research presented in this thesis.
The research context: A policy perspective

As research has become a vital part of a global, competitive knowledge economy, the doctorate is increasingly becoming subject to the influence of policy-makers and others.

Boud & Lee (2009a, p. 1)

2.1 Introduction

This chapter examines how wider societal shifts over the last 40 years have changed the purposes of universities and higher education, and subsequently, the purpose of the PhD, not only in Australia but globally. Section 2.2, Impacts of changing societal contexts, traces the emergence of the notion of a global knowledge society and highlights the dynamic position that knowledge holds in contemporary society. Section 2.3, Impacts of changing political contexts, identifies the rise of neo-liberalism as a key factor impacting higher education policy and the PhD and broadly traces the ascendancy of neo-liberalism in contemporary society. Section 2.4, Impacts of changing institutional contexts, highlights how the concomitant rise of these two global shifts has reconfigured doctoral education policies, programmes and practices in general and in Australian universities in particular.

2.2 Impacts of changing societal contexts on doctoral education

Although the PhD is recognised as the pinnacle of university learning and scholarship, current debates reveal that different stakeholders in the PhD hold different understandings of its purpose. The need to clarify the purpose of the PhD and the knowledge it produces has been a recurring theme in experts’ reports in the UK for more than two decades (Park, 2007) and was a key goal of the Carnegie Initiative on the Doctorate (CID) in the US (Walker et al., 2008). Despite this, the
types of knowledge the PhD process should produce, the types of knowledge that are most valuable and useful to contemporary society and how these types of knowledge are best produced and managed are areas of tension in wider debates on the PhD.

2.2.1 The contested nature of knowledge

These tensions about what types of knowledge are more valuable can be traced back to the writings of Plato and Aristotle in the fourth century before the common era (BC) (Kessels & Korthagen, 1996). Plato argued that the most important type of knowledge was epistêmê—namely, knowledge that is informed and substantiated through cognitive processes and unclouded by emotion or desires. Contemporary scholars usually translate this as scientific knowledge (Kessels & Korthagen, 1996). In contrast, Aristotle, Plato’s most respected student, upheld the significance of different, interrelated branches of knowledge and argued that combined, the different types of knowledge provided understanding (Barnes, 1995). The interrelated types of knowledge Aristotle spoke of were phronesis (practical wisdom), sophia (theoretical knowledge), epistêmê (scientific knowledge), technê (craft knowledge) and nous (intuitive knowledge). Of these, Aristotle prioritised phronesis—knowledge that is gained through experience and informed by actions, analysis, emotions, perceptions and prudence (Kessels & Korthagen, 1996).

For the next two thousand years Aristotle’s philosophy of multiple forms of knowledge informed approaches to teaching and learning in intellectual institutions throughout western society (Skirry, 2008; Toulmin, 2001). During this period all knowledge enquiries were given equal weight, from enquiries into the sciences and mathematics to artistic styles and human nature; all were valued as separate, yet interrelated ways of knowing that contributed to facilitating richer understandings of the world (Flyvbjerg, 2001; Nussbaum, 1990; Saugstad, 2002).

During the seventeenth century, commentators, most notably Descartes, questioned Aristotle’s thesis that intellectual understandings are promoted through experience and the emotions (Skirry, 2008; Toulmin, 2001). Instead, Descartes argued that the senses were an unreliable source of knowledge and that clear and certain knowledge was perceived by the mind alone (Skirry, 2008). Descartes’ thinking informed a new
rational and orderly, dualistic organisation of knowledge that came to replace Aristotle’s philosophy of multiple and different types of knowledge (Toulmin, 2001). Central to the ascendancy of Descartes’ theory was the progress made in the sciences, most notably through the work of Bacon and Newton, who each favoured scientific knowledge based on empiricism, scientific rigour and reductionism (Maxwell, 2007; Toulmin, 2001). These advances in human understanding promoted a hierarchy of knowledge that is still influential today. Scientific, technical, objective knowledge was prioritised because it was regarded to be more intellectually sound, and the significance of subjective knowledge was diminished as knowledge and understandings gained from personal life experience came to be increasingly regarded as unreliable (Maxwell, 2007; Stehr, 2005; Toulmin, 2001).

In the mid twentieth century a growing recognition of the concept of knowledge societies challenged the dominance of scientific and dualistic notions of knowledge. In this sense, the concept of knowledge societies captures characteristics of a particular perspective of contemporary society that is epochal in that it denotes a shift from a previous phase (Bohme, 1997). Commenting on the growth and changing nature of knowledge in contemporary society in 1966, Robert Lane (1966) proposed that a knowledge society was one in which members would inquire into their beliefs about man, nature, and society and in which there would be “more fruitful categories of thought . . . changing truth criteria, and a changed philosophy of knowledge” (p. 649). Lane (1966) proposed that members of a knowledge society would devote significant time and resources to the pursuit of knowledge, constantly analyse their knowledge to refine new and further meanings from it and illuminate and advance goals and values for society (Lane, 1966). A little later, Peter Drucker (1969) also advocated that knowledge needed to become more flexible and diverse. Extending Lane’s (1966) notion of a knowledge society, he further proposed for the pursuit of knowledge to be government funded, but not politically controlled, and for new priorities, limits, and values to be developed for understanding knowledge.

Lane (1966) and Drucker (1969) argued that the emergence of a knowledge society would witness the emergence of more complex, sociological notions of knowledge. This trend is evident in the recognition of alternative types of knowledge, for example, Polanyi’s (1958, 1998, 1967) idea of “knowing in action”, Schon’s (1996)
notion of “tacit knowing” that “is implicit in our patterns of action” (p. 29), McWilliam et al’s (2002) “lived knowledge” and Mode 1 and Mode 2 knowledge, as discussed by Gibbons, Nowotny and others (Gibbons et al., 1994; Nowotny, Scott, & Gibbons, 2001). These more complex ways of knowing are also evident in the new theories of learning in western education over the same period. Some of the different forms of learning that have been recognised are Alheit’s (2009) “biographical learning”, Argyris and Schon’s (1978) “organisational learning”, Bruner’s (2009) “outside-in” theory of culture, mind, heart and education, Kolb’s (1984) “experiential learning” and Mezirow’s (1978) “transformative learning”. These theories of knowledge and learning reflect Lane’s (1966) and Drucker’s (1969) more complex conceptions of knowledge and also echo Aristotle’s ideas on the interrelated yet different intellectual, emotional and contextual elements that the acquisition of knowledge may encompass and entail.

Daniel Bell (1973) examined how the concept of emerging knowledge societies was impacting post-industrial societies. In 1973 he predicted that society would: i) change from a product economy to a service economy, ii) technical and professional workers would increase, iii) theoretical or scientific knowledge would largely inform policy formulation and innovation for society, iv) technology and technological assessment would rise and v) new intellectual technologies for decision making would be created. More recently, Gernot Bohme (1992) proposed that the emergence of knowledge societies meant: growth in the educational phase and a reduction in the employment phase of individuals in society, a control of society through knowledge, a tendency for society to accept such standards of control and the power of knowledge to influence and enhance the individual’s standing, occupation and opportunities.

Set within wider societal changes, as discussed in the following section, both Bell (1973) and Bohme (1992) recognised that knowledge is attached to economic and political power in contemporary knowledge societies. The priority placed on knowledge by supranational agencies such as the World Bank and the OECD in the late 1990s explicitly illustrates Bell’s (1973) and Bohme’s (1992) observations. The knowledge based economy (OECD, 1996a) and The (1998) World Development Report: Knowledge for development (The World Bank, 1998) privileged the
production of knowledge as a priority in knowledge societies and specified higher
education as a key mechanism for growing and sustaining skill levels and the
economic prosperity of nations. Other reports continued the theme of understanding
knowledge as primarily an economic outcome. For example, the World Bank report
argued that tertiary institutions needed to be more “responsive to the needs of a
globally competitive knowledge economy and to the changing labour market
requirements for advanced human capital” (p. xix; (see also OECD, 1996a, 1996b;
that:

The widespread recognition that tertiary education is a major driver of
economic competitiveness in an increasingly knowledge-driven global
economy has made high quality tertiary education more important than ever
before. The imperative for countries is to raise higher-level employment
skills, to sustain a globally competitive research base and to improve
knowledge dissemination to the benefit of society. (p. 23)

The impact of such reports was profound as governments worldwide adopted the
principles they espoused as a policy template for governing and managing the
knowledge produced through higher and doctoral education (Bohme, 1997;
Marginson & Considine, 2000; Olssen & Peters, 2005). Yet paradoxically, while the
reports upheld the benefits of a broader, sociological conception of knowledge for a
knowledge society they often simultaneously and explicitly cast that knowledge in
narrow and straightforward economic terms. Peters (2007) argues that such an
approach reflects the influence of new theories on the economics of knowledge,
namely, new growth theory, which emphasises the role education plays in creating
human and economic capital and in enhancing the long term growth rates of nations.
Servage (2009) questions the basic assumptions underpinning understandings of the
purposes of doctoral education as the mobilisation of knowledge to boost the
competitive edge of nations; as the production of human capital. Servage (2009)
oberves that a crude application of human capital theory often overlooks other
products of doctoral education. These include a “host of social and cultural factors”
(Servage, 2009, p. 774) and the subjects of the PhD undertaking, doctoral graduates, and the different types of knowledge they acquire during the processes of the PhD.

Individuals are central to the production and creation of knowledge (Howells & Roberts, 2000) and in a knowledge society where different forms of knowledge are recognised, the various types of knowledge students acquire and carry with them are considered to be productive and valuable (Howells & Roberts, 2000; McWilliam et al., 2002; Polanyi, 1958, 1998). Current approaches to understanding knowledge however often focus on quantifiable components, because this appears to be less expensive and more readily managed, more controllable and predictable. Academics and commentators have argued however that such limited understandings of knowledge may be detrimental to recognising innovation and promoting national advantages and productivity (Barnacle & Usher, 2003; Evans, 2002; Howells & Roberts, 2000; McWilliam & Taylor, 2001; Neumann & Guthrie, 2003).

2.3 Impacts of changing political contexts on doctoral education

2.3.1 The rise of neo-liberalism

The emergence of knowledge societies has also witnessed the rise of neo-liberal philosophies and politics, and both have significantly impacted doctoral education. The global rise of neo-liberalism is associated with the political agendas of Margaret Thatcher and Ronald Reagan during the 1980s and more recently, with Tony Blair and George W. Bush (McChesney, 1999; Peters, 2004). The foundations of neo-liberalism lie in the Austrian school of political economy and the early works of Friedrich Hayek (1937, 1945), an economist and political philosopher. Neo-liberalism is fundamentally a market-political rationality which is premised on political and economic theory (Brown, 2006). In broad terms, the ideological basis of neo-liberalism is that the market informs major social and political decisions. It uses the ideas of freedom, choice, individual initiative and competition to promote the idea of entrepreneurial, competitive and enterprising individuals, thereby appealing to both governments and individuals (Brown, 2006).
Neo-liberalism can also be understood as “a specific form of normative political reason[ing]” that organises the political sphere, government practices and citizenship and allows governments to reduce their political responsibility by rationalising, privatising and outsourcing many public utilities and areas of public good (Brown, 2006, p. 693). Governments across the globe have adopted neo-liberalism as a philosophical rationale for managing many traditional areas of state responsibility including prisons, hospitals, education, welfare and transport (Brown, 2006). Although it is often claimed that these moves are to promote improvement, choice, accountability and competition, commentators argue that such language manipulates individuals by seducing them into perpetuating the market rationalities of neo-liberalism even as they strive to achieve them (Brown, 2006; Olssen & Peters, 2005).

The influence of neo-liberalism on doctoral education programmes

In such a climate, the significance of the knowledge produced by PhD research is increasingly recognised as a significant factor in contributing to the economic, human and social capital of nation states (Bleiklie & Powell, 2005; David & Foray, 2003; OECD, 2008; Peters, 2007; Stehr, 2005; The World Bank, 2002). This view arguably is promulgated in reports by the World Bank (1998) and OECD (1998), that identify higher education, and doctoral education in particular, as key avenues of human capital production and therefore, as avenues of economic return to the nation. The OECD defines human capital as “the knowledge, skills, competencies and other attributes embodied in individuals that are relevant to economic activity” (1998, p.9) and the language used in these reports straightforwardly and unproblematically configures the knowledge produced by higher and doctoral education as a trade commodity in the global knowledge economy.

The impact of neo-liberal rationales on the PhD is evident in international initiatives that focus on improving the outcomes of doctoral education and ensuring its contribution, relevance and productivity to society. The first two of the ten Salzburg Principles (European University Association (EUA), 2005), drafted during the third round of the EUA Bologna Seminar on Doctoral Programmes for the European Knowledge Society capture this:
1) The core component of doctoral training is the advancement of knowledge through original research. At the same time it is recognised that doctoral training must increasingly meet the needs of an employment market that is wider than academia.

2) Embedding in institutional strategies and policies: universities as institutions need to assume responsibility for ensuring that the doctoral programmes and research training they offer are designed to meet new challenges and include appropriate professional career development opportunities. (EUA, 2005)

In the UK, the agenda to make the doctoral education more productive and to equip PhD graduates with industry-relevant skills is evident in the objectives for the PhD, as stated on the UK GRAD home page:

- raise the profile of the importance of personal and professional development in researcher training for all stakeholders;
- encourage the integration of, and opportunities for, personal and professional skills development in research degree programmes;
- encourage and share good practice within higher education institutions;
- as a national resource, continue to innovate, develop and provide exemplary ways of embedding personal and professional development and career management skills. (Research Councils UK, 2009, n.p.)

In the USA, attention to improving the outcomes of doctoral education, reducing attrition rates and ensuring the relevance of the PhD has been persistent and intense, as evidenced by the number of national research projects that have been undertaken over the last two decades. These include: Re-envisioning the PhD, funded by the Pew Charitable Trusts from 2000-2003, to develop a PhD that would meet the needs of society in the 21st century; the Carnegie Initiative on the Doctorate (CID), a five year action research project funded by the Carnegie Foundation to promote best practice for doctoral programmes across disciplines; and The Responsive PhD, an initiative funded by the Woodrow Wilson National Fellowship Foundation to promote discussions between the consumers and producers of graduate education.
A common concern and motivation of all these programmes was to improve the outcomes of doctoral education to meet the needs of contemporary society. Yet in prioritising outcomes set by the market, the direction and purposes for higher education and doctoral education are vulnerable to becoming obscured by the language of the market. Reflecting market driven language of the “knowledge economy” and the influence of “managerialism”, “competition”, and “massification” (Meek et al., 2009, p.1), tertiary institutions are promoted as competitive and intensive knowledge producing organisations that are perfectly placed to generate knowledge workers to meet labour market needs and contribute to the economic prosperity of nations, particularly through their doctoral programmes (Servage, 2009).

Arguably, in focusing on the research outputs of the PhD, such functionalist, economically driven understandings of the purposes of the PhD neglect to recognise the subjective elements of the PhD—for example, the vital role of students and of the processes of the PhD in enabling the research products (Brew, 2001; Gardner, 2009; Halse & Gearside, 2005; Leonard, Becker, & Coate, 2005). Such a view of the impacts of the PhD may also fail to consider other factors of candidature that can contribute to the greater good of society. These include the contributions PhD students may make to their local and wider contexts during candidature and the tacit, experiential, theoretical and perceptual knowledge they gain during their studies, as discussed in the following chapter.

*Neo-liberalism and Australian doctoral education policy*

In Australia, a change of national government in 1996 to a Liberal Coalition Party accelerated the market driven logic for higher education that had been introduced under the education reforms of the late 1980s (Marginson, 2004). From the mid 1990s the Australian government emphasised the need for research degree graduates who would build the nation’s intellectual and human capital and who would help secure its “economic future” by contributing to the knowledge economy, to industry, and national innovation (Department of Education Training and Youth Affairs (DETYA), 1998, p. 1). A review of Australian universities, as reported in the West Report (1998) and Kemp’s White Paper (1999a), aimed to promote this outcome.
The West report (1998) cited community desire as the driving force behind the introduction of new levels of structure and administration that were put in place to promote the efficiency and effectiveness of research funding programmes in Australian universities. West (1998) also addressed issues of student mobility and proposed that funding for doctoral education be tied to student choice (Neumann, 2002). The Kemp White Paper (1999a) instituted the recommendations of the West Report (1998) and profoundly influenced the ways in which Australian universities were able to support PhD students. Set in a “policy context that promotes selectivity and concentration on research” (Kemp, 1999a, p.8), the Kemp reforms were motivated by an earlier discussion paper (Kemp, 1999b) that reported declining standards in the PhD, high attrition rates, lengthy time-to-completion periods and a surfeit of PhD graduates with inadequate communication, interpersonal and leadership skills. The Kemp reforms were comprehensive and controversial and included: the introduction of performance based funding linked to PhD completions known as the Research Training Scheme (RTS), the introduction of research training management plans and reports as part of a quality verification process known as the Australian Universities’ Quality Agency (AUQA) and the further promotion of partnerships with industry to fund research programmes. Further to these moves, the Nelson inquiry in 2003 (DETYA, 2003) defined performance priorities and economic rationales for managing higher education research training in Australian universities.

From the early 2000s, most Australian universities have instituted practices and measures such as training programmes and annual reports for PhD students to comply with government policy. Since this time, a narrow focus for higher education and PhD policy has been to ensure an end product that supports national and industry priorities and economic expectations, as evidenced in policy rhetoric. In 1999, Kemp (1999a) urged universities to regulate themselves in line with national interests by ensuring that the PhD equipped students with relevant and productive skills to meet the needs of industry (Kemp, 1999a). In 2002, DEST described the knowledge and skills of doctoral graduates as “market-oriented commodities [that] ‘add value’ to . . . society” (DEST, 2002, p. 2) and again in 2005, DEST stated that higher education research was “a key element in an innovative and economically prosperous nation” (DEST, 2005, p. 10). Thus, the PhD has often been primarily conceptualised as a
commodity and a form of human capital that is explicitly tied to the economic performance of the nation.

The language in these statements resonates with the concept of human capital. Adam Smith, the founding father of the concept of human capital, argued that developing the talents and skills of individuals enhanced the position of both the individual and society, as explained in his work *The Wealth of Nations* (Smith, 1776):

> The acquisition of such talents, by the maintenance of the acquirer during his education, study, or apprenticeship, always costs a real expense, which is a capital fixed and realised, as it were, in his person. Those talents, as they make a part of his fortune, so do they likewise [contribute] to that of the society to which he belongs. (n.p.)


Such a linear model of investment and return in higher and doctoral education, while amenable to the logic of manageability and accountability integral to neo-liberal rationalities (Schuller, 2001), was a new and different philosophy toward managing knowledge in the contemporary university. Academics noted that such narrow, economic interpretations of the production of knowledge could have serious consequences for doctoral education programmes (Barnacle & Usher, 2003; Evans, 2002; Halse & Gearside, 2005; McWilliam & Taylor, 2001; Neumann & Guthrie, 2003). As Usher (2002) observed:
The first thing that can be said about this is that it replaces an epistemological with an economic definition of knowledge. Knowledge becomes a factor of production, more critical in the production process as economic performance comes to rely more and more heavily on knowledge inputs. (p. 144)

While the Australian government trumpeted such measures as a strategy to ensure Australian research remained competitive in a global market place, some academics argued that such policy directions were a ruse to camouflage an intensified drive for profit and a push for more capitalist agendas for doctoral education (Barnacle & Usher, 2003). As confirmation of this agenda they cited, with others (McWilliam & Singh, 2002; McWilliam & Taylor, 2001; Neumann & Guthrie, 2003), diminished research funding and reduced support for research diversity and doctoral education programmes in Australian universities.

Other Australian academics criticised the initiatives as being driven by the “performance imperative” (Halse & Gearside, 2005, p.xi) and as “devaluing academic work” (Neumann & Guthrie, 2003, p.6), while some asked to what extent “universities must mirror markets in order to serve markets” (Marginson & Considine, 2000, p.5). It was further argued that in such an environment, government agencies had increasingly become purchasers of useful units of production (doctoral education scholarships) rather than supporters of research students (Colebatch, 2002) and “buyers of higher education . . . rather than patrons” (McWilliam and Taylor, 2001, p. 230, emphasis in original). Thus educational commentators and stakeholders in the PhD were concerned as to what government and industry stakeholders perceived the purposes of the PhD to be and uneasy about how the drive to make the PhD more productive and economically viable would impact the diversity of scholarly and civic contributions of the PhD (Barnacle, 2005; Marginson, 2004; Marginson & Considine, 2000; Neumann, 2002, 2009; Wood & Meek, 2002).

As signalled earlier, such concerns also point to a fundamental contradiction in a conceptualisation of the PhD that recognises and values the economic products of doctoral education yet fails to acknowledge the processes involved in this productivity. Namely, the complexity of the learning processes involved, the value of the other types of knowledge acquired and perhaps most significantly, the individual

Mowbray - Students’ perspectives on impacts of the PhD process
engaged in and produced through the PhD experience; that is, the PhD students themselves. This contradiction suggests it is timely to temper doctoral education policies that privilege economic and market driven outcomes for more integrated representations and understandings of the impacts and purposes of the PhD and the contributions that the PhD and PhD students make to society. Effectively, it indicates that a more sophisticated understanding of the human capital the PhD process enables is required, one that encompasses the qualitative, social aspects envisaged by Smith (1776) and Becker (1964, 1993).

The complementary role of social capital

Social capital complements human capital and is broadly understood as the social networks and reciprocities that arise from them that enable individuals to engage more effectively in collective action (Koniordos, 2008; Schuller, Baron, & Field, 2000). Social capital enhances individuals’ and society’s productivity, promotes social cohesion, strengthens networks and information flows and acknowledges and values informal and formal modes of learning. Social capital is recognised as critical to societies if they are to prosper economically and integral to enhancing the quality, effectiveness and sustainability of individual and community endeavours and operations (Schuller, 2001). Social capital therefore potentially opens interesting avenues of thought to extend current understandings of the different capacities and contributions the PhD process facilitates.

Theorists including Pierre Bourdieu (1986; 1977), James Coleman (1988) and Robert Putnam (2000) are credited with introducing and raising the profile of social capital in theoretical debates and public policy (Schuller et al., 2000). Bourdieu (1977) was the first to propose that different types of capital—namely, economic, cultural, linguistic, scholastic and social capital—fostered the cultural and social reproduction of relations between groups and classes in society. Bourdieu (1986) developed his concept and later proposed three fundamental forms of capital: economic, cultural and social. Social capital he defined as the sum of the real and potential resources an individual has available through a network of relationships that recognised and supported each member (Bourdieu, 1986).
In contrast to Bourdieu (1986; 1977), Coleman (1977) clearly linked social capital to the availability of an individual’s resources, which included socio-economic status, trustworthiness, cultural differences and the degree of openness to available social networks. Coleman (1988) also recognised the value of social structures to actors who used them as resources to achieve their interests, and was the first to link social capital with human capital explicitly. He argued that while the extent of an individual’s social capital was determined by the level of trust and relationship the individual held within the social organisation, social capital was also an individual resource that contributed to public good, as it was based in relationships and communication (Coleman, 1988). Coleman (1988) proposed therefore that the social capital of an individual paralleled economic, human and physical capital as it worked to aid and enable transitions across different social structures and was able to account for different outcomes at the individual level.

Putnam (2000) extended Coleman’s (1988) concept of social capital from the individual level to include communities, cities, regions and whole countries. Because of its perceived potential to contribute to enhancing the social and economic capacity of nations, Putnam’s (2000) work on social capital facilitated the concept being utilised by national governments and international groups, as evident in statements of the OECD and the World Bank, discussed earlier (Koniordos, 2008; Schuller, 2001). These understandings of social capital significantly impacted directions for higher and doctoral education and were further supported by four key arguments for using social capital as a policy concept. First, social capital captures the interrelatedness and complexity of issues in the modern world, thereby counterbalancing the reliance upon narrow policy concepts and metrics. Second, social capital acknowledges that important relationships can promote social cohesion in society. Third, social capital introduces a longer term perspective to policy making and fourth, allows the moral dimension of policy making to be reintroduced and in doing so, shifts policy away from technicist understandings that frequently ignore the social context (Schuller, 2001). Thus, the concept of social capital arguably has potential to extend current understandings of human capital and also broaden conceptions of the impacts of the PhD.
The strengths of social capital—its versatility and potential—may also limit it however, because these two factors also make the concept vulnerable to a loss of coherence and to simplistic and uncritical application (Schuller, 2001). In relation to understanding impacts of the PhD, while the metaphorical character of social capital does not represent a stock of anything or indicate any deliberate effort for human benefit (Arrow, 2000; Solow, 2000), the potential of social capital to at least acknowledge non-pecuniary benefits of the PhD is evident. As Dasgupta (2000) noted in a report to The World Bank, social capital “is useful in so far as it draws our attention to particular institutions serving economic life that might otherwise go un-noted” (p. 398).

In recent years, initiatives and policy directions in higher and doctoral education in Australia suggest that a broader understanding of the human and social capital returns of investing in doctoral education may be emerging. In March 2008, the national Labor government initiated a Review of Higher Education, the first undertaken since the Nelson reviews over a decade earlier. Chaired by Emeritus Professor Denise Bradley, the review’s mandate was to “examine the future direction of the higher education sector, its fitness for purpose in meeting the needs of the Australian community and economy, and the options for ongoing reform” (DEEWR, 2008, p. ix). In April 2008 the Australian government also announced an Inquiry into research training and research workforce issues in Australian universities. This inquiry examined the contributions Australian universities made to research in Australia and the challenges they faced in training, recruiting and retaining quality research graduates and staff. Both inquiries found that research in Australia had been allowed to lag behind world standards. For example, the rate of higher education attainment in Australia is significantly below that of the OECD top six countries and Australia has slipped from 7th in 1996 (OECD 1998) to 9th in 2006 (OECD 2008) in terms of higher education attainment among 25 to 34 year olds. The Bradley review recognised the value of broader conceptions of knowledge, including the valuable contribution that an individual’s personal, formal and informal knowledge can make to society. It also listed recommendations to address current issues facing higher and doctoral education and research enterprises in Australia. These recommendations included increasing funding, resources and staffing for universities and improving
recruitment strategies, scholarship funding and career pathways for research students (DEEWR, 2008).

In April 2008, at the biannual Quality in Postgraduate Research (QPR) international conference, senior academics from Europe, USA, Canada, China and Australia identified similar challenges and opportunities facing doctoral education to those identified in the Bradley report (DEERW, 2008). The concerns of these academics centred around ensuring better returns from investing in doctoral education programmes, increasing PhD completion rates, promoting the professional development of PhD graduates and increasing international collaboration. Although these issues align with a view of PhD graduates and the knowledge they produce as forms of human and economic capital, there was also a strong recognition of the need to balance these demands with a greater appreciation of the broader, social and non-monetary contributions that doctoral education and doctoral graduates make to the public good and to wider society (Chambaz, 2008; Council of Graduate Schools (CoGS), 2008; Stewart, 2008).

The integration of notions of social capital into broader discussions on higher and doctoral education suggests a shift away from linear and simplified economic understandings of the contributions that doctoral education may make to society. Potentially, this line of thinking opens up the opportunity to develop better understandings of the complex and interrelated nature of the impacts and processes of doctoral education. Such understandings could broaden narrow economic conceptions of the research and knowledge the PhD produces. These broader understandings could also bring into focus the significant contributions of the formative processes students engage in during the PhD and illuminate the impacts that the subjects of the PhD, PhD graduates, contribute to society’s social, cultural and economic capital. Thus the limitations inherent in current approaches support Pearson’s (2005) call for further research into the micro practices of the PhD and also suggest a new framework is needed to understand the complex and multi-faceted nature of the PhD undertaking, its processes and products.
2.4 Impacts of changing institutional contexts on doctoral education

The wider societal and political changes associated with a knowledge society and neo-liberalism have witnessed cultural changes in universities, even as they have identified and addressed flaws and limitations in the traditional governance of higher and doctoral education (Barnacle, 2005; Halse & Gearsie, 2005; McWilliam & Singh, 2002). Universities and academics have grappled with the cultural changes that have been wrought by the transference of corporate values to academia and with reconciling the academic purposes of the university to neo-liberal notions of knowledge production, utilisation and commodification (McWilliam & Singh, 2002; Neumann, 2009). In such a culture, the production, management, performance and organisation of knowledge has become a core business of universities in contemporary society.

Drucker (1994) states that “because the knowledge society perforce has to be a society of organisations, its central and distinctive organ is management . . . [and] the essence of management is to make knowledges productive” (p. 10). The increase in PhD pathways over the last decade is indicative of the drive by universities to make knowledge more productive. In Australia, alternative pathways to the doctorate have been rapidly developed and adopted/adapted by universities. The speedy uptake of alternative doctorates by universities testifies to the complex and interwoven economic, social, and political factors that have impacted university doctoral education programmes and their funding. These include the imperative to generate new income to supplement decreased government funding, the need to address criticisms on the irrelevance of the traditional PhD by research (Kemp, 1999a), and the motivation to affirm the historic position of universities as key knowledge producers and major stakeholders in contemporary society (Kemp, 2004; McWilliam et al., 2002; Stephenson, 2004). Reflecting what Park (2007) refers to as the “family of doctoral awards” (p. 32) the new pathways to the PhD are perceived as a way to address these issues by promoting and diversifying the knowledge base of the PhD through establishing ties with industry and the wider community and generating other avenues of funding.
The focus on economic imperatives for higher and doctoral education have perforce attached limited organisational and administrative meanings to the concept of knowledge within university settings (Greenwood & Levin, 2005). Because of this, some academics argue that a focus of doctoral education has become the production of knowledge and of skilled PhD graduates rather than being a process of supporting beginning researchers to examine, understand and contribute different and new forms of knowledge to society (Marginson & Considine, 2000; Neumann & Guthrie, 2003; Olssen & Peters, 2005).

The push in recent years to incorporate skills training into doctoral programmes indicates the focus on the productivity of the PhD, with a specific aim being to equip graduates with skills for future employment and thereby ensure they can contribute to the economic development of the nation (Meek et al., 2009; Peters, 2007). The “skills push” in the PhD (Mowbray & Halse, in press, p. 1)\(^1\) has witnessed the generation of lists of skills, attributes and competencies that government, industry and universities believe doctoral graduates should acquire (e.g. Council of Australian Deans and Directors of Graduate Studies (DDoS), 1999; Nyquist, 2002; UK Research Councils & UK Arts and Humanities Research Board (AHHRB), 2001). Such lists are vulnerable however to decontextualising the PhD process and promoting a narrow perception of PhD students as “super-technicians” (Pearson, Cowan, & Liston, 2009, p. 100) or as sources of human capital who acquire knowledge \textit{fait accompli}; without struggle, hardship, grief, anxiety or confrontation but as mere instruments of the knowledge economy (Barnacle, 2005).

As the purpose of the PhD is widely perceived to be the development of scholars whose research makes an original, scholarly contribution to knowledge, and this criterion remains the gold standard for the award of the PhD around the world (Schulman, 2008), the notion of skills and training in the PhD is contested. Gilbert et al. (2004) observe that the PhD is “an unlikely context for the development of

\(^1\) This article is in press with Higher Education Research and Development and is included in this work as Appendix 1.
generic attributes or skills” (p. 375). Others regard speaking of training in relation to the PhD as oxymoronic or consider that the mechanistic incorporation of skills training into the PhD will do little to promote the degree of scholarship expected in doctoral work (McWilliam, 2009; Walker et al., 2008).

At a macro level, debates on skills acquisition in the PhD indicate inherent epistemological tensions around the purposes of the PhD. These include concerns that notions of the PhD as skills and training limit understandings of the impacts of the PhD because they overly simplify the complexity and richness of the postgraduate experience (Pearson & Brew, 2002; Smith, 2000) and fail to convey the explicitly educational nature of the doctoral process. Others suggest that the focus on skills also neglects to recognise the value of the personal and social knowledge students acquire during the processes of the PhD (Boud & Lee, 2005; Brew, 2001) and further, that skills subordinate the traditional values of the academic knowledge and learning that is integral to the PhD for the newer values of “academic capitalism” (Usher, 2002, p. 147).

Other dangers and limitations of the training and skills approach to doctoral education include a concern that in the rush to meet the demands of certain stakeholders, for example powerful industry partners, the validity of the expectations and demands they make may be uncritically included in PhD programmes and that universities may be opportunistically used to meet the employers’ responsibility for workplace training (Craswell, 2007; Walker et al., 2008). Alternatively, the environment of doctoral education may be construed predominantly in terms of provision (Boud & Lee, 2005) and lead to decontextualising the PhD process and promoting a limited focus on the outcomes of the doctoral process. This may further prompt a static model of the PhD and a prescriptive approach to research (Halse & Gearside, 2005; Salmon, 1992) or promote the use of particular research methods over less established approaches (Sikes & Goodson, 2003).

The transference of reductive language of organisational and policy discourses into the policy language of higher education is a further danger to narrowing understandings of the doctoral educational process and products. Kendall (2002), as well as Halse and Gearside (2005) and others (Devenish et al., 2009), observe how
the language of doctoral *training* denotes a specific time frame for the unproblematic transference of certain skills and abilities during candidature. Such language promotes particular outcomes for doctoral education and obscures other aspects of the process, for example the significant personal, social and cultural learning that occurs through students’ everyday interactions with peers and through becoming familiar with the expectations of the academic environment (Devenish et al., 2009; Gerholm, 1990; Halse & Gearsise, 2005; Lovitts, 2001; Parry, 2007).

It is also problematic that the sorts of skills being heavily promoted as essential components of doctoral training, for example teamwork, communication and learning skills, are widely regarded as abilities that are not acquired through training. Emphasising the role of experience in learning, they are historically proven to be crucial elements of an individual’s learning, development and well-being that are gained over time through life and work experiences (Drucker, 1994; Gilbert et al., 2004; Green & Usher, 2003). Training approaches to doctoral education however often reflect no conception that the capabilities, skills and qualities acquired before and over the period of research candidature and through the processes students engage in are in any way complementary, interlinked and/or mutually informing to the work of the PhD (Barnacle & Usher, 2003; Craswell, 2007).

The work of Dreyfus and Dreyfus (1980) in particular illuminates the limitations of such formulaic understandings of skills training. In their study on the cognitive activities involved in directed skill acquisition the Dreyfus brothers observed that the provision of training generally equipped individuals with different levels of knowledge and abilities: i) novice, ii) advanced beginner, iii) competence, iv) proficiency and v) expertise. Based on their research, Dreyfus and Dreyfus (1980) argue that unless training is personally meaningful, individuals are unlikely to progress beyond the level of competence because, except at the level of novice and advanced beginner, personal involvement and meaningfulness are essential elements of skill development and learning (Dreyfus, 2001; Dreyfus & Dreyfus, 1980). To become proficient and expert is therefore not a result of training or following rules but rather the result of individuals being intellectually and personally invested in their learning over a period of time. Yet such personal elements of learning are rarely
considered in skills and training metrics and approaches to the PhD (Barnacle, 2005; Boud & Lee, 2005; Brew, 2001).

The PhD as a process of doctoral education

To combat the language of training and skills, commentators and academics advocate the use of doctoral education to better convey the scholarly purposes of the PhD (Boud & Lee, 2005; Green, 2009; Green & Lee, 1995; Leonard, 2001; Pearson, 1996; Pearson & Brew, 2002; Salmon, 1992). Aligning with broader and older conceptions of education as “an integral part of everyday life” (Hamilton, 1990, p. xiv), they assert that doctoral education better encompasses the range of human, environmental and provisional factors that contribute to the personal, professional and social developmental and educative processes students are involved in during their doctoral studies (Lee & Boud, 2009). Doctoral education also incorporates doctoral pedagogy—the close attention given to the learning practices and contexts of students—as an integral component of the doctoral education ecology that Boud and Lee (2009) and others envisage (e.g. Cumming, 2010; Green, 2005; Lovitts, 2005; McAlpine & Norton, 2006). Unlike approaches that concentrate on provision and measurable outcomes, these more complex conceptions of doctoral education encompass its processes and contexts, to make explicit the multifaceted nature of the PhD undertaking (e.g. Cumming, 2010; Green, 2005; Lee & Boud, 2009; Lovitts, 2005; McAlpine & Norton, 2006).

Such broader conceptions of the PhD potentially extend current understandings of the purposes of the PhD beyond being a handmaiden to corporate imperatives and economic outputs (Giroux, 2002) or alternatively, past understandings that “lurch between the imperatives of ‘research’ and those of ‘education/learning’” (Boud & Lee, 2005, p. 502). They promote a conception of doctoral education that recognises the complexity of the PhD undertaking and balances performance and training initiatives with an appreciation of the more esoteric aspects of knowledge, learning and pedagogy of the PhD process (Barnacle, 2005; Barnett, 2005; Evans & Kamler, 2005; Giroux, 2002; Green, 2009; Neumann, 2002; 2003; Usher, 2002).
The Carnegie Initiative on the Doctorate (CID) is an example of how the purposes of the PhD may be more widely conceived (Golde, 2006). This initiative positions PhD students as scholars and stewards who are responsible to generate new knowledge, conserve important ideas and the legacy of past knowledge and transform existing knowledge by connecting it in new and different ways to other fields (Golde, 2006). Combined, these processes aim to promote in students “a set of knowledge and skills, as well as a set of principles. The former ensures expertise and the latter provides the moral compass” (Walker et al., 2008, p. 12). Such a conception expands simplistic and narrow conceptions of doctoral education as training and of doctoral students as knowledge workers or “super-technicians” (Pearson et al., 2009, p. 100). Rather, it promotes them as scholars and active social citizens and leaders who can contribute to the public good (Giroux, 2002; Walker et al., 2008). This understanding brings into view the moral and philosophical dimensions of the PhD and reasserts the purpose of the PhD as a piece of scholarly work that is concerned to contribute to the public and moral good of society, as well as enhance its economic and social productivity and growth (Carr, 2003; Sikes & Goodson, 2003).

2.5 Conclusion

Wider societal changes have created particular conditions that have influenced and informed current directions for doctoral education and promoted narrow, predominantly economically driven understandings of impacts of the PhD. Although there are indications that this perspective is broadening, this review suggests that in common with Descartes’ notions of knowledge, current policy approaches to understanding and capturing impacts of the PhD, while useful, are also limited because in concentrating on the knowledge products of the PhD they lose sight of the central role that PhD students themselves play in the PhD process. It is therefore necessary to consider the perspectives of those who are left out or overlooked in the drive to “refram[e]ing doctoral education within a supra-logic of productivity” (Green, 2009, pp. 243-244). This is the concern of the following chapter, which reviews the literature on students’ experiences of the PhD process.
3 The research context: Students’ perspectives

When research is considered as a commodity to invest in, the thoughts, minds and lives of those who do it are largely invisible [and] . . . the view of research as a process of personal and social learning is left out.

(Brew, 2001, p. 13)

3.1 Introduction

This chapter examines the literature on students’ experiences of the PhD. Conscious that a focus on difference may obscure important commonalities, this chapter focuses on identifying and exploring common issues and concerns in narratives on the PhD experience under subheadings that are strongly represented in the literature.

The body of work that presents students’ experiences of the PhD candidature is frequently based on smaller scale, qualitative studies, although larger scale qualitative studies have also been undertaken (e.g. Delamont, Atkinson, & Parry, 2000; Golde & Dore, 2001; Lovitts, 2001; Pearson, Cumming, Evans, Macauley, & Ryland, 2008; Zhao, Golde, & McCormick, 2007). While much of this literature is weighted toward examining students’ experiences in the humanities and social sciences in western settings, the increased interest in other areas of doctoral education is addressing this imbalance. For example, and reflecting the increased interest in doctoral education as a field of research in recent decades, this literature includes contributions that draw on students’ experiences to explore learning and affect during the doctoral process (Haggis, 2002; Haworth & Bair, 2000; Lamm, 2004; Styles & Radloff, 2000). Other studies have examined student socialisation (Devenish et al., 2009; Golde, 2000; McCormack, 2005; Parry, 2007; Pyhalto, Stubb, & Lonka, 2009) and specific aspects of the PhD process, for example writing (Evans & Gruba, 2002; Kamler, 2008; Maher et al., 2008). The literature on students’ experiences of the PhD includes monographs that examine the PhD process across
disciplines (Delamont et al., 2000; Gardner, 2009; Golde & Dore, 2001; Golde & Walker, 2006; Salmon, 1992; Walker et al., 2008), or within one discipline (Brew, 2001; Leonard, 2001; Leonard & Becker, 2009; Lovitts, 2001) and also includes a growing number of autobiographical accounts of the PhD process by PhD students (Balatti & Whitehouse, 2001; Bradbury-Jones, 2007; Cumming & Ryland, 2004; Devenish et al., 2009). Also reflecting the increased interest in doctoral education, this literature is supplemented by substantive contributions in the form of “how to” guides for supervisors and students on managing the PhD process (Cryer, 2006; Denholm & Evans, 2006, 2007; Phillips & Pugh, 2005; Thomson & Walker, 2010).

3.2 The PhD experience

In 1973, the Australian sociologist William Bottomley (1973), writing about the PhD in the Social Sciences, noted that for many students “gaining a doctorate entails the endurance of severe personal distress” (p. 211). The literature on students’ experiences of the PhD tends to mirror Bottomley’s (1973) and also Schreuder’s observation that in doctoral studies, it is “the image of pain, rather than pleasure” that usually persists (Stevens & Asmar, 1999, p. v).

3.2.1 Supervision

In the literature on students’ experiences of the PhD, supervision is a strong and recurring topic. Doctoral supervision and the student/supervisor relationship play a critical role in determining the success and outcome of a student’s PhD candidature (Halse & Malfroy, 2010; Walker et al., 2008; Zhao et al., 2007). In an early account of supervision, Connell (1985) captured the complexities and demands involved in promoting students’ abilities and potential during supervision while also being able to interpret students’ desires and needs. Connell (1985) observed that being a supervisor “is a genuinely complex teaching task. It requires a substantial commitment of time and energy. It involves grappling with a considerable range of problems, from technicalities of research design to the morale—and sometimes health—of the student” (p. 38). Kelly and Ling (2001) expanded on Connell’s (1985) description. They described a supervisor as a “resource provider, facilitator, guide, mentor, coach and co-learner” (Kelly & Ling, p. 74). Orton (1999) also describes
supervision as “a complex, demanding role” and goes on to equate it to being a “teacher-demonstrator-critic . . . which is both tough and loving” (p. 153). Leonard (2001) echoes this theme, identifying the supervisor as both a willing supporter and devil’s advocate for the student and their work. The literature on students’ experiences of the PhD indicates that how supervisors understand and enact their role can significantly impact a student’s experience of the PhD undertaking. Research from different studies suggests that supportive supervisory interactions and practices can contribute significantly to maintaining students’ commitment to their studies (Haworth & Bair, 2000; Zhao et al., 2007). Many of the 66 PhD students interviewed by Haworth and Bair (2000) in their US study, for example, recounted that their supervisor had worked alongside them and that this contributed to a close, emotional and supportive relationship. Specifically, these students identified how the practices of their supervisor facilitated progression through candidature and also provided them with a sense of pleasure in their studies and confidence in their abilities. The supervisory practices the students valued included allowing students the time and space to explore and develop their own understandings, offering helpful suggestions for reading and thinking, regularly discussing progress and findings, asking difficult questions and respectfully querying the student’s established understandings in order to stretch their thinking in new and unanticipated ways. Similarly, Zhao, Golde and McCormick’s (2007) study, which used responses from 4,010 online surveys from American PhD students who had been enrolled for three years or more, also identified that supervisors who were available to spend time with students, engage with them at a personal level and advise them on their research and professional development, clearly made a difference in students’ experiences of candidature and promoted student satisfaction.

With Haworth and Bair (2000) and Zhao et al. (2007), other researchers (Deuchar, 2008; Neumann, 2003; Salmon, 1992) suggest that a stable, secure supervisory relationship can also empower students during difficult times, particularly during personally confronting periods of candidature, for example when students are transitioning between seeing themselves as an autonomous researcher and recognising when they need guidance and support. The 10 students in Salmon’s (1992) study, for example, described how the openness and stability they experienced in the supervisory relationship enabled them to share their fears and
doubts about their current capacities, to address gnawing and often secret doubts about their intellectual abilities and acknowledge the gaps in their developing understandings without shame or fear. These students viewed their experiences of supervision as empowering and enabling, supporting them and allowing them to continually move forward with their studies, be more creative and take risks in their thinking and research as they progressed into more challenging phases of the PhD (Salmon, 1992).

Students in Salmon’s (1992) study and other studies, described how the supervisory relationship acted as an extrinsic and intrinsic motivator during candidature (Haworth & Bair, 2000; Lamm, 2004; Styles & Radloff, 2000). The 35 Australian PhD students who participated in Lamm’s (15) and Style’s and Radloff’s (20) studies on affect during the PhD reported that their desire to meet their responsibilities to their supervisor and prove themselves capable often spurred them on throughout candidature. They recalled how the success they achieved from their efforts simultaneously nurtured their pleasure and confidence and acted as a source of validation during candidature. The success the students enjoyed was further augmented by the pleasure they experienced in recognising how their abilities to meet challenges had contributed to making them more competent, intelligent, confident and capable researchers and professionals.

Research from autobiographical accounts of the PhD experience supports the importance of promoting and maintaining a reciprocal supervisory arrangement (Balatti & Whitehouse, 2001; Bradbury-Jones, 2007; McIlveen, George, Voss, & Laguardia, 2006). These students identified that their responsibilities included respecting the supervisor’s abilities and guidance, working to the best of their abilities and being an organised student. In effect, the experiences of these students conveyed that supervision was experienced as a critical friendship (Deuchar, 2008; Evans & Pearson, 1999) in which each understood and respected their roles and responsibilities. For these students, the parity they experienced between their expectations, values and aims for the research project and the supervisor’s expectations and aims often worked to make the PhD a pleasurable experience and further, encouraged the students to extend themselves.
Expecting to have such a collegial relationship with a supervisor who was sensitive to the complex nature of the supervisory relationship and to the individual’s needs was a recurring theme in many studies (Austin, 2002; Delamont et al., 2000; Haworth & Bair, 2000; Salmon, 1992; Zhao et al., 2007). Arguably, this expectation is promoted by descriptions of the supervisory relationship as “one of the closest that you will ever be involved in” (Phillips & Pugh, 2005, p. 15). Themes across the literature on students’ experiences of supervision include lack of time, support and interest on the part of the supervisor, poor communication, and as a consequence, inconsistent directions and unclear expectations that further undermined supervisory interactions and the strength of the supervisory relationship (Austin, 2002; Delamont et al., 2000; Harman, 2002; Wright, 2003).

The work of feminist researchers in particular highlights the angst and trauma supervisory relationships can create for some students (Bartlett & Mercer, 2001; Bradbury-Jones, 2007; Lee & Williams, 1999; Leonard, 2001). Amongst other metaphors, Bartlett and Mercer (2000) use a bushwalking expedition to describe the potential risks and cost of PhD supervision. Grant (1999) also provides many examples of metaphors and concludes by relating supervision to crossing a rackety bridge while Lee and Williams (1999) relate the traumas of the PhD and supervision to being forged in fire.

The significance of complex relational factors in promoting students’ learning during candidature is increasingly recognised in the substantial amount of research into students’ experiences of the PhD (Grant, 2005; Haworth & Bair, 2000; Neumann, 2003; Salmon, 1992; Walker et al., 2008), and the growing body of work advocating new approaches to doctoral education supervision (see for example Halse & Malfroy, 2010; Malfroy, 2005; Manathunga, 2007b; Styles & Radloff, 2001). Yet despite these findings and the increased push to regulate and improve doctoral supervision, the literature suggests that many students do not experience a collegial relationship with their supervisor or other academics during candidature.

Students’ narratives indicate the dominance of the “transference” or “master/apprentice” model of supervision (Grant, 1999; 2008; Zhao et al., 2007). In this model, the supervisor is the more knowledgeable and more powerful master
responsible for both passing on their knowledge and “disciplining the acolyte” to the expected norms (Bartlett & Mercer, 2000, p.197). Engendered in this approach is the traditional concept of apprenticeship as a tough but necessary “rite of passage” which those who are worthy will survive (Nyquist et al., 1999). Neglect and exploitation are common themes in students’ accounts (Bartlett & Mercer, 2000), with recurring issues being the limited time, guidance and support students receive in their research endeavour or on written work (Austin, 2002; Delamont et al., 2000; Deuchar, 2008; Lamm, 2004; Lovitts, 2001; Wall, 2008) or being used as a source of unpaid or cheap labour (laboratory technicians, casual tutors, research assistants) to build their supervisor’s reputation and advance their career (Pyhalto et al., 2009; Walker et al., 2008; Zhao et al., 2007).

To examine students’ satisfaction with the PhD undertaking, Harman (2002) gathered data from over 1,500 questionnaires that were completed by PhD students at two large Australian universities. Harman’s (2002) research found the lack of time, interpersonal skills and interest demonstrated by the supervisor were key issues. Some students recognised that new management practices within universities intensified pressure on supervisors to meet institutional and wider expectations, thereby decreasing their availability and time for supervision: “there are pressures on both parties that can interfere with the smooth conduct of this relationship” (Balatti & Whitehouse, 2001, p. 50; Delamont et al., 2000; Harman, 2002). Other research confirms that lack of time and support in supervision are common issues in students’ experiences of the PhD, as evidenced by various studies from other countries. These include, for example, Delamont et al.’s (2000) study in the UK, that interviewed over 200 postgraduate students and academics, Austin’s (2002) four year study in the US with 68 PhD students and Gardner’s (2008) research with 40 doctoral students from Chemistry and History in the US.

An inherent danger for any supervisory relationship is that because the PhD experience can be so individualistic and intense, the supervisory relationship can assume greater importance, beyond what it was designed for or can reasonably accommodate (Wright, 2003). This is often the case in the Social Sciences, where students usually work alone and the supervisor is the primary source of support (Delamont et al., 2000; Wright, 2003). The different positions of supervisors and
students can also affect how each perceives the degree of support provided during candidature. As Pearson (1999) observes, for students, candidature and all it entails is their focus, yet for supervisors, students are one of the many responsibilities they have. Pearson (1999), draws on organisational literature to relate this to “the differences in power, status, dependence and control” (p. 188) between students and supervisors and to recognise that these factors can “create opportunities for jointly beneficial outcomes [yet] also give rise to the prospect of disappointment and betrayal” (Kramer, 1996 cited in Pearson, 1999, p. 188).

The literature on students’ experiences of supervision reflects Pearson’s (1999) observation. For many students, supervision provides opportunities to develop and extend their professional understandings in easily recognisable ways. These include, for example, the professional skills students develop in developing publications, which are readily accounted for in current metrics. A closer look at the students’ narratives however, identifies other personal impacts that are not so readily accounted for or expanded upon in the literature. For instance, while frustrating experiences of supervision were often described, accounts rarely move beyond description or recognise how managing frustration and maintaining motivation during candidature may be regarded as important skills and significant impacts of the PhD process. Arguably, such skills reflect valuable personal impacts of the PhD yet in the literature on students’ experiences of the PhD, such understandings are hidden in descriptive accounts and are largely unacknowledged and thus, often unexamined and undeveloped.

### 3.2.2 Socialisation

Student socialisation features largely in the literature and many studies indicate that the degree of academic and social inclusion, or socialisation, students experience during their studies can profoundly impact the PhD undertaking (Austin, 2002; Delamont et al., 2000, Lovitts, 2001). Socialisation is commonly understood as the successful academic integration and inclusion of students into the working world of the discipline and the department (Golde, 2000; Lovitts, 2001; Parry, 2007). In practice, integration includes interacting formally and informally with faculty, establishing friendships and attending professional and social gatherings at the
university (Golde, 2000; Lovitts, 2001; Tinto, 1993). Research on student retention suggests that in doctoral education, the degree to which students are integrated into the academic and social life of the institution is closely linked to students’ intellectual development and to a range of skills that facilitate completion (Tinto, 1993). Bieber and Worley’s (2006) observation that “the concept of socialisation has been the reigning paradigm for investigating the student experience to date” (p. 1010) suggests the significance of the socialising experiences of students and is supported by a number of studies that indicate high levels of academic integration reinforce students’ commitment to the institution and to the completion of their degree, while low levels of academic integration exacerbate the isolation of the PhD experience and frequently lead to student attrition (Austin, 2002; Golde, 2000; Lovitts, 2001; Parry, 2007; Tinto, 1993).

Lovitts (2001) proposes that socialisation often depends on the strength of two intertwined departmental and institutional cultures; the academic and social cultures students experience. Lovitts (2001) proposes that the academic culture supports students’ intellectual growth through promoting and supporting opportunities for students to work collaboratively with others and research, publish, present and explore their emerging ideas and findings. The social culture enhances the academic culture by providing opportunities for students to build connections with others in the wider community. Less formal gatherings such as colloquia, brown bag lunches, sports and social gatherings allow students to engage with members of the scholarly community and promote the development of relationships based on common interests and experiences. These can further develop a sense of community and inclusion. Combined, these cultures can provide students with formal and informal opportunities to engage in academic life and build students’ sense of belonging to a scholarly community (Lovitts, 2001).

McIlveen et al. (2006), described how their engagement in the wider academic community helped to socialise them during the processes of the PhD. Their experiences included contributing to the knowledge base of the discipline at a local and wider level through teaching and publications, developing, implementing and assessing programmes and taking on local and other leadership roles. PhD students in other studies also identified how developing a scholarly voice, through both written
and oral work, enabled them to contribute to and be included in the scholarly community at a local and wider level (Boud & Lee, 2005; McAlpine & Amunsden, 2007; Salmon, 1992). McAlpine & Amunsden (2007), in their study on the development of academic identity, conceived voice as an expression of the individual’s identity; a means to influence boundaries or structures and negotiate rules in the setting. The students in their study experienced an increased ability to articulate a perspective and be listened to by their peers. This provoked sensations of professional accomplishment, competence, pleasure and belonging during candidature.

The challenges students face in socialising themselves to be considered a fully fledged, productive member of the academic culture are substantial (Austin, 2009). These challenges include adjusting to an unstructured and disorganised academic approach (Austin, 2009) and managing bureaucratic procedures that often relentlessly individualise students and distance them from the supervisor, the department, the university and their representatives (Boud & Lee, 2009b). Compounding these challenges is the frequent need for students to decipher *ad hoc*, mixed and multiple messages from different voices of authority within the academy on what students’ priorities and values should be and about the nature and expectations of the PhD undertaking (Austin, 2009; Haggis, 2002; Nyquist et al., 1999). These challenges are further complicated by the need for students to assert themselves, for despite being amongst the highest achievers in the university population, they are often positioned as sub-ordinate or deficit (Barron & Zeegers, 2002; Lovitts, 2001). They are therefore often left to try and navigate a system with little information or, alternatively, interpret information that has made unwarranted assumptions about students’ familiarity with complex concepts, policies and procedures (Delamont et al., 2000; Lovitts, 2001).

The literature on students’ experiences during candidature indicates that socialisation was often experienced as a challenging aspect of candidature. Many students described the PhD as a solitary experience; intellectually, socially and emotionally (Boud & Lee, 2005; Delamont et al., 2000; Golde, 2006; Kearnes, Gardiner, Marshall, & Banytis, 2006; Wall, 2008). Nyquist et al. (1999), in their four year study, met with cohorts of doctoral students at two different US institutions at six-
monthly intervals (initially 99 students at the beginning of the study, dropping to 66), and recorded with surprise “how strongly so many of our participants spoke of battling isolation that threatened to engulf them” (p. 25). Similarly, from their in-depth interviews with over 200 student and academics, Delamont et al. (2000) reported “with particular urgency” (p. 163) on students’ experiences of isolation, especially during the early stages of candidature when students were looking for guidance and support to make sense of the new culture they had entered.

The isolation that some students experienced during candidature often provoked a sense of disconnection from the university and their department (Boud & Lee, 2005; Gardner, 2008; Kearnes et al., 2006; Pyhältö et al., 2009). Pyhältö, Stubb, & Lonka’s (2009) research with 602 PhD students at Helsinki University showed that nearly 200 students did not feel part of any scholarly community. This group often described themselves as “outsiders”—disconnected from and unrelated to the research community (p. 226). Similarly, Claire, one of the two students in Boud and Lee’s (2005) ongoing action research on doctoral education in an Australian university, expressed a sense of being apart from the physical, intellectual and social life of the faculty. She described being “wiped out . . . whited out in the corridors . . . you are this strange thing coming and going” (p. 507). Golde (2000) has argued that students’ confidence is eroded by their position within the university as powerless and voiceless dependants on the university system and Leonard (2001) has noted that for both men and women “present day social interactions in academia make us [students] feel uncomfortable and doubt our abilities” (p. 230; (see also Lee & Williams, 1999; Sikes, 1996; Wall, 2008).

Some researchers have used theoretical frameworks to further explore students’ experiences of socialisation during candidature. Parry (2007), for example, draws on Gerholm’s (1990) understandings of different types of knowledge and Becher and Trowler’s (2001) work on disciplinary cultures to propose four overlapping types of “savvy” (p. 34) that students require to negotiate socialisation during candidature. These are grounded savvy or substantive knowledge of the field, cultural savvy that relates to understanding the unspoken values of the field, social savvy that concerns the ability to communicate and discourse savvy, which is knowledge of the conventions of the field (Parry, 2007). Thus Parry’s (2007) research provides another
lens through which to view students’ experiences of socialisation and broadens the view beyond description to extend understandings of students’ experiences during the PhD process.

While doctoral students master many aspects of theoretical and methodological knowledge in the course of their studies, Gerholm (1990) suggests that formal types of knowledge are usually not enough to become a fully functioning, competent member of the research community. Gerholm (1990), and other researchers since (Austin, 2002; Lovitts, 2001; Parry, 2007), propose that students also require informal knowledge of the culture they work in. Describing a paradox PhD students often encounter, Gerholm (1990) explains that the tacit knowledge students require to be part of the research community “will be acquired slowly through interaction with others” (p. 263). Gerholm (1990), and more recently Bender (2006), Delamont, Parry and Atkinson (2000) and Lovitts (2001) refer to this knowledge as the hidden curriculum. Underscoring the importance of student socialisation, they explain this hidden curriculum as the implicit rules and unspoken social mores of the department and institution that enable PhD students to be socialised into the department and institution.

3.2.3 Relationships and personal life

The literature suggests that personal and professional relationships were significant sources of support for many students during candidature (Boud & Lee, 2005; Devenish et al., 2009; Lamm, 2004; Maher et al., 2008; Salmon, 1992; Wall, 2008). The emotional and practical support, comfort and encouragement students received from supervisors, colleagues, family and friends enhanced and facilitated the experience of candidature because these interactions often provided respite from the pressures and anxieties of study. They also worked to refresh and sustain students’ motivation to continue in their work (Cumming & Ryland, 2004; Devenish et al., 2009; Kearnes et al., 2006). Cumming and Ryland (2004), recounted how, as doctoral students attached to a larger research project and team in an Australian university, they benefited from the relationships they established through formal and informal interactions within the department. They recounted how being able to work alongside colleagues and bounce ideas around, chat over morning tea and discover a
new publication or drop in on a more senior academic contributed to their becoming more confident and effective students.

As a point of contrast, McIlveen et al. (2006), writing post graduation, described how their experiences as four women doctoral students in the US fractured their confidence, resilience and self-discipline. Their experiences included coping with a lack of institutional, professional and personal support, overcoming self-doubts and meeting the intellectual challenges of the PhD. In retrospect, one of the four women in the study explained how the combined events of candidature affected her: “I think there is a deconstruction that takes place during the doctorate. It is the tearing down and the rebuilding [and] either you rebuild or you don’t make it!” (p. 176). Each of the women in the study recalled at least two major deconstruction events during candidature and the angst, pain and doubt that accompanied each experience.

Other students also recounted how difficult and challenging experiences during candidature often compounded feelings of self-doubt and radically diminished their sense of purpose and personal investment in pursuing their studies (Knowles, 2007; Lamm, 2004). These situations frequently aroused strong emotions in some students, including anger, resentment, doubt, fear and inadequacy (Kearnes et al., 2006; Nyquist et al., 1999; Parsons, 2001; Salmon, 1992). Balatti and Whitehouse (2001), in their collective autobiographical account of doing a PhD in a Faculty of Education in Australia, capture these emotions. Each entered the PhD as an established professional with expert knowledge in their field of study and, although policy rhetoric values life experience and prior knowledge, this was not their experience. Instead they described adjusting to the position of student and adapting to the academic environment as “difficult emotional terrain” (Balatti & Whitehouse, 2001, p. 46). They recounted how they became complicit in their own unbecoming even as they strove to become members of the university and wider academic community. Reflecting on the cumulative effects of their struggles during candidature, they described a process of “becoming feral” in the sense that they became disconnected, distrustful, opportunistic, secretive, less committed and full of self-doubt during their candidature (Balatti & Whitehouse, 2001, p. 46).
The transference of work stresses from the PhD to personal life and the distraction of personal stresses on research is a common theme in the literature (Lamm, 2004; Leonard et al., 2005; Salmon, 1992; Wall, 2008). Neumann (2003), drawing on over 100 transcripts from PhD students across six Australian universities, reported that many students experienced relationship issues and financial hardship during their studies. Students in other studies described how illness and injury were significant sources of challenge that were managed during candidature (Salmon, 1992; Wall, 2008). In a national online survey completed by 5,395 Australian doctoral candidates and representing just below 15% of the national PhD population, over 50% of the respondents were full time students and were living with partners and of these 27% had children (Pearson, Cumming et al., 2008). Thus, as Pearson et al. (2008) observed, “the role of domestic work in the lives of doctoral candidates cannot be ignored” (p. 104).

The literature suggests that, particularly for women students, balancing the demands of the PhD with personal responsibilities and roles during candidature often exceeded their personal capacity and they projected their frustration and anger onto family members (Leonard et al., 2005; Salmon, 1992; Wall, 2008). Such outbursts evoked feelings of guilt and doubt about the time spent on their studies and prompted tortured questions about the high cost the PhD was extracting in terms of lost time, lost opportunities and even lost relationships with family members (Leonard, 2001; Salmon, 1992; Wall, 2008). Indicating the contradictions that students can experience, many of these women were committed to pursuing their education and felt satisfaction and pleasure in their doctoral work. Like Balatti and Whitehouse (2001) and Anderson and Swazey (1998) however, they also recognised that the PhD experience was changing them in ways they disliked and found disturbing. These women also reported instances and experiences of being subsumed by such feelings at times during the PhD.

Tensions, uncertainty and ambiguity feature strongly in students’ narratives on the PhD experience (Gardner, 2008; Haggis, 2002; Kearns et al., 2008; Lamm, 2004; Lovitts, 2005; Salmon, 1992). For example, the personal motivation and determination of some students to be regarded as a competent and independent researcher clashed with the necessity of being guided through the PhD process.
(Gardner, 2008; Salmon, 1992). These students recounted that negotiating a pathway between the competing drives was a tenuous journey; one that often proved to be as much or more about being able to plot a personally viable and sustainable pathway through the confronting challenges of the PhD as it was about the production of an original piece of research (Gardner, 2008; Haggis, 2002; Kearns et al., 2008; Lamm, 2004; Lovitts, 2005; Salmon, 1992).

In the literature on students’ experiences of the PhD, the emotions and self-doubts students can experience during the PhD have sometimes been dismissed in a somewhat perfunctory manner (Parsons, 2001). Some have described them as phases and suggested that they can be overcome with good supervision or a daily routine and material rewards (Delamont, Atkinson, & Parry, 1997; Phillips & Pugh, 2005). Alternatively, they are regarded as a sign of an individual’s “personal problems” (Pearson, 1999, p. 186) and/or as an indicator of a student who is deficient in the abilities required to undertake a doctorate (Barron & Zeegers, 2002; Craswell, 2007). Psychological research has identified that perceptions of failure, receiving negative feedback and an imbalance of power in relationships, for example when seeking help is seen to imply incompetence or inability, are some of the most powerful and harmful events individuals can experience (Taylor, 1991). Such negative events can threaten an individual’s self-esteem and diminish their sense of personal power. Research also shows that these experiences may promote regressive outcomes such as timidity, dependence and narrow mindedness (Boud & Lee, 2005; Kamler & Thomson, 2004; Merriam, Mott, & Lee, 1996) and slow cognitive processes so that it becomes more difficult to disseminate information (Taylor, 1991).

Phillips and Pugh (2005) observe that students often come to question many of their long held and accepted assumptions during candidature. As evident in the students’ narratives, they propose that this questioning can unsettle students’ equilibrium and de-stabilise their confidence. In a similar vein, Barnett (2007) has stated that in the processes of gaining an authentic higher education, students often become “lost” (p. 75) and less confident as they purposefully engage with the uncertainty, ambiguity and tension of the learning experiences they engage in. He identified, along with Dreyfus (2001), Leonard (2001) and Phillips and Pugh (2005), that students’ self-doubts, lack of confidence about their abilities and the angst that is integral in
learning to navigate new areas can often inhibit students’ preparedness to learn and adversely impact their persistence in learning situations.

Salmon (1992) noted that during the hardest, most challenging times of the PhD, whether intellectual, practical or otherwise, there was no set sequence of events for students to follow. Rather, candidature was experienced as a discursive, truncated and unpredictable process that produced no tangible evidence of all the hard work that was occurring (Salmon, 1992). The experience of a science student in Walker et al.’s (2008) study captures the fundamental nature of candidature.

I spent the first year and a half in the lab failing . . . over and over again, day after day, week after week. I have never failed so much in my whole life. I explain all this because one of the most important experiences that has facilitated my development as a scientist and a scholar was learning to fail. (p. 113)

Stevens and Asmar (1999) observed that when the PhD is “sheer hard slog” (p. 55), a student’s emotional and physical fortitude, commitment and dedication are as important as their intellectual tenacity and creativity; a finding confirmed by Lovitts (2005) in her study on PhD students becoming independent researchers. Salmon (1992) likens the development of such “inner factors” (p. 15) during candidature to having developed the courage, knowledge and confidence to step out from “behind the skirts of others, [no longer] fearful of making any statement or judgement that can not be supported by a reference to published work” (p. 16). The growth of these inner factors is counted amongst the most difficult aspects of undertaking meaningful PhD research (Lovitts, 2005; Salmon, 1992; Stevens & Asmar, 1999).

Yet, a limitation of the literature on students’ experiences of the PhD is the paucity of work that extends beyond descriptive accounts of students’ experiences and digs deeper to examine how and in what ways students develop these “inner factors” (Salmon, 1992, p. 15) that are seemingly significant in promoting students’ development. Therefore, although the literature on students’ experiences of the PhD often adds fine detail to the picture of doctoral education and illuminates aspects of candidature that are largely missing, or left out of other accounts of the PhD—for
example, the emotions and feelings that are often associated with multiple aspects of the PhD experience, and in particular supervision, socialisation and students’ personal life—it also, arguably, like policy approaches, provides a partial view of the complexity of the PhD process. For while it fleshes out, in a very human way, the abstract idea of PhD students as knowledge workers or “super-technicians” (Pearson et al., 2009, p. 100), its predominantly descriptive nature also limits its potential in providing deeper insights into students’ experiences during the doctoral education undertaking. This highlights the need for research that conceptualises the different and diverse elements of the doctoral education experience as a complex, interrelated range of activities and further, the need for a framework that recognises how all these elements and processes contribute to enabling the production of a skilled, resourceful and competent PhD graduate.

### 3.3 Theorising the PhD experience

There is also a paucity of research that theorises students’ experiences of the PhD process, although more recent research is contributing to this gap by providing accounts of the doctoral experience that move beyond descriptive accounts. Haggis’s (2002) research with eight PhD students in the UK, for example, is amongst the small number of articles on students’ experiences of the PhD to use a theoretical lens to theorise what students described. Haggis (2002) problematises current approaches and understandings of adult learning that promote a notion of learning as linear, rote and methodological. Haggis (2002) draws on the learning theories of Brockbank and McGill (1998) and Taylor (1987) to show how students’ experiences during the PhD are complex, implicit, contextual and multifactorial. She notes that this complexity means that students’ learning is therefore experienced in a diversity of ways through a diversity of experiences. For example, “frustration . . . blocked some, irritated others and boosted still others. Relationships were central in some cases, but incidental in others” (Haggis, 2002, p. 216).

Hopwood (Hopwood, in press-b) draws on data from 22 interviews and three focus groups held with 33 doctoral students from seven institutions to examine students’ experiences of teaching, student journal editing and mentoring during candidature. Hopwood (Hopwood, in press-b) frames his work within a socio-cultural perspective
that recognises the agency of students in promoting their learning to examine some of the human, environmental and provisional factors that contribute to the students’ formal and informal, personal and professional learning and development in these areas during candidature.

Accounts of doctoral students’ experiences during candidature such as those of Haggis (2002), and Hopwood (Hopwood, in press-a; Hopwood, in press-b) illuminate some of the complexities of students’ experiences during candidature that influence their learning and development. In recognising these complexities, their research approaches align with theories of knowledge that recognise learning and knowledge as multi-faceted, multi-factorial and multi-contextual. For example, Aristotle’s notion of the different, interrelated branches of knowledge (discussed in (Aristotle, 2002) describes how different types of experiences enable different, yet interrelated types of knowledge. The learning theories of Bandura (1977) and Vygotsky (1978) have highlighted the fundamental role social interactions play in promoting learning while more recently, McWilliam and Taylor’s (2001), Polanyi’s (1958, 1998, 1967) and Stehr’s (2005) notions of lived and tacit knowledge and contemporary theories of knowledge and learning recognise and uphold the scope and significance of emotions, attitudes, motivations and social processes, content, interactions and relations in the learning processes of individuals (Brockbank & McGill, 1998; Illeris, 2007, 2009).

Thus, research that theorises students’ experiences of the PhD, such as Haggis’s (2002) and Hopwood’s (in-press-a; in-press-b), and Parry’s (2007), provides another perspective to understand students’ experiences during the PhD. In using and theorising students’ experiences, such research also shows that people matter in accounts of learning and that what individuals carry with them can add value. Further, it demonstrates how, theoretically, framing students’ experiences of the PhD can extend our understandings of the learning processes that enable different types of knowledge to be produced (Howells & Roberts, 2000; Polanyi, 1958, 1998; Stehr, 2005). In doing so, these studies indicate the need for more research that theorises students’ experiences during candidature, to illuminate other impacts of the PhD process.
3.4 Conclusion

The literature that examines students’ experiences of the PhD presents another perspective to understand the purposes and impacts of the PhD. It identifies the inter-related subjective impacts of the doctoral undertaking and arguably, represents some of the collective desires and needs that are important to students during the PhD process. It identifies how students’ experiences during the PhD are increasingly recognised as crucial to progressing students’ candidature and aiding their completion (Kearns et al., 2008; Lovitts, 2005). And it suggests, aligning with contemporary views of knowledge, how the knowledge students gain from their different experiences during the PhD may represent elements of social and human capital (Dasgupta, 2000; Schuller, 2001; Schuller et al., 2000).

Yet in a framing where the PhD is largely viewed as a product to be managed and accounted for, PhD students are more often positioned as the means to produce knowledge. Within neo-liberal discourses, students are often construed as being objects of investment, units of production and units of economic return (Colebatch, 2002; McWilliam & Taylor, 2001) and students’ experiences of the PhD processes are rarely recognised or considered (Brew, 2001). Rather, these experiences are often seen by dominant stakeholders as emotive, soft, subjective, speculative and as an impediment to acquiring the rigorous, objective and professional knowledge that is privileged as a product of the PhD. Thus the significance of students’ experiences during the PhD process is often overlooked in current approaches to understanding impacts of candidature because the knowledge they enable falls outside the types of knowledge that are privileged as the “legitimate” products of the PhD (Tennant, 2004, p. 432).

The disparity and tensions across and within different stakeholders’ understandings of the knowledge products of the PhD suggest limitations of current approaches to understanding impacts and products of the PhD. For example, and as discussed in Chapter 2, government, business and industry stakeholders tend to uphold the importance of training and skills approaches to the PhD to support the production of knowledge workers who can effectively contribute to the knowledge economy. They also want PhD graduates who are creative, innovative, flexible and collaborative.
individuals. Yet these stakeholders also often fail to consider and acknowledge that students frequently gain such abilities and knowledge through the subjective experiences of candidature. Given the recognition of new and different forms of learning and knowledge in a contemporary knowledge society, this is a significant limitation of such approaches to understanding impacts of the PhD.

By way of contrast, the literature on students’ experiences during candidature often does highlight the subjective nature of different aspects and experiences of students during the PhD undertaking. Yet, a limitation of the discrete and largely descriptive nature of students’ experiences of the PhD is that they rarely extend beyond description to illuminate the deeper, frequently interrelated learning processes and impacts that students engage in during the PhD process. Nor does this literature often theorise students’ experiences to promote different perspectives of students’ experiences that can extend and challenge current understandings of the impacts students experience during the PhD. Rather, it provides detailed, descriptive accounts of students’ experiences which, while illustrative, often do not frame the challenges and learning of the PhD experience theoretically or promote an integrated view of its complexity. Thus, while policies on the PhD and the literature that presents students’ experiences of the PhD both seek to highlight the importance and significance of the PhD undertaking and its products in a contemporary knowledge, arguably each talks past the other, because of the language each privileges.

Trevor Gale (2006), speaking as President of the Australian Association for Research in Education (AARE) at the 2005 conference, observed that it is not enough for educational researchers to analyse the politics of policy production and ask “what is going on?” and “how come?” Gale (2006) argued that researchers also need to engage with the range of policy, actors in the field, and theory, and consider the prevailing conditions to ask “what can be done?” and “how things might be otherwise?” (p. 3). In such ways Gale (2006), like others (Nixon, Walker, & Clough, 2003), argues that educational researchers can develop educational theories that suggest relevant, empirically grounded and innovative ways to inform future directions for educational policies. Gale (2006), like Ball (2006) and Sikes (2006), is not however advocating theory as “the kind of conceptual gobbledegook that is good for textbooks” (Sikes, 2006, p. 45). Rather, like Ball (2006), Nixon et al. (2003) and
Sikes (2006), Gale (2006) advocates using theory in educational research to demonstrate, as Haggis (2002), Hopwood (Hopwood, in press-a; Hopwood, in press-b) and Parry (2007) arguably have, how things may be viewed from another perspective to illuminate new and different meanings and understandings. Thus providing research that:

exists not only to provide policy makers and practitioners with evidence, but to provide as a public resource interpretations of that evidence that speak to the conditions pertaining at precise points and within specific public actors . . . [thus] research is a common resource, a resource for thoughtful action (Nixon et al., 2003, p. 87).

The premise of this research is therefore, that considering the factors discussed in this and the previous chapter, a new way is needed to frame the range of impacts, or products, of the PhD that provides a common language that promotes a better, more integrated understanding of the impacts of the PhD for all stakeholders. This review of the literature indicates that to be relevant and innovative, such a framing needs to recognise the tangible products of the PhD that are predominantly privileged by government, business and industry stakeholders as impacts of the PhD. It also needs to recognise the less tangible products that are enabled by the processes of the PhD, as captured in the experiences of PhD students. Detailing the research processes involved in developing such a framework is the focus of the following chapters.
The research design

Research designs are . . . the procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis.

Creswell (2009, p. 3)

Of starting points [to understanding], some are grasped by induction, some by perception, some by a sort of habituation, and others in other ways: One must try to get hold of each sort in the appropriate way, and take care that they are well marked out.

Aristotle (NE1098b5)2

4.1 Introduction

This chapter details the elements of the research that was undertaken to explore new ways to understand and frame students’ perspectives of impacts of the PhD process. Section 4.2, Research methodology and methods, identifies why grounded theory was used and which grounded theory methods were employed. Section 4.3, Research procedures, details the research setting, the research participants, the recruitment process, and the ethical issues and procedures that were put in place to protect the research participants. Section 4.4, Research implementation, explains the simultaneous processes of collecting, coding, analysing and interpreting the data and how the qualitative research software programme NVivo was used in the research.

As signalled in Chapter 1, although in this and the following chapters grounded theory is presented as a linear process, the data collection and analysis was, following the tenets of grounded theory, simultaneous, ongoing, interactive, iterative

2 All references to Aristotle’s work follow Bekker numbering conventions.
and often intuitive (Glaser, 1978; Glaser & Strauss, 1967; Strauss & Corbin, 1998). It was also, as Glaser and Strauss described (Glaser, 1978; Glaser & Strauss, 1967; Strauss & Corbin, 1998), at times an exciting, difficult, confusing and overwhelming process. A pure rendition of these processes and procedures would however, result in a protracted and cluttered account. For the sake of clarity, transparency and accessibility therefore, and following the norms for grounded theory presentation, the grounded theory research processes undertaken during the research are recounted here in a traditional linear model (Suddaby, 2006).

4.2 Research methodology and methods

4.2.1 Grounded theory methodology

The focus of this research was to gather, present and theorise students’ perspectives of the PhD process. As such, grounded theory was determined to be the most appropriate methodology to facilitate the research aims. The aim of grounded theory is to gather rich, non-trivial data that illuminates issues important to particular groups of people and through the continuous interplay between analysis and data collection, construct a theory that is grounded in the data and provides a plausible and realistic interpretation of the data that is relevant to the area of study (Glaser, 1978; Glaser & Strauss, 1967; Strauss & Corbin, 1994, 1998).

Barney Glaser and Anselm Strauss developed grounded theory during the 1960s from their combined research at the University of California Medical Centre in San Francisco on dying in hospitals (Charmaz, 2006; Walker & Myrick, 2006). They published their research approach as *The discovery of grounded theory: Strategies for qualitative research* in 1967 (Glaser & Strauss, 1967). The contrasting theoretical backgrounds of Glaser and Strauss informed the systematic procedures that are integral to grounded theory research. Glaser’s contributions reflected his background in inductive methodologies and quantitative training at Columbia University. They included bringing logic and rigour to grounded theory, and also its specialised language (Charmaz, 2006). Strauss’s contributions were influenced by the interpretivist and pragmatist traditions from the University of Chicago and included
the notions of human agency and a focus on processes and actions and how they could be interpreted (Charmaz, 2006; Dey, 1999).

Glaser and Strauss developed grounded theory to counteract the prevalence and passive acceptance of what they criticised as “grand theories”, that assumed the purpose of social research had become to verify universal explanations about social behaviours (Glaser & Strauss, 1967). They criticised this as “the over-emphasis in current sociology on the verification of theory and the resultant de-emphasis on the prior step of discovering what concepts and hypotheses are relevant for the area that one wishes to research” (Glaser & Strauss, 1967, p.1). They argued that data analysis informed from a pre-existing theoretical perspective was divorced from reality and lived experience. To combat this they advocated that researchers needed to do field work to understand what was happening and that theory needed to be grounded in the participants’ understandings of reality if it were to be useful (empirical data) (Glaser & Strauss, 1967). Both Glaser and Strauss (1967) held that the nature of experience for both the participants and the researcher continually evolved, and that people actively shaped their world and understandings on the basis of the meanings they attached to their experiences and interactions. Each also upheld that processes and change added to the complexity and variability of life and peoples’ lived reality (Glaser, 1992; Glaser & Strauss, 1967; Strauss & Corbin, 1994, 1998). In their approach to grounded theory Glaser and Strauss (1967), and later Strauss and Corbin (1998) privileged participants’ narratives as a “truth” that was developed through each individual’s everyday interactions, which informed their everyday commonsense thinking, understandings and more analytical types of knowledge (Strauss & Corbin, 1998).

Grounded theory thus shares with symbolic interactionism a concern to provide meaningful interpretations and theorisations of data that are based in and reflect participants’ viewpoints, experiences and perspectives (Crotty, 1998). Dey (1999), exploring the connection between grounded theory and symbolic interactionism, proposed that Glaser and Strauss’s collaboration “harness[ed] the logic and rigour of quantitative methods to the rich interpretive insights of the symbolic interactionist tradition” (p. 22). These insights arise out of the three foundational beliefs of symbolic interactionism: human beings act towards things based on the meanings.
that these things have for them; the meaning of such things derives from and arises out of, interactions with others; and the meaning of these things can change over time as a result of experience and interpretation, which can occur subconsciously (Blumer, 1969 in Crotty, 1998). Because these understandings upheld the aims of the present study, which were to capture the processes of candidature that students valued as impacts of the PhD, Glaser and Strauss’s (1967) grounded theory methodology, with its roots firmly in symbolic interactionism, was chosen as the most appropriate to underpin this research. This choice is further explained in the following discussion.

Since its debut in 1967, grounded theory has diffused and evolved in different ways and there is no longer a unified understanding of what grounded theory is, or of how it is done, even between the founding fathers (Dey, 2004). Morse et al. (2009), examining this diffusion, have described a “genealogy of grounded theory” (p. 17) and explored the history, principles and practices of different strands of the methodology. In the same vein, Mills, Bonner and Francis (2006) have conceptualised the different versions of grounded theory as “a spiral of methodological development” (p. 3), and they note points of departure along the spiral that represent where researchers’ epistemological and ontological beliefs have informed a different approach to grounded theory.

The diffusion of grounded theory methodology is seen by some as a way of ensuring its relevance in a contemporary knowledge society (Charmaz, 2006; Clarke, 2005; Mills et al., 2006; Strauss & Corbin, 1994). Yet Glaser (1992, 2002b) and Strauss and Corbin (1994) and others (Alvesson & Skoldberg, 2000; Morse et al., 2009; Suddaby, 2006) have noted with concern that this diffusion has also opened the methodology to being misinterpreted and misused. The concerns include the misappropriation of the theory by researchers who have uncritically and simplistically “pick[ed] and mix[ed]” some grounded theory procedures and then claimed they have conducted grounded theory research (Goulding, 2002, p. 161; Strauss & Corbin, 1994; Suddaby, 2006). Goulding (2006), citing Skodol-Wilson & Ambler-Hutchinson (1996), observed that such approaches often resulted in “methodological muddling” (p. 163) and/or “cooked up” translations of grounded theory that ignored most of the fundamental processes of the methodology or added independently invented rules (Goulding, 2009, p. 385); for instance, that a grounded theory must include visual representations, that 12 is the maximum sample size for a
grounded theory study (Skodol-Wilson & Ambler-Hutchinson, 1996 in Goulding, 2009) and that “saturation is achieved when one has conducted between 25 and 30 interviews” (Suddaby, 2006, p. 638).

It has been argued that such misinterpretations of grounded theory methodology have undermined the intent and concept of its originators and caused grounded theory to become an overly generic label for studies that have not maintained its fundamental processes (Goulding, 2009; Strauss & Corbin, 1994; Suddaby, 2006). Researchers have thus been advised to specify which version of grounded theory and which methods they have used, to avoid ambiguity in understanding the research approach (Goulding, 2002; Strauss & Corbin, 1994; Suddaby, 2006). Heeding this, the following section outlines the different methods Glaser and Strauss and Corbin have advocated to do grounded theory, before identifying which were used in this research (Glaser, 1992; Glaser & Strauss, 1967; Strauss & Corbin, 1994, 1998).

4.2.2 Grounded theory methods

Glaser and Strauss’s grounded theory

Glaser and Strauss (1967) described grounded theory as an interrelated, ongoing process of collecting, analysing and theorising empirical data to understand social processes. Specifically, they proposed that discovering a grounded theory involved the systematic and simultaneous application of particular processes and procedures. These processes were gathering data from a theoretical sample and then coding, memoing and categorising the data through constant comparison and using theoretical saturation to generate a substantive or formal theory that fit the data, had relevance and was workable (Glaser & Strauss, 1967). A substantive theory corresponds closely to the data and informs the immediate area of study. It does not extend to areas beyond the scope of the work as there is no data to substantiate it. In contrast, a formal theory, as it is usually derived from a larger data set, has explanatory power across different situations (Glaser & Strauss, 1967). These processes are the fundamental methods of grounded theory methodology and they are carried out simultaneously throughout the life of a research project (Glaser & Strauss, 1967).
The split between Glaser and Strauss

In the twenty years after the publication of *The discovery of grounded theory* (Glaser & Strauss, 1967), Glaser and Strauss continued to develop grounded theory through teaching and writing, although not in collaboration and not in the same way (Charmaz, 2006; Goulding, 2002). Each produced monographs that further explicated and refined the methodology (e.g. Glaser, 1978, 1992, 1998, 2001, 2002a; Glaser & Kaplan, 1998; Strauss, 1987; Strauss & Corbin, 1990, 1994). While each maintained the essential features and procedures of grounded theory, they each privileged different approaches to analysis, which resulted in two schools of grounded theory methodology: Glaserian and Straussian (Charmaz, 2000, 2006; Goulding, 2009; Walker & Myrick, 2006).

**Glaserian grounded theory**

Glaser, in his numerous publications, has upheld the original tenets of grounded theory (Glaser, 1978, 1992, 1998, 2001, 2002a, 2002b; Glaser & Holton, 2004). He has maintained that true grounded theory is based upon the ongoing abstraction of categories that emerge from the data through the ongoing processes of constant comparison. With Horton (2004) he summarily explained his approach to grounded theory as a “set of integrated conceptual hypotheses systematically generated to produce an inductive theory . . . . Its data collection procedures are explicit . . . at once, simultaneous, sequential, subsequent, scheduled, and serendipitous, forming an integrated methodological ‘whole’”(p. 3).

Glaser (1978) maintained the original concepts of theoretical sampling, constant comparison, memoing, theoretical saturation, core category, fit, relevance and workability in his version of grounded theory. To these he added *modifiability*, *substantive* and *theoretical coding* and *sorting*. He has explained modifiability as the ability of the theory to adapt and encompass new findings. He added substantive and theoretical codes to refine the coding process. Substantive coding refers to first order coding that closely resembles the data. Substantive coding is divided into two sub-phases: open and selective coding. Open coding is “running the data open” to generate as many categories as possible (Glaser, 1978, p. 56). Selective coding
condenses and develops categories and defines their properties while delimiting the open categories. Aided by the coding families, discussed below, selective coding often identifies a core category or concept across the data categories. Theoretical coding involves identifying second order conceptualisations of the data and identifying relationships between the selective codes and the core concept to weave the data back together (Dey, 2004; Glaser, 1978; Walker & Myrick, 2006). Sorting involves sorting the research memos into conceptual groupings, and this helps to build the conceptual density of the category. Sorting also informs the analysis process and provides an outline for writing up the emerging theory (Glaser, 1978).

To aid in developing core theoretical codes, Glaser (1978) also introduced 18 theoretical coding families, which represent Basic Social Processes (BSPs) that capture and summarise patterned and systematic flows of human experience (Glaser, 1978). BSPs normally account for something that occurs and changes over time. By introducing the coding families of BSPs Glaser (1978) aimed to help researchers conceptualise and create new theories based around processes, conditions, contexts and causes. He observed that in many grounded theory studies the core category is a BSP labelled with a gerund, an “ing” word; for example, “managing” or “becoming”. Glaser proposed that as BSPs capture and conceptualise the action, processes and stages of change the participants describe, they are particularly suited to conceptualising and generating a grounded theory (Glaser, 1978; Glaser & Kaplan, 1998).

Straussian (with Corbin) grounded theory

Strauss, alone (1987) and later with Corbin (1990, 1998), broadened the ambit of grounded theory to include a focus on verification: “[grounded theory] is designed especially for generating and testing theory” (Strauss, 1987, p. xi, emphasis in original). While Strauss, with Corbin (1990, 1998), also maintained the essential elements of theoretical sampling, coding, constant comparison, memoing and theoretical saturation, they incorporated and favoured new coding processes and tools which were concerned to validate the research findings. These were open, axial and selective coding, dimensionalising, the coding paradigm, and the conditional matrix. Open coding was described as a process where data are “broken down, . . .
closely examined and compared” to inform categories (Strauss & Corbin, 1998, p. 102) while axial coding involved a set of procedures that related sub-categories of data to categories using the coding paradigm (Strauss & Corbin, 1990, 1994, 1998). Selective coding identified the core category and related it to the other categories. Dimensionalising sought to recognise and account for other meanings of the code that emerged, and aimed to help develop a profile of the dimensions of the category (Strauss & Corbin, 1990). The coding paradigm included: phenomenon, the basic element of which is a code; conditions, for example macro, micro, causal, intervening and contextual; action/interactional strategies, which relate to routines and what is done and/or said; and consequences, which are the intended or unintended outcomes that affect the phenomenon (Strauss & Corbin, 1998). The conditional/consequential matrix Strauss and Corbin (1998) developed was described as a “complex web of interrelated conditions, action/interaction, and consequences” related to a phenomenon (p. 161). Like the coding paradigm it was presented as an analytical device to stimulate the analyst’s thinking (Strauss & Corbin, 1998), in this instance to micro and macro contexts that affected the research area. Strauss and Corbin’s (1998) version proved very popular with qualitative researchers as it provided clear guidelines to implement, undertake and analyse grounded theory research (Charmaz, 2006; Dey, 2004). It was heavily criticised by Glaser (1992) however, who publicly declared that it was not grounded theory but “full conceptual description” (p. 3).

A comparison of Glasserian and Straussian grounded theory

The differences between Glaser’s (1978, 1992, 1998) and Strauss’s (1987) and Strauss and Corbin’s (1990, 1994, 1998) versions of grounded theory revolve around the different theoretical perspectives each held (Goulding, 2009; Walker & Myrick, 2006). Glaser has upheld a more inductive approach to inquiry that has privileged the discovery and emergence of categories and promoted a more open and creative approach to the analysis process. In contrast, Strauss and Corbin (1998) have modified their position to a more constructivist perspective and favoured the use of the analytical tools they developed. In doing so, they have made the processes of analysis more prescriptive than Glaser’s approach, and some have criticised this
move as a shift away from the original intent of the methodology (Charmaz, 2000; Goulding, 2009; Walker & Myrick, 2006).

For potential users of grounded theory methodology, both Glaser’s (1978) and Strauss and Corbin’s (1998) approaches present their own challenges. Glaser’s (1978) more open approach to coding and analysis requires researchers to commit to the unknown and proceed with an open mind and an open time frame. For many researchers, such openness proves too risky and daunting, as it goes against the principles of much research training and the imposed time frames of many research projects. These factors have deterred some researchers from using Glaser’s (1978) approach (Goulding, 2009; Walker & Myrick, 2006). Although Strauss and Corbin (1998) provide a more structured approach, this can also be problematic (Goulding, 2002, 2009). While it can provide researchers with a sense of guidance and security, the analytical tools Strauss and Corbin (1998) use are complex, and the requirement for researchers to become familiar with the processes and procedures they prescribe has reportedly daunted, frustrated and overwhelmed some researchers to the extent that they have abandoned using it (Goulding, 2002, 2009; Walker & Myrick, 2006).

Another challenge researchers face when using grounded theory is that Glaser, Strauss and Corbin’s (Glaser, 1978; Glaser & Strauss, 1967; Strauss & Corbin, 1998) versions of grounded theory have been charged with being outdated because of positivist assumptions that underpin the methodology. Because of this, the logic and value of grounded theory has been questioned (Charmaz, 2000, 2006; e.g. Denzin, 1994; Van Maanen, 1988). As an illustration, Charmaz (2000) has argued that because Glaser, Strauss and Corbin utilise an essentially realist view of the world, they actually engage in “silent authorship” and as such, report their data as “distanced experts” (p. 513). As Glaser and Strauss (1967) launched grounded theory to challenge the dominance of positivist, quantitative research, this point is somewhat ironic but also understandable in light of new understandings of knowledge that have emerged, some of which were discussed in Chapter 2. What is often overlooked is that Glaser and Strauss (1967) proposed grounded theory as a practical method to conduct research that focuses on interpreting and analysing the processes by which individuals make sense of their experiences, while also recognising the role of the researcher in the process (theoretical sensitivity). It does not presume one universal
reality, nor does it presume the researcher is outside the research process (Suddaby, 2006). Rather, the interpretive interplay and tensions that occur between the data and researcher in grounded theory arguably enable it to productively occupy a middle ground between “some slippery epistemological boundaries”, namely extreme empiricism and complete relativism (Suddaby, 2006, p. 638), to develop theories relevant to and reflecting the experiences of the research participants.

Yet it has been acknowledged that the overemphasis on induction in The discovery of grounded theory (Glaser & Strauss, 1967) overwhelmed the explanation Glaser and Strauss provided on the researcher’s sensitivity, the place of deduction and how the extant literature was used in guiding and informing a grounded theory (Morse et al., 2009; Strauss & Corbin, 1994, 1998; Suddaby, 2006; Walker & Myrick, 2006). Because of this, how and when the literature is used in grounded theory methodology has become a significant and ongoing point of contention (Charmaz, 2006; Goulding, 2009). Originally, Glaser and Strauss (1967) emphasised the importance of an inductive research approach in grounded theory and advised researchers to “literally ignore the literature of theory and fact on the area under study so as to ensure the emergence of concepts will not be contaminated” (p. 37). This has often been misinterpreted as a requirement for a researcher to come to the research as a blank slate, free from any theoretical influence or predetermined ideas, and/or for a researcher to ignore the literature (Goulding, 2009; Kelle, 2005; Suddaby, 2006). A reading of the original text makes it evident however that this was not Glaser and Strauss’s (1967) intention. As they went on to explain, “similarities and convergences with the literature can be established after the analytic core of categories has emerged” (Glaser & Strauss, 1967, p. 37). They did caution however that establishing how much and when to read the literature is a “precarious balance” between informing and cultivating insights and “brutally destroying one’s potentialities” by too much reading before starting the research project (Glaser & Strauss, 1967, p. 253).

Strauss and Corbin (1998) have subsequently adopted a more open approach to the use of literature. They have stated that a researcher can turn to the literature before beginning the research and throughout the project to formulate the research questions, inform the development of theory and enhance their sensitivity. Glaser
(1978), however, has maintained a consistent stance on the use of the literature in grounded theory analysis. He has argued that researchers should limit their reference to the literature, particularly in the early stages of analysis when researchers are sensitive to discovering the core category. Once the core category has been identified however, Glaser (1978) recognises that it is useful and productive for researchers to engage with the literature to inform and develop the theory.

While Glaser (1978) and Strauss and Corbin (1998) have advocated different positions on the use and timing of the literature review, they have all emphasised a common point. That is, for researchers to use the literature but also to be aware that although immersion in the literature can potentially enhance sensitivity to the research area, it can also stifle creative and original conceptions of the emergent categories (Glaser, 1998; Strauss & Corbin, 1998). For researchers using grounded theory, an increased consciousness of these factors is designed to help them achieve a balance between letting categories and concepts emerge from the data (theoretical sensitivity) and forcing the data into predetermined, and unsuitable conceptualisations (conceptual contamination) (Glaser & Strauss, 1967).

Amongst the debates on grounded theory, it has been also suggested that the diffusion of grounded theory methods has been accompanied by a growing fundamentalism between writers and practitioners of grounded theory (Suddaby, 2006). Some, mainly writers, have concentrated on rigidly reinforcing the rules around grounded theory methods, for example, the correct coding procedures, and assessing when theoretical saturation is reached. Others, mainly practitioners, have employed the methodology and methods pragmatically and flexibly within the tenets of grounded theory to best inform their research purpose (Suddaby, 2006)—as advocated by Glaser, Strauss and Corbin themselves (Glaser & Strauss, 1967; Strauss, 1987; Strauss & Corbin, 1998).

All these factors were considered in determining which grounded theory methods would best facilitate the aims of this research while also acknowledging the role of the researcher in the research process. Initially, it was envisaged Strauss and Corbin’s (1998) version of grounded theory would be used. In examining and applying Strauss and Corbin’s (1998) approach to analysing the data however, the
research focus shifted away from what the students had reported toward verification of the data and what could be in the data, not what was there. As Stern (1994) notes, in their approach, Strauss and Corbin (1998) ask “What if?” while Glaser (1978) maintains attention on the data and asks, “What do we have here?” (p. 220). As the purpose of this research was to analyse students’ perspectives of impacts of the PhD process it was decided that Glaser and Strauss’s (1967) original grounded theory approach, combined with Glaser’s (1978) coding procedures, were better suited to maintaining the focus on understanding students’ perspectives of impacts of the PhD process.

The grounded theory methods that were deemed the most appropriate were Strauss and Corbin’s (1998) approach to the literature, Glaser and Strauss’s (1967) methods of theoretical sampling, constant comparison, memoing, categorising and saturation and Glaser’s (1978) methods of open, selective and theoretical coding, sorting and BSPs. How these methods were applied to develop a grounded theory on students’ perspectives of impacts of the PhD process is detailed after the following discussion.

### 4.3 Research procedures

Data for the research project were collected between March 2007 and November 2008, and after the research had been approved by the UWS Human Research Ethics Committee (UWS HREC 06/203).

#### 4.3.1 The research setting

The PhD students who participated in the study were all enrolled at the University of Western Sydney (UWS), a metropolitan university situated in Sydney, New South Wales, Australia. UWS is Australia’s fifth largest university and it has six teaching campuses located in the Greater Western Sydney (GWS) area. The university is organised into three broad Colleges of study under which 17 academic schools are housed: the College of Health and Science, College of Arts and College of Business. Data was collected from students in each of the three Colleges, as presented in Table 1 (see page 69).
In May 2009 over 30,000 undergraduate students and 592 higher degree by research (HDR) students were enrolled at UWS (UWS, 2009). Of the 592 HDR students at UWS in May 2009, 315 (53%) were women and 277 (47%) were men. The average age of women HDR students was 40 years old, while for men it was 38 years. A comparison with other research on the Australian HDR student population indicates that the percentage of women HDR students and the average ages of the HDR student population at UWS were slightly higher than the national average (Pearson, Evans et al., 2008). At UWS 50% of the HDR student population were enrolled in the College of Arts, 36% were enrolled in the College of Health and Science and 14% were enrolled in the College of Business (UWS, 2009). These figures reflect trends in the national research landscape, where there has been a shift away from the Natural and Physical Sciences to the Humanities, Arts and Social Sciences (UWS, 2009).

4.3.2 The research participants

Participant selection and recruitment

In keeping with the concept of theoretical sampling (Glaser & Strauss, 1967), the research sample was at first purposive and then theoretical. As PhD students were the best placed to reflect upon and recognise impacts of the PhD process, a sample of current PhD students, who were enrolled full-time and in the final year of candidature were interviewed first, to provide some initial insights into the research area. The developing analysis of these opening interviews then informed the choice of subsequent participants. This was an ongoing cyclic process that aimed to promote the relevance of the data (Glaser & Strauss, 1967). Recognising that students across disciplinary areas can have different experiences during candidature (see for example Becher & Trowler, 2001; Delamont et al., 2000; Parry, 2007) participants from different Colleges of the University were also recruited to enable comparisons across the data and potentially identify any similarities or differences that shaped participants’ perspectives of impacts of the PhD process.

Multiple strategies were used to maximise the engagement of students from diverse areas in the study. First, PhD candidates were made aware of the research project and
invited to participate through an email sent to their student email accounts via their respective College Administration Office in March 2007. The email provided information about the research project and advised prospective participants of the contact details of the researcher if further information was required (Appendix 2). Second, the research project was promoted by delivering a PowerPoint presentation to each of the three College Research Committee meetings at UWS between April and May 2007. The College Research Committees oversee the processes of PhD candidature, including admission, variation, progression, supervision, scholarships and research program development. Each College Research Committee includes the College Dean of Research Studies, senior academics, including a research active academic and postgraduate research co-coordinator, and a higher degree research candidate. As such, the College Research Committees were deemed a valuable avenue to promote awareness of the research and to facilitate the recruitment process. Information packs about the research project were left at each meeting so they could be distributed to PhD students in each College. To attract participants, the research project was also promoted through other avenues from June to December 2007. These included distributing information packs about the research project to potential participants through the UWS Research Office, the UWS post-graduate Association, PAUWS, UWS Thesis Writing Circle conveners, UWS College Administration officers and through UWS PhD workshops and information sessions held by the UWS Research Office.

The various recruitment strategies continued until September 2008 and resulted in 23 students being recruited. Table 1 provides basic demographic information about the research participants. Although drawn from only one Australian university the research sample arguably reflects the changed characteristics of the PhD population in Australia over the last decade (Pearson, Cumming et al., 2008). In particular, the sample reflects the increase in women candidates and candidates between 30 and 40 years of age undertaking PhD studies and the shift towards PhDs in disciplines in the broad fields of Arts, Humanities and Social Sciences, as discussed by Pearson et al. (2008). The under-representation of male students is however recognised as a limitation of the recruitment strategies employed in the study, specifically, of relying on volunteers coming forward within the particular timeframe allocated for the data gathering processes of the PhD undertaking.
Table 1  An overview of the research participants

Key: W—Women (18)    M—Men (5)

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<th>Age</th>
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<td>11</td>
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4.3.3 Ethical considerations

The key ethical imperatives that guided the research were confidentiality, anonymity, informed consent, truthfulness, respect, privacy and care (National Health and Medical Research Council (NHMRC), 1999). These factors were important because as final year, full-time PhD students, all the participants were members of a small and specific group within the wider student population of UWS. For the participants, there was some risk involved in candidly sharing their experiences around sensitive issues such as supervision and levels of institutional support. Therefore, the responsibility to guard the students’ well-being and anonymity was a primary responsibility and concern throughout the research. Recognising the possibility that participation in the research could trigger unsettling emotions, students were provided with details of support services they could access at no cost at any time during and after the research project (Appendix 2). Pseudonyms were used to safeguard the anonymity, well-being and privacy of participants and as a further precaution only the students’ College of origin was recorded. Most participants, nominated their own pseudonym to be used in the research process. The participants who did not specify a pseudonym were given names chosen by the researcher.

4.3.4 Data management

Miles and Huberman (1994) observed that managing data is a necessary component of a detailed analysis. In the early stages of the project, the research data were managed and maintained manually. Due to the increasing quantity of data, and to
assist with coding procedures, the project was later imported into the qualitative data analysis program NVivo. Although qualitative data analysis programmes have been criticised as mechanising the research process and distancing the researcher from the data (Bazeley, 2007; Gibbs, 2002), NVivo was useful in streamlining the management and organisation of the data. It enabled connections, queries or disjunctures in the data to be quickly searched and identified, and these queries were used to perform further searches across the categories of data. The use of NVivo and manual procedures provided an effective and comprehensive data management and coding system throughout the research process.

4.3.5 Data trustworthiness

In grounded theory, the ongoing process of constant comparison and theoretical saturation aims to provide built in measures of credibility and trustworthiness to the research (Glaser, 1978; Glaser & Strauss, 1967; Strauss & Corbin, 1998). In this research, “check coding” was also used to ascertain the reliability of initial codes and verify the applicability and accuracy of the concepts that had been applied to the raw data (Miles & Huberman, 1994, p. 64). Check coding was undertaken with both research supervisors across three transcripts. This process involved each researcher individually marking up a transcript and then comparing the codes to determine shared understandings of what each code entailed. This process helped to determine the clarity of the codes and inform the properties and dimensions of the research categories. The trustworthiness of the codes was further confirmed by presenting and reviewing the coding processes with two small groups of five to eight final year doctoral students at different times during the analysis process.

4.4 Research implementation

This section details the simultaneous processes of data collection, coding, comparison and analysis (Glaser, 1978; Glaser & Strauss, 1967; Strauss & Corbin, 1998). Strauss and Corbin (1998) observe that engagement with the wider literature prior to the commencement of the project is useful. Prior to this research being undertaken, a review of the literature was completed to support the research
proposal, which is a prerequisite for undertaking doctoral studies at UWS. It was the experience of this researcher that, while remaining conscious of the dangers of conceptual contamination (Glaser & Strauss, 1967), engaging with the literature before and throughout the research project helped to inform and formulate the research questions, contributed to developing theoretical sensitivity and provided different “stepping off point[s]” to examine and conceptualise the data during analysis (Strauss & Corbin, 1998, p. 51).

4.4.1 Data collection

The primary data source in this study was a single, semi-structured interview. Secondary sources were memos and journal entries.

Semi-structured interviews

Interviews are an established and well regarded data collection method for grounded theory research (Charmaz, 2006) and grounded theory studies often use focussed questions and a semi-structured interview format (Glaser, 1978, 1992; Glaser & Strauss, 1967; Strauss & Corbin, 1990, 1998). A semi-structured interview schedule with open-ended questions guided each interview (see Appendix 3). The interview questions were developed after reading the wider literature on doctoral education and literature on students’ experiences of the doctoral process. The questions were grouped in broad topic areas about impacts of the PhD process on the students’ learning, on themselves, and on their wider contexts. As the schedule was used as a guide, the topic areas were covered flexibly during each interview. This is a common approach in grounded theory research; the focus on a narrower range of interview topics to gather information about the specific area of study helps to delimit the research, saturate categories, establish relationships between categories and refine the emerging theory (Charmaz, 2006).

A semi-structured interview format provided participants with space to introduce or pursue additional issues as they occurred to them during the interview, yet also worked to maintain the focus of the interview. The interview approach therefore allowed participants to describe how they understood, accounted for, took action and
managed aspects and impacts of their PhD candidature within their specific context and to identify issues significant to them, in their own terms (Charmaz, 2006). Employing this interview format facilitated a deeper level of conversation about the participants’ perspectives, responses and reactions to the research area and this assisted in establishing a shared sense of the participants’ reality (Charmaz, 2006; Glaser, 1978; Glaser & Strauss, 1967; Strauss & Corbin, 1998).

The interviews

The 23 research interviews were conducted between March 2007 and November 2008. The majority of participants elected to be interviewed on campus; however five participants nominated to be interviewed in their homes. At the start of each interview each participant was requested to read and sign the Participation Consent Form (Appendix 2). Each participant was provided with copies of the Research Information (Appendix 2) sheet and the consent form and verbal confirmation to record the interview were obtained at the beginning of each session. The majority of participants nominated a research pseudonym prior to the start of recording, and this name was used throughout the interview.

Establishing rapport with the participants was especially important because grounded theory studies are interested to understand the participants’ worlds (Charmaz, 2006). Rapport is recognised as “a distance reducing, anxiety-quietening, trust building mechanism” that facilitates the data collection process (Glesne & Peshkin, 1992, p. 94). While mindful not to assume any special degree of trust or rapport, my own position as a student, the processes of talking and sharing with the participants and of being attentive to the research relationships promoted a comfortable atmosphere during interviews and aided in establishing reciprocity with the participants. In this research, reciprocity—the give and take involved in social interactions and in establishing research relationships (Bogdan & Biklen, 2003)—helped attend to the issues of power that are inherent in the researcher position. Sharing personal information returned the trust the research participants demonstrated in sharing their experiences of candidature, and actively listening enabled the researcher to pursue and clarify issues with participants and examine, with them, the experiences they were recounting and what they meant to them. In grounded theory both sensitivity
and objectivity are necessary to make connections in the data. Achieving a balance between subjectivity, reactivity and objectivity during the project aims to help the researcher focus on understanding and privileging the participants’ perspectives (Strauss & Corbin, 1998).

At the conclusion of the interview each participant was asked if they wished to receive a copy of the interview transcript. Of the 23 participants, six requested a copy of the transcript, and this was forwarded by email. Each interview was uploaded to an external service for transcribing. Each transcript was checked for accuracy upon return, and corrected when necessary. In most cases the transcripts needed little correction or clarification. In grounded theory studies it is useful to open participant interviews with a broad open-ended question to encourage the interviewee to share their experiences, thoughts and perspectives (Charmaz, 2006; Dey, 1999). Each interview thus began with the same open ended question: *I would like you to tell me about how the processes of doctoral education have impacted upon you. I am interested to find out what differences the PhD process has made to you personally and in other areas of your life.* The semi-structured interview schedule was used flexibly and during most interviews, further prompts were rarely required as the participant freely shared and described their experiences and perspectives of impacts of the PhD process. During some interviews the prompts were used regularly; this was particularly the case for participants who were very conscious of the tape recorders. Generally in these circumstances the prompting decreased as the interview progressed and the participants became more relaxed and involved in conveying their experiences. The interviews varied in length from 45 minutes to two hours and ten minutes, with the average lasting just over an hour.

*Memos and journal entries*

In grounded theory, memo writing continually informs and reinforms the data collection, coding and analysis processes. Thus, memos serve to guide both data collection and analysis. Memos are a fundamental element of grounded theory methodology as they record ideas that can be useful in confirming, negating, amending and supporting earlier conceptions and in identifying directions for the research (Glaser, 1978; Glaser & Strauss, 1967; Strauss & Corbin, 1998). In writing
memos researchers generally progress from descriptive to more abstract concepts and thinking, thereby facilitating the researcher’s theoretical sensitivity and ability to gain some analytical distance from the raw data (Glaser, 1978; Glaser & Strauss, 1967; Strauss & Corbin, 1998). Glaser (1978) observed that “the point of memos is to record ideas, get them out, and the analyst should do so in any kind of language—good, bad or indifferent” (Glaser, 1978, p. 78, p. 84). From the start of this project, memos were recorded in various forms—jottings in the margins of transcripts, several pages of handwritten reflections, emails between supervisors and entries in the qualitative software programme NVivo, which included conceptual maps.

The conceptual maps in NVivo were useful to display different codes and situate them into different categories to explore their feasibility in relation to making connections, recognising limitations, exploring implications and determining their relevance to developing a grounded theory (Bazeley, 2007; Gibbs, 2002). The programme’s ability to visually depict coding categories proved extremely useful in confirming or negating co-occurrences in the data and in ascertaining the degree to which a possible interpretation was supported by the empirical data. In a less structured way, journal entries recorded thoughts, ideas and reflections about the research process and progress. Thus, across three different mediums a “memo fund” (Glaser, 1978, p. 83) was created that captured ideas, queries, problems and possible directions that were generated and which were used to inform and progress the data analysis.

4.4.2 Data analysis

In grounded theory, the first piece of data signals the start of the continuous interplay between data collection and data analysis (Glaser and Strauss, 1967).

*Open coding (as the first part of substantive coding)*

Open coding was the first stage of analysis undertaken on each transcript and involved generating as many codes as possible that fit the data (Glaser, 1978). Open coding involved reading the transcripts and allocating codes to segments of the data that conveyed what was happening in concise terms. In the early stages of coding,
lower level concepts (codes) emerged quickly and these were initially noted in the margins of the transcripts or in the case of in vivo codes, highlighted in the text. Three questions helped to guide the open coding process: “What does this incident indicate?, What is actually happening in the data? and What is the basic social process [fundamental concern]?” (Glaser, 1978, p. 57). These questions aimed to promote conceptual codes that were analytical and sensitive rather than merely descriptive (Glaser & Strauss, 1967).

Coding usually occurred after each interview had been transcribed. In the early stages of open coding, the participant’s words were used as much as possible to capture what the data conveyed. For example Kate, in talking about how the processes of the PhD had impacted her explained that: “going from undergraduates, to honours and then PhD I’ve taken all that discipline from undergrads with me”. This excerpt prompted the in vivo code of self discipline. These “real life” categories served to maintain the meanings in the data while also promoting a recognition of any general relationships between and across the open categories (Glaser, 1978, p. 4).

Across the 23 interview transcripts, numerous open codes were initially generated. These codes were often labelled with a gerund that captured the actions and behaviours the students described, for example managing and balancing. It has been observed that a danger in the initial coding stages of grounded theory is that researchers will be overwhelmed by the quantity of codes or alternatively, mechanically code the data without lifting it conceptually (Glaser, 1978; Goulding, 2009; Strauss & Corbin, 1998; Suddaby, 2006). In this research the number of codes was managed through the simultaneous process of constantly comparing the codes across transcripts to capture relationships and patterns of meanings in the data. This process highlighted how separate codes could be integrated to form a category, thereby delimiting the number of codes and categories (Glaser & Strauss, 1967). In this way the emerging codes were also refined, reaffirmed, reinforced or redirected so that the coding process captured and accounted for nuanced issues, as well as areas of similarity and uniqueness in the data (Glaser, 1978).
The simultaneous processes of coding and constant comparison were facilitated by recording ideas and queries about the data in memos and journal entries. Memos were recorded both manually and in the qualitative software programme NVivo and the ideas and thinking they included helped to identify and explore the data more closely and examine potential relationships as they were identified in and across the transcripts. The ideas and thoughts captured in the memos and journal entries were largely informed by the theoretical sensitivity of the researcher through life experiences and through reading the extant literature. This sensitivity enabled links between concepts in and across the data to be reflexively and critically explored and to build categories that captured the nuances the students described. The ongoing processes of coding, constant comparison and memoing resulted in 49 categories being conceptualised from the 23 transcripts (Appendix 4). The categories that were conceptualised from the data reflect a common theme or share a pattern of behaviour that was evident in data. They are not the data itself because in grounded theory the emphasis is on emergent conceptualisations of categories, as they usually prove the most relevant and the best fit with data (Glaser & Strauss, 1967). Table 2, on the following page, demonstrates how the coding process progressed from open codes to categories.

Selective coding (as the second part of substantive coding)

While open coding is the process of opening the data up, selective coding is the process of bringing the data back together by organising the open codes into interrelated conceptual categories (Glaser, 1978). Selective coding was used to delimit the open codes into sub-categories with specific properties. The ongoing interaction between the data, the researcher and the wider literature served to enhance theoretical sensitivity and helped to suggest relationships between codes to build denser categories and delimit the data. This process is represented in Table 2.
### Table 2  Examples of the coding process

<table>
<thead>
<tr>
<th>Raw data</th>
<th>Category/open code</th>
<th>Selective code/concept</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A whole pile of learning to do with readings . . . exploring . . . serendipity . . . me, how to fit PhD candidature into family life</strong></td>
<td>learning new knowledge managing candidature managing relationships balancing responsibilities time management</td>
<td>personal growth</td>
</tr>
<tr>
<td><strong>having to learn how to manage the project, having to learn how to write . . . improve your writing skills. Actually getting up and talking in front of people. Being able to communicate with people you’re speaking to.</strong></td>
<td>acquiring new abilities presentation skills writing abilities project management</td>
<td>communication</td>
</tr>
</tbody>
</table>

**Abduction**

In developing a grounded theory researchers may use concepts in the existing literature and their theoretical sensitivity to inform the development of categories (Glaser, 1978; Glaser & Strauss, 1967; Strauss & Corbin, 1998). This combination of inductive and deductive reasoning is an integral part of grounded theory and is also known as abduction (Coffey & Atkinson, 1996; Kelle, 2004; Suddaby, 2006). Abduction, or abductive reasoning, acknowledges the processes researchers engage in when they bring their intellectual, theoretical and tacit knowledge and imagination to find useful explanations for observed facts (Peirce, 1979). Abduction, in contrast to induction or deduction, operates from the ground up and recognises that researchers use their prior knowledge and experience to identify patterns, reveal deep structures and develop satisfactory explanations from empirical data (Hanson, 1958). Denzin (1978) describes abduction as the combination of deductive and inductive modes of enquiry and theorising; as working backwards from the particular to better understand it (Denzin, 1978).

Coffey and Atkinson (1996) propose that abduction is at the heart of grounded theory and captures more productively how many researchers actually think and work;
“bringing their full range of intellectual resources, derived from theoretical perspectives, substantive traditions, research literature and other sources” to work with and analyse the empirical data (p. 156). Many of the memos and journal entries that were recorded over the course of the research reflect the abductive reasoning that informed the research processes and directions.

Abduction, as it was used in this research analysis, parallels Glaser and Strauss’s (1967) and Strauss and Corbin’s (1998) notion of theoretical sensitivity. As Glaser and Strauss (1967) observed, “the researcher can get—and cultivate—crucial insights not only during his research (and from his research) but from his own personal experiences prior to or outside it” (p. 252). And as echoed later by Strauss and Corbin (1998) “we [researchers] cannot completely divorce ourselves from who we are or what we know . . . the theories we carry within our heads inform our research in multiple ways, even if we use them quite un-self consciously” (p. 47). Citing Dey (1993, p. 63), they state that “to analyse data we need to use accumulated knowledge, not dispense with it. The issue is not whether to use existing knowledge, but how” (Strauss & Corbin, 1998, p. 47).

In the early stages of this research, Gale’s (2005) observation that researchers in higher education need to engage actively with policy understandings of an issue if they are to extend them, informed and sustained a commitment to developing sub-categories that built on familiar policy concepts in the existing literature. From this position, and at different times, the processes of abduction, coding and analysis suggested two existing concepts in the literature as potential core concepts. In grounded theory the core concept is the central focus, as it captures the main phenomenon or concern participants described. The core concept may be a process, a condition or a consequence and all other categories converge around it. Identifying the core concept means the ongoing processes of coding and categorising become more focused and selective as new data fit within the established conceptualisations to provide a smaller set of more sophisticated, integrated and denser concepts which capture the scope and complexity of the study (Glaser & Strauss, 1967).

The two “hypotheses”, which were “evidence[d in the data] enough only to establish a suggestion—not an excessive piling up of evidence to establish a proof” (Glaser &
Strauss, 1967, pp. 39-40), were conceptualising the impacts of the PhD students had described as developing and acquiring different types of capital and different types of skills, as discussed in Chapter 2. In grounded theory the ongoing processes of constantly writing memos and comparing the codes and categories generated from the data, works to strengthen, negate or diversify the analysis (Glaser & Strauss, 1967). Over a period of 12 months it became evident that appropriating the concepts of capital and skills could only ever partially account for all the codes; as Strauss and Corbin (1998) have noted “it is important to remember that not every path a researcher attempts to follow will lead to an analytic goldmine” (p. 188). Reflecting this observation, the difficulties of developing the core categories into a theoretical framework that fitted the data identified the limitations of these conceptions. The difficulties in removing ambiguities across the categories also confirmed that to have continued to develop these concepts would have “forced” the data into preconceived and ill-fitting categories (Glaser & Strauss, 1967, p. 41). These processes are further detailed in Appendix 5. This lengthy process affirmed the need to develop a more refined conceptual framework to theorise the data: one that was better able to capture and explain the range of impacts that the students had described yet also retained their particularities.

Identifying the core concept

The ongoing processes of working with the data identified relations between 49 categories that suggested learning as a potential core concept. Learning is traditionally understood as the active processes that lead to the acquisition of new knowledge, abilities and responses through study, experience or teaching (Oxford English Dictionary Online). This definition reflects general understandings associated with the everyday use and understandings of learning as the processes, outcomes and content of the individual learning processes.

As discussed in Chapters 2 and 3, the rise of the knowledge society and the recognition of other types of knowledge and modes of learning has extended traditional and established understandings of what learning is, what it involves and what types of knowledges learning promotes. These factors have prompted deeper understandings of the processes and conditions that facilitate learning; how
interactions between the individual and their environment can impact the learning processes; and of the tacit shortcuts between the individual’s learning and the learning processes (Illeris, 2007).

To explore the suitability of using learning as a core category for conceptualising students’ perspectives of impacts of the PhD, properties of learning were explored and established. Illeris (2007) has proposed that all learning consists of two interrelated processes. He identified these as interaction and acquisition. Interaction relates to the processes occurring between the individual and the environment or the social elements of learning. Acquisition relates to the processes of acquiring knowledge, which always includes content and incentive (Illeris, 2007). The content element of acquisition concerns what is learned. This may be any nature of knowledge including “skills, opinions, understanding, insights, meanings, attitudes, qualifications and/or competence” (p. 24). The incentive element of acquisition encompasses the motivations, emotions and will that sustain the fundamental mental energy involved in learning (2007). In any learning, the content and incentive dimensions of acquisition are synergistically triggered by the interactive process between the individual and the environment to promote or impede understanding (Illeris, 2007). These properties underpin the concept of learning as a potential core category.

The simultaneous and ongoing processes of data collection and analysis in grounded theory aim to provide conceptualisations of the data that “fit” and “work” and are relevant to the research area (Glaser & Strauss, 1967, p. 4). To see if learning worked as a core category for conceptualising students’ perspectives of impacts of the PhD, each of the 49 established categories was considered in relation to the properties of learning outlined above. Following grounded theory procedures (Glaser & Strauss, 1967), three questions in particular guided this process: What did students learn? How did they learn it? What was the learning impact? Table 3 provides examples of this process.
Table 3 Examining the fit, workability and relevance of using learning as the core concept

<table>
<thead>
<tr>
<th>What did they learn? (dimensions)</th>
<th>How did they learn it? (conditions/process)</th>
<th>What was the impact? (outcome)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(increased) self-discipline</td>
<td>taking responsibility for own work output and progress, setting goals and time lines</td>
<td>more intrinsically motivated; focused; responsible</td>
</tr>
<tr>
<td>(heightened) abilities to think theoretically, critically</td>
<td>interacting with others in study groups and supervision; writing, reading, pondering in isolation</td>
<td>intellectual growth; new knowledge and understanding</td>
</tr>
<tr>
<td>(improved) communication and presentation skills</td>
<td>explaining research to a group, conference, supervisor, seminars; tutoring and lecturing</td>
<td>increased professional and communication skills; enhanced technological skills; greater confidence</td>
</tr>
<tr>
<td>(better prepared) to manage situations/relationships</td>
<td>Developing and maintaining different relationships (personal, research, supervisory and institutional); managing projects; tutoring; balancing personal and professional demands</td>
<td>diplomacy, resilience, determination, patience; clearer communication and negotiation skills</td>
</tr>
<tr>
<td>(more willing) to take risks</td>
<td>being part of a group, expressing ideas, arguing a position, doing new things, working outside comfort zone</td>
<td>more confidence; stronger sense of personal and professional identity; increased assertiveness</td>
</tr>
</tbody>
</table>

The appropriateness of using learning as the core concept to capture students’ perspectives of the impacts of candidature was assessed through two further processes. First, theoretical sampling resulted in the emergence of no new categories of data. Second, Glaser’s (1978) criteria for establishing a core category confirmed that learning had analytic power, was a central concept that all the codes could be related to and reoccurred frequently in the data. Further, learning connected all of the codes yet allowed for considerable variation in dimensions and conditions and had
carry-through—meaning it accounted for all data—and was logical and consistent with the empirical data and stakeholders’ experiences in the area.

Sorting

Once learning had been conceived as a potential core category, the 49 categories and the assorted memos were re-examined and shuffled to identify how each related to a fundamental area of learning. While NVivo had helped to establish the codes to this point, this part of the coding and analysis process was done manually. Physically handling and sorting memos around the categories helped illuminate the connections between the different concepts and informed the development of sub-categories of learning. These categories, detailed below, represented discrete but interrelated sub-categories of learning which became saturated through the ongoing processes of data collection and analysis. In grounded theory, theoretical saturation is the point where no new properties, categories and relationships arise during analysis. That is, the codes emerging in data confirm or add to the density of coding but do not suggest any new concepts or variations. Saturation therefore refers to concepts, not data, and generally indicates the point in the study where no further data collection or conceptualisation is necessary (Glaser & Strauss, 1967).

Glaser (1998) observed that “fitting the name to the category is constantly polished . . . [and] finding the best fit name can take time” (p. 143). The processes involved in determining the sub-category names supported Glaser’s observation. There were times throughout the analysis process however that it was thought that the sub-category names, like learning itself, may be regarded as being too obvious, trite or trivial; criticisms that have been levelled at grounded theory studies (Alvesson & Skoldberg, 2000; Suddaby, 2006). The processes of constant comparison however, confirmed the fit, workability and relevance of learning as the core concept and the interrelatedness of the sub-categories. Furthermore, as learning was evident across all the categories and offered so much explanatory power—what Glaser (1978) has referred to as “grab” (p. 96)—it was determined that it was more important to maintain the groundedness and fit of the categories than obscure their meaning through further abstraction (Glaser, 1998). For example, while becoming and transforming were considered as alternatives to learning, neither could account for
the variation of experiences, processes and outcomes described in the students’ narratives. In Glaserian (1978) terms, they did not “process out” (p. 97), meaning they did not account for different stages or variations in the observed patterns and types of behaviour.

The concept of learning did “process out” (Glaser, 1978, p. 97). It captured the processes (actions and interactions) and outcomes (impacts) of PhD candidature on students as well as the variable, active and interactive, contextual and reflective processes and changes the students described. These included, for example, the different stages and variations in the intellectual, emotional, attitudinal, societal and social impacts they experienced during candidature and the changes the PhD processes facilitated, to varying degrees, on students’ intellectual, emotional, motivational, attitudinal, practical and social capacities. The sub-categories that emerged from sorting the data are described below in order of their frequency of occurrence (highest to lowest).

**Personal resourcefulness** captures the students’ increased confidence, discipline and intrinsic motivation. Inherent in the properties of personal resourcefulness are the pleasures and challenges of managing the impacts the students described and the resilience, tenacity, determination and other interpersonal skills—the “know how”—students developed in learning to balance the demands of the PhD with institutional and personal commitments and responsibilities.

**Intellectual understandings** relates to the students’ new abilities in learning, understanding, synthesising and applying existing and new knowledge, theory, and concepts. It includes the students’ increased capacity to generate new knowledge, theories, concepts and applications and recognise and evaluate different points of view and evidence and structure arguments with theory.

**Research skills** identifies the students’ enhanced abilities and expertise and competence to undertake a systematic investigation and study of material and resources to learn new facts and reach new conclusions, including deeper understandings of research methods and applications.
**Leadership and organisation** indicates the abilities and expertise the students acquired in managing, guiding, co-ordinating and making decisions across various contexts; effectively developing interpersonal and time-management skills through learning to work to deadlines and taking initiatives for themselves and others.

**Workplace and career management** refers to the students’ capacity to work effectively across and in different workplaces, including teaching, lecturing, RA work. This includes learning formal skills and developing the informal abilities necessary to work in a range of professional contexts that can enhance and add to strategic career development.

**Communication** (written and oral) relates to the students’ enhanced written oral and written communication skills and the abilities they developed to establish rapport, exchange information and develop mutual understanding. Examples include increased precision and effectiveness in expressing and conveying ideas, clarity in communicating in different arenas and confidence in effectively using and choosing appropriate technology.

**Project management** is the abilities and expertise students gained in managing and guiding all aspects of a research project (own and others’). This also includes innovatively learning to use resources to the maximum capacity, implementing and understanding ethics and demonstrating ethical behaviour in conducting wide-ranging investigations to inform analyses and conclusions.

**Theoretical coding**

The processes of working abductively across the data and extant literature suggested that Dreyfus and Dreyfus’s (2001; 1986; 1980) research on learning may facilitate a better understanding of the processes the students described, particularly the personal and social learning that was most evident in the category of personal resourcefulness. As mentioned in Chapter 2, Dreyfus and Dreyfus (1980) undertook a study to develop a five stage model of learning. Hubert Dreyfus (2001) extended the model to include two further stages. In this later work Dreyfus (2001) drew on Aristotle’s
notion of practical wisdom (phronesis) to capture the highest level of skills development.

Based on his research, Dreyfus (2001) argued that when individuals were emotionally and subjectively involved in their learning, they were better able to discern nuanced factors to make more informed choices. He referred to this ability, which was acquired through experience and over time as practical wisdom (phronesis). Dreyfus described Aristotle’s notion of practical wisdom as the ability to recognise and “do the appropriate thing, at the appropriate time, in the appropriate way” (p. 48). This understanding captured the array of personal and intuitive learning impacts the students had described and suggested the potential of using Aristotle’s notion of the intellectual virtues as a framework for theorising the categories of learning. Echoing Aristotle’s notions of the place of emotions in informing individuals’ actions and knowledge, the Dreyfus (2001; 1986) models recognised that emotions informed and enabled individuals to come to deeper and more involved understandings. Such an approach parallels contemporary notions of the interrelated knowledges individuals develop throughout their life, as discussed in Chapter 2, and with contemporary understandings of learning, as discussed in Chapter 3.

Further research on Aristotle’s intellectual virtues identified that like the seven categories of learning identified in the data, each virtue is a complementary, interdependent part of a whole. The virtues are commonly rendered as: practical knowledge (phronesis), theoretical knowledge (sophia), scientific knowledge (epistêmê), productive knowledge (technê) and intuitive knowledge (nous) (Aristotle, 2002; Barnes, 1995). Aristotle believed that different types of knowledges informed and complemented individual’s understandings and knowledge. Reflecting this, he asserted that sophia and epistêmê were parts of the theoretical/thinking part of the soul (epistêmikon); technê and phronesis were parts of the practical/feeling part of the soul (logistikon); and nous, because of its capacity to discover theoretical principles and learn from experience to inform practical knowledge, was part of both epistêmikon and logistikon (Pakaluk, 2005). For Aristotle experience, intellect and emotion were mutually informing and all were necessary to inform reason and be productive and successful (Vella, 2008) (NE1144b31-32). The virtues therefore recognise actions and affections (pathe, often rendered as emotions), as well as
experience and intellect as part of learning. Thus, although they are interrelated, sophia, episteme and nous are concerned with understanding and acquiring theoretical knowledge that remains stable (Broadie & Rowe, 2002) while phronesis, technè and nous relate to productive thought and the part of reason concerned with actions and choice (Broadie & Rowe, 2002; Hutchinson, 1995; Vella, 2008).

As the virtues are interrelated and interdependent, Broadie and Rowe (2002) have argued that they coalesce conceptually into three domains. These are: phronesis (practical knowledge), sophia (intellectual knowledge) and technè (productive knowledge). Wider reading on the intellectual virtues has identified “plausible interrelations” (Glaser & Strauss, 1967, p. 245) between them and the categories of learning. These interrelations included the multiple and interwoven patterns across and between the types of knowledge and learning each encompassed; the ability of each to provide an integrated understanding of the nature and extent of the learning and knowledges that individuals acquire through lived experiences, in this instance the processes of candidature; the capacity of the virtues to capture and account for the particular and general experiences and impacts students described; and the often complex, generally invisible personal and social learning that occurs during candidature. These factors therefore suggested the potential of the intellectual virtues to capture the scope of learning and knowledge students gain during the PhD and recognise the multiplicity of knowledges that are valued and valuable to students and to other stakeholders in facilitating innovative and knowledgeable PhD graduates.

The wide use of Aristotle’s intellectual virtues to explore different facets of contemporary human experience further strengthened the notion that they may be useful to theorising students’ perspectives of impacts of the PhD process. For example, they have been used in the Social Sciences (Eikeland, 2008; Flyvbjerg, 2004; Greenwood & Levin, 2005; Tabachnick, 2004) and employed to theorise management practices and professional expertise (Dreyfus & Dreyfus, 1980; Gadamer, 1984; Kemmis, 2005; Schwandt, 2002), ethical practice (Crisp & Slote, 1997; MacIntyre, 2007) and educational practice and research (Carr, 2003; Carr & Kemmis, 1986; Eisner, 2002; Saugstad, 2002; Turner, 1969). In combination, these factors suggested Aristotle’s intellectual virtues of phronesis (practical knowledge), sophia (intellectual knowledge) and technè (productive knowledge) as a potential
framework for theorising the seven categories of learning and developing a substantive grounded theory on students’ perspectives of impacts of the PhD process.

4.5 Conclusion

This chapter, using Creswell’s (2009) definition has detailed the research design, from the processes involved in determining which grounded theory methodology and methods to use, to data collection and the potential analytical frame. The following three chapters explore the plausible relationships between the different types of learning and Aristotle’s intellectual virtues of phronesis, sophia and technè. Emphasising the complexity of the PhD process, the impacts students described usually traversed contexts to develop different areas of learning simultaneously. Thus, the learning impacts that occurred comprised a complex network of interrelated, interdependent, explicit and implicit conditions, contexts, processes and experiences that affected students at multiple levels, in specific and general ways and over different periods of time. As an exact rendering of these processes would make the discussion disjointed and messy, the interrelationships between the categories of learning and the intellectual virtues are explored separately and sequentially in the following chapters, as acquiring phronesis, sophia and technè.

A central concern and challenge in compiling the following three chapters was to present the research in a manner that was accessible and logical, yet still conveyed the interrelationships between the categories of learning and the intellectual virtues. While the findings are presented in a linear fashion, the inclusion of students’ quotes (in arial font) and interview excerpts throughout the discussion aim to capture, to some extent, the often ambiguous and multifarious nature of the processes and impacts the students described. Bogdan and Biklen (2003) observe that the data, quotes and interview excerpts presented in research findings represent only a small proportion of all the research data gathered. This is true of this research, and while the following discussion draws from all the participants’ transcripts, the perspectives of some participants feature more frequently than others. This is because it was representative of the majority, or pertinently illustrated a particular situation or condition that had occurred during candidature.
Another concern was to ensure that the “write up” (Glaser, 1978, p. 117) reflected the sorting of the data and memos. For example, as the main finding, the category of personal resourcefulness was more than double the size of any other category. To address this, the discussion on personal resourcefulness is presented across three sections, each of which highlights conditions and contexts of candidature that promoted the students’ personal resourcefulness during the processes of the PhD.

One further concern was the diversity of interpretations of Aristotle’s work and the difficulties of synthesising a coherent meaning of phronesis, sophia and technè from the different translations. While the works of contemporary scholars were an invaluable source of information and stimulation in facilitating the meanings and discussion that are presented in the following chapters, the extrapolations presented in the following chapters reflect my interpretations and application of their work.
Acquiring phronesis

Phronesis is not concerned with universals [scientific knowledge] only; it must also take cognizance of particulars because it is concerned with conduct, and conduct has its sphere in particular circumstances.

Aristotle (NE1143a35)

5.1 Introduction

Students in this study identified the most significant impacts of the PhD process as the growth in their personal resourcefulness. This chapter illustrates how particular learning experiences during candidature promoted the students’ personal resourcefulness and how this may be understood as the acquisition of the intellectual virtue of phronesis. As this chapter illustrates, personal resourcefulness is concerned with the increased practical, personal and intuitive knowledge students acquire during the PhD process and their abilities to act upon this knowledge. Consequently, personal resourcefulness also encompasses the development of inner capacities, including becoming more assertive, confident, resilient, persistent and resolute in determining how to actively and effectively sustain and progress candidature while balancing other commitments. As the students describe in the following discussion, this includes learning how to manage the emotions, uncertainties, challenges, disappointments, anxieties and stresses they encountered during candidature that impacted them across their personal and academic roles and lives.

The concept of personal resourcefulness that emerged from the data is synonymous with Aristotle’s notion of the intellectual virtue of phronesis, which is acquired through experience and over time and is the practical, personal and reflective knowledge that informs individual’s actions in particular circumstances (Gallagher, 1993). Like personal resourcefulness, phronesis is not acquired through instrumental
training or the mechanistic application of pre-established rules, nor can it be reduced to phrases like “rules of the game” or “learnable techniques” (NE1141b15). Rather, phronesis is the knowledge that enables individuals to connect and act on particular and general knowledge in certain circumstances to achieve what is good and bad for themselves and for others based on their experiences and dispositions (NE1143a35).

Phronesis has been variously interpreted as administrative ability (Pakaluk, 2005), good judgement (Rosen, 1995), practical common sense (Flyvbjerg, 2001) and good sense or practical intelligence (Broadie, 1991). Carr (2005) describes it as practical wisdom that informs the choices and actions of individuals and is evident through a person’s ways of being and doing. In describing phronesis, Aristotle emphasised that experience, intellect and emotion mutually inform understanding because the virtues involve both actions and affections (pathe, often rendered as emotions) and each are interdependent and necessary to inform reason and be successful (NE1144b31-32). In this way, Aristotle’s intellectual virtues acknowledge the emotions as an integral component of thinking and recognise the complex, often invisible or tacit learning that individuals acquire over time and through experience. This learning is captured under the category of personal resourcefulness, and this chapter describes the processes, events and experiences that contributed to developing the students’ personal resourcefulness and thereby facilitated their acquisition of phronesis.

5.2 Developing personal resourcefulness: Acquiring phronesis

Three areas emerged from the data as most frequently impacting the development of personal resourcefulness during candidature. These were managing supervision, institutional support and personal life as part of the PhD process.

5.2.1 Supervision

Reflecting the complex nature of supervision, as discussed in Chapter 3, the students’ interactions with supervisors during the PhD process encouraged, challenged and broadened their learning and personal resourcefulness. These feelings were often tied to different aspects and learning experiences of supervision and for many students, were mixed and variable throughout candidature. All 23 students recounted periods
of supervision that had developed and strengthened their intellectual, professional and personal development and capabilities during candidature. These periods frequently revolved around time the supervisor had taken time to scaffold students’ learning by discussing written feedback or the direction of the student’s research. These experiences also included writing papers together and considering emerging ideas to extend the student’s critical understandings. All the students described how such interactions had strengthened and affirmed their confidence in their practical and intellectual abilities, which in turn contributed to building their personal resourcefulness.

The experiences of seven students in particular demonstrated how supervisory interactions enhanced the development of students’ personal resourcefulness. These students experienced supervisory meetings as constant and stable personal interactions that were challenging, yet positive and affirming interactions that promoted their learning and understandings. Catherine particularly valued how her supervisor “let me develop my own ideas . . . she gave me freedom but provided me with help when I needed it”. For James it was:

The sense of being mentored, the sense of being absolutely respected and taken seriously in the development of myself as an academic . . . that personal connection gave me an accumulating sense of competence and for me that personal support has had the most profound impact because it created a position of safety for me to do what I want to do, knowing that I’m supported. (James)

The students also described how collaborative learning opportunities with their supervisors further facilitated their personal and professional development and understandings during the PhD. For example, Kate and Bob accompanied their supervisors to various consultations with industry partners around the nation, where they were able to promote their research project and establish relationships with others in the field. James and Jane co-authored several papers with their supervisors that were subsequently published in ranked academic journals. Elizabeth and Michelle attended and presented their research findings at international conferences where their supervisors introduced them to leading researchers in their field of study.
Through making acquaintances and establishing relationships these interactions promoted a sense of belonging to a wider intellectual community. As the students engaged with experts and more experienced researchers in their respective areas they developed more complex understandings of the field. Such interactions also contributed to building the student’s confidence in their growing practical abilities and in their capacities as an independent researcher. As Kate explained,

> When we first started working together it was very clear. I was the student and he was the supervisor but over the last six months it’s changed in that I’ve got more confidence to say “I don’t agree with this.” (Kate)

The relationships some students shared with their supervisors echoed Bradbury-Jones’s (2007) friendship with her supervisors, as well as the tensions of negotiating shifting positions, conditions and circumstances during candidature. While these tensions sometimes created some personal angst, they also productively contributed to developing the students’ personal resourcefulness. Beth elaborated that although her supervisory relationship was something each enjoyed, this also had some drawbacks: “My supervisor is brilliant. She gives me fantastic feedback, she does all those things. But we admit one of the weaknesses in the relationship is that we’re so attuned.” Jane also recounted sharing a friendship with her supervisor that needed to be carefully managed: “[It was] friendship most of the time. Tormentor during the methodology chapter, but mainly friendship and mentor roles. We’ve got some joint research that we want to do together so we will be continuing the relationship.” Beth and Jane both valued the guidance, support and friendship of their supervisors; they also equally valued the personal resilience and agency they developed in learning to navigate and manage the boundaries between maintaining a friendship while also being a student and becoming a researcher in the supervisory relationship. This was particularly evident in Grace and Beth’s accounts of supervision.

> We used to do a lot of walking and talking . . . so we used to thrash it out quite a lot. Any time I had problems I could call him back with my problem, but a lot of it I thought, No, I’m going to have to do it myself. I’m going to have to sort my own problems out.” (Grace)
**Beth’s story**

Beth’s interactions with her supervisors, while friendly, were marked by ongoing tensions caused by the different epistemological positions and pedagogical approaches they each held. Beth’s supervisors wanted her to use a feminist framework in her research but Beth was committed to using a phenomenological approach. Beth felt she had successfully managed to navigate a middle road between maintaining her research aim and respecting her supervisor’s advice while avoiding offending either, and the potential ramifications this held for progressing her candidature. However, she recounted that in one moment, during a meeting with her supervisors her accrued knowledge and personal resourcefulness combined and crystallised into action.

There was a pivotal moment when I stood up and said to them, “No that’s not what I’m doing; this is what I’m doing” . . . and from then on the relationship really changed. I interact with my supervisors now very differently than I did at the beginning of my candidature; I really relied on their input, you know—I didn’t want to cough without checking that I was coughing the right way! But now I go in and say, “Well, this is what I’m doing.” We’ll discuss things and I’ll say, “No I don’t agree with that.” (Beth)

For 14 of the 23 students the development of personal resourcefulness was also frequently associated with learning to manage challenging issues around supervision. Adjusting to the supervisor’s style and managing disruptions in supervision were two areas that affected students in different ways. These students explained that their interactions with their supervisor had been marked by a distance that they recognised had often disoriented them and disrupted their learning. Adjusting to their supervisor’s style often challenged the students’ tenacity and commitment to their studies because they faced unexpected situations with little knowledge or prior experience of what to expect. For example, some students reported that it was difficult to have their voice heard in supervisory meetings because these were often one way interactions in which students recorded the supervisor’s directions on how they should proceed with their research. While some students appreciated this degree of direction, particularly at the beginning of candidature, the interactions were generally so one-sided that the students’ learning was not scaffolded, as often they...
could not raise their own questions. Lisa’s experience of her supervisory interactions was similar to several other students.

My supervisor says “This is what you need to do. Go and do it.”
So I found that initially incredibly difficult that we weren’t able to have discussions about problems that I was having just getting my head around things. He just wasn’t prepared to have those kinds of discussions. (Lisa)

In contrast, other students felt their voice was not heard in their discussions with the supervisor because the supervisor presumed a shared understanding of the research area, despite what the student had written or said. Frances explained:

When she has read over some chapters . . . I feel she is assuming that I’m seeing the issues the way that she does in her research . . . [so] there has been ongoing issues of “You haven’t done enough on this.” “Why are you doing it this way?” (Frances)

Other students, like Susannah and Kim, reported that the supervisor they had been allocated by the College seemed to have little knowledge of their research area or approach: “[I was at the] literature review stage and the supervisor said ‘I don’t know how to do that. Go and see a librarian.’” (Susannah)

She was very enthusiastic about my project and wanted to know about it and was listening to my stories about what I was doing but in a technical sense she just didn’t have the background I needed to help me with anything. (Kim)

Similar to Lisa, Susannah and Kim, Oliver had anticipated “being mentored” and “developing a long term relationship with a mentor . . . to follow-up with you [after a presentation or conference] and be fostered within a research community.” Instead, these students felt that adjusting to these issues in candidature had slowed progress and learning as they endeavoured to determine the best way forward for their research. In keeping with the research of others, these students reported that the difficulties they encountered in the supervisory relationships could also interfere with the quality of communication with their supervisors (Deuchar, 2008), stymied the
development of a mutually beneficial working partnership (Manathunga, 2007b) and provoked within themselves anxieties about their competence, especially in the early years of candidature (Green, 2005; Halse & Gearside, 2005; Lee & Williams, 1999).

I actually found my principal supervisors here quite intimidating to begin with. I have never been intimidated by anybody like that before in my life and I found them quite patronising and I almost gave up every week of my first year. I felt I was continually being put down and . . . I would have meetings and go home in tears. It was not a pleasant first year and that really impacted on my learning because you begin to doubt yourself and think “Well maybe I can’t do this. Maybe I’m not bright enough to do this. Why am I bothering?” (Lisa)

For nine of the students, managing issues around disrupted supervision during their candidature further challenged their personal resourcefulness. Typically, the disruptions were due to a supervisor taking extended leave to undertake research, or in two instances becoming ill, or because the supervisor retired or shifted institutions. In the latter case, this was most often with little or no prior notice to the students. Clare and Oliver’s accounts were typical of the students’ experiences of disrupted supervision. Clare explained that “in three years my supervisor was away for eighteen months” and Oliver described how “at the end of my second year, of my original panel of three, two had retired and one had left for another job.” The lack of ongoing supervisory support and interactions, combined with time spent searching for alternate supervisors, often slowed the progression of these students during candidature. They described problems they encountered in determining the most effective design and direction for their research in order to keep their work moving forward. The need to locate an appropriate supervisor, in conjunction with the necessity to communicate the purposes and aims of their research to different potential supervisors, combined with the pressure to progress their work and often provoked feelings of frustration, isolation and powerlessness.

I stumbled along . . . it was very difficult. I mean yes, I tried. I did what I thought was good but I certainly didn’t have sufficient supervisory input. I can see that now. I kept expecting, “Oh it will only be a little while and it’s going
to get fixed up . . . and they're really happy with me here.” And then it collapsed. (Oliver)

Negotiating difficulties in supervision, whether recurring or one-off, involved risks for the students (and arguably for the supervisor – see Manathunga 2007b, Knowles, 2007) because of “the differences in power, status, dependence and control” between students and supervisors (Pearson, 1999, p. 188). Consequently, many of the students were concerned that any action they took to address their issues could (further) problematise their situation, potentially jeopardise their reputation and influence their future associations with their supervisor, the university, and potentially, any future employment opportunities. Sonya explained:

Who you choose as your supervisor has turned out to be a lot more restrictive than I thought it would be . . . he imposed a lot of limitations on me that I didn't expect to have and which I don't particularly like. And I could insist on going my own way but I feel quite restricted in doing that because once your supervisor doesn’t approve of the way you write then all sorts of problems arise. And changing a supervisor is quite hard because how you design your project is intrinsically connected usually to their role and their background, so to get out of your supervisor’s space is quite difficult. (Sonya)

Although managing emotions and tensions during supervision was difficult and personally confronting, all of the students reported that as candidature progressed they learnt to draw on their personal experiences and resources to discern the best responses and manage their supervisory interactions. These resources included the experiential and intuitive knowledge they had accrued prior to and during the processes of the PhD and also the knowledge they had gained through their discussions with other students and academics about supervisory practices. Their wider reading on the expectations and roles of students and supervisors within the university and the reflexive, tacit, experiential learning and knowledge acquired from thinking through strategies to address their concerns also informed the development of the students’ personal resourcefulness.
This knowledge, acquired over time and through experience, indicates the students’ increased personal resourcefulness, and helped the students to determine how to respond to their particular supervisory situation. For example, when Oliver’s supervisor left the university he decided to work with an off-campus supervisor until a more permanent solution was found. He also instigated a network of post-graduate students meeting together monthly, which provided him with a supportive social and learning environment. Lisa determined that by selectively following her supervisor’s directions she maintained the direction of her work. She reported her progress at each supervisory meeting and while she found it frustrating to redo things if her supervisor disagreed with her approach, she realised that the processes of trial and error extended and strengthened her knowledge of many different research methods and theories. Clare settled her issues around her supervisor’s prolonged periods of leave by presenting her case to the College Dean of Research and the Research Office and gaining approval to change supervisors. Sonya carefully weighed up the benefits and deficits of changing supervisors to pursue her preferred writing style. After considering the short and long-term implications for her research, she pragmatically determined she could adapt her writing style to meet her supervisor’s requirements for the period of her candidature. As Pearson (1999) observes, “the differences in power, status, dependence and control” (p. 188) of students and supervisors can “create opportunities for jointly beneficial outcomes” (Kramer, 1996 cited in Pearson, 1999, p. 188).

In resolving their supervisory dilemmas, the actions of Beth, Oliver, Lisa, Clare and Sonya parallel Salmon’s (1992) observation that in developing personal knowledge students are more confident to step out from “behind the skirts” (p. 16) of others, and demonstrate their accrued knowledge. Thus the students’ actions demonstrated their increased resilience, tenacity and confidence—all properties of personal resourcefulness—and their abilities to practically apply the reflexive, intuitive personal knowledge they had acquired during candidature to determine an appropriate and practical response to the particular situation at hand (phronesis). In relation to the PhD, and as discussed in Chapter 2, the knowledge that is produced through the processes of candidature is often reduced to the application of theoretical, technical skills and within this understanding emotions are often regarded as an impediment to intellectual thinking (Nussbaum, 1990). Such understandings
usually fail however to recognise the subtle and often largely invisible processes of learning that occur during the PhD process, as evident in the accounts of these and other students (see Chapter 3). Nor do rationalist understandings of knowledge account for impacts of the PhD process that develop through managing emotionally challenging situations.

In contrast, Aristotle’s notion of interrelated knowledges, as captured in the intellectual virtues, particularly phronesis and nous, recognises emotions as “modes of vision or recognition” (Nussbaum, 1990, p.79) that build particular, nuanced types of knowledge and inform reason, actions and reactions. This understanding of knowledge captures a broader field of impacts that occur during the PhD process. This includes the learning that contributes to the development of committed, responsive, intuitive, responsible, flexible and resilient individuals who are able to make decisions and take action to manage the events and circumstances they encounter during candidature. Thus, through their ways of being and doing, the students demonstrated the acquisition of phronesis.

The majority of students, irrespective of the status of their supervisory relationship, reported that feedback was a part of supervision that often sparked anxiety attacks, self doubt and distress. As other research suggests (Boud & Lee, 2005; Kamler & Thomson, 2004; Knowles, 2007; Merriam et al., 1996; see Chapter 2 also), feedback is a difficult element of candidature and one that is arguably compounded by the likelihood that weaknesses in writing are far more likely to be identified than strengths (Wolcott, 2001). The students’ accounts suggest, as Wolcott (2001) observed, that for many “regardless of intent, feedback tends to be [experienced as] disproportionately critical and negative” (p. 62). Salmon (1992) captured the complex emotional dimensions involved in giving and receiving feedback:

> The apparently most helpful interventions by the apparently most well qualified supervisors can inadvertently act to undermine rather than enhance the personal confidence [of students] which is so fundamental to the carrying through of original research. PhD work is shot through with anxiety and this must inevitably affect the character of supervisory encounters. (p. 88)
Many of the students reported that the feedback they received had at times fractured their historically proven perception of themselves as an articulate, capable student. In such instances, receiving feedback was described as a hurtful process, one that often caused emotional pain and upset and undermined their confidence in their writing abilities. Ros recalled:

"Early on I’d had to do a bit of work around the criticism of my work, it feels like criticism of me because it was so personal, you know, this was my work. It was my brainchild effectively, my everything. And to criticise that, it hurt. Often I’d get it back and it’d be like “Ow, ow, ow”." (Ros)

Although these students recognised feedback was part of the learning process, they also reported that at times it was easy to lose sight of this and get caught in a vicious downward spiral of doubt where they felt their work would never meet the required standard.

Kim recalled such an experience. She described how she went to a monthly supervisory meeting feeling dejected and defeated, as well as intellectually incompetent, because she had struggled to work through and apply the critique the supervisor had given at the previous meeting. As a result, and despite her best efforts, she felt everything she had written since the last meeting was substandard, and she was anxious going into the meeting. Kim’s meeting with her supervisor helped her to gain a different perspective on her work. She went on to explain the complex and often contradictory emotions many of the students described.

"I thought it was all crap, but that person (supervisor) saying “That section there is really well done, you won’t have to change any of that. That works really well, and it works really well with this section too. This whole section is really strong.” From that, you go home and you think “Right I’m going to get into that again tomorrow” and you start because you just had that little bit of support and sometimes that’s all you need." (Kim)

The majority of the students explained that it had often taken them years to recognise feedback as a challenging process of supervision that had facilitated their personal
and intellectual growth. Lisa captured sentiments expressed by many of the students when she explained that as her candidature progressed she came to recognise that in giving feedback a supervisor was “not criticising you, he’s criticising your work and you realise that he’s doing it to make your work better”. Catherine also described how she came to recognise feedback as a part of supervision that pushed her to develop her thinking and articulate her ideas more precisely:

She definitely pushed me to push my theory to a level, to a PhD level. When I was just describing, like in a general textbook manner, then she gave me feedback . . . not negative feedback, but definitely not positive, which impacted upon me by encouraging me to change the structure of the chapter, put it in a way that was more argumentative and it’s more original, it’s more innovative. (Catherine)

Wolcott (2001) observed that in receiving feedback a consolation may be that the more painstaking the critique, the more it may be assumed that your efforts were taken seriously. Ros’s experience suggests this and also indicates how she came to see the feedback she received differently.

When she would edit my work, the level of technical, the expertise and technical knowledge she had in the field meant that I knew she’d really read it. Often I’d get it back and the first time I read the draft it’d be like “Ow, that hurt.” Then the next time I read it, it would be “Actually that’s a really valid comment, that’s a valid criticism, oh didn’t I do that? Actually if I do that that’ll make it much better.” (Ros)

This recognition, acquired through experience and over time, and by reflecting on their experiences, conveys how students developed personal resourcefulness during candidature. It also indicates how, from working through the hurt, anger, frustration, excitement, pleasure and satisfaction they often felt in relation to receiving feedback, they came to see and understand things in new and different ways which then informed their actions and responses and developed and strengthened their personal resourcefulness (phronesis).
In *Nichomachean Ethics* Aristotle explains that negative and positive experiences contribute to the development of the intellectual virtues and that these experiences can also work to enhance, destroy or retard the emergence of the virtues in the individual: not only are the excellences brought about, increased and destroyed as a result of the same things and by the same things, but it is in the same things that we shall find them activated too (NE1104a30). The students’ accounts correspond with Aristotle’s observation. They demonstrate that supervisory interactions were productive because they confirmed the students’ abilities and strengthened their personal resourcefulness, frequently through challenging experiences that extended the students beyond what they had thought they were capable of. Such reflexive knowledge indicates the students’ increased personal resourcefulness and self-understanding. Heidegger (1997 cited in Tabachnick, 2004), writing about reflexive knowledge in relation to phronesis, argued that phronesis is developed through experience and over time and is evident when individuals recognise the circumstances that hinder its development and work to overcome them. In a similar vein, Tabachnick (2004) describes the acquisition of phronesis as the “capacity to overcome the almost constant barriers to this revealing” and the ability to break through distractions, pleasures, pains, challenges and deprivations (p. 1008). In relation to students developing personal resourcefulness through their experiences of supervision during the PhD, the abilities of the students to recognise the deeper purposes of supervision and work through them can be viewed as a necessary element of promoting the students’ personal resourcefulness and contributing to the acquisition of phronesis.

The educational process isn’t just academic. I found that I was acutely aware that there was a significant amount of personal growth that I needed to do in conjunction with meeting the day to day challenges of doing the PhD. (Ros)

The PhD is a journey. There were some enormous challenges in that journey, but ... even the bits that were stressful and you know confusing or emotional or whatever, they were still really good experiences. (Lauren)
5.2.2 Institutional support

As outlined in Chapter 2, wider political and social changes have affected doctoral education programmes and changed the experiences of students in Australian universities. Some students felt that the level of institutional support they received was constrained by such economic and social factors, in particular the drive for universities to be productively managed: “they’ve [universities] got to make money, not spend it, and that’s what comes across as being the most important thing” (Pam). The students’ accounts indicated that learning to manage issues around the practical and social support they received from the university at an administrative, college and school level during candidature, was an aspect of candidature that developed their personal resourcefulness. In discussing the institutional support they received, the students differentiated between the material and administrative support and the collegial and peer support throughout candidature.

Material and administrative support

Administration is an integral component of the learning environment in the contemporary university and the students’ accounts suggest that the degree to which administrative regimes support students can significantly influence their levels of satisfaction, motivation and commitment (Austin, 2009; Corcoran & Priest, 1999; Delamont et al., 2000). This was particularly evident in the accounts of 18 students. While these students recognised and acknowledged the necessity of administrative procedures to manage and progress their candidature, they described how learning to manage their interactions with administrative support staff around the paperwork associated with candidature, for example annual reports, requests for research funds, travel expenses and notifications of workshop attendance, had both challenged and informed the development of personal resourcefulness during candidature.

In relation to material support, just over half the students in the study identified a disparity between the tangible support they had expected to receive, based on the university’s HDR essential resources policy, and the actual levels of support they received during their studies. These students had anticipated having a work space with a desk, chair, computer and access to stationery and a telephone; yet they
reported that often there was no space, there were inadequate or no computers, and minimal printing and stationery was available. Sonya summed up the difficulties that many students described, and captured what many of the other students also perceived as a general level of indifference from the university and administration towards facilitating their studies.

There have been issues of space and rooms and getting access to printers and things . . . but theoretically they will give me all these things if only they can get the conditions right. They’re not refusing to print my pages or refusing to give me a desk. There simply is never one there when you need one. (Sonya)

Students developed strategies to overcome the lack of on campus accommodation and the limited resources. The students in the Humanities came onto campus on alternate days and shared the computer and desk space that was available. These students explained they often worked from home as they were better and more reliably resourced in terms of working space and equipment—however, this too had its disadvantages, as Leah described.

I ended up setting up my stuff at home and the first six months I was really annoyed that I had to do that because while where I was working wasn’t ideal, 10 people in one room, at least it was a corner and it was away from my family. Now I’m working at home with my family which is really hard because I’m at home and I’m working but my family don’t see it like that. “But you’re here. You can run me somewhere. You can answer the phone. You can do this.” So you keep getting interrupted and interrupted and interrupted. (Leah)

The students in the Sciences described that the lack of resources and specialist equipment required them to be innovative, adapting existing resources to conduct their lab work or learning to work around the restrictions.

I was encouraged to develop the equipment for myself rather than buy equipment. I said it was going to be too much for me to develop the skills to make the equipment . . . It’s not my area. I got my equipment for my
experiments two years after I started and then all the pressure to finish in three years. (Kim)

The students’ frustrations about the lack of material support were often compounded by having to follow up and redo administrative paperwork required by the university. Just over half of the 23 students reported that this was usually a frustrating and tiring aspect of candidature that resulted in loss of time, energy and effort due to the shift in focus from the imperatives of their research project to meeting the demands of administration issues.

I’m managing the university’s administration basically. I mean I find that any time you want funding that this is not a clear process. I find I have to follow the application all the way along—keep following up. Any interaction with the university, I’ve learned you just cannot expect that you put in an application and it will go through a process and be dealt with . . . it’s stressful and it’s time consuming. I mean, let me get on with my study . . . but you can’t, not easily. (Susannah)

The administration of the university. That has driven my crazy. Difficulties with computer access have been very frustrating, difficulties with enrolling. That kind of stuff has been very haphazard . . . so much of my paperwork has been lost . . . I can’t tell you the amount of problems I’ve had with admin type issues. That’s been a real negative and I think it’s absolutely inadequate. (Kim)

The admin staff treat you like you’re something that’s stuck to the bottom of their shoes. You have to fight for every cent you get; you’ve got to fight for every square inch of desk you can use . . . it’s a constant battle and it is incredibly tiring. (Beth)

Paradoxically, and echoing the findings of other research (Barron & Zeegers, 2002; Lovitts, 2001), while the university administration systems are intended to support students, these students described their interactions with administration as often frustrating and unhelpful. As the interview extracts of Susannah, Kim and Beth (presented above) illustrate, students reported they often felt subordinate in their
interactions with administrative staff. The unhelpful or disinterested manner of university administration frequently left them feeling disempowered, frustrated, discouraged, stressed and exhausted. At their most intense, these interactions prompted some of the students to question their motivations, commitment and ability to continue their studies: “Administrative staff . . . that was my major barrier while doing my PhD. If you said to me ‘Did I want to throw out my PhD because of anything?’ that would be a major reason.” (Erica)

Reflecting on their experiences with managing such administration issues however, these students recalled how they developed strategies to cope with administrative difficulties. The most common of these included developing a respectful relationship with particular administrative staff members, learning to manage the often frustrating interactions with patience and humour, and by being proactive. As Clare recounted, “I’ve found that with everything around the university really, that you have to be proactive, even to the point of being pushy.” The students recognised that their ongoing interactions with administrative staff helped to promote their diplomacy and also accumulate their knowledge by learning managerial and administrative procedures and protocols, so they became more adept at managing this aspect of candidature.

This type of knowledge reflects what Parry refers to as “savvy” (Parry, 2007). In Aristotelian terms, the students’ increased ability to think through situations and use their experiences to inform their reasoning and guide their actions to achieve a suitable outcome suggests the acquisition of phronesis. Such knowledge reflects Pakaluk’s (2005) description of phronesis as “administrative ability” (p. 207); the capacity to bring important things into existence in an orderly and efficient way using practical and intuitive abilities to discern a suitable solution in light of the available options.

**Academic work**

In Australia it is common for PhD students to undertake academic work during candidature (Pearson, Cumming et al., 2008). Sixteen of the 23 students worked for the university in various roles and for varying periods of time during their doctoral
studies. Most worked as tutors, several worked as both tutors and research assistants (RAs) and a few worked as RAs only. Although the students experienced working for the university in varying ways, each recognised how their experiences contributed to developing their personal resourcefulness. Several students recounted how the academic work they undertook promoted their sense of belonging to the department. These students described feeling a growing sense of professional collegiality and identity that enhanced their confidence across different areas. In particular, they recounted becoming increasingly confident to present, teach and engage different audiences at different levels and to manage the organisational aspects of teaching, for example developing subject outlines, setting assessment tasks, marking and giving constructive and helpful feedback. As Kate described “I can walk in and teach and I can pretty much prepare my own tutorials and go with that and that gave me confidence.”

For Richard, Catherine and Peter, the attraction of teaching was to embrace it as a way to extend and enhance their own learning, understandings and professional capacities. For Richard the main challenge in teaching was to prompt the students to actively engage with him during tutorials and explore the topic together rather than having them “sit there in stunned silence.” Catherine and Peter valued the practical and other types of knowledge they acquired from the processes of teaching.

I don’t consider teaching as just passing on knowledge. I consider teaching as me learning what is the best way to convey knowledge, what is the best way to put together the theory in a way that would be informative for students. (Catherine)

Tutoring is a great thing because . . . you’re teaching students and you’re honing your skills as a presenter . . . it’s like answering questions on the spot. The lecture was great because it actually focused me—it was on a topic that I was having some problems writing out so actually doing the research for that and putting it in a presentable way was very good. (Peter)

For some students however, and mostly the mature aged students who had extensive prior experience in different work contexts, working as a casual tutor in the
university was frequently a source of disappointment. The disjuncture these students experienced between being employed as a beginning academic while being explicitly positioned as an expedient source of cheap labour was confronting and unexpected.

I've experienced this whole [work] thing as being I’m the little student . . . the way the casual academics are treated is revolting—just the chaotic ad hoc nature of the whole thing. It's "You’re a PhD student, you can teach this.” (Frances)

I just felt it was really exploitative of the University. The University works on the fact that they pay post-graduates to do all their teaching and tutoring and they pay them appallingly. (Beth)

For six months of doing my PhD I did tutorials for UWS. I didn’t get paid for doing those tutorials. It was just part of an experience that I would get. I was doing those tutorials every Wednesday, so Tuesday afternoons would go preparing for the tutorials and then I had marking for the assignments as well. (Erica)

Arguably, the changing context of the university in contemporary society adversely contributed to the students’ experiences of working in the university. Regardless of position, academics in regional, national and international contexts are affected by social, economic and academic trends and policies that impact the institutional environment and those within it (McAlpine, Bédard, Saroyan, Kirby, & Taylor, 2003). Six students who had initially aspired to become academics reported that the lack of support they experienced as academics, in terms of being introduced to the culture and familiarised with the expectations of working in the department, had made them rethink their career goals. While most philosophically slated this to the casualisation of the academic workforce, a couple of the students questioned the value their PhD qualification would have on completion.

I did it to get a job at uni. That was my only goal . . . [but] the only job that’s going to be here is as a casual. I'm doing that now. I don't need a PhD for that. But even worse, once I hand it in they won't hire me as a casual because I'm too bloody expensive. They've got to pay me double and with
the casual budget like it is, if I hand that PhD in I've done myself out of a job. So I'm sitting here thinking “What does it get me?” . . . And I've thought “Well what's the point?” Really, in the end what is the point of handing it in? (Leah)

Such issues often represented hurdles along the path to completion. While these students were sometimes discouraged by them however, they continued to work toward completion. In doing so, the students demonstrated their increased tenacity and resilience (personal resourcefulness), which are increasingly recognised as valuable traits in enabling doctoral students to sustain and complete their studies (Craswell, 2007; Kearns, Gardiner, & Marshall, 2008; Lovitts, 2008).

**Collegial support**

Students in the study reported that socialisation and support were significant factors in sustaining their commitment, engagement and motivation during candidature. Over half the students described how informal interactions with peers both inside and outside their school helped students feel part of an academic community. These interactions were an important avenue of emotional and intellectual support during candidature; a finding that parallels those of Haggis (2002), Lovitts (2001), Parry (2007), Salmon (1992) and others, as discussed in Chapter 3. The students explained that having a group of supportive and empathetic others allowed them to release the worries and stress they were holding. These interactions often worked as a safety valve, allowing the students to vent when they were feeling overwhelmed by the demands and challenges of the research process and thereby refreshing the students’ perspective on their research and on their research abilities and progress. Elizabeth explained that

> Having people in the office to talk to about the process—I find that really therapeutic because I think you all feel hopeless and that we don’t know enough (laughs). So having people around to have a cup of tea with and talk about where you’re up to, what you’re doing, that’s important. (Elizabeth)

The experiences of four students attached to two different research centres in the Humanities were particularly striking because of the high levels of departmental
integration and socialisation they described. Unlike the majority of students, these students had a dedicated work space and engaged with each other, peers and more senior academics on a daily basis. They participated in monthly colloquia and frequently took part in other, less formal gatherings such as impromptu presentations, forums and debates. While students in centres can experience isolation (e.g. Boud & Lee, 2005; Delamont et al., 2000), the frequent formal and informal interactions these students experienced acted as a supportive network that nurtured their personal and professional learning and development and resourcefulness during the PhD process. For these students, like the students in Malfroy and Yates’ study (2003) and Cumming and Ryland (2004), being actively involved in a research community helped them develop and share new understandings and engage with senior academics, which stimulated their critical thinking and frequently introduced the students to different theories and perspectives (see also Chapter 6). Presenting and articulating their research to wider groups of people and being included in the broader academic arena confirmed the student’s sense of belonging in the department and encouraged them to see themselves as valued members of the community. These experiences both challenged and encouraged the students to disseminate their research findings to larger, more formal settings which simultaneously enhanced their visual, written and oral communication skills (See Chapter 7). For these students, such engagements were learning processes of candidature that simultaneously increased their personal resourcefulness and their professional knowledge and abilities (see Chapter 7 also). They extended and strengthened the students’ belief in themselves and their practical abilities.

Although the majority of the students did not experience this level of collegial interaction or social support from their institution or school, many were resourceful in establishing their own support network. These students, who were usually in the Humanities and unattached to a centre, reported they had limited opportunities to interact with peers. The exception was the annual College conference. Many of these students had anticipated being part of a community of scholars with the attendant formal and informal gatherings and events to integrate them into the department and scaffold their learning and professional development. Instead however, they experienced extended periods of isolation. For the students who had limited support from their supervisors, this isolation served to accentuate the sense of being outside
and separate from the physical, social and intellectual life of the university. Some of these students recalled being taken aback at times by the degree of disconnection and isolation they experienced during candidature. Susannah recalled, “it has definitely been quite a solitary process. So solitary in fact I’m still a bit aghast that there’s no sort of duty of care from the university and that this is happening.”

Many of the students recognised that being so isolated was detrimental to their learning. To address this isolation the majority of these students reported that they joined a formal group organised through the university or even instigated and ran their own student forums. More than half the students were members of thesis writing circles (TWCs)—formal thesis writing support groups organised through the university. TWCs have operated at UWS since 2002. These are generally small groups of up to eight postgraduate students that are convened by a staff member and meet regularly, usually fortnightly or monthly. Such groups provide students with an avenue to participate in a scholarly community and provide intellectual stimulation and social, emotional and moral support (Aitchison, 2004; Devenish et al., 2009; Walker et al., 2008). Being a member of a TWC also provided opportunities to learn about and present writing and articulate thinking and ideas in a safe and supportive environment. In contrast to Jones’ (2009) observation that students in the Humanities often struggle to find common ground in discussing or reviewing research, the students who engaged in TWCs, and who were primarily from the Humanities and Social Sciences, described these meetings as generally lively interactions that stimulated thinking and challenged and strengthened their epistemological and ontological learning and understandings (see also Chapter 6). Reflecting the reciprocal and social nature of learning (Illeris, 2007), these groups helped the students to improve the standard of their work through providing critical and constructive feedback and also fostered their confidence in their abilities to interact in different settings.

All of the students who were not attached to a centre had been, or were, continuing members of a small support group such as a TWC. All these students recounted that the groups had provided a space where they felt their input was valued and they could explore emerging ideas and thoughts without feeling inept or intimidated. As other researchers have identified (Austin, 2002; Conrad, 2007; Devenish et al., 2009;
Lovitts, 2008), the student’s interactions in these groups often promoted a sense of belonging to a caring and cohesive community that encouraged, motivated and sustained the students’ learning and progression during the PhD process and acted to counter the isolation, ambiguity, stress and doubts that could arise during the PhD process.

We would meet every two weeks and it was a student forum for students to develop student support because we felt that we really needed that. We felt that we really needed people to share things with and people to bounce ideas off where you didn’t feel intimidated or you didn’t necessarily feel stupid or that you were wasting somebody’s time—so that was really important and we all got a lot of enjoyment out of learning from each other too. The idea was to make it our place, where we didn’t feel uncomfortable and embarrassed or uncomfortable about asking any questions. (Lauren)

Part of belonging to a group or participating in a group means that there’s a robust exchange of ideas in which there can be revised, discovered for the first time, revisited, debated, so that sort of thinking that emerges from those social interactions is absolutely critical to the work. (James)

A few students were members of the same informal student forum. Oliver explained that this group had started because “we recognised a need and we did something about it.” In the group, students took responsibility for certain roles, for example Chairperson or Secretary, and actively engaged in debate to contribute an informed perspective to the meeting from their wider reading and research. Like the students in the TWCs, the group members practised presentations, engaged in critical debate about different theoretical frameworks, collaborated with colleagues, supported their peers intellectually and practically with feedback on work, reading suggestions and thesis planning. More generally, yet most significantly, they provided a supportive emotional climate for the students.

It’s helped my learning by showing me fields of research that I wasn’t previously so familiar with, and it’s probably helped my diplomacy a fair bit as well because sometimes I’d like to say things but I hold back and try to explain it in different ways rather than saying “You shouldn’t do that”. (Bob)
James’s story

During his candidature James experienced being part of a research community and being a student working alone. His experiential knowledge made him realise the critical role that socialisation and collegiality played in extending his intellectual capacities and in combating the isolation he experienced.

Sociality is critical to my intellectual life. I know what the limits of my thinking are and the limits of my capacity to analyse, argue, speculate, imagine . . . and so in relationships with others, those limits are tested expanded, strengthened. I think there’s a set of intellectual skills that only emerge through that sociality. They don’t emerge sitting at home working by yourself. So I have absolutely come to the position that there should be core components of a PhD—structured social groups in which people are engaging variously with ideas, with theories and embarking on collaborative projects to ameliorate the isolation and anxiety. Being involved in a group, I have acquired a significant set of skills over the last number of years that other students I know have not acquired, and it seems to me that they are hugely disadvantaged by that. And that disadvantage is both intellectual and personal (because) the level of anxiety, the level of confusion, the level of self-doubt that they spiral through, is in excess of anything I can ever remember feeling. (James)

The students’ experiences confirm Gerholm’s (1990) and other’s observations (Austin, 2002; Becher & Trowler, 2001; Delamont et al., 2000, Lovitts, 2001; Parry, 2007; Walker et al., 2008) that the degree of inclusion a student experiences affects the PhD undertaking. This was particularly evident in the case of the students who enjoyed high levels of formal institutional and collegial integration. Demonstrating their increased confidence and familiarity, these students described how they drew on their accrued general and specific knowledge of the university rules governing candidature, and the knowledge gained from their own particular experiences and interactions to responsibly make decisions about their candidature and about their research. Gerholm (1990), and more recently Bender (2006), Lovitts (2001) and Delamont, Parry and Atkinson (2000) liken the acquisition of this contextual knowledge to learning “the hidden curriculum” of implicit institutional demands and departmental expectations. It can however also be understood as the development of phronesis and nous during the PhD process. Like “learning the ropes” (Delamont et al., 2000, p. 10), phronesis and nous take account of the factors with which they are
already involved to become familiar with the daily practices of a specific culture or situation.

Aristotle argued that individuals learn through experience and use the knowledge they gain from reflecting on that experience to inform their actions and responses. In drawing on all their experiences and interactions across various supervisory and institutional situations during candidature, the students recognised how they came to construct their own understandings. As part of this reflexive knowledge they were also aware of their increased resilience, assertiveness, confidence and tenacity—all of which are inherent characteristics of personal resourcefulness and of phronesis. In Aristotelian terms this reflexive learning is captured in the element of nous that is integral to phronesis and all the intellectual virtues. For example, nous was at work when the students determined the best way to deal with administrative issues, when they recognised that it was best to establish a support network for themselves and in adjusting to their supervisor’s style of supervision. The students’ actions and thinking therefore convey the self-referential and self-reflexive nature of phronesis, for in taking responsibility to manage particular situations as they arose the students drew on their acquired knowledge to determine the best way forward: “Out of it (the PhD) has come a lot of self-assurance and a lot of belief in myself, a lot of confidence, but I’ve worked bloody hard to get it.” (Beth)

5.2.3 Personal life

In a national online survey completed by 5,395 Australian doctoral candidates and representing just below 15% of the national PhD population, over 50% of the respondents were full-time students and were living with partners and of these 27% had children (Pearson, Cumming et al., 2008). In this research, all of the participants were full-time students, 19 were living with partners of whom 13 had children. Eleven of the students had children living at home who ranged in age from preschool to adult. Thus, as Pearson et al. (2008) observed, “the role of domestic work in the lives of doctoral candidates cannot be ignored” (p. 104).

For most of the students the day to day impacts of balancing the PhD with their personal life revolved around developing the practical knowledge and abilities to
manage their own time and personal well-being, which encompasses emotional and social health as well as the ability to adjust and cope to the demands of life (Donatelle, 2008) as well as maintain their relationships, finances and other responsibilities. Many of the 23 students did acknowledge that the PhD process had threatened to take over their personal life and that it required discipline—a term used by over a quarter of the students—to balance their university and personal responsibilities during the PhD process. As Leah observed,

If you’re not disciplined and have no self-discipline you really have to learn it quickly because when you get into the PhD it’s “Now who’s watching me?” . . . nobody’s watching me . . . it’s a very hard thing to get used to the fact that there’s nobody policing you, you have to police yourself. (Leah)

Discipline as it used here therefore, relates to the students’ internalisation of a type of well-regulated liberty during the PhD process; the ability “to identify the appropriate rules for oneself” (Hindess, 1995, p. 44) thus reflecting the acquisition of phronesis.

Doctoral students have been depicted as social creatures with an undisciplined approach to their studies who subsequently sabotage their progress and compound their stress (Kearns et al., 2008; Manathunga, 2002); and as “obtuse, overly specialised individuals” (Pitt, 2008, p.56); or as deficient in real world employability skills and abilities (Barron & Zeegers, 2002; Craswell, 2007; Evans, 2002; Western & Lawson, 2008). In contrast, students in this study found that the PhD processes increased self discipline and their capacity to meet self-imposed deadlines and enhanced their time management abilities. Erica, representing the views of all the students in the study, identified that “time management was a huge issue.” Irrespective of gender, marital status, dependents or age, every participant reported a greater capacity to establish and maintain a balance between meeting the responsibilities and commitments of the PhD process and the commitments of their personal lives. These included their various responsibilities as a parent, partner, friend, sibling, child, carer and community member. It was not surprising therefore that many of the students reported that they sometimes felt overwhelmed and lost their confidence in their abilities to meet all the expectations they felt.
The essence of how these pressures impacted on the students and their emotional well-being is captured in Frances’s observation that the PhD process was like “falling apart somewhere in between [starting and finishing] and coming back together”. With one exception, all the participants related that periods of doubt had disrupted their studies for varying lengths of time and to varying degrees during candidature. Several students linked the emergence of these feelings to the isolation and stress they felt from the lack of support they experienced during candidature.

I was surprised that it’s so isolated but there’s still the frustration that you are separated and that you don’t feel included . . . I once put in a suggestion that they did a workshop on managing stress or managing, you know, like doing more like yoga or mindfulness or some stress management technique, because we get lots of workshops on how to write your thesis and how to do [Microsoft] Word, but there are none that address the emotional side of things . . . I mean you can go and maybe see a university counsellor if you’re really stressed out but that’s about all you can do. And that’s not something that supervisors or anyone else suggests. You know, they don’t sit you down and say, ”Look, you’re going to have problems with stress.” They just say “Here, do this” and you’ve got this much work to do. I mean they’re a part of the problem, not part of the solution. (Sonya)

I used to have nightmares of being halfway up a cliff and halfway down. I couldn’t get up and I couldn’t get down. So that’s what I mean about the self-esteem problem . . . that’s another thing about isolation I suppose. (Susannah)

The issues that Sonya and Susannah described were echoed to varying degrees by the majority of students. These students explained that feeling disoriented was often difficult to overcome and could provoke strong emotions of frustration, helplessness and fear. Different students described these periods as “wretched”, “absolutely awful”, “frightening” and related that coming through them was a matter of “pushing through”, “being stretched”, “meeting the challenge” and “not giving up.” Such feelings triggered doubt in the minds of nearly all the students about their practical abilities and this prompted feelings of disempowerment, insignificance, deficiency and/or disconnection. Such feelings were most often in direct contrast to the students’
previously established self image as competent and capable individuals, and they frequently caused the students to feel disoriented. For the majority of the students, the feeling of disorientation exacerbated their doubts and made them insecure in their knowledge and capacities. While the duration of these feelings varied considerably, they affected the students in similar ways, making them less confident, less able and less productive. This was a recurring theme in the interviews and one that echoes the experiences of other PhD students (Haggis, 2002; Kiley & Wisker, 2009; Parsons, 2001).

For six students, historic feelings of academic ineptness combined with isolation and stressful interactions during candidature to exacerbate doubts about their capacity to complete a PhD, to the point where they sought professional counselling. Some recalled that these anxieties occurred in the early stages of candidature, as they had confronted and tried to resolve unexpected issues that arose around supervisory and institutional support. Others described how doubts surfaced in the mid to later stages of candidature and had emerged as an accumulated mass of unresolved doubts and anxieties related to negative experiences during candidature. All six students described how these doubts had culminated to a point where the gamut of emotions and pressures had manifested to the extent that they eroded their confidence and subsequently their resilience, tenacity and productivity. As James recalled,

I’d go so far as to suggest that the experience of doing a PhD inevitably makes us vulnerable and in those moments of vulnerability our historical anxiety, whether it’s to do with competence or intellectual capacity or whatever, those historical anxieties erupt and take on a life of their own. That makes it really hard to get on with the work of doing a PhD because of this profound disruption and I talk to other people about this and it’s not some isolated individual failure. It’s actually a profound disruption to the process. (James)

Other students described periods of being pushed to their emotional limits in juggling the day to day processes of the PhD. As Elizabeth stated, some days it was easier to cope with the constant “feeling of hopelessness in the back of your mind” than others. Some of the students detailed the approaches they learned during candidature
to manage these challenging periods. Some independently sought professional counselling to regain their emotional well-being and learnt strategies to manage the demands, pressures and ambiguities they experienced as an ongoing part of the PhD process. These strategies included yoga, meditation, taking time away from their studies and forming a supportive network with other PhD students. They also included proactively addressing issues and difficulties as they arose to manage the impacts they had on themself, the PhD process and their personal life.

Several students identified how their sense of motivation and commitment had also been pushed to the limit and they were just “hanging on” to finish. Some laughingly referred to their perseverance as “madness” or “bloody mindedness”. As Ros recounted,

> There were periods through it that I was so sick of the bloody thing that I just didn’t want to do it any more but the alternative to not doing it any more was going “OK, that's it. I quit.” And that wasn't an option either. (Ros)

For these students, tenacity and resilience diffused slowly during the PhD process, positively reinforcing the students’ motivation and determination to overcome the difficulties that were impeding their progression and push on toward completion. Yet as evident in the accounts of the students, negative events could positively impact on the students’ personal resourcefulness during candidature. Ros, James, Susannah, Kate, Catherine and Sonya had all sustained their personal commitment to their studies and persevered through these difficulties. The acquisition of this personal resourcefulness emerged as a strong and recurring theme in the students’ accounts (see Chapters 6 and 7 also). In contrast to other research therefore (e.g. Lee & Williams, 1999), the challenging and negative events the students experienced often positively stimulated their resilience, tenacity and their confidence to manage obstacles and hurdles. Elizabeth and Oliver captured the complex impacts of the experience of candidature that many students described:

> Everything in its own way (during candidature) is hard and seems scary so it's (meeting) all the little goals in the (PhD) process that are really, really rewarding but the process, when you’re in it, is difficult. (Elizabeth)
There were ups and downs and this has continued . . . “Can I do this PhD?” Can I do it? Well, it seems I can although I haven’t finished. So it’s a very positive personal quest in that way. It’s been a very positive boost in allowing me time to get to know my brain and how it works, my intellect. So I’ve had time to think about how I think. My approach to stuff, to thinking, to studying, to this, you know, learning style and all that sort of stuff. So I’ve learned about myself. (Oliver)

The processes of managing different aspects and issues during candidature strengthened the students’ sound reasoning and equipped the students with a deep knowledge and understanding of both the general rules and expectations of candidature in the university setting and also with particular knowledge of how to best manage their situation (phronesis). Through these experiences, the students came to recognise what impeded or facilitated their progress and thereby developed a greater capacity to make good choices and act upon their decisions and become reflexive, agentic scholars able to pursue their goal effectively using their accrued practical and perceptual knowledge (phronesis). As Kim explained, “the constant challenge to just keep pushing through—that was really useful because it gives you a level of confidence. It gives you a kind of ‘can do’ approach.”

**Relationships**

Personal relationships can be dramatically affected and changed during tertiary studies, especially amongst mature age women students (Martins, 2007). Ros observed that “I was living and breathing the whole project and you talk about personal costs, like friends—what happened to them?” Two other women explained that their marriages had ended during their PhD candidature and although each acknowledged that the stresses and demands candidature placed on their time had not caused the break-up, nor had they been conducive to sustaining the relationship. Aware of the pressures tertiary study could place on relationships, Jane commented that:

[Candidature] was probably bad for us because we weren’t having as much time together. But that’s over now and I didn’t tell him that, at one of the workshops I was told that half of PhD students’ marriages end during the
course. I just kept that information in the back of my mind—forewarned is forearmed. (Jane)

Most of the students recounted that personal relationships often placed extra demands and stress on their time. Yet at the same time, all the students acknowledged how the support they received from their partners, family and friends helped to maintain their commitment to their studies and supported their social and emotional well-being during the PhD process. In particular, the emotional support the students received was invaluable and a primary source of encouragement in sustaining them through the ups and downs of the PhD process.

Some students reported how the support of their partners and family transferred into practical areas. For example, Jane’s partner arranged that for one day of every weekend Jane was able to work undisturbed, and also managed the day to day running of the house so she could devote more time to her studies. Kate’s parents provided meals and took care of her gardens, washing, house work and shopping. Ros’s partner helped her collate and record her work samples and offered her invaluable emotional support:

My partner was really good. She believed the work I was doing was important and that was really good . . . she would read a lot of my draft stuff and just knowing that someone was interested was nice. (Ros)

Although most of the students talked about how they had learnt to balance their personal and family commitments with their study commitments, this subject was rarely elaborated on by the five men in the study. Although Bob was the youngest, single and lived alone when he was not out in the field, and Richard was the oldest, married and lived with his wife and two adult children, neither mentioned that their studies impacted their personal and family relationships. James and Peter described partners who encouraged their work and supported them emotionally and practically in terms of managing their time and studies. Oliver also spoke of a supportive partner. He acknowledged that his studying had had an impact on the time he spent with his wife and teenage children, yet this had been anticipated: “I've spent time
doing this stuff so it takes time away, yes, but that’s not news.” Indicating the different dimensions of the personal learning that occurs during candidature, Oliver explained this time included exploring

Issues of self-discipline, finding one’s own direction or directions as they change over time . . . and then the personal sort of stuff . . . learning how to fit a PhD candidature into family life and into personal life. (Oliver)

In contrast, all the women students, irrespective of their marital status, referred to the pressures the PhD had placed on their family relationships, more so when they entered the final stages of candidature. The women however, while committed to their studies, also recognised the need to establish boundaries to manage the demands of the PhD and maintain personal relationships. This was as much a priority for Kate and Michelle, who were both 20 to 30, unmarried and living with parents, as it was for Lisa, who was 40-50 and living with her partner and teenage children.

I’m coming into my latest stages, I don’t want to fall into the trap of “PhD is my life” because you’ve got to be mindful that your personal relationships do matter. (Kate)

I don’t want to have my PhD and not have my family . . . they’re more important to me than my PhD. (Michelle)

I suppose I’ve probably had a bit of a different perspective in that my family’s always come first, and always will come first. (Lisa)

Wall (2008) observed that for women PhD students in particular, the demands of balancing university and personal commitments often require choices between the “head” and “heart”. In A woman’s guide to doctoral studies, Diana Leonard (2001) identifies the difficulties women experience in managing their time and the day to day demands of studying and family life. She notes that women students need to make time by shuffling their commitments, thereby reinforcing Pauline Leonard’s (2002) observation that women’s time needs to be “understood in relation to others’ time and daily lives . . . [as] the temporal nature of others’ needs influences women’s
own relation to time and their ability to use it” (p. 72). Lisa in particular recognised this:

I noticed that I had let a lot of those relationships [friendships] slip because I was doing my PhD plus I was teaching. So I gave up teaching and I made a concerted effort to pick up those ties again. Whether it’s on the weekend or when I’m working from home I’ll take an hour or an hour and a half off to go and meet up with them. (Lisa)

Some of the women reported that learning to achieve a balance between their doctoral studies and their personal life required difficult decisions that sometimes created rifts in the family fabric as children and partners adjusted to different routines and demands. Some reported that as they became more and more pressured to complete their thesis they needed to devote more time to work and less time to meeting family commitments. Choosing to work on their PhD instead of spending time on family commitments such as being involved in their child’s school life or other community activities often caused feelings of guilt that lingered, even after submitting the thesis.

When my son started kindergarten last year I was using that precious time between 9 and 3 to get home and write. But I wonder if in some ways that hasn’t disadvantaged my child. You know, you just question whether or not he’s had the same year, whether he’s been brought into the net in the web of relationships to the same extent because I was always the one who was like super efficient. Kiss. Gone. Right, now I can hit the books for the day. (Jane)

For the students without a supportive network the costs of making the extra time available to write required not just emotional discipline but financial discipline as well. For these students, these decisions were made judiciously, in consideration of the particular situation but also considering other factors such as the relative short and long term benefits and costs—emotional, social, relational and financial—of these decisions. Indicating their increased “capacity to act with regard to the things that are good and bad for man [sic]” (NE1140b9) and to “deliberate well”
(NE1140a25-6), these students described how they weighed and considered such decisions to discern the best solution (phronesis).

I think towards the end when my kids were a bit older and they had to go to after school care they didn’t like that very much. They didn’t mind going maybe two or three days, but it worked out cheaper as well to put them in for five days. Sometimes I also felt a bit guilty about not being able to go and spend time in the classroom or things like that. But the compromise was that my kids did go into child care so I worked during the day, but public holidays, other holidays and weekends I could spend with them. (Lauren)

The accounts of Lauren, Jane and Lisa are typical of how many of the students consciously made time during their studies to balance their commitments between their university and personal commitments and to maintain their social and emotion well-being.

5.3 Conclusion

In Aristotelian terms, the students’ accounts reflect their emergence as a *phronimos*; an individual who has acquired, through their experiences and time spent within a community, the necessary knowledge to recognise the general and particular aspects of situations and make decisions spontaneously and sensitively based on that knowledge that are conducive to the general good (NE1140a25). Envisaging the PhD students as a phronimos acknowledges the learning impacts of the PhD process that are often overlooked by accountability metrics and dominant conceptions of knowledge. A phronimos is guided by their accruing practical, personal, intellectual, perceptual, and contextual knowledge to continually seek to develop their expertise and flourish in new and different arenas. Other inherent characteristics of a phronimos evident in the students are tenacity, humility, resilience and courage to willingly set forth and navigate complexities to develop their own understandings so they can, considering all their experiences, learn to comfortably and confidently present and hold their own uniquely informed position and demonstrate their acquired expertise. Thus, conceptualising the personal resourcefulness students developed during the PhD as the acquisition of phronesis also captures the
epistemological and ontological changes that occurred during candidature and the
donous and practical knowledge and abilities students acquired—as evident through
their actions, and in their reasoned ways of being and thinking (phronesis). The
following chapter explores how processes of candidature may be understood as the
acquisition of the intellectual virtue of sophia.
6 Acquiring sophia

It is clear that intellectual accomplishment [sophia] will be the most precise of the kinds of knowledge [and is] a combination of intelligence [nous] and theoretical knowledge [epistêmè].

Aristotle (NE1141a15-20)

6.1 Introduction

Interrelated with the students’ increased personal resourcefulness during candidature was the growth in their intellectual understandings. This chapter explores how this intellectual growth may be understood as the acquisition of the intellectual virtue of sophia. The category of intellectual understandings that emerged from the data analysis describes the students’ increased mastery and capacity to synthesise and apply existing and new knowledge, theory and concepts. Inherent in intellectual understandings is the development of more critical ways of thinking and the ability to scrutinise connections between different ideas and information. Thus, the category of intellectual understandings includes the capacity the students acquired to recognise nuanced and different points of view and use their increased intellectual knowledge and understanding to appropriate existing theories and develop more sophisticated insights, analyses and conclusions.

The category of intellectual understandings mirrors the intellectual virtue of sophia. Aristotle described sophia as “a combination of systematic knowledge [epistêmè] and intelligence [nous]” (NE1141b1). Epistêmè is theoretical knowledge that aims to understand the primary definition of things; what it means for these things to be or do (Eikeland, 2008). Aristotle explained epistêmè as “subject matter capable of being learned” (NE1139b25) that relates to demonstrable knowledge that is systematically identified and relates to known universals (NE1139b30), for example gravity, cells,
molecules and generally forms of scientific knowledge. In contrast, nous is intellectual intuition that recognises the unique knowledge that individuals acquire through experience, that ingenuously supplements their thinking and enables them to ascertain the particular and relevant details of a certain situation (Nussbaum, 1986). Sophia, as the combination of the theoretical knowledge of epistêmê and the intuitive knowledge of nous has been translated as contemplative wisdom (Nussbaum, 1986), profound understanding (Pakaluk, 2005) and intellectual accomplishment (Broadie & Rowe, 2002). Aristotle recognised that sophia is “a part of excellence [the virtues] as a whole, [and] it is the possession of it, and its exercise, that makes a person happy” (NE1144a5). Thus the acquisition of sophia is one of the forms of knowledge that Aristotle argued helps individuals flourish and it is characterised by precision and depth of knowledge, and as it includes nous, it raises intellectual attainment (epistêmê) to theoretical mastery, or intellectual wisdom (Broadie & Rowe, 2002). Thus sophia, which is rendered here as intellectual knowledge, can be viewed as the theoretical counterpart of the practical knowledge of phronesis (Eikeland, 2008; Flyvbjerg, 2004).

6.2 Developing intellectual understandings: Acquiring sophia

While the acquisition of new intellectual knowledge and understandings during the PhD was often a complex and challenging process, as a group, the students in the study saw their increased intellectual capacities and research abilities as an opportunity to generate new understandings and discover important ideas about their research area. All described that they felt their research had the potential to transform and improve existing knowledge and practices and improve some part of society, as well as their own knowledge and understandings. For all the students, this sense of contributing to society and growing in their knowledge and understandings was an important part of candidature that simultaneously sustained and motivated them and assuaged the hard grind of the PhD; “I feel this joy to know that what I’m doing will inform practice . . . it encourages me” (Michelle). For instance, James described how he revelled in actively contributing to intellectually stimulating academic debates in his Centre, Frances enjoyed having “time to do research and take time out from the world to really sit down and look at something and understand it better” (epistêmê and nous) and Oliver delighted in having the opportunity “to swim in an ocean of
books and thoughts and have the privilege to have three years to think [sophia] and then to act upon that in some way [phronesis].” Jane’s account captures how her deep engagement in the intellectual learning processes of the PhD throughout candidature provided her with intellectual knowledge (sophia) and also a deeper appreciation of the processes of the PhD that informed and motivated her learning and enabled her to flourish, both personally and intellectually.

**Jane’s story**

After nearly 20 years of working in industry after completing her first degree with first class honours, Jane successfully applied for a PhD scholarship and returned to full-time study. She recounted how privileged she felt to be able to do her PhD and the joy she felt in the intellectual learning processes she engaged in.

It’s wonderful that I’ve got this opportunity. As I said, it’s been a luxury to be able to do it and be able to do it full-time. The best part of it is that sense of discovery and also the luxury of concentrating on something rather than being constantly multitasking with different activities, as you do. It [the PhD process] really recaptured for me a joy of learning which I’d left behind. It’s exciting, that sense of discovery and there are days when I think “Oh this is great. I’m really getting into something new here” and you’ve just got that intellectual stimulation and challenge which is really good . . . I go “This is great.” (Jane)

As doctoral education, by its nature, asks students to address difficult questions, push their intellectual abilities and broaden their understandings (Walker et al., 2008), such motivators were important in sustaining the students’ motivation during the PhD process, particularly during challenging periods. In reflecting on their intellectual learning, many of the students in the study admitted that they had struggled at times to grasp the scope of concepts and ideas they examined and enquired into over the period of their studies. Especially in the early stages of candidature, many of the students found the thinking involved in the PhD process a huge challenge. Capturing the sentiments of many of the students, Susannah recalled it was “a big thing to struggle with intellectually . . . to work out exactly how I’m dealing with it . . . it’s been difficult.”
The students in the study frequently spoke at length of the difficulties they experienced in determining and articulating a cohesive and robust research methodology. At the core of these discussions were the intellectual struggles they had worked through in distilling and articulating a research philosophy about their ontological and epistemological position and synthesising these with an appropriate research methodology and methods. A researcher’s choice of methodology is underpinned by what they view and understand social reality to be (ontology) and how they come to discover and understood that social reality (epistemology) (Blaikie, 2000; Grix, 2002). Thus, for the students, what they deemed could be known and researched, how they linked what can be known about it and how they went about acquiring that knowledge were aspects of candidature that challenged and developed their intellectual understandings.

Like the acquisition of personal resourcefulness and phronesis, acquiring new intellectual knowledge and understandings (sophia) during the PhD was often a complex and challenging process. All except one student recounted that the intellectual learning involved in understanding and distilling an ontological and epistemological position was demanding and often confronting. It was also usually a prolonged, often frustrating and solitary process that required the students to traverse across the literature and to explore and engage with concepts and theories that had diffused into nuanced interpretations of a core concept or theory and then distil a cogent understanding from the diversity of approaches. Jane, capturing the exasperation many students expressed about the ongoing process of developing a refined understanding of their ontological and epistemological position described it as “continually trying to grab something in a cloud”. Although the intellectual learning involved in developing these intellectual understandings was often invisible, the students in the study described it as being amongst the hardest and most demanding aspects of candidature. Michelle likened it to untangling a huge, knotty problem. Sonya captured the iterative process many of the students in the study described.

I went back to the literature and read some more up to date papers and tried to really analyse how other people used the theory. I tried to use their
thinking to give me a new perspective on my thinking [as] it adds a whole new dimension and a whole lot of other possibilities. (Sonya)

While recalling the challenges of developing her intellectual understandings, Michelle also nominated this as one of the most rewarding aspects of the PhD process, for in persevering to make sense of the different research approaches she came to recognise “about ten interpretations—so you progress from very naïve to a very creative, exploratory kind of learning.” Likewise, and although Jane had expressed frustration at “continually trying to grab something in a cloud”, she went on to state that exploring the different ways to approach and frame her research was one of the most difficult but satisfying parts of candidature; “it has made me aware of the ability to pick and choose an avenue for learning or for the pursuit of knowledge . . . So that’s the best part of it, that sense of discovery” (Jane). Like Jane and Michelle, Elizabeth also valued the intellectual learning that the processes of candidature developed.

A real strength that you get from doctoral study is it develops your ability to think critically and to see things from different points of view. So often we can only imagine things in our own way, our own way of doing things and doing a doctorate teaches you how to see things and approach a problem from many different aspects. (Elizabeth)

Aristotle recognised that the possession of sophia, and its exercise, makes a person happy (NE1144a3-5). The students’ accounts reflect Aristotle’s observation and also indicate how intellectual accomplishment produced and sustained factors such as intrinsic motivation, satisfaction and accomplishment that influence and enhance students’ progression through their doctoral studies.

The majority of students were surprised however at the length of time it took them to develop a cogent understanding of which methodology best reflected their personal philosophy and was most appropriate to the research purpose. While one student reported that it took her six months to distil a clear understanding of her research philosophy, many had taken over 12 months, and some up to 24 months, to resolve issues they encountered with determining which methodology to use. For these
students, as for the students in Salmon’s (1992) study, “achieving a methodological approach which is consonant with one’s own values and concerns typically involves the longest struggle in research work and the deepest kinds of engagement” (p. 77). However, the students’ accounts also highlight that actions and experience (phronesis) facilitate and are requisites for, developing intellectual knowledge (sophia), which also develops internally—from within the students—to sustain the students’ intellectual learning.

The processes of refining and determining a methodology, combined with the other intellectual work the students engaged in during candidature also promoted the students’ capacities to recognise and make connections (nous) between seemingly disparate ideas and to use these understandings to recognise salient features and develop new theories and models for analysing and understanding their work (epistēmē). Many of the students in the study recounted moments during the processes of candidature when connections and new ways to conceptualise ideas and data were recognised. For example, for Elizabeth, as for many of the students, her intellectual understandings grew as a result of “lots of little moments when you’re struggling with something and then it just comes together.” Such perceptual knowledge parallels Aristotle’s notion of nous, which informs both the theoretical/rational part of the soul (epistēmikon) and the practical/emotional part of the soul (logisticon) (Pakaluk, 2005). Nous is the perceptual knowledge that is informed and acquired through theoretical principles and knowledge and by experiences that inform and develop insights and understandings. In developing and grasping new ways of thinking and understanding students’ intellectual growth, as well as their increased tenacity, resilience and determination to learn can be seen as interwoven processes of learning during candidature which promote the acquisition of new ways of understanding and thinking (sophia) and consequently, different and new ways of acting and being (phronesis).

Other students, like James, recounted they “had to do certain sorts of intellectual work to bring me to the point where it makes sense.” This intellectual work included ongoing reading, reflecting and writing throughout the PhD process: “The activities of talking and reflecting and reading certainly support the intellectual work that goes into the production of a PhD” (James). For Peter, mind mapping facilitated and
enhanced intellectual understandings: “I couldn’t get my ideas out because they came from so many different places so I got a huge piece of paper and did a map of it, with quotes and references . . . and from that put it onto the page.” For Susannah and Beth it was something they needed to work through alone, and over a period of time.

I want to be by myself because it’s my particular take on things and how do I develop that and pin that down . . . I feel surer about it now, but earlier you know, there was a little bit of shyness because I’m using a completely different theoretician not generally accepted in academia, so that also makes me feel, “Well, exactly how am I going to use what he says and why and then how do I explain that?” (Susannah)

I was really immersed in the data. I couldn’t disentangle myself from the data. And then for months I didn’t write. I thought about my PhD everyday . . . but I actually physically didn’t write and it was really good. I was actually able to get out and look back at it in a much different, in a more critical way and say what I needed to say. (Beth)

The students in the study described how activities such as these often helped to sharpen their analytical thinking and broaden their ways of seeing and understanding.

Sometimes it took me a while to understand but I think that that’s part of that learning experience. If I didn’t get something then I’d review what I’d written and I’d think about it some more or do more reading . . . eventually I would get there. (Lauren)

There was a whole pile of learning to do with . . . focused reading, exploring widely too, the unfocused reading. Serendipity—falling across a book or an article that could . . . be very interesting or totally dud. (Oliver)

The students described that the intellectual learning and knowledge they acquired during the PhD was not discrete from the other categories of learning. Reflecting Aristotle’s observation that theoretical knowledge by itself sets nothing in motion (NE1139b1), the students’ recounts convey that as they developed deeper intellectual
understandings (sophia) during candidature, they also drew on the practical and perceptual knowledge (phronesis) they were accruing to set that knowledge in motion. The analogous relationship between the new ways of thinking (sophia) and acting (phronesis) that the PhD process promoted is evident in the new ways of thinking and understanding that Sonya, Jane, Elizabeth, James, Peter, Lauren and Oliver described.

**Frances’s story**

For Frances, the experience of working with supervisors who espoused a different epistemology and ontology to herself during candidature broadened and strengthened her ontological and epistemological understandings. She recounted that the numerous debates between herself and her supervisors about their different perspectives extended and enhanced her understandings of different research paradigms. She thought these processes had made her more critical yet also more open minded in her appreciation of diversity and in her everyday actions and understandings.

The word that strikes me is that it’s a journey because I’ve changed so much. I’ve changed because of my fieldwork. I’ve changed because of what I’m reading and I’ve changed because of my relationship with my writing. I’ve changed some of my ideas and some of my values as well and from them my commitments, so it’s a constant evolution. Now I stand back from having a one dimensional view, whether it be a participant or a theorist or a scholar, to seeing what might have contributed to that or what lies behind that. (Frances)

For most of the students in the study, managing uncertainty was also an inherent part of developing and refining their ontology and epistemology and developing their intellectual knowledge. The sometimes protracted periods of uncertainty these students experienced often provoked anxiety, insecurity and frustration. The students described that because they had invested so much of themselves, their energy, time and effort into the PhD process it frequently taxed them emotionally and created feelings of insecurity that needed to be managed, as discussed in Chapter 5. Thus the students’ accounts confirm previous observations that during the PhD process students are exposed to academic discourses that can fracture their previously held
conceptions and understandings and unsettle their pre-existing self-images (Barnett, 2007; Brew, 2001; Phillips & Pugh, 2005).

The uncertainty the students experienced in developing their intellectual understandings aligns with Dreyfus and Dreyfus’s (2001; 1980) theory of learning. Dreyfus and Dreyfus (2001; 1980) observe that as students become more personally invested in their learning and extend their understandings into new and different areas they progress from a novice learner uncritically following the rules to proficient and expert learners. Attaining these higher stages of learning however is frequently stressful, as they require the learner to rely more and more on their own understanding and perspective of each situation or piece of information to determine their actions. As individuals need to make increasingly difficult choices to progress their understandings, this learning is often frightening, exhausting and confusing. Dreyfus and Dreyfus’s (2001; 1980) theory highlights that uncertainty and anxiety are integral elements of the learning process, yet such personal impacts of the learning processes of the PhD are rarely recognised or considered in skills and training metrics and approaches to doctoral education (Barnacle, 2005; Boud & Lee, 2005; Brew, 2001). Rather, the uncertainty and stress students experience are often regarded as an impediment to their learning, or as an indication of a student’s personal problems or unsuitability to be undertaking a PhD (Barron & Zeegers, 2002; Craswell, 2007; Pearson, 1999).

I felt like I was on the right track but all the time I was second guessing myself and wondering if I was doing the right thing. There was a lot of trial and error involved. (Kim)

I was working very long hours, I was a bit stressed, a bit tired all the time . . . I did pass a lot of intellectual ground but one of the biggest things of the PhD, you don’t know how you’re going because you’re on your own personal journey. (Pam)

Reflecting on their experiences during candidature and the growth in their intellectual understandings, the students in the study recognised these occurrences as necessary to the processes of developing their intellectual capacities. Catherine
explained that although this level of intellectual work was difficult, the processes of the PhD sharpened her analytical view and enabled her to “let go of theories that I had strongly held on to. If I found a better way to explain the results and that is the academic part of this process.” Thus the processes of candidature extended the students’ intellectual understandings and informed a deeper appreciation of the different ways they could interpret, understand and present their data (sophia) and how they could meet and manage the challenges involved (phronesis).

It does provoke anxiety. It does make one question oneself, but I now think that’s productive and helpful. And it helps make my thinking more robust or it models for me how I might deal with something and think, write, speak. It challenges me. (James)

Some of the students’ accounts echoed themes in the wider literature, such as a journey, and a new way of seeing things (e.g. Bradbury-Jones, 2007; Nyquist et al., 1999). Frances, Pam and Kim likened the formative processes of developing their intellectual understandings and learning during candidature to “a journey”. Elizabeth related that the intellectual learning processes she had experienced during the PhD process had “opened up a world to me, it’s really broadened my thinking”. While they did not use metaphors, many other students explained that the intellectual learning processes of the PhD had provoked them to critically question how they understood things and challenged them to develop new and different understandings of their research, of how they viewed and interpreted their research and beyond that, of how they understood and viewed reality. The impacts of this aspect of the intellectual learning that occurred during the PhD were profound for some students. Clare recounted that “In theory, I was producing research that would have value for the industry. But certainly the process produces changes in the person, it does something.” Like Clare, Sonya also recounted that her understandings had changed.

The PhD polarises—you start off with your own view of the world and then to some extent you counter-balance it with a different view of the world. You have to make a choice, “How do I see my data, how do I structure my epistemology, how do I understanding knowing the truth and everything, in order to deal with it?” And so that changes the way that you view things. But
it’s quite a subtle difference. That’s one of the reasons I think why doing a PhD leads to restructuring your thinking, changing your life. (Sonya)

Brew (2001) notes that, “Anyone who has ever embarked on . . . a doctorate will also know that in learning how to do research and in learning about the subject they are researching, they also learn about themselves” (p. 129). The experiences of Sonya, Clare and James (cited above) and other students echo Brew’s observation. These students described how the processes of the PhD had helped them to recognise their learning approach. These students described the PhD as a reflective process of coming to know their own thinking style and developing a much clearer understanding of the processes and factors that contributed to building this knowledge of themselves and how this knowledge facilitated their broader intellectual understandings.

I’ve learned to think about how I think. My approach to stuff, to thinking, to studying, to this [PhD] . . . you know, learning style and all that sort of stuff. (Oliver)

Although the intellectual work of the PhD was most often described as a solitary process, many students reported that interactions with supervisors and peers supported and enhanced the process. Most students described how discussing their emerging understandings with their supervisor and other students helped to refine a deeper understanding of different research methodologies; “talking about it [the broader literature and emergent understanding] as it specifically relates to my research helped. So there’s that movement between a broad theoretical context and its specific application to my project” (James). Confirming the benefits of social learning opportunities described in Chapter 5, these students recalled how the often intellectually challenging nature of social interactions prompted new ideas and extended their intellectual understandings and knowledge.

Twenty one of the students described how interactions with their supervisor had promoted their theoretical understandings. Many of the students recounted that discussions with their supervisors often challenged them to think more critically and analytically, thereby broadening their perspectives and understandings. Bob related
that his supervisor would say “That’s good, but you might find it better if you say it this way, or check these readings’ and explain it a bit.” While James explained that his supervisor facilitated his intellectual understandings through “collaborative writing projects, opportunities to participate in forums and conferences [and] reviewing journal articles.” All of the students appreciated such supervisory input, as captured in Lisa’s and Lauren’s interview excerpts.

Actually having my principal supervisor as my principal supervisor [was among the highlights of candidature]. I know that I said that he was difficult to begin with, and he still is. Don’t get me wrong. He can still be—he is a very critical person . . . But honestly, to have had him as a PhD supervisor, I feel very, very fortunate. I have learnt an incredible amount from him and my other supervisors, from what they made me do . . . they made me extend myself beyond what I thought I was capable of. (Lisa)

I had a professor who really challenged me at the intellectual level, challenged me with some of the material that I had written, and some of the theories and how I applied that in my overall dissertation so she really was able to help me make that move from the big picture to the real picture. (Lauren)

Other students recalled more casual interactions in which they felt like a colleague, working with their supervisor to refine the arguments and nuances of their research and build their intellectual understandings.

Many hours have been spent on either side of my supervisor’s desk, talking over papers and discussing ideas . . . Like the wise person sharing their knowledge with you and helping you to discover things for yourself. (Jane)

Evident in the students’ accounts is the situated complexity that is integral to the learning processes of the PhD. Like developing personal resourcefulness, developing intellectual understandings during candidature occurred through different avenues and in many different ways and from various experiences, which often impacted the students in the study in nuanced yet similar ways. For example, working alone to develop their intellectual understandings was pleasurable for a few students, a
challenge for many more and simply an expected part of the PhD process for others. An impact all the students recognised however was the development of more sophisticated intellectual understandings and knowledge. Similarly, although the students’ experiences of supervision were different, all recognised how these interactions had also enhanced their understandings and intellectual growth.

The students’ different, yet similar experiences during candidature show how the interactive process between individuals and their different environments can promote or inhibit understanding (Illeiris, 2007). Illeiris (2007) proposed that all learning consists of the two interrelated processes of interaction and acquisition. While interaction relates to the processes that occur between the individual and the environment or the social elements of learning, acquisition relates to the processes of acquiring knowledge, which always include content and incentive (Illeiris, 2007). The students’ accounts convey the significance of the processes of the PhD in promoting and enhancing their learning, in different ways and through different avenues. The students’ accounts also highlight how students’ interactions during candidature both facilitated and challenged their learning (epistêmè), actions (phronesis), motivations and emotions (nous), which are fundamental to sustaining learning.

For 19 of the students their increased theoretical understandings strengthened their beliefs about the wider purposes of their research and of undertaking a PhD. For these students, their reasons for doing a PhD included becoming researchers and scholars who could make some contribution to knowledge and to bettering society. Many students expressed a desire for their research to be useful in improving and informing the research area, as well as to be theoretically sound. Each of these students in the study saw their research purpose as extending understandings and knowledge; to be “part of a continuing investment in a deeper understanding rather than a quick fix approach to the question.” (Jane)

In NE, Aristotle was concerned to make explicit the implicit understandings of the virtues and practically set down how individuals may strive to achieve them and thus achieve eudaimonia in life and flourish, as individuals and as a society. For Aristotle, eudaimonia was the telos (purpose) of human life. Although eudaimonia is most frequently interpreted as happiness, Broadie and Rowe (2002) have noted that in
general usage happiness is associated with periods of feeling good and being pleased. Yet to be *eudaimon* (the adjective), is not fleeting or about something; it is not an attitude or a feeling that is ascribed to someone (Broadie & Rowe, 2002). Eudaimonia in the Aristotelian sense is deeper, longer lasting and stable and as it is made up of activities for living well it is active and dynamic (Vella, 2008). Vella (2008) therefore renders eudaimonia as success or flourishing, and this captures the active, sustained nature of striving to achieve eudaimonia (to flourish well) as the telos an individual can work toward (NE1094a1-24, 1095a14-20, 1099b32-1100a1). The students’ increased intellectual understandings show the acquisition of sophia, which is concerned to provide deep understandings, and of phronesis that enabled them to enact their intellectual understandings and better inform their research with the aim of improving some aspect of society.

The way I see it, the purpose has to also be external to yourself, it has to be a bit wider. It has to somehow change the lives of people. (Catherine)

It’s [the PhD] learning how to learn, and learning about how knowledge is constructed and then how that knowledge has meaning for broader society. (Jane)

My research is concerned with anthropology, ethnography, public health, environment—it really cuts across all those areas . . . ultimately I hope it brings about some sort of positive sustained change at the personal level [of people] because I knew from the beginning I wasn’t going to do something that was going be a shelf document. (Lauren)

The students’ accounts of their increased intellectual understandings and motivations for their research resonate with the notion of PhD stewards as scholars of the discipline; researchers who have acquired “a set of knowledge and skills, as well as a set of principles” (Walker et al., 2008, p. 12) that guide their research. These students did see themselves first and foremost as scholars. They also saw themselves as active and engaged individuals who were contributing to the public good of society through the intellectual and other knowledge they acquired through the learning processes of the PhD. The students’ accounts of increased intellectual understandings also
indicate however, how the processes of candidature contribute to the development of knowledge workers producing knowledge to benefit contemporary knowledge society. This was evident in the students’ research interests and areas, which included addressing conservation problems, workplace safety issues, cross-cultural issues, exploring and enlivening historical events and examining different approaches to resolving issues in education, community work, and business and management practices. From an Aristotelian perspective, the intellectual knowledge the students developed during the processes of candidature can be seen as the acquisition of sophia.

6.3 Conclusion

Sophia, as intellectual understanding, is one of the interrelated and interdependent types of knowledge Aristotle identified as necessary to inform human reasoning and actions (NE1139b15-20). It has been argued that Aristotle regarded sophia as the most important of the intellectual virtues. because in different passages in EN he suggests that sophia, as theoretical knowledge, is of greater value than phronesis (Pakaluk, 2005) (NE1141a20-22). Aristotle clearly states however that the acquisition of sophia alone is insufficient knowledge to inform individual’s actions and thinking. This is because the theoretical, abstract knowledge of knowing why (sophia), can not set anything in motion by itself. Thus, the theoretical knowledge of sophia needs the practical knowledge and action of phronesis if it is to be demonstrated and set in motion (NE1139a35, NE1144a3-5, 1145a6-9). The students’ accounts demonstrate Aristotle’s observation, for while their increased intellectual understandings and theoretical knowledge advanced their knowledge and understandings, they required the practical knowledge of phronesis to determine and choose how best to use, disseminate and apply this knowledge. Yet, emphasising the interrelatedness of the virtues, nor can phronesis operate without sophia; for while “the way we learn the things we should do, knowing how to do them, is by doing them” (NE1103b1) “practical knowledge needs both kinds of knowledge” (NE1141b20), phronesis and sophia, if it is to be acquired and actualised. James captured the interrelationship between sophia and phronesis when he explained “there’s that movement between a broad theoretical context and its specific application to my project.” (James)
As intellectual knowledge, sophia involves contemplation, theoretical knowledge (epistêmê), intuition (nous) and understanding and it uses inductive and deductive reasoning to arrive at some understanding. Thus sophia is interested in acquiring and understanding knowledge of general rules (NE1139b20-30) by performing theoria—the activity of contemplation, observation and analysis to gain knowledge (Saugstad, 2002). As intellectual knowledge, sophia is therefore situated in the theoretical domain which is not influenced by the capriciousness of life or particular circumstances (Saugstad, 2002). Sophia is therefore a simpler concept than phronesis, but as evident in the students’ accounts, it is a necessary and integral part of the learning and knowledge that students acquire during the PhD experience.

Aristotle attached different kinds of learning to different kinds of knowledge. Intellectual understandings and learning indicated the acquisition of sophia. Practical learning and knowledge indicated the acquisition of phronesis. The ability of individuals to use the practical knowledge of phronesis and the intellectual knowledge of sophia to make things, indicated the learning and knowledge associated with technè—the productive knowledge to bring things into being (NE1139b1). Chapters 5 and 6 have illustrated the relationships between different activities and processes students engage in and experience during the PhD with the practical and intellectual knowledge of phronesis and sophia. Chapter 7 explores how the students’ experiences during candidature developed the productive knowledge of technè.
7  

Acquiring technè

Technical expertise [technè] is concerned with the practice and theory of how to bring something into being . . . the origin of which lies in the producer.

Aristotle (NE1140a10)

7.1 Introduction

Throughout their interviews, students in the study spoke of their increased abilities to undertake research, organise themselves and demonstrate leadership, communicate more effectively, recognise opportunities to build their workplace skills and curriculum vitae and also lead research projects. These areas of impact align with the productive learning that is associated with Aristotle’s intellectual virtue of technè. This chapter describes the students’ experiences during candidature that contributed to the development of these capacities and thus the acquisition of technè.

The intellectual virtue of technè is often translated as craft knowledge. It is defined by Aristotle as “a state involving true reason concerned with production” (NE1140a20). Thus, technè is knowledge of the principles and actions necessary to bring things into being to accomplish a particular objective and give an account of what was brought into being (Halse & Malfroy, 2010). Aristotle explained that technè is the productive application and demonstration of the practical knowledge of phronesis and of the intellectual knowledge of sophia. Technè is productive knowledge that is concerned with fruitful, creative work. It is acquired through different experiences and processes than the practical knowledge of phronesis and sophia, yet both phronesis and sophia are required to develop the productive, creative capacities that distinguish technè. Thus, as Eikeland (2008) points out, phronesis and sophia are prerequisites for the acquisition of technè.
7.2 Developing productive knowledges; acquiring technè

7.2.1 Research capacity

In broad terms, the category of research capacity that emerged from the data describes the students’ increased abilities and competence to undertake a systematic investigation of a research question or problem. Students in the study, for instance, described how learning and improving their capacity to use different software programmes increased their effectiveness and confidence in their research abilities. For example, becoming adept at using qualitative and quantitative software programmes such as NVivo and SPSS, employing referencing programmes like Endnote and using voice recognition softwares for data collection and transcription were frequently identified by students as useful, time saving technical skills that they acquired during candidature and that significantly improved their capacity to accomplish specific goals involved in their research.

As a result of becoming competent in these areas, the students described how they then developed greater familiarity and proficiency with other forms of technology such as scanners, webcams and digital cameras and recorders, which enhanced their research capacities. Elaborating on the nature of their research projects, some of the students recounted how they had acquired more sophisticated technical skills to operate and maintain highly specialised research equipment and/or adapt equipment and programs. Indicating their increased knowledge and proficiency, some students described how they combined research softwares to develop their own stimuli and then applied these to different areas to further explore their research topic.

I developed immense research skills . . . and the practical application for what I’ve done is that I can pretty much go into any laboratory and work any instrument and that’s simply from being exposed to many different techniques. (Kim)

The students experienced other processes while undertaking their research that helped to develop their research capacities in other areas. Collecting data from participants developed the students’ knowledge and understandings of the
requirements of different research methods, for example doing interviews, implementing questionnaires and distributing surveys. The processes of data analysis often required the students to become familiar with various qualitative and quantitative data management programmes. All of the students noted that these programmes were helpful in organising the data and some students also explained that they used the software programmes to display their data in different ways, for example diagrams and mind maps, to help facilitate insightful and different interpretations that reflected the empirical data. As Leah explained: “[The PhD process] teaches you how to research and really make you look at the process of research . . . teaches you the processes of how to work with participants and how to analyse data.” Over the period of their research, the students became more adept at each process and their increased abilities often combined to develop their research capacity beyond the technical implementation of a method or research process to the acquisition of the craft knowledge associated with technē.

At UWS, all PhD students are required to complete a formal Confirmation of Candidature (CoC) and students spend the early stages of candidature clarifying their research focus/topic and developing a formal research proposal for their CoC. Depending on the research focus and discipline area, the proposal is between 2,000 to 10,000 words long and includes a review of the literature, a discussion on the conceptual and theoretical contributions the research will make, how the research project will be implemented, what theories will underpin it and the potential outcomes of the research. The written proposal is reviewed by an expert panel of academics chosen by the primary supervisor and the student presents a synopsis of the research proposal to the expert panel. Some students identified the CoC as a process of candidature that particularly helped distil and confirm their research focus, conceptual framework and the sorts of methods required to answer their research question. For students this experience confirmed that their understanding of the processes involved in doing research was increasing and that their research capacities were developing. As Kate explained: “The confirmation of candidature, I guess it would have been two weeks before that, that’s when it clicked, up until then I was not quite sure what I was doing.” Grace and Erica’s experiences were similar:
What was really useful was doing the [CoC] proposal. I did a lot of work in the first year. I put the questionnaire and everything together, I did all of the protocols of the trial, of course it changed, but I did it all. I was booked in for a Masters and I ended up getting upgrades because I had so much there. So that was very helpful. (Grace)

And it helped me intellectually—it made me think differently. It made me rationalise why I did what I did because previously I would say “It was just like you know who wrote”, or “this is the schedule of doing a randomised trial and this is what I did” and things like that. So it actually let me think about it. It gave me time to think about it because I had to write on why I used this design so it actually made me think more and I had to conceptualise the whole project and different parts of the study. (Erica)

All PhD students at UWS need to successfully “pass” the CoC before they can submit an application to the UWS Human Research Ethics Committee (HREC) seeking approval to implement their research. All the students recalled that preparing a research proposal that met ethics requirements helped them to fine tune the practical implementation of their research design; for example, ensuring services were in place to support the physical and emotional well-being of the participants, that data storage arrangements were made and survey forms and questionnaires were professional and appropriate.

Leah, and two other students, had to re-submit their ethics applications to address various concerns raised by the HREC about racial and sexual discrimination concerns with undertaking their research. These students recognised how refining their ethics application improved their research by prompting them to develop a more critical, sensitive and inclusive approach to their research area and to their research participants. As with all the students, the ethics processes emphasised to these students the responsibility they had as researchers to implement, undertake, manage and present their research with care and rigour. These processes also strengthened the students’ research capacities because they required them to submit ethics applications which recognised and addressed the multiple factors involved in undertaking research that upheld the imperatives of confidentiality, anonymity,
informed consent, truthfulness, respect, privacy and care as established by the National Health and Medical Research Council (NHMRC) (1999). This included for example, ensuring the research clearly identified and addressed potential areas of risk or burden to participants, ensuring confidentiality and protecting participants’ identity, fully informing participants of the research requirements and expectations and how the research will be disseminated. Thus, in completing their ethics proposals and gaining approval, students demonstrated their acquired expertise (technē) to develop and implement their research ethically and professionally. Leah explained that this was a particularly productive process in terms of her personal and professional growth.

I had to do an awful lot of investigation for ethics and I ended up writing three papers on ethics that were published and now I’m actually teaching ethics because the process of ethics made me go and do more research to establish my research position. (Leah)

The students often cited their supervisor as a source of help in enabling them to understand the intricacies of developing a cohesive research project and bring it into being. For example, some students described that their supervisor helped them see areas of dissonance in their research design such as a mismatch between the research aim, the student’s epistemology and the research methodology, and then suggested ways of addressing these inconsistencies. Other students described how a suggestion or feedback on written work from their supervisor would clarify their research design and their plan for implementing their work. Others described how their supervisors helped clarify and refine the research tools they proposed using, for example, survey questionnaires, interview questions and statistical analyses. In such ways, the processes involved in the PhD helped the students to develop and extend their research capacity.

My supervisor helped me a lot by giving me feedback, my drafts. She helped me a lot highlighting where I need to kind of improve and elaborate on it or argue to link it to your studies. These kind of guidelines were really, really helpful. (Catherine)
[My supervisor] said “I can give you a little bit of support around getting started, just some technical stuff”, and she came out in the field one day and . . . she said “Well why don't you do this?” and just a few times she would make suggestions. (Ros)

One of my co-supervisors had done a lot of survey work in the past so she gave me a lot of feedback on how to do and test the validity of the questionnaire. (Grace)

The ability to produce research and account for the processes involved was a process that all of the students directly linked with the development of their intellectual (sophia) and practical (phronesis) knowledge. Jane’s interview excerpt (below) illustrates how these knowledges underpinned the increase in her research capacities.

You pick up specific technical skills and the technique that you’re using, so for example NVivo software, which is a technical skill. And then you have the underlying technique which is thematic analysis, but you also understand the need to substantiate your work and also be critical of sources. (Jane)

In describing some of the processes involved in bringing her research to fruition, the interview excerpts from Jane, Leah and Erica also capture how experiences during candidature heightened and crafted the students’ research capacities. Similarly, the interview extract from Lauren (below) illustrates the interconnections between the active, productive knowledge of technè and the practical knowledge of phronesis and intellectual understandings of sophia and demonstrates how these interconnections can enhance students’ understandings and progress their abilities from the acquisition of craft knowledge to craft expertise (technè).

I get asked to take on research projects or to write units for people or to do different things. And I can say “Yeah I think I can do that. You tell me what it is you want done” and I'll be able to conceptualise it and know whether I can do it. And I'm confident to know when I can do it and I am confident to know when it’s not my area. (Lauren)
7.2.2 Organisation and leadership and project management

All the students recounted that implementing and keeping track of the multiple elements of their research design developed their organisation, leadership and management practices. As a group, the students identified particular aspects of implementing their research that helped them to organise and take a stronger leadership role in shaping and driving their work. These activities included systematically promoting their research to interested parties through telephone contacts, interviews and presentations, identifying and recruiting research participants/sites, designing and rolling out research surveys and/or interview schedules/questions, organising and undertaking group and individual interviews, managing and recording their data, reporting their progress in annual reports to the university. Some students also had to report on their research to external stakeholders. Bob, for example, attended quarterly meetings with industry stakeholders to update stakeholders, present findings and address issues or concerns. He organised the agenda for the meeting, recorded minutes and managed the ongoing interactions with the various stakeholders in between the meetings. So he could update stakeholders at any time, Bob developed a system to record each part of his research project. This included minutely diarising field trips, organising volunteer rosters, maintaining contact with all stakeholders and recording minutes of more formal meetings.

I normally give a formal presentation to update them on our research. We have an agenda meeting, we provide them with minutes after each meeting and there’s also all the interactions in between the meetings when we’re going through the minutes and what has to be arranged for work to be achieved. (Bob)

For some students, the further requirements of coordinating field trips and research assistants, arranging the necessary permission from external parties and volunteers, as well as ensuring accommodation and catering and occupational health and safety regulations were in place, also developed their organisational, leadership and project managing abilities. Ros described the processes involved in bringing her research
project into being, and her account demonstrates how this process relied both on her productive knowledge (technè) and her practical knowledge (phronesis).

The whole thing was huge. At one stage we joked that it was like trying to get a three ring circus out on the road. I would contact the landholders, I would arrange access to the site, I would go and make the initial inspection of the site, I would look at the logistics of what we needed, think about how were would get the gear there, organise enough people to be on site, all that sort of stuff. (Ros)

Ros, with several other students, described that their organisational and leadership skills had been developed through managing challenging circumstances during candidature, especially in managing data collection and fieldwork. These challenges included maintaining a professional, working relationship with RAs who did not complete fieldwork to the expected standard or in the required time frame. Ros explained that such situations could significantly impact on the amount of work that was completed during a field trip and also adversely impact the atmosphere in the work environment. Ros described how she learnt to address such issues as they arose, reminding the students they were being paid to meet their responsibilities, and even pre-empting situations at times by providing the RAs with detailed work plans for the period of the field trip. In such ways, Ros felt she developed her leadership and project management skills to a higher professional level and simultaneously enhanced the research environment and outcomes of field trips.

**Grace’s story**

Grace’s research involved over 1,200 participants recruited from ten sites in the Sydney metropolitan area. The first stage of the recruitment process involved contacting multiple service providers to promote the research and also ask for permission to promote the research through their services. Grace described this as an incredibly intense, stressful and long part of her candidature. She recounted that it was “a challenge for myself” to make the initial telephone call and get past the receptionist or switchboard operator to a person in a position of authority who could help her. She described how she sharpened her script, honed her delivery and with experience, received more expressions of interest and follow-up appointments than
rejections. Jane felt that in meeting such challenges throughout her project, she became an adroit project manager, able to recognise and address issues as they arose and work around problems to improve the outcome.

Learning how to manage a project is one of the things you need to go through to realise what the steps are. You make mistakes, and I’ve learned ‘You don’t do this’, ‘This would be better’ and so on. It’s a big learning exercise and it doesn’t matter how good your intentions are, people don’t always do what you want them to do. You can push and encourage, but ultimately if they want to do it they’ll do it. I think the skills that I have learned are working with people, rolling out a project and problem solving—I had to be on my toes. I had to do interviews for television—I’ve never done that before in my life! And then for radio and any time I had problems I could call him [supervisor], but a lot of it I thought ‘No, I’m going to have to do this myself. I’m going to have to sort my own problems out.” (Grace)

The need to be innovative and resourceful in maximising the resources, budget, equipment and facilities available to them developed the students’ abilities to organise, co-ordinate and manage the execution of their research projects. This need also prompted some students to take up productive opportunities as they arose. For example, two students approached different people in their professional network for financial or material support, and as a result of their initiative, they procured extra equipment to assist with their research. Similarly, students who were severely constrained by a lack of funding and equipment adopted an entrepreneurial approach to seeking research support. These students approached companies in their area of research and volunteered to make a presentation about their research or set up and staff company sponsored booths at community events in return for the opportunity to promote their research to the wider community with the aim of attracting volunteers, financial or material assistance. They also wrote to various companies to promote interest in and advocate the benefits of their research and request tangible support. In some cases, the students’ initiative paid off and they received funding or equipment for their research. Even when there were no apparent concrete returns, the students’ actions built their communication abilities (discussed later in this chapter) and usually led to the establishment of a relationship that students planned to use post-completion when looking for employment.
If no funding was forthcoming, students drew on their personal resourcefulness (phronesis and nous) by adopting alternative strategies, such as using their own money to buy second-hand equipment, negotiating an agreement with an external stakeholder or, most frequently, adapting their research to whatever resources were available. While the necessity to seek further material and/or financial funding was often described as stressful, the students recognised that, motivated by necessity they learnt to approach a problem from a different angle or came to see an alternative research approach. In such ways, these processes drew on and developed the students’ personal resourcefulness (phronesis and nous) in ways that built their productive knowledge (technè).

Such experiences demonstrate how students moved beyond a technical approach characterised by a formulaic, response-driven mode of action and organisation to manage their research and came to adopt a more inventive and productive approach. Their abilities to accomplish and master a particular objective were manifest in the initiative the students demonstrated in maximising equipment, resources and materials on limited budgets and in their abilities to overcome time constraints, equipment failures or administrative impediments. The development of these capacities demonstrates the acquisition of technè and the students’ increased abilities to master their situations by using and applying their practical knowledge and skills (phronesis and nous).

In combination, all the students felt these experiences promoted their research capacities and expertise in organising and leading a research project and in enabling them to become autonomous, independent workers. Research suggests that the collaborative nature of work in the Sciences makes it a greater struggle for these students to make the transition into independent scholars than for students in the Humanities, who are often more used to determining their research direction and following it (Jones, 2009). This was not evident in this research. The students from the Humanities described similar concerns and issues around designing and implementing their research, to the students in the Sciences. The students in the Sciences also frequently identified, like students in the Humanities, that managing supervision and institutional and departmental socialisation were areas of challenge during candidature (see Chapter 5). As a group, all the students in the study
described processes that had challenged them during the PhD undertaking, yet all valued the autonomy and mastery they developed through producing their research.

So I really felt like I had control over my project. So having that and having to learn how to manage the project, having to learn how to write, you know, improve your writing skills . . . The whole experience of having to stand on your own two feet, run your own project, manage your own time, gives me a great sense of independence. (Elizabeth)

I thought, “No, I need to learn how to work on my own and to get things done” and I can’t keep running to my supervisor. I mean the PhD study is meant to be, you know, you do it yourself. (Grace)

I’ve learned to work things out for myself in my time, often working on many different things at once. I’ve certainly learned to work, to be on my own, to discover facts but not only discover facts through literature but actually to connect them up between different researchers’ work and then back it up with my own research. (Pam)

7.2.3 Communication

Often, the students’ communication skills were enhanced through the social interactions and learning opportunities they engaged in during candidature. These included, for example, the writing circles and forums they joined and the teaching and other roles they undertook during their studies (see Chapter 5). Paré, Starke-Meyerring and McAlpine (2009) suggest that the rhetorical demands of the PhD exceed the demands of any other work that academics may produce. This is because there are few other instances in an academic setting in which individuals have to produce written work that meets the complex and sometimes competing aims of so many stakeholders. In the PhD these stakeholders include the student themselves, their supervisor or supervisory committee, and by default, the demands and wider agendas of the department and university and external stakeholders such as government, industry and business (Paré et al., 2009).
Written communication

For most of the students in the study, writing was a particular challenge. Many of the students described how crafting and re-crafting their writing during candidature refined and developed their written communication. Like the PhD students in other studies described (See Kamler, 2008; Maher et al., 2008; Paré et al., 2009), students in this study alternatively described writing during candidature as an enjoyable and magical or frustrating and wretched process. While Kim captured the highs of writing, “the writing part when it was going well, was like this magical thing”, Elizabeth captured the lows: “sitting down and writing the wretched thing, it’s like drinking poison.” The students described different avenues that facilitated the development and crafting of their writing. These included increasing their writing skills through the feedback they received from supervisors, as discussed in Chapter 5, co-writing with supervisors and attending Thesis Writing Circles.

Kamler (2008) argues that the extent to which supervisors support their students in writing varies considerably. Manathunga (2007a) contends that there remains a strong but unspoken tradition in doctoral supervision that PhD students should already possess excellent writing skills and Lee and Aitchison (2009) argue that in part, such a view contributes to PhD students generally having limited support in developing their written work. For eight students in this study, the critical, ongoing feedback of their supervisor on drafts of jointly authored papers was a key contributor in developing the style, flow and presentation of their written communication. These eight students had written collaboratively with their supervisor and each had at least one article published or in press on which they were lead author. Students explained how, with the benefit of the supervisor’s perspective, they learnt to step back from their work, assume another perspective and review it. The students explained that this included the ability to critically assess if they had maintained the focus of the work, identified and covered gaps in the argument, used precise expression and attended to the cohesiveness of the theoretical position as well as ensuring the technical aspects of writing such as flow, structure, punctuation and grammar. For these students, the experience of writing with their supervisor and then having that work published was a challenging yet productive experience that also informed their thesis writing.
Being mentored by my supervisor to co-write is really important... I've learned how to structure a 7,000 word article, how to maintain engagement with the reader, how to work with data in an economical way because of word limits etc... and what writing journal articles has helped me to see is the way in which a PhD can be thought of simultaneously as a large project in which there are a number of parts, but also as those parts themselves that are in some sense manageable and separate parts. So those writing skills have been particularly valuable. (James)

I learned a huge amount from her about writing, actually crafting not just the PhD thesis but scientific papers for publication and so far we've got two in print—one in print, one in press and four in review from the thesis. (Ros)

My writing style was very journal publication kind of style and to write the thesis was an effort. I thought it would be easy because I've got a good writing style but it wasn't. It was very difficult because it was a totally different writing style. But it was easier to do because my supervisor just said to me "First you need to write more about why it is, how you did it and why you did the things that you did." (Erica)

As a point of contrast to the experience of these eight students, Lisa described that learning to write during candidature was “mostly a process almost of osmosis rather than being actually taught how to write journal articles and how to write papers” because of the style of supervision she experienced (as discussed in Chapter 5). Lisa described feeling overwhelmed by the enormity of the writing task at times but went on to illustrate how the processes of working through her supervisor’s feedback, rewriting papers by trial and error and rejection, and reading other journal articles and papers in her field helped develop her writing skills and abilities. These processes developed Lisa’s working knowledge of the expectations and requirements of writing protocols and of writing for different audiences in different genres (technè), as well as enhance her personal resourcefulness and resilience (phronesis).

While six students had attended university workshops specific to organising the writing of a thesis, for example, ‘Guidelines on writing the literature review’ or ‘Writing for publication’, the majority recognised that the iterative processes of
writing throughout candidature had significantly increased their written abilities. While a few of the students preferred always to write alone and in private, most found that being part of a formal or informal writing group where they could present and discuss their work, nurtured the writing process. As discussed in Chapter 5, the social nature of these groups helped promote the students’ learning and in framing writing as a discursive, social and scholarly activity (Kamler & Thomson, 2004; Lee & Aitchison, 2009; Maher et al., 2008), such groups often helped the students gain a different perspective on their writing and develop a deeper understanding of the nuances and technicalities of written expression, writing genres and presentation styles.

Most of the students described how the combination of different writing activities helped to promote the knowledge (sophia) and experience (phronesis) required to identify what style, genre and standard of writing was required and also how to produce it (technè). For example, the students explained that becoming an accomplished academic writer required more than mechanically following the rules of writing a thesis as set out in various institutional guides, or in the wider self-help books on writing for the PhD. The students found, as Lee and Aitchison (2009) have noted, that the sort of knowledge included in such publications had limited transfer to the everyday practices and procedures of writing. The students explained that such resources were of limited use in helping them to determine the order of discussion in a research paper or thesis chapter so it would appear most logical to a wider audience, or in refining expression and paragraph structures. In such matters the students identified that the combination of working with their supervisors, attending writing circles and continually refining their writing alone and through the different writing activities they engaged in during candidature, facilitated the continual development of their written abilities and progressed their written communication from technical expertise to craft expertise (technè).

[I learnt] to decide on information that is necessary and information that is redundant—so that’s a skill. And I have cut out quite a bit of my literature review and rephrased it to make a stronger argument rather than listing a series of findings. (Catherine)
The most important thing I learned was about rigour, as a writer. I mean the writing's really important for me because I think it just illustrated for me the importance of finishing the task and not leaving lots of unwritten things and I think for me it was all about the writing process. (Clare)

I've learned a lot more about political correctness and bureaucracy and even about tone in emails and the rest to make sure you express yourself politely and correctly. (Bob)

**Oral communication**

All the students noted that their informal daily interactions with peers and others and the formal expectations of candidature helped to develop their oral communication skills. The examples the students described included their daily discussions with colleagues and peers around their research, explaining their research and research questions, justifying their research approach, discussing the literature and other research and arguing the strengths and weaknesses of different research methods. More formal interactions included initial contacts with potential research partners, interviews, presenting research progress and findings to external stakeholders, presenting their research in-house and at external seminars, forums and conferences with both academic and non-academic audiences. For a significant number of the students, promoting their research in such ways was a nerve wracking experience that they had learnt to manage. Some students recounted various strategies they used to help them. Grace described her experience of contacting potential research partners and following a script she had written, which helped her deliver the information professionally and smoothly. She felt that her articulate and professional manner helped the recruitment process and developed her oral communication abilities by enhancing her confidence in her interactions.

I had a script written out . . . and I would try to set up a meeting with the clinic manager. So if I saw them face to face and went through the project and showed them the questionnaire, then maybe they were going to be more interested. And I think that worked. (Grace)
In contrast, oral presentations had terrified Ros: “I would stand at the front . . . and I was so terrified I couldn’t think. I couldn’t remember. Even if I had written word for word what I needed to say, I could hardly read it.” Ros explained how preparing and practising her presentation to ensure the best performance possible had helped her to overcome her fear and developed her oral presentation skills. While she admitted she still struggled at times to be calm when presenting, she felt her experiences of lecturing, presenting at conferences and being interviewed about her research on a nationally televised, high profile, afternoon television show, for a national news bulletin and a lead article in a large newspaper, had also enhanced her oral communication.

All of the students recognised that opportunities to promote and discuss their research made them increasingly adept at crafting how they could most effectively present information to foster rapport, exchange information and develop mutual understandings. Formally presenting their research at conferences was the most commonly cited example of this process at work.

Presentation skills. That’s a big part of the PhD. I went to quite a few conferences and had to put together a presentation that was interesting, not only informative but engaging. When I started off I just put together pieces of information without making it sound interesting or engaging and that’s something that I’ve learned . . . if you’re in a conference people have to sit through a number of different presentations so you have to make your presentation engaging. (Catherine)

Yet for many students, like Ros (above) and Elizabeth, “Actually getting up and talking in front of people. Being able to communicate with people you’re speaking to . . . that has been one of the greatest challenges.” For students, doing the things they most feared during candidature often helped them to overcome their anxieties about presenting and helped them critically build their oral communication skills. This was because the students had to articulate the purposes of their research and justify their research aims, research methodology and methods—which also required the intellectual knowledge of sophia. For some students, the discussion periods after the presentation were further opportunities to enhance and refine their oral
communication abilities, as they strove to develop and refine precise explanations of different aspects of their research spontaneously. As Lauren explained, from the processes of preparing and doing presentations she “really learned how to write and to articulate ideas in the written form and that helped me to articulate them more clearly verbally.”

While most students regarded presenting their research at conferences as a key aspect of candidature that helped to develop their oral communication skills, some also saw it as an opportunity to establish connections with members of the wider research community. These students emphasised the importance of students promoting their own research, establishing a research profile and keeping their research in people’s minds. Six of the students related that they had met leading international researchers in their field at conferences they had attended. Two students reported they had maintained contact and shared information about their research and from this, plans were in progress to undertake further work together in the future; “she said ‘You’re someone I want to work with’ and she sent me a lovely email saying, ‘I’ll help you however I can.’ And I wouldn’t have met her if I hadn’t gone to those conferences.” (Elizabeth)

Peter was the sole member of the group to share that he preferred to “avoid conferences” because he felt they detracted his attention from his research. In contrast, Pam admitted that she “chased after conferences”. Amongst the students, Pam stood out as being the most proactive in recognising opportunities to enhance her communication skills and also in initiating avenues to raise her profile as a researcher for future career opportunities.

I would go out to the professional associations and take opportunities to speak, and also at conferences and what have you. I chased after conferences. It might take a couple of days out of my week to go down to some place . . . but there were skills that I was plainly hoping to develop and also develop in my profile (Pam).
For most students, their future employment was a significant area of concern. In reflecting on the experiences of candidature and the knowledges they had acquired, the students recognised their increased capacities to intentionally build a career in an area of their choice. In particular, the students recognised how the different work they had undertaken during their candidature strategically enhanced their Curriculum Vitae and potentially contributed to their attaining their desired future career.

When I started my PhD I wasn’t sure what I wanted to do after the PhD. So I wanted to make sure that in my candidature I’d give myself opportunities for other career paths. So then in my PhD that’s what I’ve done . . . teaching is one aspect and then, not just teaching, but moving on from tutoring to lecturing. And then hopefully moving on from there as well . . . so there’s the industry side—industry consultations. (Kate)

I wanted to have that teaching experience and have it in my CV and I’ve done clinical facilitating, and I’ve worked as a research assistant. (Michelle)

All the students spoke of their future employment plans. The academic work that 16 of the students had undertaken during candidature was generally valued as a stepping stone of experience. While the students’ experiences of their university employment were varied, as discussed in Chapter 5, all recognised that this work had increased their familiarity with institutional expectations, protocols and requirements. For example, those students who had worked as an RA had experience in clerical duties and were familiar with liaising with various parties across academic and professional contexts, summarising information and compiling reports. The students who had lectured and tutored described their increased competence in teaching, in their capacity to set and mark assessments and develop effective and engaging course outlines. Similarly, students who had worked in industry and business contexts had experience in different areas with a broad range of people. While the nature and number of sites varied according to disciplines and research focus, all students had gained familiarity with different work contexts either through part-time employment or because their research or data collection involved different work sites. In
combination, the students recognised these abilities as useful, valuable life skills and transferable workplace credentials. Erica explained “I’ve really learned how to do research . . . It’s good if it’s in your field, but even if it’s not, it’s how you actually go about doing the research that you learn and you can apply those principles to other fields.”

I think these sorts of skills—the ability to research, basically to go and find information, to draw connections between seemingly separate fields and drawing all of those things together, I think it is an experience that has grown me as a person and given me life skills. (Elizabeth)

I’ve done a PhD, I’ve got publications from it, I’m doing casual lecturing and I’m writing a unit as I go and I’ve just been offered a two day a week position project managing a larger project. I’ve been able to manage that particular project so that is evidence that I can manage similar projects and get employment doing it. (Ros)

Six of the students identified that attending various training workshops had facilitated a better understanding of specific, practical aspects of undertaking research. The workshops that were mentioned were Statistical Package for the Social Sciences (SPSS), Excel, Word for long documents, Introduction to NVivo and Endnote. The relatively low participation rate in such programmes and the importance the students placed on the day to day interactions and experiences during candidature in promoting their learning, highlight the importance of providing less formal learning contexts to facilitate the personal, practical, theoretical and productive learning that students acquire during the PhD process.

In her study on how cancer researchers do their work, Fujimura (1996) describes the ability of researchers to negotiate problems and adjust to the demands of each specific research context as the capacity of the researcher to make research problems “doable” (pp. 199-200). Fujimura (1996) explains that making a problem doable reflects the students’ abilities to move beyond the mechanical application of rules or particular techniques and encompasses the abilities to manage time and draw on their personal resources. Fujimura (1996) argues that it is this ability to make research
doable that enables students to articulate their needs and accomplish their work. In Aristotelian terms, the abilities to overcome problems and bring research into being signify the shift from technical expertise to the acquisition of techné, which is productive knowledge informed by phronesis and sophia.

The students’ experiences reflect a complex understanding and application of the productive knowledge they acquired during the PhD process. They highlight that this knowledge was not simply acquired through attending training workshops or by adopting an instrumental approach. Rather, and similarly to the processes that developed the students’ practical and intellectual understandings during candidature, the students’ accounts highlight how the day to day interactions, experiences and processes they engaged in during candidature promoted their research, organisation and leadership skills, communication, workplace and career and project management capacities. The students’ accounts indicate how these processes developed their knowledge across these areas and increased their capacities so they acquired the expert knowledge to bring their research into being.

The productive, craft knowledge the students acquired through the processes of candidature parallels Dreyfus’s (2001) notion of “expert learners” and those who have acquired “practical wisdom” (pp. 41,47). Expert learners, like the phronimos discussed in Chapter 5, are able to identify the things it is important to learn, and learn them. They can make things happen by establishing connections and distinguish what actions to take to bring something to fruition (Dreyfus, 2001). Expert learners, again like phronimos, are guided by their accrued practical, personal, intellectual, perceptual and contextual knowledge and use this to inform their thoughts and actions and bring things into being. Thus, experience and knowledge combine to enable and inform the mastery and craftsmanship that is symbolic of expert learners and also of techné.

7.3 Conclusion

The productive knowledge the students acquired during the PhD process enabled them to creatively and innovatively draw on their accrued experiences, knowledge and intuition to bring their research into being. The growth in the students’ research
capacities, organisational and leadership abilities, communication, workplace and career and project management—their productive knowledge—resonates with the intellectual virtue of technè. The students’ accounts relate the growth of their skills beyond the simple acquisition of skills. They reflect the students’ intent and practical knowledge in bringing their research into being with skill and expertise, as well as understanding the intellectual and theoretical processes that informed their productivity. The craft knowledge and understanding the students acquired over time and through experience in developing their research capacities, organisational and leadership abilities, communication, workplace and career and project management, thus indicate the acquisition of technè, informed by the practical knowledge of phronesis and the intellectual knowledge of sophia.
Might not doctoral research education be better conceived less instrumentally and more aspirationally—more philosophically?

Green (2009, pp. 243-44)

8.1 Introduction

The thesis of this research, as discussed in the preceding chapters, is that understanding impacts of the PhD as the acquisition of an interrelated suite of intellectual virtues enables a broad, integrated understanding of how the multiple and different activities and processes of candidature impact students during the PhD undertaking. This concluding chapter contextualises the substantive grounded theory within the wider field of doctoral education. It highlights how understanding impacts of the PhD process as the acquisition of a suite of intellectual virtues has the potential to promote a different and new way of understanding of the complex impacts students experience during the PhD process. In concluding, the chapter identifies avenues for future research that may build upon this thesis.

8.2 A review of the substantive theory

In grounded theory studies, and as detailed in Chapter 4, the conceptualisation of the empirical data must fit the participants’ experiences if it is to develop a substantive theory that is relevant and works to promote fresh understandings about the topic of study (Glaser, 1978; Glaser & Strauss, 1967; Strauss & Corbin, 1998). In grounded theory, “work” means that “a theory should be able to explain what happened, predict what will happen and interpret what is happening” in the area of enquiry (Glaser, 1978, p. 4). In theorising impacts of the PhD as the acquisition of phronesis, sophia and technè, this research is able to recognise the complex and interrelated
nature of the multiple activities that make up the PhD process. The substantive theory highlights that it is the processes of candidature that enable the productivity of the PhD. It also illuminates the range of impacts that are enabled through the formative learning processes students engage in during the doctoral undertaking which arguably are often overlooked as products of doctoral education (see Chapters 5, 6 and 7). This research therefore works to make two significant contributions to facilitating a better understanding of the contributions and impacts that the PhD process facilitates. The first is that it reconceptualises impacts of the PhD as a learning process, rather than a product, and in doing so captures the range and diversity of other impacts that occur as products of the PhD. The second is that theorising impacts of the PhD process as the acquisition of the intellectual virtues provides an integrated theoretical framework for understanding and discussing the diverse and different types of learning and knowledge students experience and acquire during candidature.

8.2.1 Reconceptualising impacts of the PhD as a process

Theorising impacts of the PhD as interrelated and interdependent processes of learning stands in contrast to much of the existing literature, that tends to separate the products of the PhD from its processes. For example, rather than speaking of impacts of the PhD as the mechanical acquisition of discrete skills, recognising the PhD as a learning process highlights the dynamic, multiple and different processes of candidature that promote the development of different yet interrelated types of knowledge and skills. Learning, as defined by contemporary theorists such as Brockbank and McGill (1998) and Illeris (2007), encompasses content, processes and interactions and interconnections between cognitive, emotional, social and tacit dimensions in learning experiences (see Chapter 4). Such understandings recognise and uphold the scope and significance of emotions, attitudes, motivations and social processes, content, interactions and relations in the learning processes that inform and develop individuals’ understandings and knowledge (Illeris, 2007).

This includes the practical and personal knowledge students acquire during candidature that are so often overlooked in current approaches (Chapters 2 and 3). Phronesis (see Chapter 5) captures the increased personal resourcefulness students
developed during candidature and that enabled them to willingly and continually challenge and extend their understandings and knowledge. This willingness was evident in their preparedness to make themselves vulnerable in the different learning contexts they encountered, particularly in managing supervision, institutional socialisation, personal and professional relationships, professional and personal isolation, intrinsic and extrinsic motivation and their personal life and well-being.

The growth of the students’ personal resourcefulness described in Chapter 5 highlights the personally challenging nature of candidature and the personal and intellectual tenacity and fortitude that students may develop to navigate the often complex, conflicting and competing demands of the PhD process and confidently hold their own uniquely informed position in the different circumstances they encounter during candidature.

The literature indicates that students’ experiences of the PhD are often overlooked in current approaches to understanding impacts of the PhD, or are written as descriptive accounts of the PhD process (see Chapters 2 and 3). Theorising the development of personal resourcefulness as the acquisition of phronesis extends these accounts. It recognises the personal impacts of the PhD process that are often missing from statistical metrics on impacts of the PhD. These include, for example, the ability to use emotions and reflexive knowledge to manage different, often difficult circumstances during candidature and then distinguish the best course of action, as recounted in Chapter 5. The acquisition of this practical and intuitive knowledge and the abilities to know how to use it were integral to enabling and sustaining the students’ learning and progress through candidature. All of the students in the study, to varying degrees, developed and acquired the practical knowledge (phronesis) that enabled them to manage such situations and circumstances as they arose during the processes of the PhD. These abilities represent and indicate the acquisition of the practical knowledge that is indicative of phronesis; the ability to recognise and “do the appropriate thing, at the appropriate time, in the appropriate way” (Dreyfus, 2001, p. 48).

The growth of such personal resourcefulness is considered amongst the most difficult aspects of undertaking meaningful PhD research (Lovitts, 2005; Salmon, 1992; Stevens & Asmar, 1999). Such impacts are also seemingly amongst the hardest to
define and capture as impacts of the PhD. Various researchers refer to the acquisition of this practical, perceptual, experiential knowledge during the PhD as savvy (Parry, 2007), inner factors (Salmon, 1992), tacit knowledge (Gerholm, 1990) and as learning the hidden curriculum (Bender, 2006; Delamont et al., 2000; Lovitts, 2001). Theorising the personal impacts of the PhD as the acquisition of phronesis captures the complex concepts encapsulated in each of these ideas and arguably extends them, because of the interrelation of phronesis with sophia and technè. Common renderings of phronesis include intelligence, prudence, practical wisdom, practical intelligence and practical deliberation (Tabachnick, 2004). Others include moral discernment, moral insight (Noel, 1999), administrative ability (Pakaluk, 2005), good judgement (Rosen, 1995) and practical common sense (Flyvbjerg, 2001). Thus, theorising the personal resourcefulness students acquire during the PhD as the acquisition of phronesis simultaneously broadens and refines understandings of the personal learning that occurs as impacts of the PhD because it “emphasises the priority of the individual in society, highlight[s] the importance of traditions and . . . help[s] us out from under the heavy weight of reason, logic, science and technology” (Tabachnick, 2004, p. 998) that arguably narrow current perspectives on impacts of the PhD.

Similarly, theorising the intellectual understandings students acquire during the PhD process as the acquisition of sophia broadens and refines understandings of impacts of the PhD beyond the acquisition of a narrow theoretical understanding of a particular area. The acquisition of sophia includes the intellectual knowledge students develop to recognise new and different ways of seeing things, to make theoretical connections and conceive of new ways to apply existing theory (see Chapter 6). The acquisition of sophia also indicates the acquisition of the perceptual knowledge of nous that informs both theoretical knowledge and reflexive knowledge and that enables perceptive insights and understandings. Theorising the intellectual understandings students acquire during the PhD process as the acquisition of sophia thereby recognises the PhD as more than an intellectual undertaking that produces tangible forms of knowledge. Rather, it conveys the integral role students’ emotions and reflexive knowledge play in developing and sustaining the processes of learning during candidature and in informing deeper and different ways to see and understand things. In contrast to Cartesian, or more scientifically inclined conceptions of knowledge, and aligning with the contemporary notions of knowledge and learning.
discussed in Chapter 2, theorising impacts of the PhD as the acquisition of Aristotle’s intellectual virtue of sophia recognises the emotions as integral to informing, enhancing and producing human understandings rather than as an impediment to rational thinking.

Notions of the PhD as a form of human and economic capital often overlook or undervalue the personal learning that occurs during the PhD as an impact of candidature (Brew, 2001; Richardson, 2006). This is particularly so in relation to accounts that view the emotions as irrational and unreliable, as Descartes and others have (see Chapter 2). In contrast, the virtues recognise emotions as an essential and enriching component of rational thinking and acting. Theorising the impacts of the processes of the PhD as the acquisition of phronesis, sophia and technè therefore, captures and recognises the significant role that emotion and intuition often play in helping to inform students’ thoughts and actions during candidature. Thus, theorising the students’ perspectives of impacts of the PhD process as the acquisition of intellectual virtues provides a space to acknowledge the important role emotions can play in guiding and motivating students’ thoughts and actions during candidature. This understanding suggests that the capacities students can acquire during candidature may promote the development of individuals who can learn “not only facts and skills . . . but also ranges of thought and feeling, [and the] ability to think and feel more deeply but also more controlledly than . . . before” (Niblett in Bone & McNay, 2006, p.3) for “decision is intelligence qualified by desire or desire qualified by thought” (NE1139b3-5). Thus, while past research has criticised dominant approaches for neglecting (Brew, 2001; Lee & Williams, 1999) or valorising (Firth & Martens, 2008; McWilliam & Hatcher, 1999) the emotional and personal impacts of the PhD process, this understanding arguably offers fresh insights and a new way to understanding impacts of doctoral education.

Theorising impacts of the PhD as the acquisition of Aristotle’s intellectual virtues also counteracts the tendency to binarise the knowledge products of the PhD as practical (skills) or theoretical (knowledge), rational (objective) or irrational (subjective), passive (static) or active (dynamic), tangible (quantifiable) or tacit (qualitative). Understanding impacts of the PhD as the acquisition of the intellectual virtues recognises the multiple processes that promote different ways of knowing and
learning during candidature. This is because in the intellectual virtues the active, practical knowledge of phronesis and the contemplative, theoretical knowledge of sophia are enhanced by, and interrelated with, the intuitive, reflexive knowledge of nous and the productive knowledge of technè.

The acquisition of technè, like the acquisition of phronesis and sophia, recognises that the productive knowledge students acquire during candidature involves more than undertaking a programme of research training to develop particular skills. Like the acquisition of phronesis and sophia, the acquisition of technè requires time and experience and is facilitated by the day to day interactions, experiences and processes of candidature. These processes developed the students’ capacities so they acquired the expert knowledge to bring their research into being. Thus the students’ increased abilities to undertake and produce research, organise themselves and demonstrate leadership, communicate more effectively and recognise opportunities to build their workplace skills and curriculum vitae and lead research projects; in effect, to make their research happen, may be theorised as the acquisition of technè, which is underpinned by the practical knowledge of phronesis and the intellectual understandings of sophia.

The students’ accounts showed the learning they engaged in to be a complex and multifaceted process, with the categories of learning often being interrelated and interdependent. These interrelationships were evident in the students’ different experiences across different contexts, conditions and circumstances of candidature. The students’ accounts indicate how these experiences during candidature contributed to promoting, challenging, developing and strengthening their learning across different areas and helped them develop strategies that informed their actions, knowledge and understandings in different areas and in qualitatively different ways over the period of candidature. Specifically, the students’ accounts show that in building personal resourcefulness during candidature students acquired phronesis; in enhancing their intellectual understandings they acquired sophia; and in developing research, workplace and career management, leadership and organisation, communication (written and oral) and project management skills, students acquired technè.
8.2.2 A new theoretical framework for understanding impacts of the PhD process

In the current context of doctoral education, the impacts of the PhD are often discussed in economic terms of human capital and tangible outcomes and products. Such functional understandings privilege the performative knowledge of the PhD, for example the acquisition of skills and the completion of training modules during candidature, as described in Chapters 2 and 3. Theorising impacts of the PhD as the acquisition of the intellectual virtues extends this predominantly economic model of the PhD. Phronesis, sophia and technē indicate the more complex practical, intellectual and productive knowledges students acquire as impacts during the processes of the PhD. They also convey how these interrelated intellectual virtues combine to produce resourceful, innovative and creative researchers who may contribute to the social capital of society.

In contrast to approaches that focus on summative products as impacts of the PhD, theorising the knowledges students acquire during the processes of the PhD as the acquisition of phronesis, sophia and technē highlights the formative learning processes of the PhD and the personal and social learning students experience as part of the day-to-day experiences of candidature. This theorisation acknowledges that while students often encounter challenges and difficulties during candidature, these experiences are frequently complexly interwoven with pleasure and satisfaction and deeper aspects of personal and social learning that are necessary to building students’ resilience, agency and adaptability. While these traits arguably represent elements of social and human capital, their significance is often neglected in current approaches to understanding impacts of candidature because they fall outside the types of knowledge and abilities that are privileged as products of the PhD. In contrast, understanding the impacts that occur during the PhD as the acquisition of the intellectual virtues of phronesis, sophia and technē provides a comprehensive and robust theoretical framework that is able to capture the range of personal, perceptual, practical, intellectual and productive impacts students can experience through the PhD process. Such an integrated understanding may help to provide a new way to discuss and disseminate understandings of the changes students experience during the processes of the PhD beyond disciplinary boundaries, notions of human capital and the rhetoric of training and skills.
Aristotle argued in *Nicomachean Ethics* Book VI that it is through the development and application of the intellectual virtues that individuals flourish in their daily life and work. Aristotle also argued that an individual who had acquired practical (phronesis), intellectual (sophia) and productive knowledges contributed to the public and social good of society through using their increased capacities to inform new and different ways of thinking and understanding. Aristotle also recognised the place of diverse experiences in promoting learning and guiding actions and behaviours. Contemporary philosophies of knowledge (see for example Gibbons et al., 1994; Nowotny et al., 2001; Polanyi, 1958, 1998; Schon, 1996; Stehr, 2005) parallel Aristotle’s notion that multiple and nuanced types of knowledge (virtues or excellences) combine to inform individuals’ thinking, acting and being; “Let us then discuss these parts from a general standpoint . . . technical expertise (technè), systematic knowledge (epistèmè), wisdom (phronesis), intellectual accomplishment (sophia) and intelligence (nous) (EN 1139b14-36).

This thesis proposes that understanding impacts of the PhD as the acquisition of the practical, intellectual and productive knowledges of phronesis, sophia and technè conveys the active, reflexive and dynamic elements of the PhD undertaking. It also recognises the often convoluted trajectory of learning students can experience during the processes of the PhD, and captures its variation and degrees. Thus, strengths of this grounded theory are its capacity to capture the significant personal and practical learning and knowledge (phronesis) students acquired during candidature, as well as the intellectual and productive knowledges they gained (sophia and technè). Such an understanding offers a robust and dynamic theoretical framework for understanding the diverse and different impacts the processes of the PhD enable. It recognises how different and particular experiences and processes during candidature contribute to developing different types of knowledge and to informing students’ actions and understandings, during candidature and also beyond it.

### 8.3 Future research

Conceptualising and understanding impacts of the PhD as the acquisition of Aristotle’s intellectual virtues of phronesis, sophia and technè offers a new way to theorise and understand impacts of the PhD process. It also raises implications for
further research that may further extend the substantive theory. Examining the
generalisability of this substantive theory to a wider body of PhD students is an
immediately recognisable avenue for future research. As this substantive theory was
developed in relation to impacts of candidature, as described by full-time PhD
students, further research with part-time, external and international students may
enhance the usefulness of the theory to inform a broader and more integrated
understanding of impacts of the PhD process. While it would be methodologically
pre-emptive to delineate future implications from this substantive theory, it could
serve as a springboard to inform further research on the experiences of other PhD
students in different universities and studying in different modes, and thus inform
and generate the development of a formal theory.

Glaser’s (1998) notion of “comebacks” (p. 200): that is, areas of interest within
substantive categories that could be examined further, also indicates other avenues of
research that may be pursued. First, across all the sub-categories of learning,
opportunities for students to socialise with each other and as part of the wider
academic community were important sources of support, learning and motivation
during candidature. These opportunities, which included formal avenues such as
seminars and guest lectures, as well as less formal gatherings such as thesis writing
circles, student forums and day to day interactions, reflect the significant role that
learning contexts and conditions play in facilitating learning during the PhD process.
Given that students from different disciplines described different structures and
approaches to socialising PhD students, and that many students reported isolation as
a challenge of the PhD, further research into this area may identify opportunities to
establish formal and informal networks that would support students during
candidature. It would be beneficial for this research to also consider avenues of
socialisation for external and international students.

Second, given that all the students interviewed were in the final year of candidature,
it may be of interest to undertake a follow-up study on the participants. This may
inform two areas of interest: enhancing the processes of doctoral education, and
facilitating students’ progress and completion. Reducing attrition and facilitating
completion is an area of concern for all stakeholders in the PhD (Colebatch, 2002;
Lovitts, 2001; Walker et al., 2008). Statistical studies from the US suggest as many
of half of all American doctoral students do not complete their doctoral studies
(Lovitts, 2001; Walker et al., 2008). In Australia, research suggests completion rates
for research degrees in Australia have increased considerably, to between 80 and 90
per cent in the mid 1990s. Of the 23 students who were interviewed in this study, 17
had successfully completed their doctoral studies, while five students, three from
Humanities and one from Science, were still enrolled and in the final stages of
writing up their thesis and one student, from Science, had left to pursue a career in
industry prior to completing their PhD. Given the high ratio of completions in the
group a follow-up study may provide insights into the processes and conditions that
facilitated the students’ progress and completion.

Third, while saturation of the categories was reached in the study, further research
into less well represented areas could extend the grounded theory by extending the
properties of the categories or examining nuances in the impacts of the PhD. These
areas include undertaking research with male PhD students to further explore men’s
perspectives of impacts of the PhD process, interviewing more students undertaking
PhDs in business to further examine similarities and differences between and across
the disciplines, and undertaking more research on how, or if, undertaking a Masters
degree prior to the PhD may help to prepare students for the PhD undertaking.

8.4 Conclusion

Motivated by the paucity of research in the wider literature, this study used grounded
theory methodology and methods to examine and theorise students’ perspectives of
impacts of the PhD. Two questions guided the research: how the processes of PhD
candidature impact students, and how the impacts students described could be
theorised to capture an integrated and comprehensive understanding of the processes
and products of the PhD undertaking.

This research illuminates multiple ways that the processes of candidature can impact
students. This research also proposes the grounded theory that impacts of the PhD
process can be theorised as the acquisition of Aristotle’s intellectual virtues of
phronesis, sophia and technè, thereby providing a new, comprehensive and integrated
theoretical framework to capture, discuss and understand the diverse contributions and products the PhD process enables.

Nussbaum (1986) has described the virtues as “a crown full of valuable jewels in which each jewel has an intrinsic value in itself and the whole composition also adds to the value of each” (p. 374). This analogy emphasises the synergistic nature of the virtues. In relation to understanding students’ perspectives of the impacts of the PhD process, it also highlights that while each virtue, like the categories of learning, is valuable within itself, understanding them as an integrated whole illuminates a broader and deeper understanding of the multiple and interrelated impacts of the PhD. In effect, it highlights that in combination, the different virtues add to more than the sum of each individual part. This is because understanding impacts of the PhD as the acquisition of phronesis, sophia and technè encompasses and recognises the practical (phronesis), intellectual (sophia) scientific (epistêmè), perceptual (nous) and productive (technè) knowledges students acquire during the PhD as impacts of the PhD processes. In an integrated, theoretical and philosophical framework it captures Bob’s observation that, “there’s so much more going into this three years [of PhD study] than the results data that you can see”.

Mowbray - Students’ perspectives on impacts of the PhD process
References


Mowbray, S., & Halse, C. (in press). The purpose of the PhD: Theorising the skills acquired by students. *Higher Education Research and Development*


Bonini (Eds.), *Genre in a changing world*. West Lafayette, IN: Parlor Press and WAC Clearinghouse.


University of Western Sydney (UWS) Research Office. (2009). Personal communication, 19 May.


Appendix 1
Main publication from the thesis: Mowbray & Halse (in press)

The purpose of the PhD: Theorising the skills acquired by students

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The purpose of the PhD: Theorising the skills acquired by students

In the past decade there has been a marked push for the development of employability skills to be part of the PhD process. This push is generally by stakeholders from above and outside the PhD process i.e. government and industry, who view skills as a *summative product* of the PhD. In contrast, our study interviewed stakeholders inside the PhD process; twenty final year, full time Australian PhD students; to provide a bottom-up perspective into the skills debate. Using grounded theory procedures, we theorise the skills students develop during the PhD as a *formative developmental process* of acquiring intellectual virtues. Drawing on Aristotelian theory, we propose that theorising the PhD as a process of acquiring intellectual virtues offers a more robust and conceptually richer framework for understanding students’ development during the PhD than the instrumental focus on skills evident in contemporary debates.

**Keywords:** PhD, doctorate, skills, intellectual virtues, Aristotle

**Background**

Although the PhD is the pinnacle of university learning and scholarship, current debates that question the real world value of the PhD testify to the epistemological ambiguities surrounding the contemporary purpose of the PhD. Government, business and industry leaders complain that PhD graduates lack the skills required for the labour markets of contemporary economies. Given the reduced opportunities for academic work in universities and the increasing number of PhD graduates, they have also challenged the relevance of the PhD (Halse, 2007; Peters, 2007). The need to clarify the purpose of the PhD has been a reoccurring theme in expert’s reports in the United Kingdom (UK) for more than two decades (Park, 2007; Poole, Harman, & Deden, 1998) and was a key goal of the Carnegie Initiative on the Doctorate (CID) in the USA (Walker et al., 2008).

Universities in Western countries have responded with what we term the ‘skills push’. They have incorporated skills training into doctoral programs with the specific aim of equipping graduates for future employment to ensure that they can contribute to the economic development of the nation (Meek et al., 2009; Peters, 2007). In the UK, for example, the Research Council and Arts and Humanities Research Board (AHRB) issued a *Joint Statement of Skills Training Requirements of Research Postgraduates* (2001) to ensure that graduates have the skills needed for careers.
beyond the academy (Park, 2007). In Australia, a report by the Commonwealth’s Department of Education, Science and Training (DEST) has prescribed the generic capabilities it considers necessary for success in the research workplace and in potential future employment (Borthwick & Wissler, 2003).

The skills push articulates its normative expectations of PhD graduates through lists of skills, attributes, competencies and dispositions. Characteristically, these include (but are not limited to) disciplinary knowledge; research and technical skills; project management and leadership skills; teaching competence; the capacity to communicate verbally and in writing; effectiveness as a team player and as an autonomous self-manager; administrative competence; and the capacity to be an ethical, adventurous, innovative, motivated, creative and flexible individual (Borthwick & Wissler, 2003; Council of Australian Deans and Directors of Graduate Studies (DDoGS), 1999; Nyquist & Woodford, 2000; UK Research Council and UK AHRB, 2001). As commentators have observed, such lists represent a “daunting” set of expectations and competencies (Nyquist, 2002, p. 19) and are so extensive that it is questionable whether they can be met within the parameters of a PhD (Craswell, 2007; Richardson, 2006).

Our concern is with the epistemological ambiguities about the purpose of the PhD that are entangled in the skills push. Government and university policy documents reveal that there is no consensus about the meaning of the word skills and it is used as a synonym for strikingly different abilities, attributes, qualities, sensibilities and competencies (Gilbert et al., 2004). Nor is there agreement on what skills doctoral study should develop. Research by the European Universities Association (Borrell-Damian, 2009), for example, found that governments and industry leaders not only disagree on the specific skills that they want graduates to develop, they are uncertain about the universality or specificity of particular skills, research methods and approaches for different disciplines and divided on whether skills for research and employment are binaries or complementary capacities. Furthermore, skills advocates stress the importance of the transferability of skills from the PhD to the workplace but this presumes a seamless, linear transference from instruction to mastery and workplace application. It ignores that students enter the PhD with pre-existing skills and capabilities (Barnacle & Usher, 2003), and that the transference of skills from the PhD to the post-doctoral workplace cannot be
guaranteed because this is always mediated by graduates’ career/life choices, personal circumstances and the vagaries of employment markets.

Inherent in the epistemological problems underpinning the skills push is a disregard for the multidimensionality of the doctorate (Pearson, Evans et al., 2008) that overlooks the development of capacities such as engagement, motivation, perseverance, resilience, innovation, and creative thinking (Barnett, 2007; Dall’Alba & Barnacle, 2007; Lovitts, 2005, 2008). Such capacities are crucial in shaping productive workers and effective citizens, and developing the disposition for lifelong learning that is a key human capital return to the nation of investing in doctoral education (Allen Consulting Group, 2005; Becker, 1964, 1993). Nevertheless, the skills push continues to define and redefine the purpose of the PhD. In Australia, for example, a dominant government discourse of the PhD is as the timely production of a particular, marketable product—the skilled PhD graduate—who will contribute to the economic growth of the nation (Usher, 2002).

The research problem

Our study with students was one part of a larger project with colleagues examining the perspective of a range of stakeholders, including doctoral supervisors, and government, business and industry leaders, on the skills and the purpose of the PhD (see Halse & Malfroy, 2010). The problem that we address in this article is whether there is a different (and better) way of theorising the purpose of the PhD and the skills students develop during the PhD? Adopting the broad definition of skills as the acquisition or development of specific capacities, abilities, aptitudes or competencies (Gilbert et al., 2004), our article addresses two questions: What skills do current doctoral students report developing during their PhD?; and How might the process of skills acquisition be theorised in a broader context of uncertainty about the purpose and value of the PhD?

We tackled this task by examining the skills that currently enrolled final year PhD students reported acquiring or improving during candidature that they considered of value for completing the doctoral process and for their (anticipated) post-doctoral lives. Our aims were to access the insights of a group who are often the object of, but rarely participants in, the skills debate; and to offer a standpoint to counter government, industry and business agendas that have steered the skills push.
to date. In this respect, our article takes up the calls for more nuanced insights into the doctoral process (Pearson, Evans et al., 2008), and the development of a conceptual framework and theory that captures the skills and capacities developed during the doctoral study (Allen Consulting Group, 2005).

Participants

Our study involved in-depth interviews with full-time, final year PhD students enrolled at a large metropolitan university in Sydney, Australia. In contrast to North America, the Australian PhD is a research degree based on the Oxbridge model and without assessable coursework components. We focused on full-time, final year PhD students because the PhD in Australia continues to attract a larger percentage of enrolments than other doctoral degrees including professional doctorates, despite the development of different doctoral models and increased part-time enrolments (Evans, 2002).

Our participants were 15 female and 5 male students, who ranged in age from their early 20s to over 50 years with the majority (14) being between 30 and 40 years old. The ratio of females to males was higher than the national patterns but our sampling logic was not statistical representativeness but theoretical saturation whereby recruitment continued until no new concepts or categories emerged during data analysis and theory generation. Students were drawn from the Colleges of Business (2), Health and Sciences (8), and College of Arts (10), the latter consisting of students from Psychology, Education and the Humanities. In recognition that an overly zealous focus on differences can obscure important commonalities, we deliberately solicited a cross-disciplinary sample in order to identify areas of skills development shared by all students across a broad range of disciplines.

Data collection

In-depth, semi-structured interviews were conducted in which students were invited to describe the skills that they believed they developed or improved during the doctoral process and how these were developed and contributed to their personal and professional growth. The recursive model of interviewing was used whereby the interview proceeds as a conversation. This approach enabled students to raise issues
of personal significance and allowed us to access insights into students’ experiences during their PhD, particularly the formal and informal learning that contributed to skills development (Minichello, Aroni, Timewell, & Alexander, 1990).

Data analysis

Our aim was to develop a student-driven theory of the purpose of the PhD through an analysis of the areas of skills development that were a priority for students. For this reason, we utilised the inductive and deductive procedures of grounded theory described by Strauss and Corbin (1998). Interviews were recorded and transcribed, coded and then grouped into 49 concepts or areas of skills development that were subsequently sorted into seven categories or broad groups of similar concepts to generate a theory of the purpose of the PhD. The seven categories (or broad areas of skills development) were personal resourcefulness, cognition, research skills, workplace and career management, leadership and organisation, written and oral communication, and project management.

Consistent with grounded theory, memoing was an important tool in our analysis for theorising the codes and their theoretically coded relationships. Our sorted memos revealed that skill acquisition occurred through formal instruction and informal learning that occurred both within and beyond the university and at all stages of the doctorate. Further, the same areas of skills were improved or acquired by all PhD students, although students’ competency was contingent on students’ personal history, discipline or experiences. In general terms, the skills articulated by students paralleled the skills that policy makers consider desirable outcomes of doctoral education, such as the acquisition of disciplinary knowledge, research skills, and communication and project management skills (DDoGS, 1999; Nyquist & Woodford, 2000; UKAHRB, 2001). The one exception to this rule was personal resourcefulness (personal and social capacities). Personal resourcefulness, or a similar suit of skills, rarely appears in university and government policies about the doctorate or in the skills advocated by business and industry yet this was the category of skills most valued by students. It involved developing the confidence, discipline, intrinsic motivation, resilience, tenacity and interpersonal skills that enabled students to balance the institutional, professional and personal responsibilities occurring during the PhD.
Our memos highlighted the close connection between categories of skills. Rather than being discrete and independent, each category of skills shaped and was shaped by other categories. For example, the specific sort of research skills developed by students influenced the types of workplace and career management strategies they used, the sorts of project management and communication skills they developed; and the forms of personal resourcefulness they acquired to manage their personal and professional lives. The recognition that the skills developed during the PhD are inter-related and mutually dependent is contrary to a common articulation of PhD skills—including in universities such as our own—as discrete capacities disconnected from other experiences during the doctorate.

**Discussion: Theorising skills development during the PhD**

The goal of our analysis was to generate a workable theory to elucidate the relationship between the categories that emerged from the data. During our interrogation of the data, we heeded Strauss and Corbin’s (1998) advice to continually engage with relevant literature in order to generate new theoretical insights. In contrast to Glaser (1998), Strauss and Corbin (1998) argue that a plausible relationship between analysis and theory legitimates and warrants the appropriation of existing theories to elucidate a grounded analysis. As a result of our wider reading on skill acquisition; particularly Dreyfus and Dreyfus (2001; 1986); we explored the value of Aristotle’s intellectual virtues (*arête*), described in *Nicomachean Ethics* Book VI (Aristotle, trans 2002), for informing our generation of a theory of the PhD.

The intellectual virtues are commonly rendered as: practical knowledge (phronesis); theoretical knowledge (sophia); scientific knowledge (epistêmê); productive knowledge (technê); and intuitive knowledge (nous). For Aristotle, the virtues are not discrete capacities but complementary, interdependent parts of a whole. Sophia and epistêmê are both part of the theoretical/thinking part of the soul (*epistêmikon*); technê and phronesis are concerned with the practical/feeling part of the soul (*logisticôn*); and nous or intuitive knowledge encompasses both *epistêmikon* and *logisticôn* because of its capacity to discover theoretical principles and learn from experience to inform practical knowledge (Pakaluk, 2005). Because the virtues are inter-related and interdependent, Broadie and Rowe (2002) argue that they
coalesce conceptually into the three domains of phronesis (practical knowledge), sophia (intellectual knowledge) and technê (productive knowledge). To capture the interrelatedness of the virtues Nussbaum (1986) uses the metaphor of “a crown full of valuable jewels, in which each jewel has an intrinsic value in itself and the whole composition also adds to the value of each” (p.374).

The relevance of the virtues for interpreting contemporary human experience has been widely recognised by scholars. They have been used to counter scientific rationality and technical instrumentalisation in theorising management practices and professional expertise (Dreyfus & Dreyfus, 1980; Gadamer, 1984; Kemmis, 2005; Schwandt, 2002), ethical practice (Crisp & Slote, 1997; MacIntyre, 2007), the social sciences (Eikeland, 2008; Flyvbjerg, 2004; Greenwood & Levin, 2005; Tabachnick, 2004) and educational practice and research (Carr, 2003; Carr & Kemmis, 1986; Eisner, 2002; Saugstad, 2002). Building on such initiatives, the following discussion extends recent theorising of Aristotle’s intellectual virtues to a new area—the practice of the PhD.

*Developing personal resourcefulness—the acquisition of phronesis*

Personal resourcefulness is the term we use to describe the growth in practical knowledge that students acquire during the PhD and the capacity students develop to act on this knowledge. Personal resourcefulness can be understood as the acquisition of skills that enable students to become more assertive, confident, resilient, persistent and resolute in determining how to progress their PhD while balancing their other commitments. Consequently, personal resourcefulness is the reflexive, perceptual, emotional and contextual capacity that students develop during the PhD and that they used to discern and guide their actions.

For many students, learning how to manage the positive and negative events in their personal (outside-of-university) and professional (university) lives was fundamental to the development of personal resourcefulness.

_The educational process isn’t just academic. I found that I was acutely aware that there was a significant amount of personal growth that I needed to do in conjunction with meeting the day to day challenges of doing the PhD._ (Ros)
Regardless of discipline, gender or age, students considered their personal and professional lives to be intricately entwined. However, students recognised that they needed to develop skills in balancing the competing demands of work and life. As Oliver explained, “and then there’s the personal stuff . . . learning how to fit PhD candidature into family life [and] into personal life in terms of relationships”.

Students described numerous events and circumstances that fostered their personal resourcefulness but commented particularly on the positive impact of participating in a collegial, scholarly community. In such an environment, students were able to develop their abilities to present ideas, experiment with ways of thinking and arguments, and to build their capacity and confidence to engage in different settings within and beyond the university. Students’ accounts not only demonstrated the social nature of learning but also the nourishing effects of scholarly communities on their intellectual and personal growth.

_Sociality is critical to my intellectual life. I know what the limits of my thinking are and the limits of my capacity to analyse, argue, speculate, imagine . . . and so in relationships with others, those limits are tested, expanded, strengthened. I think there’s a set of intellectual skills that only emerge through that sociality._ (James)

Hindess (1995) contends that, “the most important function of the university is to promote the formation of a society of individuals who can be relied on, for the most part, to regulate [discipline] their own behaviour in an appropriate fashion” (p.44). Coping with the contingencies, contradictions and complications of everyday life and meeting the commitments of a PhD required students to develop a high-level of expertise and self-discipline. For all students, the most useful and cherished skill developed during the PhD was the capacity to recognise and manage competing responsibilities. This included learning to: establish priorities; develop an effective work regime; manage their time; take control of situations to ensure goals were met; establish boundaries between different areas of their lives; and balance their responsibilities to their PhD, supervisors, university, families and friends in ways that protected their own physical, intellectual, social and emotional health and well-being. Yet, like any skill, self-discipline was not acquired easily or painlessly.

_I’ve struggled to discipline myself. I don’t think that it’s that I haven’t succeeded . . . I’m very well organised. I’m organised in a practical way, I’m organised in my thinking, it’s you know,
disciplining my fear. So that’s what I mean about struggling . . . disciplining myself not to worry about that. (Susannah)

Doing a PhD is an intense experience that can trigger anxiety, stress and self-doubt. In contrast to the literature that stresses the traumatic and debilitating effects of the PhD (Bartlett & Mercer, 2001; Lee & Williams, 1999), our data revealed that the struggles, set-backs and negative experiences during the PhD can have important, productive and positive impacts. The negative experiences during candidature improved students’ understanding of the world and strengthened their confidence, tenacity, and preparedness to address problems and take risks. It was through such experiences, that students developed the experiential knowledge and emotional resilience to become creative, resourceful problem-solvers who could calmly and innovatively surmount new difficulties.

Managing supervision was a challenge experienced by many students. Characteristically, students commenced the PhD anticipating a close and constant supervisory relationship. In contrast, many experienced their supervisors as unsupportive and disengaged. Supervisors were often too busy to meet, or seemed to be continually absent on study, conference, research or other leave. Some supervisors disappeared entirely by relocating to another university. A second common challenge was coping with inadequate departmental or institutional support. Such support is a key facilitator of PhD progression and completion (Leonard et al., 2005; Lovitts, 2008). Yet students described seemingly constant battles for adequate resources, funding, equipment and work space with unsupportive, even antagonistic, administrative systems and staff.

. . . you have to fight every inch of the way. You have to fight for every cent you get; for every square inch of desk you can use . . . it's a constant battle, constant . . . and it is incredibly tiring. (Beth)

On the other hand, students found working through such supervision and support difficulties to be a productive process even if the resolution was not optimum, or students’ problems were not fully resolved. The experiential knowledge gained from addressing supervisory difficulties increased students’ capacity to understand particular situations and to determine appropriate, practical responses.
These skills nurtured students’ confidence in managing problems and their willingness to resolve workplace challenges. For example, after a lengthy, difficult time struggling with unsupportive supervisors, Beth took the initiative to find a solution by calling a meeting with her supervisors and telling them that the difficulties in their relationship were affecting her work.

Students explained that overcoming the daily challenges encountered during a PhD equipped them with the practical knowledge to manage different situations effectively. Their assessment echoes Aristotle’s view that the challenges of daily life can build the capacities of individuals (1104a30), and also demonstrates the self-perception that testifies to development of phronesis—the practical, reflective knowledge gained through experience over time of how to act in particular circumstances (Gallagher, 1993). As Kim describes below, students recognised in themselves a greater capacity to distinguish what impeded or facilitated their progress, make good choices and act upon their decisions.

I’ve really been pushed . . . It’s a process of learning that has made me realise I do have a brain, I can organise my thoughts, I can express my creativity. I’ve got more self belief, and I know that what I can offer does have value . . . that’s been the best thing for me . . . I [feel] more worthwhile as a person . . . my self-esteem is so much better now and my self-confidence and my belief in taking a risk and trying something that may not work out. I feel more confident about doing that in the future. Now I’m much more ‘I’ll try anything’. I feel that it’s worth taking the risk because things can come from it that you would never believe possible. (Kim)

For students, the acquisition of personal resourcefulness (phronesis) was a progressive and cumulative process of personal and professional growth that increased their self-confidence, tenacity and resilience, and permeated all areas of their lives. The capacity of students to reflect on their specific circumstances and to identify the links between their particular and general knowledge generated the understanding required to think and act in accordance with what is good or bad for oneself and others (1140b5-10). Such skills, captured within the category of personal resourcefulness in our analysis, speak of the reflective, lived knowledge gained through experience that informs and shapes individuals’ decisions and actions (phronesis).
Developing cognition—the acquisition of sophia

Cognition is commonly understood as the process of perceiving or knowing. For the students in our study, the acquisition of cognitive skills (the capacity to perceive and know) involved developing their knowledge and understanding, and accumulating skill in generating and applying new knowledge, theories and concepts. Central to this process was the development of critical thinking skills. These involved the ability to scrutinise and synthesise ideas and information, recognise different points of view, appropriate theory and use more sophisticated theoretical insights to interpret data and support analyses and conclusions. As one student explained

*I think the real point or strength that you get from doctoral study is it develops your ability to think critically and to see things from different points of view. I mean so often we can only imagine things in our own way, our own way of doing things and I think that doing a doctorate teaches you how to approach a problem from many different aspects.* (Elizabeth)

All students confessed that this intellectual work was difficult. In the early stages of candidature, developing cognition was “*a big thing to struggle with intellectually . . . to work out exactly how I’m dealing with it . . . it’s been difficult*” (Susannah). For some students, like Elizabeth, it was experienced as “*lots of little moments when you’re struggling with something and then it just comes together*”. For others it involved repeatedly revisiting ideas and information.

*Sometimes it took me a while to understand but I think that that’s part of the learning experience. If I didn’t get something then I’d review what I’d written and I’d think about it some more or maybe do something else. Eventually I would get there.* (Lauren)

Nevertheless, *all* students across *all* disciplines described the development of their cognitive skills as a source of joy, delight and satisfaction that assuaged the hard grind of the PhD. The duration, frequency and intensity of their happiness varied but, for some students, it was a life transforming experience.

*You have to make a choice: ‘How do I see my data? How do I structure my epistemology? How do I understand knowing the truth?’ . . . That changes the way that you view things around you.*
Barnett (2007) describes an authentic higher education as one that requires students to take responsibility for their learning. This involves “hard work . . . courage, the capacity to stand alone . . . persistence and resilience” (p.43). Taking responsibility for their own learning was often a source of stress and anxiety for the students. Nevertheless, they reported that meeting this challenge enabled them to develop better understandings of concepts, distinguish nuanced connections between their data and wider theories, and to recognise how ideas might fit together in innovative ways. In short, doing a PhD developed their cognitive skills.

In Aristotelian terms, this process corresponds to the acquisition of sophia—the wisdom produced by combining the knowledge generated through scientific ways of knowing (epistêmê) with the intuitive skills gained through experience (nous) (1141a15-20). Sophia, however, is more than intellectual or intuitive, experiential knowledge. As students’ knowledge (epistêmê), personal resourcefulness (phronesis) and experiential intuition (nous) developed, they were more prepared to take intellectual risks in their PhD. Intellectual risk-taking heightened students emotional investment in their studies which, in turn, intensified their feelings of ownership over and commitment to their learning and the PhD. Secreted within the process of skills development described by students are resonances of Aristotle’s conceptualisation of the emotions as a mode of recognition that inform intellectual understandings (1139a35). It is through combining epistêmê and nous with productive emotionality that the wisdom of sophia is constituted.

Developing research and other skills—the acquisition of technê

Students were unanimous that doing a PhD improved their technical skills in areas such as identifying and searching data bases, using specialised laboratory and computer equipment, and utilising technology for analysing data and managing projects. Many students received formal instruction in these technical skills but they achieved mastery both by working on their PhD and experiences beyond their PhD, for example by working as research assistants. It was through a range of experiences that students developed their project management skills; learned to determine
priorities and achieve deadlines; became skilful in producing outcomes despite a limited budget, equipment failures or administrative impediments; and developed expertise in transferring their knowledge of ethical behaviour with research participants to their interactions with others within and beyond the university.

Students described how their experiences in different work contexts as employees or researchers equipped them with skills for life beyond the PhD.

Learning how to manage the project, learning how to write, improve your writing skills, getting up and talking in front of people, being able to communicate . . . has been one of the greatest things . . . these sorts of skills—the ability to research, basically to go and find information, to draw connections between seemingly separate fields and drawing all of those things together, I think it is an experience that has grown me as a person . . . they’re life skills that I don’t think I would have learnt anywhere else. (Elizabeth)

The informal learning students acquired in areas unrelated to their PhD had a productive impact on the skills that students’ developed as they worked on their PhD. This was explicit in students’ accounts of learning to write.

Having worked on a research project and having had to write research reports; having to write summary analyses and work that up into publications . . . I’ve learned how to structure a 7000 word article, how to maintain engagement with the reader, how to work with data in an economical way because of word limits etc . . . So those writing skills have been particularly valuable. (James)

The dynamic described by James is about more than mere skills transference. It highlights the illusionary divide between the PhD and life beyond the PhD, and how the flow of skills and expertise feed the deep understanding (sophia) and reasoning (phronesis) involved in moving from technician to craftperson. It is through this process that students produce a completed PhD, and that is at the heart of Aristotle's concept of technê: “the creative, productive use of expert knowledge to bring something into existence or accomplish a particular objective and to give an account of what has been produced” (Halse & Malfroy, 2010, p. 87).
Conclusion: Theorising the PhD as the acquisition of intellectual virtues

Our discussion illustrates the micro practices that generated the categories of skills that emerged from our data and how these categories relate to the Aristotelian virtues of phronesis, sophia and technê. A particular strength of conceptualising skills in terms of the intellectual virtues is that it captures students’ experiences of skills development as a process of acquiring and improving an interdependent suite of skills from a range of contexts that transcend disciplinary boundaries to fashion students’ personal and professional growth.

Our analysis suggests more than an alternate framework for skills development. It reframes the purpose of the PhD as the acquisition of an interrelated suite of intellectual virtues. Theorising the PhD in this way is not an attempt to assert an ivory-tower notion of the PhD or to disconnect the PhD from the real world. Rather, as Aristotle argued in *Nicomachean Ethics* Book VI, and Nussbaum (1986, 1990) reminded us, it is through the development and application of the intellectual virtues that individuals flourish in their daily life and work, and contribute to the wider human good.

We acknowledge that our theory is based on one metropolitan university in Australia and needs to be examined in other local, national and international contexts. Nevertheless, we propose, that theorising the PhD as the acquisition of intellectual virtues moves beyond the limited economic agendas of the skills push. It shifts the lens from the instrumental production of the skilled PhD graduate to the progressive building of virtuous individuals who contribute to society through their productive actions. The rationale for such a theory is clear. We cannot know in advance what work opportunities will be available in the future, what skills future employers may require or how national and global developments will affect future labour markets. For these reasons, it is sensible to attend to the logic of the skills push but to avoid its excesses by rejecting its epistemological claims over the PhD. A theory of the PhD as the acquisition of intellectual virtues accomplishes this goal because it offers a theoretically rigorous language and method for capturing how students’ experience the PhD while also holding open the need to accommodate an unknown future.
Acknowledgements

We wish to thank the anonymous reviewers and the editor for their helpful comments and feedback on an earlier version of our paper.

Notes

1. Pseudonyms are used.
2. References to Aristotle’s work follow Bekker numbering conventions.

References


UK Research Councils, & UK Arts and Humanities Research Board (AHRB). (2001). Joint statement of the research councils/ AHRB skills training requirements for research students [Electronic Version], from www.grad.ac.uk


Appendix 2
Information for potential participants

Dear Fellow PhD Student,
You are invited to participate in a research project on

Students’ perspectives of impacts that occur during the PhD process

(UWS HERC 06/203)

Why is this study important for you?

Efforts to assess the impact of doctoral study have based on a scientific-technical model that construes the doctorate as a commodity and doctoral education as a linear relationship between inputs/outputs related largely to doctoral students. The current study will illuminate the benefits of the doctoral process i.e., during candidature.

What is the aim of the study?

This research project is being undertaken to contribute to an identified gap in the research on doctoral education about current doctoral students’ perspectives of the impacts of their doctoral education experience. The aim of the study to

- critically inform new and broader theoretical understandings of the impacts and contributions of PhD education to a knowledge society;
- inform future policy developments and directions for PhD education;
- illuminate the impacts of PhD education that are not generally recognised, valued, or privileged in the literature; and
- make explicit the impacts of doctoral candidates “work” on their personal and wider contexts.
Who is doing this research?

The research is being conducted by Susan Mowbray for a PhD with the Centre for Education Research at University of Western Sydney. Susan is being supervised by A/Prof Christine Halse (UWS, Bankstown) and A/Prof. Janne Malfroy (UWS, Hawkesbury). This research also forms one strand of a larger research project by A/Profs. Halse and Malfroy examining the impact of the process of doctoral studies on students, supervisors and external research and industry partners.

Who can participate?

Higher degree research (HDR) and PhD candidates enrolled full-time at the University of Western Sydney may participate in the research project. Final year candidates and those doing research with external industry or research partners are particularly welcome.

What will participation involve?

**Interviews** provide participants with time to engage with the researcher on a one-to-one basis. It is anticipated that one interview will be held with each participant. The interview session may take 1-1.5 hours. With consent all interviews will be taped and the interviews will be conducted at a suitable time and place agreed upon by the interviewee and the interviewer. Transcripts of the individual interviews will be available to participants to verify the content.

Are there any benefits or risks in participating?

Positive benefits of participating in the research include providing an opportunity for final stage PhD students to share their doctoral experiences in ways that will alleviate the isolation so often felt at this time (Golde, 2006; Heinrich, 2000; Malfroy & Yates, 2003). Possible negative consequences may be emotional and mental distress caused by recalling unpleasant/traumatic periods of candidature; feelings of anxiety at this critical time of candidature; and concerns about protecting identity (Lee & Williams, 1999). The research project aims to minimise any risks, discomfort or convenience by ensuring any participants’ confidentiality and offering support and counselling through the Postgraduate Association of UWS (PAUWS). PAUWS is the student representative body for postgraduates at UWS. PAUWS may be contacted by email at pauws@uws.edu.au or at

Bankstown Campus, Building 2 on (02) 9772 6270

Blacktown Campus, Building U9 on (02) 9852 4057

Campbelltown Campus, Building 2 on (02) 4620 3603

Hawkesbury Campus, Building K3 on (02) 4570 1872

Parramatta Campus, Building EY on (02) 9685 9375
How will my privacy be protected?

Participants’ identities and those of their School, Centre and supervisor will be protected by the use of pseudonyms and/or generic descriptors. All information will be confidential and kept in a secure location by Susan Mowbray.

How will the information collected be used?

The data is being collected for Susan Mowbray’s PhD thesis and academic journals, research reports, conference proceedings and presentations.

The interview data will also be used as data for a larger research project involving all three investigators (Mowbray, Halse, Malfroy) examining the impacts (benefits) of the doctoral process for students, supervisors and external industry/research partners.

Can I withdraw from the research project?

Participation is voluntary and declining to participate will not negatively impact on your candidature. You may withdraw your consent to participate at any time without explanation.

What do I need to do now?

If you decide you would like to participate in the research project please contact me via email susanmowbray@nelsonbay.com. Alternatively, you can telephone me directly (0423 366 698) if you are interested in participating.

If you have any questions about this research project please feel free to contact me or my supervisors.

Susan Mowbray
Ph: 0423 366 698
Email: susanmowbray@nelsonbay.com

Associate Professor Christine Halse
Ph: 61 2 9772 6328
Email: c.halse@uws.edu.au

Dr. Janne Malfroy
Ph: 0245701752
Email: j.malfroy@uws.edu.au

Thank you. I look forward to hearing from you.

Susan Mowbray

NOTE: This study has been approved by the University of Western Sydney Human Research Ethics Committee. The Approval Number is HREC 06/203. If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Research Ethics Officers on 02 4736 0883 or 4736 0884. Any issues you raise will be treated in confidence and investigated fully and you will be informed of the outcome.
RESEARCH PROJECT PARTICIPANT CONSENT FORM

Research Title: Impacts of doctoral education on full-time higher degree research (HDR) PhD candidates and their personal and wider contexts.

Investigators: Susan Mowbray (PhD student)
Associate Professor Christine Halse (Supervisor)
Associate Professor Janne Malfroy (2nd Supervisor)

Ethics Approval Number: UWS 06/203

Participant Name (please PRINT):
Preferred Contact details (email and/or telephone):
Area of study (please circle):
Science    Health    Education    Humanities

I agree to take part in the above research project. I have had the project explained to me and I have read the Research Information Statement. I understand that interviews conducted for data collection will be audio-taped and transcribed. I have retained a copy of the research Information Statement for my records.

I understand that any information I provide is confidential. I understand that in any material entering the public arena the research participants’ identities will be protected by the use of pseudonyms and/or generic descriptors.

I understand that my participation in the research project is voluntary and that I can choose to withdraw from the research project at any time without explanation.

I understand that my signature on this form indicates I have read the Information Statement and have agreed to participate.

Signature of Research Participant     Date
Appendix 3
Semi-structured interview schedule

HDR Student Interview Schedule for HERC 06/203

Impacts of doctoral education on full-time higher degree research
(HDR) PhD candidates and their personal and wider contexts

Opening question

I would like you to tell me about how your doctoral education has impacted upon you at a personal level and in your wider contexts. I am interested in finding out how and in what ways the processes of doctoral education have made a difference, if any, to you personally and in other areas of your life. This could be economically, socially, culturally, environmentally, or professionally. It could even be morally or ethically. Please start wherever you like—first year, final year, wherever . . . I will just take some notes.

Prompts (if required)

Impacts of processes of PhD on learning

- What have you learnt during your candidature?
  - intellectual and scholarly growth?
  - Knowledge of research methods, work related-skills, the nature of scholarly work etc?
- How have you learnt it? (modelling, supervisor, self, other students)
- Were any parts of your candidature more positive for your learning and development? (support network, professional development opportunities)
- Were any parts of your candidature detrimental for your learning and development? (impacts of funding cuts, rationalisation of ‘social’ projects for ‘economic’ projects, dominant constructs of p/g student)

Impacts of processes of PhD on self

- How has being a PhD student impacted on you personally?
  - intellectual and scholarly growth?
Impacts of processes of PhD on wider contexts

- Do you think your work as a PhD student with your industry partner and/or work colleagues has made some impact, made a difference, to your work environment? Perhaps how they do things, or understand things, how they approach things?
- In thinking about your candidature, would you say the product; your thesis; or the processes of the PhD are the most valuable?
- A focus of current government policies for doctoral education is to produce knowledge for the knowledge economy. How do you think your thesis fits with/in the currently privileged directions for doctoral education?

Final Questions

- What do you believe is the purpose of the doctorate?
- There is an emerging body of literature coming out of the United States that proposes “the purpose of doctoral education, taken broadly, is to educate and prepare those to whom we can entrust the vigor, quality, and integrity of the field. This person is a scholar first and foremost, in the fullest sense of the term—someone who will creatively generate new knowledge, critically conserve valuable and useful ideas, and responsibly transform those understandings through writing, teaching, and application” (Golde, 2005).
  This seems to be setting up a binary around the purposes of the PhD; that it is relevant only to academic arenas and not to providing employment opportunities in wider areas of society.
  Would you agree with this perception of the purposes of the PhD and the arenas it is relevant to?
- Considering you answers to the previous questions, where do you envisage yourself, or what career do you see yourself in, in the future, once you have finished your PhD?
## Appendix 4
### The 49 categories

<table>
<thead>
<tr>
<th>What is happening in the data? →</th>
<th>What does this indicate? →</th>
<th>What is the fundamental concern? →</th>
<th>Sorted category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sharing knowledge with others</td>
<td>Articulating ideas, identifying other avenues to inform research</td>
<td>Improved verbal communication</td>
<td>Communication</td>
</tr>
<tr>
<td>Interact/working with others</td>
<td>Communication skills</td>
<td>Enhanced interpersonal skills</td>
<td>Communication Project Management</td>
</tr>
<tr>
<td>Working with external parties</td>
<td>Communication Diplomacy Networking</td>
<td>Demonstrating diplomacy</td>
<td>Communication</td>
</tr>
<tr>
<td>Engaging confidently with others</td>
<td>Confidence Communication Networking Social skills</td>
<td>Building confidence Interpersonal skills</td>
<td>Communication Leadership and Organisation</td>
</tr>
<tr>
<td>Asking for help</td>
<td>Communicating, humbling, extending knowledge and understandings, identified other avenues to inform research, growing confidence to take risks</td>
<td>Developing new knowledge</td>
<td>Communication</td>
</tr>
<tr>
<td>What is happening in the data? →</td>
<td>What does this indicate? →</td>
<td>What is the fundamental concern? →</td>
<td>Sorted category</td>
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<tr>
<td>Learning research methodologies</td>
<td>New knowledge, research expertise</td>
<td>Learning new knowledge</td>
<td>Research skills Intellectual understandings</td>
</tr>
<tr>
<td>Determining data collection methods</td>
<td>Research expertise</td>
<td>Acquiring research skills</td>
<td>Research skills</td>
</tr>
<tr>
<td>Recruiting participants</td>
<td>Communication skills</td>
<td></td>
<td>Communication Research skills Project management</td>
</tr>
<tr>
<td>Completing Ethics applications</td>
<td>Communication Skills Tenacity Patience</td>
<td></td>
<td>Communication Research skills Project management</td>
</tr>
<tr>
<td>Interviewing</td>
<td>Communication skills Interpersonal skills</td>
<td>Listening empathetically</td>
<td>Communication Research skills Project management</td>
</tr>
<tr>
<td>Transcribing</td>
<td>Research skills IT skills</td>
<td></td>
<td>Research skills Project management</td>
</tr>
<tr>
<td>Coding</td>
<td>Research/ IT skills Making connections</td>
<td>Intellectual work</td>
<td>Intellectual understandings Research skills Project management</td>
</tr>
<tr>
<td>Managing research projects/field work</td>
<td>Research expertise</td>
<td>Project management</td>
<td>Leadership and organisation Communication Project management</td>
</tr>
</tbody>
</table>

Mowbray - Students’ perspectives on impacts of the PhD process
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<th>What does this indicate? →</th>
<th>What is the fundamental concern? →</th>
<th>Sorted category</th>
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</thead>
<tbody>
<tr>
<td>Analysing data (manual and with NVivo/software)</td>
<td>Improved conceptual thinking, making links, intellectual development</td>
<td>Intellectual work</td>
<td>Intellectual understandings Research skills Project management</td>
</tr>
<tr>
<td>Making connections</td>
<td>New knowledge</td>
<td>Critical and innovative thinking</td>
<td>Intellectual understandings Research skills</td>
</tr>
<tr>
<td>Disseminating research findings - presentations - journal articles - forums</td>
<td>Improved written and oral communication incl. in public speaking Growing confidence Networking</td>
<td>Presentation skills</td>
<td>Communication Workplace and career management</td>
</tr>
<tr>
<td>Writing clearly and academically</td>
<td>Communication Intellectual work</td>
<td>Written communication skills</td>
<td>Communication</td>
</tr>
<tr>
<td>Questioning others’ ideas</td>
<td>Intellectual work Developing new knowledge</td>
<td>Critical thinking</td>
<td>Intellectual understandings Research skills</td>
</tr>
<tr>
<td>Being open to new ideas</td>
<td>Broadening engagement Intellectual work</td>
<td>Acquiring new knowledge</td>
<td>Intellectual understandings</td>
</tr>
<tr>
<td>Conveying ideas</td>
<td>Communication - Writing and speaking clearly</td>
<td>Articulating ideas</td>
<td>Communication</td>
</tr>
<tr>
<td>Thinking theoretically</td>
<td>Intellectual growth</td>
<td>Acquiring new knowledge</td>
<td>Intellectual understandings</td>
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<td>What is happening in the data? →</td>
<td>What does this indicate? →</td>
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<tr>
<td>Thinking critically</td>
<td>Intellectual growth</td>
<td>Critical thinking</td>
<td>Intellectual understandings</td>
</tr>
<tr>
<td>Reading widely and critically</td>
<td>Intellectual growth</td>
<td>Informing new understandings</td>
<td>Intellectual understandings</td>
</tr>
<tr>
<td>Expanding knowledge and understandings</td>
<td>New knowledge, intellectual growth</td>
<td>Learning</td>
<td>Intellectual understandings</td>
</tr>
<tr>
<td>Carefully expressing ideas</td>
<td>Diplomacy communication</td>
<td>Diplomacy</td>
<td>Personal resourcefulness Communication</td>
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<tr>
<td>Developing researching skills/ library search abilities/ how to find out more</td>
<td>Intellectual development, resourcefulness</td>
<td>Acquiring new research skills</td>
<td>Intellectual understandings Research skills</td>
</tr>
<tr>
<td>Learning to enjoy learning</td>
<td>Intellectual development, new knowledge, enjoyment of research/learning</td>
<td>Intrinsic motivation</td>
<td>Personal resourcefulness Intellectual understandings</td>
</tr>
<tr>
<td>Identifying/learning and developing a unique learning approach and style</td>
<td>Self-awareness Self-reflection Critical thinking</td>
<td>Self awareness/reflection</td>
<td>Personal resourcefulness Intellectual understandings</td>
</tr>
<tr>
<td>Learning about epistemological positions</td>
<td>Intellectual growth, critical thinking, self-awareness</td>
<td>Acquiring new intellectual knowledge</td>
<td>Intellectual understandings</td>
</tr>
<tr>
<td>Self-reflection</td>
<td>Self-awareness Critical thinking</td>
<td>Acquiring new abilities</td>
<td>Personal resourcefulness</td>
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<tr>
<td>Being an autonomous/researcher</td>
<td>Professional</td>
<td>Becoming more disciplined</td>
<td>Personal resourcefulness</td>
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<td></td>
<td>Responsible</td>
<td>Growing confidence</td>
<td>Leadership and organisation</td>
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<td>Disciplined</td>
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<td>Agency</td>
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<td>Resilient</td>
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<td>Strong</td>
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<td>Demonstrating self-discipline</td>
<td>Intrinsically motivated</td>
<td>Self-discipline</td>
<td>Personal resourcefulness</td>
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<td>Focused worker</td>
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<tr>
<td>Managing emotions</td>
<td>Tenacity</td>
<td>Resilience</td>
<td>Personal resourcefulness</td>
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<td>Self-discipline</td>
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<td>Focus</td>
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<td>Determination</td>
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<td>Balancing demands/finding a balance with life/PhD</td>
<td>Efficiency</td>
<td>Time management</td>
<td>Personal resourcefulness</td>
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<td>Stress</td>
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<td></td>
<td>Time management</td>
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<tr>
<td>To handle stress and uncertainty</td>
<td>Resilience</td>
<td>Strength</td>
<td>Personal resourcefulness</td>
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<td>Strength - mental &amp; emotional acceptance</td>
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<td>Mark assignments</td>
<td>Academic abilities</td>
<td>Gaining transferable professional knowledge and skills</td>
<td>Workplace and career m’ment</td>
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<td>communication</td>
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Mowbray - Students’ perspectives on impacts of the PhD process

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<th>What is the fundamental concern? →</th>
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<tbody>
<tr>
<td>Not be intimidated by more senior academics, ‘published’ people, those in authority</td>
<td>Confidence Communication Personal agency</td>
<td>Agency Increased confidence</td>
<td>Personal resourcefulness Leadership and organisation Project management</td>
</tr>
<tr>
<td>Sustain self motivation and interest in research</td>
<td>Discipline Focus Determination Taking responsibility</td>
<td>Determination</td>
<td>Personal resourcefulness Leadership and organisation Project management</td>
</tr>
<tr>
<td>Tenacity, emotional and psychological strength</td>
<td>Resilience Determination Perseverance Inner strength Stubbornness</td>
<td>Perseverance</td>
<td>Personal resourcefulness Leadership and organisation Project management</td>
</tr>
<tr>
<td>Independent worker</td>
<td>Determination Agency Resilience Strength</td>
<td>Autonomy</td>
<td>Personal resourcefulness Leadership and organisation Project management</td>
</tr>
<tr>
<td>Work with what is available</td>
<td>Creativity Resourcefulness Self-reliance Innovation</td>
<td>Innovative Resourcefulness</td>
<td>Personal resourcefulness Leadership and organisation Project management</td>
</tr>
<tr>
<td>What is happening in the data? →</td>
<td>What does this indicate? →</td>
<td>What is the fundamental concern? →</td>
<td>Sorted category</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------------------------</td>
<td>-----------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Give a lecture/tutorial</td>
<td>Professional abilities</td>
<td>Gaining transferable professional knowledge and skills</td>
<td>Workplace and career m’ment Communication</td>
</tr>
<tr>
<td>Lab work (demonstrating)</td>
<td>Professional abilities</td>
<td>Gaining transferable professional knowledge and skills</td>
<td>Workplace and career m’ment Communication</td>
</tr>
<tr>
<td>Manage time</td>
<td>Efficient Reliable worker</td>
<td>Responsible manager</td>
<td>Personal resourcefulness Leadership and organisation</td>
</tr>
<tr>
<td>Reliable - work to a dead line</td>
<td>Productive worker</td>
<td>Management skills</td>
<td>Personal resourcefulness Leadership and organisation Project m’ment</td>
</tr>
<tr>
<td>Handle difficult relationships</td>
<td>Diplomacy Communication</td>
<td>Demonstrating diplomacy</td>
<td>Leadership and organisation Communication Project m’ment</td>
</tr>
<tr>
<td>Use technology - Word, power point, digital recorders, uploading</td>
<td>IT skills Transferable skills</td>
<td>Acquiring new technical abilities</td>
<td>Research skills Workplace and career m’ment</td>
</tr>
<tr>
<td>Take on responsibilities</td>
<td>Leadership Confidence</td>
<td>Managing</td>
<td>Personal resourcefulness Leadership and organisation Project management</td>
</tr>
</tbody>
</table>
Appendix 5
Beginning hypotheses

Examining impacts of the PhD as types of capital

Directly influenced by the dominant debates on the PhD as types of capital, as discussed in Chapter 2, the 49 categories were initially conceived of as providing students with capital, specifically social, cultural and personal capital. Theorising the impacts of the learning processes that occur during the PhD process using Bourdieu’s notions of social and cultural capital was perceived to potentially offer a theoretical framework that would convey the diverse and wide range of impacts of the PhD.

At a rudimentary level, impacts of the social and institutional processes students’ described during candidature were conceived as according candidates with social capital—that is the continual, conscious and unconscious development of a network of relationships, and the increased familiarity with spoken and unspoken institutional regulations are valuable within, and valued by, the different audiences and stakeholders, and across the different networks doctoral candidates function in during candidacy (Bourdieu, 1990). The private processes students described during candidature arguably represented forms of personal social and cultural capital—the intellectual, practical and tacit knowledge, skills, ways of knowing and learning, abilities and capabilities that candidates have accrued during candidature are embodied through the active processes and commitment of time and effort to learning and developing new dispositions of the mind and body during candidature (Bourdieu, 1990).

Social capital

Many participants, like other students, identified social networks as helpful to the processes of undertaking the PhD. The properties of social capital included the different social context that fostered candidates’ thinking, understanding and knowledge. These included being part of a post graduate research group, the supervisory relationship and involvement through conferences and field work as valuable avenues that facilitated, supported and sustained the processes of
candidature. The social aspects of the PhD process challenged candidates’ theoretical learning, improved diplomacy, broadened the candidates’ knowledge to other areas of interest, informed their research, improved writing, presentation and communication skills, increased abilities through managing research projects, tutoring and lecturing, built a support network and provided opportunities to interact with and observe peers’ and supervisors’ management strategies and approaches. Social networks developed relationships that supported research progress and sustained candidates at a personal level, particularly in handling stress and anxiety or research dead ends and in sharing problems.

Cultural capital

The properties of cultural capital included how candidates learnt to work in and across the different professional cultures they encountered during candidature; how they negotiated and understood the written and unwritten rules of the particular environment to competently prepare and equip themselves to engage in other, often less familiar arenas such as conferences, corporate settings, field work and different areas of academe. Impacts of the PhD as types of cultural capital included preparing and giving tutorials and lectures, negotiating with university administrators around funding, candidature, ethics and resources, working with and interacting with academics, learning the culture and language of the environment and working within it, working and collaborating with a range of contemporaries and more senior people, presenting to different audiences in appropriate and accessible ways in different arenas, requesting, negotiating and managing resources and meeting the diverse expectations of stakeholders.

Private capital

The empirical data suggested that in combination the processes of acquiring social and cultural capital challenged participants’ private capital and facilitated personal agency. Properties of personal capital included cultivating a sense of personal and professional self, recognising and enjoying the autonomy of research processes, developing inquisitiveness and critical thinking skills, obtaining a sense of balance and stability with broadening ideas and perspectives, growing confidence in their
knowledge and abilities, and managing professional and personal commitments and relationships (family, community, work, lecturing, tutoring, administrators, health).

The properties of social, cultural and private capital identified avenues of formal learning as impacts that occur during PhD candidacy. They also implicitly identified the informal learning impacts that occurred during candidacy. These were identified as tenacity, perseverance, commitment, resilience, self-motivation, and self-reliance. Significantly, identifying impacts of the PhD as social, cultural and private capital highlighted the limits of policy discourses that privileged understandings of impacts of the PhD as primarily human and economic capital (as discussed in Chapter 2).

It was initially thought that using the sub-categories of social, cultural and private capital to theorise impacts of doctoral education recognised and valued the range of impacts the processes of the PhD cultivated. Re-theorising impacts of doctoral education as types of social and cultural capital was seen to bridge many of the debates in doctoral education. At first, this conception provided a more holistic theoretical framework that acknowledged the different agendas of the different cultures driving research and policy, while also recognising the different natures of the raft of impacts that occurred during the PhD.

The ongoing process of analysis confirmed that this conceptualisation was untenable. The subcategories were too large and unwieldy to accurately convey the impacts identified by the participants. The meanings of the codes became lost due to the permeability of the categories and the unique properties and variation in each sub-category were lost in the profusion. The inability of the abstracted sub-categories to convey students’ descriptions of impacts of the PhD process did not afford any explanatory power and the inconsistency in the contexts of the sub-categories indicated a lack of conceptual cohesiveness. It was therefore determined that the subcategories of social, cultural and private capital did not fit the data well enough to credibly theorise the findings and that another, different framework should be explored. Thus, the ongoing processes of comparison and analysis suggested the core concept of skills to selectively code the 49 categories and develop a theoretical analysis of the data.
Examining impacts of the PhD as types of skills

This second conception included five sub-categories. Influenced by the dominance of ‘skills’ in the extant literature (see for example Council of Australian Deans and Directors of Graduate Studies (DDoGS), 1999; UK Research Councils & UK Arts and Humanities Research Board (AHRB), 2001), the sub-categories were established as technical skills, project management skills, new academic and intellectual skills, professional skills and personal attributes.

This conceptualisation built on dominant themes in the literature of the PhD and it was thought skills would provide a unifying concept across the sub-categories that conveyed the outcomes and processes participants described in the empirical data. In contrast to the sub-categories of capital, which were too large to maintain any meaningful significance, the properties of the sub-categories of skills were more clearly defined and were able to be organised more thematically. This conceptualisation was also deemed inappropriate. The categories were too instrumentalist and failed to convey the inter-relatedness of the impacts the students described, in particular the significant impacts the PhD process had on their personal life and on their own epistemology and ontology.