Identifying and Mapping the Characteristics and Attributes of a Knowledge-Based Professional

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Abstract

Knowledge workers are critical resources in the 21st-century workplace and yet they are significantly under represented in the literature when compared to research devoted to managers, leaders and entrepreneurs. The literature tends to focus on the commodity of knowledge, rather than the people who possess the knowledge. Also much of the literature considers knowledge workers at arms' length or under the umbrella of preexisting framework's or rigid command-and-control environments that represent neither the 21st-century workplace nor the requirements of Industry 4.0. This research set out to address the gap found in the knowledge worker and expertise literature (with the two constructs considered "sensitising concepts" for this research), which have not given individuals' ability, aptitudes, attitudes and capacity to use information sufficient consideration. It found that the distinguishing aspect for this group is their mindset and what they know about themselves not their technical expertise that makes the difference.

Using a Constructivist Grounded Theory methodology (based on the work of Charmaz 2014) this research used intensive semi-structured interviews for data collection and validation, a three-phased coding approach, constant comparison to the literature and memoing for the capturing of insights to identify and map the characteristics and attributes of a knowledge-based professional. The term "knowledge-based professional" was used to overcome deficiencies identified in the literature related to the term "knowledge worker".

Employing the Constructivist Grounded Theory methodology allowed the voice of knowledge-based professionals to emerge directly and not second-hand, which had been the case with earlier research on this group. This direct voice led to the development of the "Process of Self-Construction" model comprising "formulation of self" and "drive. "Formulation of self" consists of 12 self-related terms broken down into 5 "attitudes" and 7 "capabilities", and "drive" comprises a matrix related mix of "proactive behaviours" and "personal resources".

This research has offered two distinct and yet related contributions to knowledge. First the "Process of Self-Construction" offers: an integrated, tiered, multi-level, cross-disciplinary model of knowledge-based professionals that provides a common language to understand this group. The model also employs a systems-thinking approach to the individual. These aspects of the model help to address the deficiencies identified in the literature. A second contribution is that this research has provided a cross-disciplinary perspective when conducting Constructivist Grounded Theory research. The framework is reusable and employs a common language which is not discipline-specific.

Publications

McGowan, CG, Reid, KLP & Styger LEJ 2018, 'The knowledge enhancement process of knowledge workers', *Journal of Organizational Psychology,* vol. 18, no. 1, pp. 33-41.

DEDICATION

This thesis is dedicated to Frank McGowan

10 June 1941 - 11 March 2020

I can still hear him say "you have to finish this I have invested too much into this for you not to finish"

I promised you as one of the last commitments I made to you that I would get it done.

Dear Frank: IT IS FINISHED

Acknowledgements

As it is with any large project while there is a leader or primary researcher however, it is not possible without the help of others along the way, to achieve the end goal, in this case a doctoral thesis. I would like to acknowledge those who have helped me to achieve this goal.

The first person to acknowledge is Professor Grace McCarthy who was the person who suggested to me that I had the ability to complete a doctoral thesis something I had considered way beyond my capabilities. Any arguments I may have offered to dispute my ability she was able to counter argue presenting a valid case for consideration.

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Finally I have to thank God because without my faith this would not have been possible I think that I would not have completed this task if I did not have something bigger than myself to align this to. I am truly grateful for the grounding this provided throughout the completion of this doctorate.

Of course it would be very remiss of me not to thank my participants. I appreciate and value your willingness to share your stories for the purposes of my research and I am delighted you have been able to find personal value from the findings by feeling you have been heard.

Certification

I, Carol Gai McGowan, declare that this thesis submitted in fulfilment of the requirements for the conferral of the degree Doctor of Philosophy, from the University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. This document has not been submitted for qualifications at any another academic institution.

Carol Gai McGowan

4th December 2020

Table of Contents

List of Figures

List of Tables

CHAPTER 1 - INTRODUCTION

1.0   Background

The researcher had been a knowledge worker (knowledge-based professional) for 40 years in a variety of organisational contexts including large organisations, small-to-medium enterprises and micro-businesses. What was observed repeatedly in the business that the researcher worked in was that talented knowledge workers who were making meaningful and radical contributions and improvements to the business were side-lined, under-utilised or pushed out of their jobs. This had devastating effects on these individuals and had a negative impact on the viability and future success of the organisations involved. This could only be described as a tragic waste of talent and potential. The expertise developed over many years, by the researcher, was as a Process Management Specialist which enabled the creation of systems, processes and methods that were significantly advantageous to the business. One such instance was the development of the credit rebates on-line application to be used by all customer facing business units. This system provided a quantum leap in approach to the processing of credit rebates and was a significant contributor to ensuring the accuracy of the organisation's revenue reporting. However, the organisation was unable to determine how to put this personal expertise to best effect long-term. It was common after the development of this system for the researcher to be left idle and 'unproductive' because those in leadership and management had little understanding of the nature of the researcher's expertise or how to best utilise it to the achieve business optimisation and success.

The researcher left the frontline business context and completed a Masters Degree in Coaching and went on to practice as a business coach specialising in career transitions. The researcher observed that her personal experiences as an expert knowledge worker being side-lined, undervalued and under-utilised were troublingly frequent being common across industries and a variety of personal and professional backgrounds. The motivation to conduct this research came from a desire to make sense of this phenomenon and improve the situation for both the individual and organisations. The

need for this research was seen to be especially necessary and important recognising the complexity and growing requirement for organisations to have the capacity to frequently and radically change to remain successful in the twenty-first century workplace. During the researcher's time in a front-line business role and subsequently, the researcher observed organisations' attempts to better understand and utilise their 'human' resources in many instances did not result in the desired level of success being achieved.

Mass automation introduced into the workplace in the late 70's and 80's was seen as a game changer and yet it still saw knowledge-based professionals assessed on their productivity and not necessarily their value-add. This created frustration for all involved stakeholders as objectives were not being met over a prolonged period. The researcher was often part of working groups working alongside consultants to find the answer. This typically involved great expense for the organisation without necessarily achieving the requisite reward for the outlay made. This created a question in the mind of the researcher about what enables individual knowledge workers (knowledge-based professionals) to succeed that we did not know but could be advantageous to organisations and individuals if better understood.

The initial question raised for this research related to the supply of knowledge to organisations. The exploration of this topic highlighted the wealth of research on Knowledge Management (and understanding of the commodity of knowledge) but not the knowledge workers, those that possess, work with and create knowledge. This ultimately led to the research question "what are the characteristics and attributes of a knowledge-based professional" and the supporting propositions as outlined in Section 1.5.

This research has brought to the fore that being a knowledge worker (termed in this research knowledge-based professionals) "is not a state of accomplishment, but rather is best thought of as an approach to practice" (Mylopolous & Regehr 2007, p. 1164).

In the context of this work the term 'knowledge-based professional' is defined by using a combination of definitions and explanations which summarise this:

> Knowledge workers have high degrees of expertise, education, or experience, and the primary purpose of their jobs involves the process and accomplishment of knowledge work (Mundbrod, Kolb & Reichert 2012, p. 4).

> A knowledge worker is someone who has access to, learns and is qualified to practice a body of knowledge that is formal, complex and abstract (Pyöriä 2005, p. 121).

Therefore the definition of a knowledge-based professional for the purposes of this research is:

> *Individuals who have expertise, education and experience in a domain area of expertise and who are required to use this expertise, education and/or experience in the execution of their work roles drawing from a body of knowledge that is formal, complex and abstract* (Mundbrod, Kolb & Reichert 2012, p. 4; Pyöriä 2005, p. 121).

There is a body of literature that seeks to understand knowledge workers and the contribution they can and do make to organisational success, as well as their impact and influence on navigating societal change. As Adelstein (2007, p. 853) writes, "Knowledge work and knowledge workers have become very significant on the world stage, only to be hooked by their collective necks and swept off to the wings. They have been side-lined in the knowledge discourses."

While Adelstein's comment dates back to 2007, there has been a paucity of attention of knowledge workers in the interim 14 years to advance our understanding of knowledge workers and how they are valued, trained, supported and optimised in the workplace. While the value and predominance of knowledge itself has continued to grow as the glue and currency in society and business and as a focus of academic research, the knowledge worker and knowledge work remains "swept off to the wings" (Adelstein

3

2007, p. 283) and largely silent in the academic literature and elsewhere. This chapter will explain the current understanding of knowledge workers that has emerged from the analysis of the literature to help situate this research and provide justification for it being conducted. It also provides a discussion of the methodology employed and an outline of the structure of the thesis.

1.1   Knowledge Workers are Underrepresented in the Literature

Analysis of literature within the business discipline has highlighted that knowledge workers are significantly under-represented in the literature, with studies related to them constituting only 0.5% of the total (for the period 2000-2018). The literature to 2018, with an emphasis on twenty-first century studies, has provided the foundational understanding and grounding for this research. More commonly found are studies relate to management, leadership and entrepreneurship, all groups commonly identified within business discipline research. The demands that the Fourth Industrial Revolution places on business (Denning 2014, p. 3) support the need for more work in seeking to understand knowledge-based professionals.

1.2   There is No Common Language to Describe and Explain Knowledge Workers

Coupled with the fact that there is a lack of information about knowledge workers there is no common understanding about them. There is a need for a cohesive approach to understanding knowledge workers; currently there is a variety of points of view based on educational qualifications or professional affiliation, or definitions of the term "knowledge worker" best described as superficial. Finding definitions with depth and insight was challenging, with perspectives often at arms' length rather than by talking directly to the knowledge workers themselves.

The concept of knowledge work and knowledge workers is not new (Adelstein & Clegg 2014, p. 4). Specific groups of people have always met the higher-level knowledge needs of their societies: Sharman, clerks and scribes; more recently accountants, lawyers, doctors and information professionals (Elliott & Jacobson 2002, p. 72.)

The term "knowledge worker" came into common usage when Drucker (1959) used it to differentiate knowledge workers from manual workers, and was further developed by the work of Fritz Machlap in the early 1960s. The literature related to knowledge workers consists mainly of discussions and explorations limited tightly to particular disciplines and specific situations; this specificity often hinders a fuller understanding of what a knowledge worker is.

1.3   Perspectives on Knowledge Workers Found in the Literature are Outmoded

The paradigm used to understand knowledge workers, which has emphasised command and control with execution (Fernandez, 2013, pp.8-9), continues to limit understanding of knowledge workers, particularly as the business context evolves.

This research argues for the necessity to characterise knowledge workers in a more comprehensive way, particularly in the face of the increasing need to future-proof organisations by augmenting their automation strategy, as outlined in the World Economic Forum the Future of Jobs 2018 Report (World Economic Forum 2018, p. 12). This report clearly states that the abilities of the workforce, not just how automated or technologically advanced the organisation is, will ensure business success. More fully considering knowledge workers' humanness will enhance the ability to understand and determine their contribution to an organisation. Their influence on what goes on around them has been insufficiently acknowledged in the literature at a time when organisations are realising the need for agility and responsiveness to a dynamic workplace where the extent of the change across entire systems and processes will be exponential (Xu 2018, p. 91).

To provide a better understanding of knowledge workers this study has used a qualitative approach based on Constructivist Grounded Theory, which allows the unknown to more easily emerge (Charmaz 2012, p. 2), as there is no pre-existing framework into which the concepts or themes need to fit. The use of intensive semi-structured interviews as a data-collection method provided the capacity to work with a variety of responses with depth and flexibility.

1.4   Understanding Knowledge Workers by Employing a Different Lens

In this research 12 interviews and a further 8 validation interviews were conducted. While this is a small sample size, each interview was rich in its content. Participants were chosen purposefully with a requirement that they satisfy at least five of 11 selection criteria which were based on parameters identified in the literature considered relevant to qualify someone as a knowledge worker or expert, (for example at least 15 years' experience, or possessed tertiary qualifications in an area related to their domain area of expertise).

The literature also formed part of the data set for this research; thus the constant comparison and memo techniques of Grounded Theory (Hunter et al. 2011, p. 10) were used to assist the analytic process.

The results of this research support a number of key insights. First knowledge workers are distinguished by attributes that come under the overarching umbrella of their "process of self-construction". Second, this process incorporates their approach to "formulation of self" which consists of five "attitudes" and seven "capabilities," and their "drive" comprising a mix of "personal resources" and "proactive behaviours". These resources and behaviours enable knowledge workers to adapt, evolve and cope with complexity and with dynamic ever-changing environments. While no two interviewees were the same, (for example, different occupational backgrounds, ages and life experience), all displayed similar characteristics and attributes as part of their process of self-construction.

A number of shortcomings were found in the literature which included the following: measures and lenses used to understand knowledge workers were not always optimal. This means there have been limitations on what can be understood about this group as they are being defined in ways that are not the most valid for the twenty-first century workplace. Alongside this there was a tendency to rely on knowledge workers in large organisations rather than other organisational types which means that a wide cross-section of this group has not been approached for research purposes. When attempting

to understand this group in more detail there was not sufficient consideration of their habits and preferences with a stronger emphasis being placed on the dichotomy between tacit vs. explicit knowledge. Alternatively, consideration was given to competency not capability. Capability includes aspects of 'self' not just a person's skill level. These limitations have lead to the situation that the insights about this group are not sufficiently 'future-proofed' hence they have relevance when they were identified however there usefulness over an extended period of time could be considered restricted.

Research to date has emphasised what knowledge workers contribute to an organisation, not who they are and what they might need. However, understanding who they are and what they need can enhance results for both the individual and the organisation, allowing for a strong competitive advantage for all involved.

1.5 Research Question (including Ethical Considerations)

By using a Constructivist Grounded Theory approach, with intensive semi-structured interviews as the data-collection method, this research will identify and map the characteristics and attributes of a knowledge-based professional within the 21st-century workplace.

Hence the research question is:

What are the characteristics and attributes of a knowledge-based professional?

Given that human participants would be involved in this research, consideration was given to ensuring participants' confidentiality and anonymity. Each participant was identified only by a number, and all records were safely stored on a password-protected computer used only by the researcher. Ethics approval for this study was received from the University of Wollongong Ethics Committee in May 2014 with an approval number of HE14/114 (Appendix 1.1). Ongoing approval to continue this research was obtained throughout the course of the research initiative.

Prior to being interviewed, each participant was sent and signed off on an approved Participant Information Sheet and Consent Form. At the time of interview, verbal and written consent were obtained to record the interview.

1.6 Propositions

A number of propositions are associated with this research:

1. The nature of knowledge-based professionals (knowledge workers) has changed in response to changes in the nature of work and the world context. This is an important issue because these are what could be categorised as outdated perceptions of knowledge workers and this has a fundamental impact on commercial operability and the measure of the value of an enterprise.

2. The characteristics of knowledge-based professionals are not fully explained by the mechanistic models of work that currently predominate in the literature. This is worthy of consideration because outdated models have the potential to produce an unfair judgemental bias on determining individual and enterprise performance.

3. To fully understand knowledge workers it is important to understand who they are not just what they do because, to date, much of the literature considers knowledge-based professionals at arms length.

4. Emphasis on understanding knowledge workers based on the desire to enhance productivity places arbitrary restrictions on how knowledge workers might be understood. Productivity in Industry 3.0 terms is very different to productivity in Industry 4.0 terms.

1.7 Methodological Approach

There is no one size fits all approach to presenting findings from a grounded theory study (Charmaz 2014, p. 287). While this research does not provide a theory it does present a 'grounded' model of knowledge-based professionals that challenges existing assumptions related to knowledge-based professionals and how they contribute to and enhance organisational productivity. Therefore, this research used a grounded-theory approach (where selection of the method was influenced by insights gleaned from the

literature) because its purpose was to examine the current theoretical assumptions around knowledge workers. The selection of grounded-theory meant that it would enable the unbiased critical examination of knowledge workers and the assumptions that may be being made about how to enhance productivity. There are many types of grounded theory in this instance a Constructivist Grounded Theory approach was used employing an Interpretivist paradigm. To complete this research selection criteria were used to identify participants, where they had to satisfy 5 of the 11 criteria to be considered suitable participants. Intensive semi-structured interviews provided the data capture mechanism. Each interview provided insights for the conducting of subsequent interviews as emerging themes helped with informing the focus and emphasis of the interviews to complement the common aspects that were included in the interview script. Data was coded in three phases with constant comparison to the literature as themes emerged from the data coding process.

1.8   Limitations

As with most research it is not possible to sample all possible alternatives for the particular facet under review. This leads to a number of limitations associated with this work:

- The Interpretivist/Constructivist Grounded Theory approach used was time-consuming and labour-intensive, but necessary to ensure that rich data was obtained to enhance the value of the insights provided by this research.
- There are few rules that clearly outline how data needs to be reviewed to optimise the value of the findings that emerge.
- The stories provided are unlikely to provide generic rules or predictions that can be readily extrapolated on a wider basis.
- The number of people interviewed is small; nevertheless, the sample was sufficiently rich and deep to provide valuable insights not previously identified.
- The findings from this research are from an Australian perspective and may be somewhat different if it included in its sample people from different cultural

backgrounds. The results could also be different depending on the researchers' background and insights.

- The findings from this research are time-sensitive and, given the rapid changes that occur in the workplace may have a finite period of relevance. It is believed that the findings will provide a base to take the situation from the current understanding to future explorations and insights, making it possible to provide information on how organisations can future-
- proof themselves to meet the dynamics and ever-changing nature of the workplace.
- The research may include some inherent assumptions based on the experiences of the researcher as a knowledge-based professional.
- It was not possible simultaneously to ensure gender equality and neutrality of choice.
- The age of participants was over 40 years old, which was necessary if they were to meet the criterion of 15 years' experience in their domain area of expertise and/ or acquire relevant educational qualifications in their chosen field.

1.9   Justification for and Contribution from Research

The perspective and understanding of knowledge workers has not kept pace with the changes that the workplace has undergone. The findings of this research will help to bring into closer alignment the understanding of knowledge workers and their role and contribution in the 21st-century workplace by seeking for the first time to know the knowledge worker as an individual, and not a passive and reactive mechanism used by organisations to achieve business objectives. This research discovered actions and processes that knowledge workers use to help them cope with the complexity and capacity for change that organisations need to remain agile and relevant.

The contribution to knowledge is that, uniquely in this research, knowledge workers' own voices and perceptions have been used to develop a real profile of knowledge workers and to contextualise it relative to the 21st-century workplace. Moreover, the use of Constructivist Grounded Theory as the research method has not previously been for research about this particular work group.

1.10   Organisation of the Study

The following discussion provides an overview of how this thesis is structured and summarises the core aspects covered in each of its eight chapters.

1.10.1   Chapter 1 – Introduction

This chapter provides a description of the research statement, research rationale, research methods and findings and an outline of an overall flow of the study.

1.10.2   Chapter 2 – Literature Review

The literature review for this study has three primary sections:

- A review of studies that have influenced this study's approach
- A review of primary situating concepts of knowledge and knowledge work
- A review of the primary sensitising concepts of knowledge worker and expertise (expert/expert performance)

The value of this chapter is that it provides the grounding for this research and identifies the gap in the literature that is to be researched.

1.10.3   Chapter 3 – Research Process Methodology

This chapter expands on the information in Chapter 2, providing more detail on some of the specific techniques used within Constructivist Grounded Theory; these constant comparison, memoing, intensive semi-structured interviews, participant selection criteria, sample size, coding approach and validation interviews, which include both respondent validation interviews (member checking) (Bazeley 2013, p. 89) and peer debriefing and consensual validation interviews (Bazeley 2013, p. 409). This chapter provides the process used to conduct this research and the paradigmatic basis on which data is reviewed.

1.10.4 Chapters 4-6 – Findings

The findings section of this study has been separated into three chapters. The first chapter analyses interviews individually based on relevant mind maps, detailed analysis and schematics with comparison to the literature. The second chapter develops and analyses an overall schematic based on insights from all the interviews conducted for this study with appropriate comparison to themes and topics sourced from the literature. The third chapter outlines how validation interviews have been used to ensure research credibility, trustworthiness and rigour. Each chapter provides different details to comprehensively explain the findings emanating from this research. This disaggregation was employed to ensure that the process undertaken is clear and sufficient insight is provided on how the research activity progressed. The three chapters for this section are:

Chapter 4 – Findings from Open and Selective Coding – Analysis of Literature and Interviews

Chapter 5 – Findings from Thematic Coding

Chapter 6 – Validation Interviews (Ensuring Research Credibility, Trustworthiness and Rigour)

Details on what is provided in each of these chapters is provided in Sections 1.10.4.1, 1.10.4.2 and 1.10.4.3 respectively.

1.10.4.1 Chapter 4 – Findings from Open and Selective Coding – Analysis of Literature and Interviews

Chapter 4 provides an analysis and discussion of the coding of the literature and each individual interview, focusing on the insights gained from the review of these two datasets (literature and interviews). This analysis helped to identify the differing approaches employed in the literature, which explores individual and organisational considerations, relative to the findings of this research which explores intrinsic and extrinsic considerations related to knowledge-based professionals.

1.10.4.2   Chapter 5 –– Findings from Thematic Coding

This chapter outlines the findings from the third stage of coding known as thematic coding which has been sourced and extracted from the interview dataset. The chapter outlines the distinguishing characteristics and attributes of a knowledge-based professional, providing the details associated with their approach to "formulation of self" and "drive" which makes up their "process of self-construction". This is the chapter that identifies and maps the characteristics and attributes of a knowledge-based professional, that is, it details the answer to the research question.

1.10.4.3   Chapter 6 – Validation Interviews
(Ensuring Research Credibility, Trustworthiness and Rigour)

Chapter 6 describes the insights from and value of conducting two types of objective validation interviews: a) respondent validation interviews and b) peer debriefing and consensual validation interviews. The conducting of these interviews represents the mechanism used to demonstrate the credibility, trustworthiness and rigour of this research.

1.10.5   Chapter 7 – Discussion

This chapter discusses the findings as they relate to the research area of exploration and its significance as a result of understanding knowledge workers at a more individual level rather than as passive and non-reactive resources of an organisation. It explains in detail the contributions of this to the body of knowledge that is devoted to knowledge workers what will be expected of them in the 21st-century workplace which is the ability to cope with complexity, ambiguity and rapid change as part of the embedding of the requirements of Industry 4.0. It also identifies an integrated approach to conducting Constructivist Grounded Theory and provides a model to aid the future research using this approach.

1.10.6 Chapter 8 – Conclusion

This chapter concludes the key points of this thesis. It also states the contribution to knowledge, benefits and limitations of the research and opportunities for further research.

1.11 Summary of Chapter

This chapter has provided details of the research problem, the topics reviewed as sensitising concepts and the research methodology used. This chapter has also detailed the research propositions associated with the defined research topic, limitations of the research, contribution to knowledge and the outline of the thesis. The next chapter will provide details of the research gap identified as part of reviewing the literature related to the situating concepts of knowledge and knowledge work, and the sensitising concepts of knowledge worker and expertise.

CHAPTER 2 – A SITUATING AND SENSITISING LITERATURE REVIEW OF KNOWLEDGE-BASED PROFESSIONALS

2.0 Introduction

Chapter 1 has provided an overall perspective on this research, the focus for the literature reviewed, the approach adopted and key findings and implications.

This chapter provides an overview of the current context for this research by undertaking a situating and sensitising literature review regarding the characteristics and attributes of knowledge-based professionals. This chapter has four main sections:

- 2.1 Methodological approach to literature
- 2.2 Defining knowledge
- 2.3 The nature of work and workers
- 2.4 Knowledge-based professionals

2.1 Methodological Approach to the Literature

2.1.1 Using a Qualitative Approach to this Research

Qualitative and quantitative methodologies are widely accepted as the two primary approaches to research. Quantitive research draws primarily on numeracy and testing, while qualitative research draws on words, spoken language, images and exploration. This research sought to understand the lived experiences of 'knowledge-based professionals' allowing their characteristics and attributes to emerge and be described and defined. A necessary prerequisite for this study was to identify data-rich, "fertile exemplars" (Polkinghorne 2005, p. 140) that provided thick descriptions to review; this required a qualitative approach. Another benefit of employing a qualitative approach was that aspects unique to each scenario or instance could naturally surface, enabling patterns to emerge rather than be predefined or prescribed. The specific qualitative approach used was Constructivist Grounded Theory. This approach and its accompanying tools will be discussed in more detail in Chapter 3.

2.1.2 Rationale for Conducting a Literature Review

After considering the arguments for and against conducting a literature review when conducting a grounded-theory study a decision was made to complete a situating and sensitising literature review to clearly identify the focus of this research. Dunne (2011), states that the benefits of completing a literature review in this instance are:

- It provides a "cogent rationale" (p. 116) and sound justification for completing the research;
- It avoids duplication of previous work;
- It contextualises the study, helping to orient the researcher to point out methodologies and approaches that may be useful;
- It sensitises the researcher to relevant discipline-specific concepts;
- It helps the researcher clearly determine how to best conduct the research;
- It shows that due diligence has been exercised in the conducting of the research;

However, conjecture about undertaking a literature review for a Grounded Theory study has existed from the time Glaser and Strauss (1967) first brought Grounded Theory to prominence as a robust qualitative research method. A number of scholars (Suddaby 2006, p. 634; Cutcliffe 2000, p. 1480; Annells 1999, p. 148) have suggested that a literature review can unduly influence the researcher, who should instead approach the research as a "tabula rasa" (Ng & Hase 2008, p. 156) or "blank slate" or 'empty head', investigating the literature can: allow theory to emerge from the data, avoid preconceptions (which encourages an "open mind" rather than a "blank slate"), attune the researcher to sensitising concepts, help to avoid duplication, allow for similarities and differences to be identified, and help clarify the gap that needs to be filled to help expand knowledge in the research area (Ng & Hase 2008, pp. 156-157; Heath & Cowley 2004, p. 144; Jones & Alony 2011, p. 97). This forms the basis for how this research was approached.

The aspects of literature reviews highlighted by both Dunne (2011) and Ng and Hase (2008) helped to justify the completion of a literature review as part of this research activity and guided the overall approach used for this research.

2.1.3   Approach to Using the Literature

While every effort has been made to undertake and exhaustive review of the relevant extant literature it is accepted that some academic papers and/or professional development literature may have been missed. However, the literature examined in this study represents a thorough examination of the broad body of literature relevant to this study and the conclusions drawn are based on this broad examination.

It was identified early on that the literature review process would be iterative. A linear approach to the research would not meet the need for constant comparison a key component of doing grounded theory and needs to be applied to all appropriate data sources including the literature. The literature was reviewed and used in five ways:

1. *Research* – suitable literature based on relevance and usefulness to the research were identified.
2. *Organise* – literature and findings were organised and aggregated into different themes based on their relevance to research.
3. *Outline* –   key terms and constructs were extracted from the literature to contribute to a sensitised understanding of the topic area and to identify suitable selection criteria for participants.
4. *Write* – themes and terms were described and discussed to demonstrate their relevance to the research topic and helping to identify the appropriate gap in the literature and how it could be addressed.
5. *Edit* – discussion and findings were edited to highlight and support the identified research question.

Figure 2.1 is a graphical representation of the approach when analysing the literature especially highlighting its non-linear nature and the continuous interplay of all the relevant component parts.
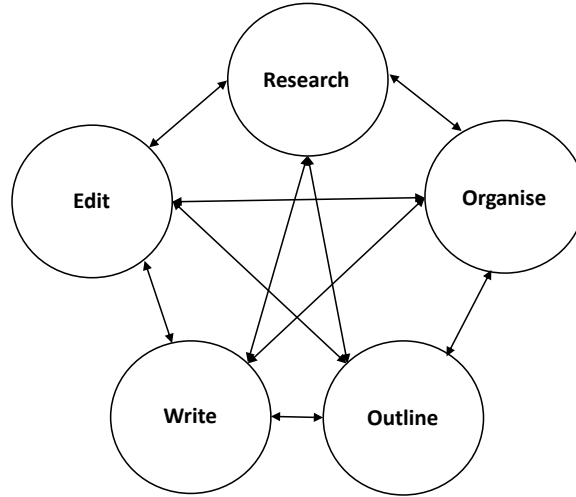
Figure 2.1 – Approach to Using Literature and other Data Sources

The following sections will present a review of the literature on various aspects of the study topic, Figure 2.2 shows how the literature has been reviewed for the purposes of this research.
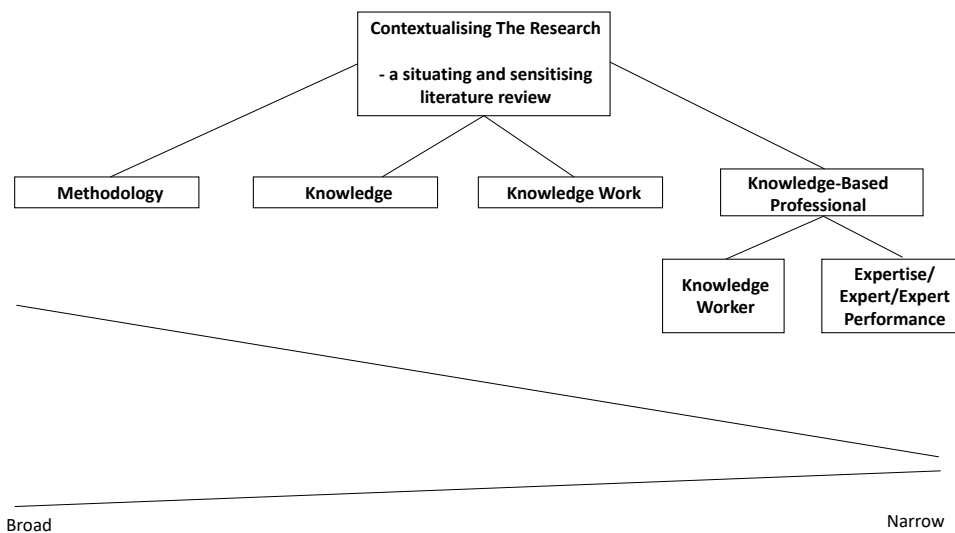
Figure 2.2 – Contextualising the Research Schematic

Figure 2.2 highlights four key concepts identified as "situating" and "sensitising" for the purposes of this research: knowledge; knowledge work; knowledge worker and expertise (expert/expert performance) (from here on simply referred to as expertise).

The analysis of the literature commences with the review of the literature on knowledge. It then analyses the concepts of knowledge work, knowledge worker and expertise literature.

2.2 Defining and Understanding Knowledge

The review of the literature on knowledge as a concept enables the use of a definition that is well grounded and based on solid research. Knowledge is considered to be a relevant "sensitizing concept" (Blumer 1969, pp. 147-148, cited in Clarke & Star 2007, p. 118), Bryman (2012, p. 716); and Charmaz (2012, p. 5) that provides a direction in which to start looking rather than a prescriptive explanation (Clarke & Star 2007, p. 118). The issue is that while considering knowledge as a construct seems straightforward it is problematic because it is a construct with very broad application and investigation across a wide range of disciplines causing the understanding of knowledge to become disjointed and disparate. However a summary of the review of definitions knowledge across the disciplines is provided to provide a base for how this construct which has informed how the review of the definitions of knowledge found in the business literature has occurred.

The concept of knowledge has its origins in the field of philosophy (Evans & Smith 2012, p. 6) and has since been incorporated into fields such as psychology (Colman 2015), creativity (Runco & Pritzker 2011), cognition, knowledge management (Jashapara 2011, p. 342) and human-resources management (Heery & Noon 2008). As a result definitions are broadly scattered and vary widely. This fragmentation has resulted in partial analysis and perspectives being presented that typically employ one primary lens at the expense of others. Appendix 2.1 contains tables of relevant definitions used to inform this research and the disciplines from which they were sourced including the

shallow and deep definitions found in the business literature). Knowledge is explored in more depth in this review, starting with philosophical definitions and a consideration of cross-disciplinary definitions of knowledge, and finishing with understanding knowledge within the business discipline and its specific relevance for this research.

2.2.1 Philosophical Definitions of Knowledge

Attempts to understand knowledge began in the field of philosophy as people strove to make sense of their world and what was going on around them. Analysis of the philosophical definitions of knowledge sourced from the relevant literature highlights that the general consensus is that it is a "warranted or justified true belief" (Stanford Encyclopaedia of Philosophy (2018, p. 2); Evans & Smith (2012, p. 6); Cassam (2009, p. 105). However, the problem comes when trying to clarify what conditions determine whether a belief is, "true", "warranted" or "justified". Other disciplines will be explored to see if they can provide more clarity on an understanding of knowledge and how it might be relevant for this research.

2.2.2 Cross-disciplinary Definitions of Knowledge

Definitions were sourced in a purposive (rather than exhaustive) way from a wide variety of disciplines to help explain this concept and inform this research. The definitions can range from detailed eg: "Information gathered from experience that has been interpreted and can be used" (Dictionary of Environment and Conservation 2013) too vague and potentially unclear "Anything that is known" (Dictionary of Psychology 2015). These definitions are purposive; they have been developed to suit a particular need or purpose. They begin to highlight the fact that knowledge has a relationship to information and can be stored in memory; usually the memory of individuals, but also organisational processes and procedures (Dictionary of Creativity 2011; Dictionary of Environment and Conservation 2013; Dictionary of Computing 2008). They also suggest knowledge is often broken up into component parts to provide clarity of meaning. For example, the definition used by the Dictionary of Psychology (2015) suggests there are three classes of knowledge: declarative, procedural and

acquaintanceship. It also suggests that knowledge in any of these classes can be either useful or useless. However, while these definitions did provide some more insight on the nature of knowledge they did not meet the needs of this research therefore the business literature was examined to find a more appropriate definition of knowledge.

2.2.3   Business-Discipline Definitions of Knowledge

Typically the consideration of knowledge from the business discipline and its sub-disciplines is from the perspective of Knowledge Management (KM), Information Technology (IT) perspective or Human Resources (HR) (Shujahat et al. 2019, p. 444; Óskarsdóttir & Oddsson, 2017, p. 2; Gloet & Terziovski 2004, p. 402) with very little overlap among them. The remaining sub-disciplines are typically grouped as general business and provide their own purposive definitions. IT perspectives often have a much higher visibility through featuring in the KM literature than insights from general business or the HR literature, and yet it is humans' interaction with information that leads to the creation of knowledge; without it, knowledge never becomes anything more than information or data (Van Deventer 2013, pp. 31-32). Van Deventer (2013, p. 28) has highlighted that knowledge is a human construct that cannot exist without the interplay between the individual and the information. Recognising this interplay for this research is important and also the fact that this aspect has not been sufficiently acknowledged in the literature since this time.

A recurrent theme found in the business-discipline literature on knowledge is that it is often separated and segmented in attempts to provide clarity. The literature reveals two predominant approaches. First, knowledge is differentiated from data, information and wisdom, with both knowledge and wisdom achieved only through human involvement. Second, tacit knowledge ("unknown knowns" which cannot be captured or documented) is distinguished from both explicit and implicit knowledge (which are visible, transferable and teachable, and hence can be captured and documented). An analysis of literature from the business disciplines saw seven definitions coming from the KM, three from IT, three from the general business literature and one from HR. This predominance of IT perspectives may not necessarily reflect the reality of the business

discipline overall. While understanding these aspects of knowledge has its benefits the emphasis on the nature of the knowledge rather than who possesses the knowledge places limitations on the ability to understand knowledge-based professionals.

Based on extensive review and analysis of the business literature definitions were categorised as being either simplistic or extensive. Simplistic definitions tended to be too provide very broad definitions limiting their applicability to how knowledge and therefore knowledge work and knowledge workers are understood particularly in the business context. Simplistic definitions often lacked sufficient detail or used terminology with limited specificity with broad scope for interpretation; for example, "capability to act" (Sveiby 2001, p. 4).

While acknowledging the limitations of this category of definitions, they do provide some insights into understanding the construct of knowledge. They acknowledge the role people play in the achievement of knowledge (Glasser 1999, pp. 5-7) and that individuals need to be familiar with a topic area in order to develop knowledge (Marren 2003, p. 5). They also highlighted the difficulties associated with defining and understanding knowledge including that knowledge relies on contextual placement for it to have meaning (Tuomi 1999/2000, p. 106-107); that some of the definitions offered align with those offered in the philosophical literature where knowledge relates to a truth (Alvesson 2001, p. 865); acknowledgement that there is no consensus on the meaning of the term (Jashapara 2011, p. 342); and that definitions are often rely on explaining the term by making the distinction between tacit and explicit knowledge (Dahooie & Arsalan 2013, p. 518; Jashapara 2011, p. 342; Adelstein 2001, p. 863). While giving some context to how knowledge can be understood these discussions of definitions of knowledge did not provide the requisite level of understanding needed to fully understand the construct of knowledge for the purposes of this research.

The second group of definitions of knowledge from the knowledge-worker literature has been categorised as extensive. This group of definitions provide great levels of detail, are more specific, increasing their applicability and usefulness for understanding the term. A common theme was that knowledge is different from information. The shift from information to knowledge was described as occurring due to what the individual does with the knowledge they receive (Bender & Fish 2000, p.126). Definitions in the extensive category identified the production of knowledge as highly dependent on the role the individual played in the transformation of the information they receive. While this theme was common across definition it was explained in a variety of different ways suggesting that a fluid mix of experience, context and insight is needed to develop and acquire knowledge (Tiwana 2002, p. 7; Davenport & Prusak 1997, p.4); the individual receiving the knowledge significantly influence the translated into knowledge process (Bender & Fish 2000, p. 126); an agent was seen as essential to the creation of knowledge and that that it was the result of the thinking process of the individual (Alavi, Kayworth & Leidner 2006, p.192; Alavi & Leidner 2001, p.109) or as being meaning made by the mind (Bhatt 2001, p. 70). The overall theme emerging from this group of definitions is best summed up by Bhatt 2001, p.70 who states that knowledge is the result of an assimilation process where rules and procedures have been applied through experience (Bhatt 2001, p.70).

Knowledge is an integral part of the individual rather than something that is distinct from them (Van Deventer 2013, pp. 28-32; Baker et al. 1997, p. 65.) It is the interplay of the individual (that is, their skills, experience and personal capacity) with information that leads to knowledge; thus these aspects need to be considered collectively not just independently (Bender & Fish 2000, p. 126.) Bender and Fish (2000, p. 126) define knowledge thus:

> "Knowledge originates in the head of an individual and builds on information that is transformed and enriched by personal experience, beliefs and values with decision and action-relevant meaning. It is information interpreted by the individual and applied to the purpose for which it is needed. The knowledge formed by an individual will differ from person to person receiving the same information. Knowledge is the mental state of

ideas, facts, concepts, data and techniques, recorded in an individual's memory."

The definition offered by Bender and Fish (2000, p.126) recognises a number of important factors relating to the construct of knowledge. The key aspects emerging from the Bender and Fish definition were that the role of the individual and how they formulate knowledge depends on their personal experience, beliefs and values play an important role, how they interpret the information they receive and the mental state they bring to the information they receive is also a factor. They conclude that knowledge is an intangible item not a tangible commodity and that it cannot be "packaged and delivered" as needed.

Knowledge as it is described in this instance helps to highlight the role the individual plays hence if we better understand the characteristics and attributes of a knowledge-based professional then it is plausible that the ability to tap into this type of knowledge will be enhanced. The analysis of who knowledge-based professionals are will provide insight into experiences, how they interpret information and what they use to make the most of the knowledge they possess is undertaken.

2.2.4 Types of Knowledge

Defining knowledge is only part of the process of understanding knowledge for the purposes of this research. There is a large volume of literature that tries to explain knowledge without the use of a definition or explanation instead the researcher differentiates knowledge from something else as the mechanism to try to explain it.

Heisig (2009, p. 8) identified 29 different dichotomies found in the business literature used to help try to explain and define knowledge, the most common of which were:

- Implicit/explicit versus tacit knowledge
- Individual versus organisational/collective knowledge
- Internal versus external knowledge

- Knowledge as a process versus knowledge as a product

The dichotomies highlighted by Heisig (2009) closely resembled the dichotomies that had been independently identified in this research as being common in the literature:

- Explicit versus tacit knowledge.
- Individual versus organisational knowledge.
- Intra-organisational versus inter-organisational knowledge.
- Intra-organisational versus inter-organisational knowledge (internal vs. external) knowledge.
- IT versus HR.

Agger (1994, pp. 501-502) writes that the tendency in Western thought establish dichotomies as polar opposites, where "one of the poles is defined by its lack of the attributes of the other pole" is problematic because it tends to overlook the possibility of the poles overlapping. Moreover, knowledge can have many interpretations within a business context and trying to see it simply as two polar opposites limits contextualisation and nuance. It also has implications for how knowledge is connected to other constructs. Any intense investigation of the types of knowledge that may exist was not considered beneficial for the purposes of this research as they focus on the commodity of knowledge not those who actually possess the knowledge.

What considering knowledge, where the human element was a primary component has provided, is an initial grounding from a business perspective for this research, particularly at the level of the individual. It helped to confirm that in the business context, knowledge is generally considered independent of the person who possesses it (Adelstein 2007, p. 853), the commodity of knowledge is more highly valued than the individual who possesses the knowledge.

2.2.5   What is Known About Knowledge

The following comments by various authors give some idea of the wide variation in defining knowledge. Knowledge had historically been difficult to define. Experts have described it as an ambiguous, unspecified and dynamic phenomenon" (Alvesson and Kärrema 2001, p. 995) and that it is "not a physically identifiable entity" (Bhatt 1998, p. 166). It is widely acknowledge that it is a term without consensus (Jashapara 2011, p. 342). Hence, because of this there is much talk about knowledge, what it is and how to use it (Prusak 2001, pp. 1002-1006) creating the situation where "the term itself can be confusing" (Scarso & Bolisani 2011, p. 62).

Prusak (1996, p. 7) wrote: "One of the problems with knowledge it that we have no agreed-upon unit of analysis." Brinkley et al. (2009, p. 11) similarly suggest that being unable to define knowledge causes difficulties in attempting to define knowledge work. Much of the discussion centres on trying to explain an intangible concept using tangible characteristics. Knowledge as Bennett, Bennett and Avedisian (2015, p. 5) wrote, is "context sensitive and situation dependent". However, one aspect of knowledge that draws wide agreement is that it requires human intervention. "Knowledge exists in the minds of knowers" (Prusak 1996, p. 7). In other words, the basic unit of comparison for knowledge is what the person knows and that knowledge of self affects how individuals process the knowledge they encounter as they work.

Having explored the construct of knowledge, it is now relevant to consider knowledge work and knowledge workers and how these concepts has been understood over time. This review is based on the desire to better understand knowledge-based professionals.

2.3   The Future and Nature of Work

2.3.1   Background to Understanding Knowledge Work

Knowledge work has been given different names during different times. Elliott and Jacobson (2002 pp. 69-80), in their article 'The Evolution of the Knowledge Professional' analyses knowledge work across four economic paradigms for how wealth is created as part of the process of cultural evolution including forms of manual and knowledge work (Table 2.1) and shows the progression of knowledge workers over time and the prevailing schools of thought during each paradigm. Knowledge workers are a constant in the world of work however while the work itself changes our understanding of those who perform the work often lags behind.

The four identified paradigms highlight that knowledge work and knowledge workers (those with specialised levels of understanding) have always existed under different names. Each new paradigm had an increasing reliance on and need for information which ultimately became knowledge that grew in sophistication to meet ever-growing needs including the development of businesses and operational competencies.

Economic Era (Paradigm)	Manual Work During the Era	Information Requirements	Knowledge Work	Knowledge Worker	Knowledge Requirements
Hunter-Gatherer	Tool makers Survival skills	Minimal information needs	Focus on nature and how the world works	Shaman	Assessments based on knowledge of good and evil often with religious associations and interpretations
Agricultural	Farming	Increasing information needs	Recording events	Scribes, clerks and agents	Literature and educated
Industrial	Manufacturing Use of machinery	Rapidly growing information needs	Recording and capturing results of business activities	Accountants and bookkeepers	Ability to analyse and interpret information

Economic Era (Paradigm)	Manual Work During the Era	Information Requirements	Knowledge Work	Knowledge Worker	Knowledge Requirements
Information	Mass production	Information becomes an essential business tool	Analysis of large volumes of data Ability to cope with increasing forms of complexity	New information (knowledge) professional	Expertise and higher-level tacit knowledge capabilities

**Table 2.1 – Manual Work and Knowledge Work over Time
(Adapted from: Elliott & Jacobson 2002, pp. 69-74)**

While the higher-level understanding shown in Table 2.1 is helpful, it does not prove an in-depth understanding of knowledge work because it considers tangible and invisible factors not what the individual may provide. There are no insights provided related to the identification and mapping of the characteristics and attributes of a knowledge-based professional as part if this analysis. The following section will provide an analysis of the literature on knowledge work, its importance to this research and gaps in understanding relevant for this research.

2.3.2   Knowledge Work – What the Literature Says

Over 30 articles from the extant literature (sourced from a range of disciplines including IT, HR, Business, Psychology and Sociology) have been reviewed to ascertain the current perspective on what constitutes knowledge work. Of these articles fewer than 10 provided definitions of knowledge work although other articles did attempt to describe it without offering a specific definition. Articles from the information-technology and knowledge-management disciplines were most likely to attempt to define knowledge work from a perspective of increasing productivity by determining which activities could be routinised (and therefore less dependent on the activities and desires of individuals). Figure 2.3 provides a map of the common themes found in the literature related to understanding knowledge work.

Figure nodes (mind map): Literature Review Knowledge Work - Thematic Analysis

Definitional Analysis
- Various others as outlined in definitions section
- Categories and Explanations - Dahooie and Arsalan and Brinkley et al
- Issues associated with definitions - Brinkley et al

Distinctions to other types of work
- Traditional Work vs KW - Ideal Types - Pyoria
- Manual vs. Knowlegde - Aedo et al, Brinkley et.al, Dahooie & Arsalan, Mladkova, Nickols
- Relationship to knowledge - Kelloway and Barling
- Work Flow - Godin

Nature of Knowledge Work
- Characteristics - Dahooie and Arsalan, Deloittes, El-Farr, Nickols, Pyoria,
- Disaggregation to types - Davenport & Volpel
- Factors impacting the nature of knowledge work - Deloitte, Ware and Grantham, Watts, Wall and McLaughlin
- Predictors and indicators - Ware and Grantham
- Contextual considerations - Drucker
- Nature of modern day work (project work) - Peters
- Strands - worker oriented or job oriented - Aedo et. al.

Debates about Knowledge Work
- No. of Knowledge Workers - Davenport, Fleming et al, Maselli
- How to enable - Mundbrod et. al.
- Ability to manage
- Framework - Ehin
- Deficiencies in the approach to analysis
  - Methods, weights use of averages - Dahooie and Arsalan
  - Language used - Handy
  - Deficiencies related to the old ways of working - Peters
  - Deficiencies in how KW defined - poor proxies - Warhurst and Thompson
- Ways to measure performance - Ahmed, Godin, Lawler
- Origins of the debate - Social and Business - Godin, Ware and Grantham

General
- Responsibility for ownership - Kelloway and Barling
- Status - Kleinman and Vallas
- What is it? - Kelloway and Barling

Prevalence/Influence of Technology (tools to assist) - Senge, Elliott, Kogan and Miller, Watts, Wall and McLaughlin

Types of Knowledge Work - Ramirez and Numbhard
- Aedo et. al., Brinkley et. al.
- References to work of Autor, Levy and Murnane
- Cognitive vs. Manual - Routine and Non-Routine - Aedo et. al. and Brinkley et. al.
- Determination of skills set - Elliot
- Assessment of Talent - Drucker, Fernandez Araoz
- Attributes of work processes - Kogan and Miller

Figure 2.3 – Thematic Analysis – Knowledge Work Literature

(Ferrnández-Aráoz 2014, p. 71; Dahooie & Arsalan 2013, pp. 517-534; Mundbrod, Kolb & Reichart 2012, p. 3; Mladkova 2011a, p. 828 and 2011b, p. 253; Brinkley et al. 2009, pp.12-15; El-Farr 2009, p. 4; Ehin 2008, p. 373; Kogan & Miller 2006, p. 760; Warhurst & Thompson 2006, p. 787; Pyöriä 2005, p. 124; Ramirez & Nembhard 2004, p. 604; Ware & Grantham 2003, p. 143; Drucker 2002, p. 71; Elliott & Jacobson 2002, p. 69-80; Davenport & Völpel 2001, p.213; Kelloway & Barling 2000, p. 288; Nickols 1983, p. 25)

Figure 2.3 shows that the literature relating to knowledge work can be grouped into a number of categories:

- Definitions – categories and explanations, deficiencies of definitions.
- Distinctions to other types of work – traditional or manual work compared to knowledge work.
- Nature of knowledge work, including categories, factors that affect undertaking knowledge work and the nature of modern knowledge work.
- Debates about knowledge work – how should it be measured, deficiencies in how it is currently measured and, how many people are classified as undertaking knowledge work.
- Types of knowledge work – work process, assessment of talent, cognitive versus manual work.

None of these themes as identified in the literature provides analysis of or suggest the existence of specific characteristics and attributes of a knowledge-based professional. At best, there are generic characteristics offered which could apply to anyone so no distinction for this group has emerged from the analysis of this particular grouping of the literature.

Each of these aspects will be analysed to aid understanding of knowledge work. The review of the literature will begin with an examination of the definitions of knowledge work.

2.3.3 Definitions of Knowledge Work

A number of researchers have suggested that definitions of knowledge work fall into a number of categories. Dahooie and Arsalan (2013) suggest that there are two primary categories job-oriented definitions which can in turn be broken down into sub-categories, and worker-oriented definitions (Table 2.2).

Definition Streams for Knowledge Work		
Paradigm	**Stream**	**Description and Features**
Job-Oriented Definitions	Characteristics-based	• Some dimensions and characteristics associated with the nature of the job are considered in order to define KW • Several attributes are identified (eg: tacit, non routine, unstructured, couples and variant) • KW is a job that has several (or all) of the aforementioned attributes • KW is a continuum and each job can have its won score
	Occupation-based	• A list of occupations is prepared and each entry is regarded as a KW (eg: researcher, engineer, teacher and accountant) • KWrs have specific professions and other workers cannot be grouped in the same category

	Activity-based	• A specific group of activities and tasks are considered to be the essential part of the KW
		• Two categories are considered by researchers:
		  - Mental and high cognitive activities (like reasoning and refining)
		  - Working with knowledge and associated activities (such as knowledge and information creation, discovery, development and use)

Worker-Oriented Definitions	Worker-characteristics based	• Intellectual ability, innovating, analysing, planning and education areas some of the KWr's characteristics mentioned in the literature

**Table 2.2 – Definition Streams for Knowledge Work
(Sourced from Dahooie & Arsalan 2013, pp. 517-534)**

The work of Brinkley et al. (2009), who undertook a comprehensive study of knowledge work and knowledge workers for the UK Government, suggest that there are three categories of definitions:

- *Conceptual* – definitions in this group are more likely to be theoretical or anecdotal and not based on assessing what workers are actually doing. They are often based on proxy measures (p. 12).

- *Data-driven* – definitions in this group are based on where people work or the sectors in which they are employed. There is an implication that the majority of people who work in these organisations or industries are predominantly knowledge workers hence the categorisation could be seen to be based on unfounded assumptions (p. 13).

- *Content-driven* – this group looks at the actual work people do. In most instances the examples used concentrate on managers and other professionals. Alternatively occupational classifications sourced from official statistics are used to determine the volume of knowledge work and, by inference, the number of knowledge workers. The likelihood is that the numbers do not truly reflect reality, given the generic and broad nature of the worker groupings (p. 15).

The categorisation of work as explained by Brinkley et al. (2009) does not provide any potential to help form a basis for how to identify and map the characteristics and attributes of a knowledge-based professional because the definitions are either anecdotal, based on the location of where the work takes place or based on the type of work being performed not who undertakes the work. This research will shift the focus from the nature of the work to the person who undertakes the work and see what insights this provides about how knowledge-work is performed by knowledge-based professionals.

As these reviews have highlighted the most common types of definitions have inherent deficiencies. Table 2.3 gives some examples of specific definitions found in the literature with an evaluation of how well they define knowledge work.

Summary of Definitions of Knowledge Work		
Author(s)	**Definition**	**Type of Definition and commentary**
El-Farr (2009)	"Knowledge work is dominated by cognitive effort to use, generate and extract value from knowledge" (p. 4).	Conceptual and worker-characteristics-based.
Kelloway & Barling (2000)	"Knowledge work is discretionary organisational behaviour" (p. 288).	Conceptual; places the responsibility on the organisation more than on the individual
Mundbrod, Kolb & Reichert (2012)	"Knowledge work is comprised of objectifying intellectual activity, addressing novel and complex processes and work results, which require external means of control and dual field of action" (p. 3).	Conceptual and worker-characteristics-based.

Summary of Definitions of Knowledge Work		
Reinhardt, Schmidt, Sloep & Drachsler (2011)	"Knowledge work essentially consists of the organization of information artefacts, their creation, consideration and transformation" (p. 153). "Knowledge work is the execution of knowledge intensive tasks eg: decision-making, knowledge-production scenarios, and monitoring organizational performance" (p. 154).	Conceptual and activity-based
Vogt (1995)	"Knowledge work is the co-creation of new perspectives, which, in turn, lead to more effective actions" (p. 30).	Conceptual and activity-based
Warhurst & Thompson (2006)	"The central characteristics of knowledge work are that it draws on a body of theoretical (specialized and abstract) knowledge that is utilized, under conditions of comparative autonomy, to innovate products and processes" (p. 787).	Conceptual and activity-based; could be content-driven given that it is based on the application of theoretical knowledge.

**Table 2.3 - Summary of Definitions of Knowledge Work
(Sourced as indicated in the table)**

2.3.4   Understanding the Nature of Knowledge Work

The literature highlights that much of the discussion related to knowledge workers occurs in a "contextual vacuum" (Zhang, Wang & Shi 2012, p. 112; Rasmussen & Nielsen 2011, p. 488) that fails to take into account the modern working context. Just as the nature of work has changed over time so too has the expectations of the people who need to perform the work and yet this has been under-acknowledged or ignored in the literature hence the comment that much of the analysis occurs in a 'contextual vacuum'. This research will attempt to bridge some of this gap by reviewing the characteristics and attributes of a knowledge-based professional.

The following analysis outlines what is known about knowledge work and the needs, expectations and requirements of such work. Understanding this provides an opportunity to outline a context with which knowledge workers operates and highlights that knowledge work is a very different type of work to what may have been originally perceived by Drucker in the 1950s.

A purposeful and broad search (not limited to any one discipline) of the knowledge-work literature elicited several insights regarding types of analysis of knowledge work:

- Source of the literature on knowledge work - the literature contains numerous discussions on what fields or areas (such as sociology or business) have generated an understanding of knowledge work (Švarc 2016, p. 393; Paton 2012, p. 22) .
- Status of the individual as part of the analysis - the contribution of the individual is considered subordinate to the nature of the task being performed (Mundbrod, Kolb & Reichert 2013, p. 3).
- Work context - work is considered independently of the context in which it occurs Reinhardt et al. 2011, p. 152)
- Work type - looking at work type or performing task analysis are the predominant methods of analysis (Reinhardt et al. 2011, p. 152; Dahooie, Afrazeh & Hosseini 2011, p. 425; Brinkley et al. 2009, p.27; Bentley 1990, p. 47).
- Frame of analysis of knowledge work - some researchers have criticised how knowledge work is analysed highlighting such things as the use of poor proxies to define and understand knowledge work (Darr & Warhurst 2008, p. 34; Pyöriä 2005, p. 124).

Commonly identified aspects of what distinguishes knowledge work from other forms or work include formal educational attainment, professional affiliation or position within an organisation. While these aspects may have been of assistance in the later part of the 20th century, they are inadequate for analysis in the current environment for three reasons. First, the range of occupations that could be considered knowledge work has grown dramatically, and there are now arguments that suggest everyone performs knowledge work, basing this on broad definitions: "white-collar workers, including a broad range of occupations" (Svarc 2016, p. 396). Second, most workers now have higher formal-educational qualifications which means that education is no longer a consistently distinguishing feature among workers and work roles. Education makes you employable not necessarily distinguishable. Thirdly, organisational position of itself is not a valid determinant for the identification of knowledge work.

One author who has attempted to provide an objective assessment of what constitutes knowledge work citing 10 aspects of how knowledge work differs from other types of work (Nickols 1983, p. 25) (Table 2.4). Some of the aspects of knowledge work he highlighted include:

1. It is information-based not materials-based. Hence it is based on what people know not what they can physically do.

2. It is undertaken using private behaviours rather than public behaviours. This means that when knowledge work is undertaken it is not always visible for people to see whereas manual work is more visible and observable.

3. That the visibility of the actual work performed by knowledge workers is low. This means that with knowledge work it is not always possible to see the work that has been done but that does not mean the work has not taken place. The work product is less visible with knowledge work than it is with manual work.

4. The link to results is typically indirect and delayed. With manual work the results of the work is typically immediate. With knowledge work the result of the work may not be achieved in the moment it can take place at a later time as the effect may take time to occur.

5. The knowledge required to complete work responsibilities is distributed not concentrated. With manual work all effort to achieve results can occur in a concentrated and collective fashion where as knowledge work can require the accumulation of a variety of pieces of knowledge to achieve the desired result.

6. Responses to workplace requirements are configured in real-time, rather than in advance, to meet requirements. With knowledge work what is required is not always pre-planned it can be that it is a response to an immediate need. Manual work is more likely to be pre-planned and is therefore easier to plan for and co-ordinate than knowledge work.

7. The focus of control is the work (that is, the task needing completion) not the worker. In manual work the objective is usually to control the worker to achieve pre-defined results. With knowledge work this is not possible. The nature of the task is not always definable and has to be 'created' in the moment to meet the presenting need as it occurs.

8. The locus of control is with the worker not management. With knowledge work the worker has more control over how the work is performed as it is based on what they know and whether that is enough or they need more to complete the job hence they are more likely to be asked to perform a job task. However, manual work is more easily controlled by management and often management will tell workers what they have to do.

9. Measurement of performance is by contribution not compliance. With manual work it is easy to define what is needed by standards, specifications and expectations. This is not as clear with knowledge work where the scope of work is more likely to evolve as more understanding is gained about what they work task requires.

10. The role of the worker is as the agent (acting on behalf of the employer) rather than as an instrument as the organisation needs. Knowledge workers usually have greater agency around what they do than manual workers. It is another example where manual workers are typically told what to do and knowledge workers are asked to perform a task.

This summation offered by Nickols identifies the nature of work to be performed not just the actions of the work. This provides a different and more helpful lens than the execution-centric perspective that seems to predominate the literature.

Surprisingly there is very little reference to Nickols' (1985) research in the subsequent literature. This could be attributed to the lack of understanding of the change in expectations of the characteristics and attributes of a knowledge-based professional. Only Mladkova (2011a) has used the work of Nickols without specific reference to its

source. Consequently, many out-dated paradigms have continued to be used. Table 2.4 compares manual work and knowledge work alongside an analysis of work expected during the "Fourth Industrial Revolution" or "Industry 4.0". What the table also highlights is that there has not only been a shift from manual work to knowledge work but that there has been no synthesis in the literature to date to link the needs and requirements of Industry 4.0.

Taking into account the needs of Industry 4.0 as included in Table 2.4 it shows that expectations of workers has undertaken a significant shift where complexity is a more predominant consideration than in earlier work periods. Then there is the need to be able to demonstrate public and private behaviours for performing work and visibility is now different as a large portion of work is now completed virtually. The aspects of globalisation has increased the need for integration, co-ordination and collaboration and greater recognition of a global cyber physical networked space with increased societal questioning and challenges with a desire to achieve a common good. Hence the need to better understand knowledge workers and what they offer is increasing as these changing needs emerge.

The Nature and Future of Work				
The Nature of Work Nickols (1985, p.25)				The Future of Work (Industry 4.0) Various (As Cited)
Area of Interest	Manual Work	Knowledge Work		Industry 4.0
Work-Base	Materials-based	Information-based		Complexity (Aljukic 2017, p. 7)
Working	Public behaviors	Private Behaviors		Public and private (Denning 2014, p. 3)
Visibility	High	Low		Virtual (Hecklau et al. 2016, p. 4)
Linkages to Results	Direct and immediate	Indirect & delayed		Coordinated and collaborated globally (Johansson et al. 2017, p. 288)
Knowledge	Concentrated	Distributed		Cyber physical system (Davies, Coole & Smith 2017, p. 1290)
Balance of Power	Position & Politics	Politics & Profession		Globally influenced (Mohelska & Sokolova 2018, p. 2227)

The Nature and Future of Work				
	The Nature of Work **Nickols (1985, p.25)**			**The Future of Work** **(Industry 4.0)** **Various (As Cited)**
Nature of Work	Linear	Non-linear		Systemic and networked (WEF 2016, p.8; Wolf et al. 2018, p.71)
Responses	Prefigured	Configured		Interrogative, questioning and challenging (Davies, Coole & Smith, 2017 pp. 1290, 1294)
Source of Referrals	Others	Self		Societal (Aljukic 2017, p.10; Hecklau et al. 2016, p. 1)
Focus of Control	Worker	Work		Common good (Denning 2014, p. 4)
Locus of Control	Manager-centered	Worker-centered		Virtual/interconnected (Davies, Coole & Smith 2017, p. 1289)
Measure of Performance	Compliance	Contribution		Innovative (Denning 2014, p. 4)
Role of the Worker	Instrument	Agent		Facilitator and conduit (Ghisleri, Molino & Cortese 2018, p. 2)

Table 2.4 - The Nature and Future of Work
(Sourced primarily from Nickols (1985, p. 25), and other authors as cited)

2.3.5 Understanding the Future of Knowledge Work (Industry 4.0)

In 2011 the German Klaus Schwab, founder and Executive Chairman of the World Economic Forum (Xu, David & Kim 2018, p. 90) coined the phrase "Fourth Industrial Revolution" also known as "Industry 4.0". He contended that old definitions of work are becoming inappropriate, inaccurate and irrelevant in an Industry 4.0 business world. There is currently a disconnect between definitions of work and expectations of work as research has not sufficiently, at this stage, taken into consideration the implications of an Industry 4.0 world.

Industry 4.0 has been characterised as disruptive change (WEF 2016, p.1), non-linear change (Snowden & Boone 2007, p. 3; Styhre 2002, p. 343) or transformational change (Seijts & Gandz 2018, p. 239) in contrast to step change or linear change. Denning (2014, p. 3) has written that when disruptive change occurs old paradigms and precepts need to be reevaluated and "requires a different way of managing, leading, following, thinking, speaking and acting in the workplace" and, that, "these shifts in skills, attitudes, mindsets and behaviours promote continuous innovation and adaptation and help the organisation compete successfully even in the midst of severe economic turbulence". This suggests an emerging need for a different form of management and leadership (Denning 2014, p. 3) to successfully navigate this turbulent ever-changing terrain.

In Industry 4.0 is that old rules will not apply. A point made in the document produced by the World Economic Forum is that organisations will need to produce an augmentation strategy not just an automation strategy (WEF 2018, p. 10). In the specific case of knowledge work, there will need to be adequate and considered focus on "value-creating activities that can be accomplished by human workers, often in complement to technology once they are freed of the need to perform routinised, repetitive tasks and better able to use their distinctively human talents" (WEF 2018, p. 10.) Another point made by the World Economic Forum is that automation typically occurs in relation to specific workplace tasks and actions, but needs instead to focus on what will occur at the "whole job" level (WEF 2018, p. 10), and to consider the type of person needed to perform at the "whole job". This research by analysing characteristics and attributes of knowledge-based professionals will attempt to help bridge the prevailing gap.

Figure 2.4 shows the nature of the shifts that have occurred.
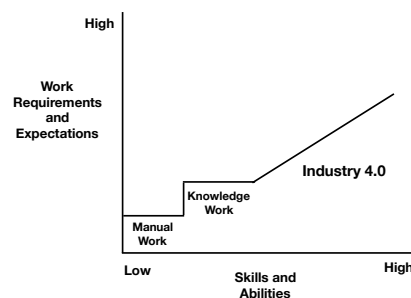
Figure 2.4 - The Shift in the Nature and Future of Work

Table 2.5 adds to Table 2.4 the requirements of Industry 4.0 showing how needs and expectations are continuing to grow and evolve at ever increasing rates and suggesting that the knowledge-based professional needs to be able to function and thrive in these circumstances so that businesses can maintain competitive advantage. As seen in Table 2.5 the addition of Industry 4.0 adds the newly emerging requirements highlighting the need for change in our understanding if organisations are to function and enhance and maintain productivity in an Industry 4.0 context.

Economic Era (Paradigm)	Manual Work During the Era	Information Requirements	Knowledge Work	Knowledge Worker	Knowledge Requirements
Hunter Gatherer	Tool makers Survival skills	Minimal information needs	Focus on nature and how the world works	Shaman	Assessments based on knowledge of good and evil often with religious associations and interpretations
Agricultural	Farming	Increasing information needs	Recording events	Scribes, clerks and agents	Literate and Educated
Industrial	Manufacturing Use of machinery	Rapidly growing information needs	Recording and capturing results of business activities	Accountants and bookkeepers	Ability to analyse and interpret information
Information	Mass production	Information becomes an essential business tool	Analysis of large volumes of data Ability to cope with increasing forms of complexity	New information (knowledge) professional	Expertise and higher level tacit knowledge capabilities

Economic Era (Paradigm)	Manual Work During the Era	Information Requirements	Knowledge Work	Knowledge Worker	Knowledge Requirements
Industry 4.0	Trades and personal services Mass production Robotic production	Customer knowledge and tailoring will predominate	Ability to collaborate in a virtual, global context	Knowledge-based professional (not specific to occupation or education as an identifier)	Ability to deal with complexity, uncertainty and, volatility to develop innovative and creative solutions

Table 2.5 - Nature and Future of Work Over Time (incl. Industry 4.0)
(Adapted from Table 2.4 and Elliott & Jacobson, 2002, pp. 69-74)

Any review of the literature on knowledge work is problematic, as the nature of work – and of workers – is rapidly evolving and being transformed hence the power base is changing therefore, it is important to understand the people performing this type of work.

2.4 Understanding Knowledge Workers

This section will explore the literature on knowledge workers (the closest proxy for the knowledge-based professionals found in the literature) and what makes them distinctive and unique.

2.4.1 Background to Understanding Knowledge Workers

There is ample support in the literature for the importance of knowledge workers (Dahooie, Afrazeh & Hosseini 2011, p. 422). However, when undertaking an analysis of articles published between 2000 and 2018 that discuss research examining different work groups, research about knowledge workers constituted less than 0.5% of the total a distant fourth to managers (82%), leaders (10%) and entrepreneurs (7.5%). At the same time, many suggest that knowledge workers are the future to business success (WEF 2018, p. 12). It would seem what is said does not align with what is done.

Table 2.6 provides details of the volume of research in four key areas management, leadership, entrepreneurship and knowledge workers. The details of the analysis of the respective research areas has been sourced from the Web of Science and Scopus on-line databases using each heading as the search criteria and pinpointing publications on these respective areas within the management field. These databases were considered a good proxy to provide an overview of the relativities between the respective groups as it is considered to be two of the premier on-line databases for research on business management related topics. A lengthier chronological analysis could have been provided however it was thought that twenty-first century activities (at the point of data analysis) was the most relevant for the purposes of this research.

Topic/ Year	Management		Leadership		Entrepreneurship		Knowledge Worker		Totals	
	#	%	#	%	#	%	#	%	#	%
2018	26,822	78	3,839	11	3,608	11	82	0.24	34,351	100
2017	27,745	79	3,816	11	3,406	10	81	0.23	35,048	100
2016	27,075	80	3,504	10	3,440	10	85	0.25	34,104	100
2015	24,054	80	3,148	11	2,786	9	70	0.23	30,058	100
2014	22,352	81	2,875	10	2,439	9	59	0.21	27,725	100
2013	21,416	81	2,822	11	2,128	8	62	0.23	26,428	100
2012	21,067	82	2,766	11	1,914	7	86	0.33	25,833	100
2011	26,676	84	2,747	9	2,037	7	118	0.37	31,578	100
2010	25,362	85	2,475	8	1,913	7	95	0.32	29,485	100
2009	21,570	86	2,092	8	1,471	6	74	0.29	25,207	100
2008	18,828	85	1,940	9	1,239	6	76	0.34	22,083	100
2007	16,249	86	1,654	9	1,026	6	74	0.39	19,003	100
2006	7,244	77	1,278	14	773	8	47	0.50	9,342	100
2005	11,034	86	1,148	9	661	5	45	0.35	12,888	100
2004	7,547	87	748	9	370	4	32	0.37	8,697	100
2003	6,880	87	703	9	331	4	32	0.40	7,946	100
2002	6,715	86	760	10	247	3	51	0.66	7,773	100
2001	6,354	87	716	10	236	3	27	0.37	7,333	100
2000	5,798	87	671	10	195	3	17	0.25	6,681	100

Grand TOTAL	132,421	82	39,702	10	30,220	7.5	1,213	0.30	401,923	

**Table 2.6 - Statistical Analysis of Related Management Constructs
(Sourced from Web of Science and Scopus on-line databases)**

Since 2009 there has been a consistent growth and focus in the areas of management, leadership and entrepreneurship, with peaks in the number of studies occurring for all subject areas in 2015 and 2016. As the table shows the number of studies of knowledge workers also increased in those years, but the volume was very small relative to the other areas. The study of management was especially popular during the years 2008-2011 and 2015-2016. Research into entrepreneurship has grown substantially since 2010, and particularly during 2015 and 2016. These figures indicate an emphasis on analysing and understanding the top tier – leaders and entrepreneurs, who are often seen as trailblazers rather than those who actually provide the capability to produce the goods and services their organisations offer.

Given the significantly lower number of publications related to knowledge workers (as represented in Table 2.6) compared to management, leadership and entrepreneurship, despite the fact that knowledge workers are considered to be the fastest growing worker group (Wolff 2005, p. 38), it would seem that there is still much to explore.

2.4.2   What the Literature Says About Knowledge Workers

Acquiring an understanding of knowledge workers is not straightforward. Because the analysis and study of knowledge workers has not been gathered into an integrated body of literature, awareness and understanding of this group is dispersed and not necessarily easy to consolidate. The insights on knowledge workers comes from a variety of domains including, but not limited to, sociology, business and knowledge management each having their own focus and purpose for attempting to understand knowledge workers in a more detailed and meaningful way. Moreover, scholars have tended to force-fit knowledge workers into pre-defined theoretical or analytical frameworks (Hwang, Kettender & Yi 2015, p. 590; Frick 2011, p. 372; Horwitz, Heng & Quazi 2003, p. 29) and the practitioner press has tended to question even the relevance of the

term in the 21st-century workplace, contending that everyone could be considered a knowledge worker (Callahan 2007, p. 1).

This literature review found that 75% of the articles reviewed were theoretical in nature with the remaining 25% being empirical studies that involved participants identified or categorised as knowledge workers. The primary weakness of the empirical literature is that participant selection tended to be based on obvious criteria (profession, education or organisational affiliation) or task type (Brinkley 2009, p. 1) rather than more unique identifiers such as length of experience in area of expertise, how they developed and maintained their knowledge base. This creates concerns about the studies' usability in attempting to identify and map the characteristics and attributes of a knowledge-based professional. Óskarsdóttir and Oddsson (2017, p. 19) have highlighted the need to enable the voice of the individual knowledge worker to be heard in their work and yet have fallen into the same trap by selecting participants on availability and proximity rather than suitability or the degree to which they satisfy objectively identified criteria. This weakness in approach helped to inform how participants were identified for this research.

As stated in the introductory chapter, the term used in this research is "knowledge-based professional," to distinguish it from the deficiencies associated with the term "knowledge worker". To understand what is currently known and understood about knowledge-based professionals, two key strands of the literature have been reviewed, knowledge worker and expertise (expert/expert performance). These two specific constructs have been reviewed as they provide the most relevant insights about knowledge-based professionals. Either term on its own would be inadequate considering either on their own is insufficient to provide the understanding need about this group. Collectively they provide a more comprehensive understanding and grounding for the purposes of this research, as well as providing guidance for the development of objective selection criteria to identify suitable research participants.

2.4.3   Definition of Knowledge Workers

There is no shortage in the literature of definitions or descriptions of   knowledge workers (as outlined below) however,   these definitions are not appropriate for how knowledge-based professionals work because the emphasis is misdirected or the scope of analysis is too narrow. The following section will outline the insights gained from reviewing these definitions and how they have contributed to the grounding of this research and articulation of the of the identified gap (Appendix 2.2 provides more details related to the respective definitions identified). This analysis places the definitions in four primary categories.

Firstly, those studies that seek to distinguish knowledge workers from other types of work focussing on aspects such as the difference between knowledge work and manual work (Nickols 1985, p. 25); stressing, for example, that knowledge-based professionals work with their brains (Drucker 1954 cited in Mladkova 2011a, p. 249). Some emphasise, what knowledge-based professionals are not (farm workers, labourers), rather than what they are (Spira 2008, p. 26). Others characterise them as "service workers" whose product is produced and consumed simultaneously (Ramirez & Nembhard 2004, p. 604).

Secondly, those studies that distinguish knowledge workers by their professional status; for example, those with advanced degrees and expertise (Davenport 2005, p. 10) or, high levels of skill, education and technical literacy (Horwitz, Heng & Quazi 2003, p. 31), those who own the organisation's means of production (Blackler 1995, p. 1027), and show who work in specific professions and occupations, such as scientists, professors, psychologists, lawyers and doctors (Bakotic 2011, p. 98; Jashapara 2011, p. 9).

Thirdly, those studies that provide more-expansive definitions that examine the nature of knowledge-based professionals work; for example, motivation and capacity to co-create new insights and capability to communicate and coach (Horwitz, Heng & Quazi 2003, p. 23), significant involvement in problem-solving and decision-making (Bakotic

2011, p. 98), ability to gather, analyse, interpret and synthesise information (Frick 2011, p. 370), ability to accessing, creating and using information in ways that add value (Tyman & Stumpf 2003, p. 12), high degrees of expertise, education and experience having as the primary purpose of their jobs the process and accomplishment of knowledge work (Mundbrod, Kolb & Reichert 2012, p. 4).

Finally, those studies that highlight the deficiencies and difficulties that exist when trying to define and understand knowledge-based professionals; for example, that not all knowledge workers are alike (Hammer, Leonard & Davenport 2004, p. 17), that "knowledge worker" is an overlay definition (Spira 2008, p. 25), that may no longer be relevant (Ascente 2010, p. 280) and that without knowing the context it is a term difficult to define (Scarborough 1999, pp. 6-7).

Much of the knowledge-work literature uses common categories when considering definitions of knowledge workers, the two identified, as most relevant to this study, are:

1. Job-oriented definitions that focus on the activities and tasks undertaken by the workers; these are the more common of the two (Dahooie, Alfrazeh & Hosseini, 2011, pp. 423-424; Brinkley et al. 2009, pp. 12-15).
2. Worker-oriented definitions considers worker characteristic, traits and talents needed to complete workplace tasks (Dahooie, Alfrazeh & Hosseini, 2011, pp. 423-424).

The analysis of the definitions and descriptions of knowledge workers did not provide the required and desired clarity of understanding because their focus was not on individuals performing the work but on the task being performed. . Dichotomous definitions comparing a knowledge-based professional to other types of worker and the use of external markers such as education, skills, and professional status both rely on visible and tangible characteristics to define the role; however, this research has shown that the most useful distinguishing characteristics and attributes are much more intangible relating instead to mindset and approach.

46

The next section will provide a comprehensive summation of the insights from the literature using filters such as theoretical versus empirical approach, and historical versus contemporary perspective. A form of coding was used to determine common and divergent themes related to knowledge workers and the impact this has for understanding who knowledge-based professionals are.

2.4.4   Perspectives of Knowledge-Based Professionals Found in the Literature

To analyse the literature on knowledge-based professionals (94 articles) a three-filter (coding) process was used.

1. Filter 1 - is whether the research is theoretical or empirical in nature; – 75% was theoretical and 25% empirical.
2. Filter 2 - is whether the research adopts an historical perspective or contains a contemporary viewpoint; – 32% had an historical perspective and 68% contemporary perspective.
3. Filter 3 - is the discipline area the research emanated from; the most common at 48%, was academic books and articles in the business area, followed by knowledge management/information management at 19%, and books and articles written and targeted to practitioners, at 16%. The remaining 27% were from a variety of sources including HR, conference proceedings, specific professional analysis, medical research and government-funded research studies.

The person credited with bringing the term "knowledge worker" into common use is Peter Drucker, particularly in his book '*The Landmarks of Tomorrow*'. In a follow-up book '*The Age of Discontinuity*' published in 1969, Drucker explained the shifts that were occurring in society and their implications. In the original preface to this work Drucker (pp.xii-ix) identifies four discontinuities that were occurring:

1. New technologies were prevalent, and they would lead to the creation of new industries and businesses.

2. The world's economy had changed dramatically it was now a global economy. Regions existed but global influences were having more impact.

3. Social and economic life was changing rapidly; specifically they were becoming more pluralistic, with multiple aspects coexisting.

4. Knowledge had become the primary piece of capital in business, widely perceived as the most crucial resource in the economy.

There have been varying attempts to gain clarity however the deficiencies that exist (as outlined have contributed to the needs and value of this work.

These discontinuities, though written over 50 years ago, have even more relevance to the world of work and the needs of Industry 4.0 than when they were written, and those who contribute to navigating them are not given the recognition or voice that they warrant. This research attempts to bridge this gap.

2.4.5   Empirical Studies Involving Knowledge Workers

The first detailed empirical study to do with knowledge workers was conducted by Poppel in 1982; the focus of this study was the impact of automation in assisting knowledge workers to complete their work. This study was highly relevant for its time, as office automation was a predominant focus for business at a time when computers were starting to become an everyday workplace tool for performing routine functions that previously had been done by individuals.   However, the emphasis was on the tools and how they were being used to enhance knowledge workers' productivity; it did not consider the individual who was using the tool. This relates back to Machlup's (1962, p. 379) comments distinguishing between mechanisation – the replacement of human muscle – and automation – the replacement of human judgement. This was a scientific-management analysis that used the prevailing paradigm at the time of the study. Hence, while it was empirical research, it did not throw light onto the nature, characteristics or attributes of knowledge-based professionals because the lens used was insufficient or inadequate to provide the requisite degree of insight about the characteristics and attributes of a knowledge-based professional.

The 1990's saw two empirical studies conducted by Tampoe (1993) and Kidd (1994). The Tampoe looked at knowledge workers' motivation and what was considered the best way to manage them. It used well-known motivational theories, such as those of Herzberg (1996), Maslow (1943) and McGregor (1960), as the basis for analysis. Participants were asked how they were managed and how they felt they should be managed. However, the participant group, chosen on arbitrary demographic factors such as occupational group, age and length of experience, was large enough to obscure individual experiences. Because their length of experience tended to be short, participants had limited opportunity to develop comprehensive and deep levels of ability in their area of expertise or to formulate a comprehensive understanding of themselves. This study occurred during a period where the focus on the effective management of staff within organisations peaked. The focus was on the change in approach to work through automation and not on the characteristics and attributes of those performing the work.

Kidd (1994) demonstrated a different approach to other studies in that she spoke directly to participants. The study was based on tasks and organisations, focussing on work objectives, value to the organisation, work and communication patterns, use of information and paper and use of computer tools not on the individual people. Its adoption of an input-process-output (Schachaf 2010, p. 67) orientation did not provide sufficient focus on individuals and who they are thus limiting the ability to be able to identify characteristics and attributes.

The eight empirical studies conducted in the 2000s (Brinkley et al. 2009; Marks & Baldry 2009; Benson & Brown 2007; Brodeur & Dupont 2006; Kogan & Miller 2006, Sutherland & Jordan 2004; Horwitz, Heng & Quazi 2003; Roy, Falardeau & Pelletier 2001) focused mainly on tasks, work type and tools employed in an approach that emphasised highly specialised work groups and their processes and systems with the objective of improving knowledge worker's productivity. One study sought to understand social status of knowledge workers. Each of these approaches left little to no opportunity for understanding in any depth the individual experiences of knowledge-based professionals and how they develop and operate.

While all these studies is that while have value for their specific disciplines, they do not help to shed sufficient light on providing a better understanding of the characteristics and attributes of a knowledge-based professional. The overriding issue is that the factors used for understanding knowledge workers are not unique they could refer to any group found in any workplace because of their generic nature. This research will attempt to address this deficiency.

The next group of studies were conducted during the 2010s (Table 2.6). The most common aspect in the majority of studies in this decade in particular is that very select and specialised individuals were chosen as participants, which introduces, whether deliberately or not, a degree of elitism that may not be valid and may limit the value of the findings both at the time and for future research.

Researcher(s)	Year	Participant Group	Potential Issues with Participant Group
Bakotic	2011 p. 97	• Knowledge workers in Croatian companies • Large and medium-sized organisations	Cultural specificity Organisational specificity
Frick	2011 p. 374	• High-performing federal civilian employees perceived as high-performing knowledge workers • Sourced from Fellowship of the Council of Excellence in Government	Organisational specificity Subjective determination of high performance Affiliation specificity
Hwang, Kettender & Yi	2015 p. 595	• MBA students • More than five years' experience	Educational specificity Subjective determinant of experience
Lamb & Sutherland	2010 p. 298, 301	• Tertiary qualifications • Aged between 30-47 • More than five years in a global organisation	Discipline specificity - HR - Career capital Age specificity Subjective determination of experience Subjective determination of workplace relevance
Leon	2015 p. 682	• European universities' business faculties (Emphasis on how higher education affects the development of future knowledge workers)	Affiliation specificity Cultural specificity Organisational specificity

Researcher(s)	Year	Participant Group	Potential Issues with Participant Group
Mladkova	2011a p. 828 2011b p. 251	• Cross-section of industry in the Czech Republic (Large and small, government and non-government)	Cultural specificity Organisational specificity
Reinhardt, Schmidt Sloep & Drachsler	2011 p. 151, 154	• Highlighted educated researchers • Relies on Activity Theory	Occupational specificity Organisational specificity
Sutherland et al.	2015 p. 3	• HR professionals, banking, high tech-research and development public-service employees	Discipline specificity – HR Occupational specificity Cultural and geographic specificity
Vanthournout, Noyens, Gibjels & van den Bossche	2014 p. 200	• Employees of a non-academic publishing institute carrying out ground-breaking research developing innovative technologies for socially valuable purposes - in the Flanders region of, Belgium	Organisational affiliation Cultural and geographic specificity

Table 2.7 - Review of Participant Groups in Empirical Research on Knowledge-Based Professionals (Sources cited within the table)

The studies in Table 2.7 present little or no clear explanation of why the specific study group was selected. In some instances, (for example, Leon 2015, p. 682), the belief they would provide a good cross-section, from a variety of organisations, was offered as validation. Otherwise it would appear that who the participants were aligned or associated with was seen as providing sufficient validation for their inclusion. The studies show great variety in how knowledge-based professionals were identified and included; however, individually and collectively the studies do not provide an adequate understanding of who knowledge-based professionals are. Instead, they focus on what they do and emphasise what is known more than what is unknown. This is another instance where the emphasis is on the individuals background and proficiency not their characteristics and attributes, that is, focus is on extrinsic factors not intrinsic factors.

Other factors identified from the empirical research conducted through the 2010s shows that the focus, found in earlier studies, on the issue of organisational performance and the management and control of knowledge-based professionals persists (Vangthournout

et al. 2014, p. 200; Bakotic 2011, pp. 98-99; Dahooie, Afrazeh & Hosseini 2011, p. 423; Frick 2011, p. 375, Mladkova 2011a, p. 828 & Mladkova 2011b, p. 253; and Reinhardt et al. 2011, p. 159). A possible risk is that this organisational emphasis is at the expense of the individual. Other perspectives influencing studies during this period apply a specific lens to their work. These lenses can be categorised in three ways:

1. Knowledge Management (KM) - a knowledge-management focus is found in the work of Hwang, Kettender & Yi (2015, p. 589); Alavi, Kayworth & Leidner (2006, p. 192); and Chawla & Joshi (2010, p. 711).

2. Human Resources (HR) - an HR focus is found in the work of Sutherland et al. (2015, p. 3); Vanthournout et al. (2014, p. 193); and Lamb & Sutherland (2010, p. 311).

3. Knowledge/information usage - a knowledge/information-usage perspective is found in the work of Hwang, Kettender & Yi (2015, p. 589); and Mladkova (2011b, p. 250).

The three identified categories highlights an emphasis on discipline, potentially at the expense of understanding the capability of the individual, therefore limiting the ability to identify and understand characteristics and attributes.

While these reviews of knowledge-based professionals provide insights for their specific disciplines, they offer little in an attempt to understand the characteristics and attributes of a knowledge-based professional that are not construed by adopting a particular highly specialised focus on the research activity.

2.4.6   Theoretical Research Related to Knowledge-Based Professionals

Having studied in depth the content and nature of the empirical research studies involving participants identified as knowledge-based professionals the review moved to the items considered to offer a theoretical perspective. This accounted for 72 (or 77%) of the articles reviewed; this highlights how much of the discussion on knowledge-based professionals is based on talking about them not to them. This research will adopt

a first person approach which is different to the third person approach typically found in the literature.

Three approaches have commonly been used in the literature on knowledge-based professionals. Firstly, authors use their own description and frame it to suit the purpose and focus of their research (Horwitz, Heng & Quazi 2013, p. 23; Mundbrod, Kolb & Reichert 2012, p. 4; Tyman & Stumpf 2003, p. 12). Secondly, authors cite descriptions and explanations offered by prominent researchers in this area such as Drucker and Davenport (Mladkova 2011a, p. 826, Adelstein & Clegg 2014, p. 4; Arthur, Defillippi & Lindsay 2008, p. 365). Thirdly, authors do not provide descriptions or explanations with the inherent assumption being that everyone knows who knowledge-based professionals are (Hagel, Brown & Davison 2010, p. 2; Cusimano 1995, pp. 47-49; Miller 1997, p. 74). Therefore, this research attempts to provide a clarity of description of this group not currently existing in the literature.

As stated in the earlier section of this chapter common aspects identified in the knowledge worker literature have lead to the following insights. Lack of consensus has lead to many attempts being made to try to understand knowledge workers with no agreement having been reached (Ascente 2010, p. 282; Scarbrough 1999, p. 6).This has also lead to questions regarding the need for the term 'knowledge worker' some consider it redundant (El-Farr 2009, p. 12). Other authors consider the term knowledge worker meaningless because everyone today could be classified as a knowledge worker (Callaghan 2007, p. 1). Consequently, the term has collapsed as a result of it being poorly defined (Švarc 2016, p. 394). This lack of clarity related to explanation and understanding of knowledge-workers assists with providing support for the value of this research and its objective to identify and map the characteristics and attributes of a knowledge-based professional.

Pyöriä (2005) suggests that the descriptions and definitions of traditional work and knowledge work found in the literature are what he calls "ideal-types" (p. 124); a description of what researchers would like them to be – or need them to be – rather than who they actually are. This has implications for how knowledge-based professionals are perceived and the expectations placed on them. Darr & Warhurst (2008) characterise the

explanations and descriptions found in the literature as: "analysis-lite", brief, often anecdotal, facile and tautological with occupational markers often being offered as proxies for them (p. 34). Thus trying to understand knowledge-based professionals in a succinct way is a battle ground, with no winners, particularly not knowledge-based professionals. This identified deficiency helped to influence how this research was approached to facilitate previously unidentified characteristics and attributes.

Numerous theoretical based articles adopted a sociological lens that examined how societal changes affected perceptions of the nature and status of knowledge-based professionals (Elliott & Jacobson 2002, p. 70; Drucker 2002, p. 76 and 1999, p. 71; Cortada 1999, p. xiii; Bentley 1990, p. 47; Nickols 1983, p. 25.) Some also discussed whether societal changes affected knowledge workers or vice versa with no clear conclusion being reached. This was often associated and aligned with the increased availability of higher education. Education of itself given the greater accessibility of higher education is not a valid distinguishing feature to identify a knowledge-based professional.

This review of the theoretical articles on knowledge-based professionals has revealed that the predominant overt, and sometimes covert theme is a desire to control them. One of the most common questions asked is "How can we increase the productivity of knowledge workers" (Muscalu, Stanit & Constantinescu, 2014, p. 150, GSA 2011, p. 3, Drucker 1999, p. 83 & 1991, p. 72; Miller 1997, p. 65, Coates 1986, p.7)? This drives researchers to look at knowledge-based professionals from a task-centric or "execution-centric" perspective (Reinhardt et al. 2011, p. 153), focusing on improving output, not enhancing outcomes, although the quality of output and its perceived benefit to the organisation is harder to identify and measure. This was clearly outlined by Lank (1997, p. 406), who asked, "How can management attention be shipped from tangible to intangible assets?" By "intangible assets", Lank was referring to what knowledge-based professionals knew – including what they knew about themselves. This deficiency provides a pointer to the value of this research.

Like the empirical literature, the theoretical literature has based its arguments on specific contextual considerations; these have included the needs of specific cultures

(Sutherland et al. 2015, p. 3; Leon 2015, p. 676; Vanthournout et al. 2014, p. 192; Bakotic 2011, p. 97; Mladkova 2011a, p. 828), organisational constructs such as size (Leon 2015, p.97; Bakotic 2011, p. 98; Frick 2011, p. 379) and, whether knowledge workers belong to specific occupation groups (Lamb & Sutherland 2010, p. 299; Sutherland et al. 2015, p. 2) or have attained certain higher levels of education (Cooper 2006, p. 59). All these aspects look away from individual knowledge-based professionals not towards them. This work will look towards the individual to gain insights about them that only they know and cannot be obtained through discussions with third parties.

The question of who owns the knowledge-based professionals' actual knowledge, and the implications of the answer for individuals and organisations, has often been debated in the theoretical literature (Paton 2012, p. 12; Kelloway & Barling 2000, p. 290; Drucker 1999, p. 87). This leads to discussions about how knowledge workers like to be managed; researchers' opinions have sometimes been derogatory and potentially demeaning, for example, that knowledge-based professionals are not willing to co-operate, resisting command and control structures or refusing to conform to workplace rules (Paton 2012, p. 33; Moss Kanter 2000, p. 15; Scarbrough 1999, p. 9); and they resent administration and defy administrative authority (Zhan, Tang & Zhang 2013, pp. 559-560; Paton 2012, p. 28) and that they are difficult to supervise (Zhan, Tang & Zhang 2013, p. 559). In contrast, other authors are far more positive in their evaluation of knowledge-based professionals describing them as: flexible, multi-skilled, preferring autonomy, adaptive to change and with the "comportment of a life-long learner" (Vangthournout et al. 2014, p. 192; Tennant 2004, p. 432), independent, pursuing self-actualisation (Zhan, Tang & Zhang 2013, p. 559), and holding strong values such as integrity, empathy and transparency (Avedisian & Bennett 2010, pp. 262-263). However, these are subjective assessments made by external parties, and not necessarily a true representation of the personalities of knowledge-based professionals. Researchers' and managers' views of their personalities have profound implications for how knowledge-based professionals are treated: if they're seen as difficult, managers will perceive that they require a higher degree of control; if they're seen in a more positive light, managers may support them in working in ways that enhance what they do. These are all external indicators used to try to understand knowledge workers but

remain deficient if the individual's being examined are excluded from the discussion. This research ensures their views and perspectives are included.

2.4.7   What Is Known About Knowledge-Based Professionals from the Literature

The comprehensive (albeit not exhaustive) analysis of the knowledge-worker literature in this study has revealed some of the main areas of agreement. The 21st-century workplace is dramatically different to that of the 20th-century. This is best summed up in the work of Sutherland et al. (2015, p. 1) who described a rapidly changing work environment, increased self-interest, people defining careers on their own terms, organisations being highly dependent on their own capacity and the importance of intellectual capital. Other factors noted were increased levels of white-collar employment, increased availability of formal education, a shift from reliance on manufacturing to service industries and an increase in the forms and types of technical labour (Marks & Baldry 2009, p. 49). Of course, the increased pervasiveness of technology and its impact on how work is performed and globalisation (now referred to as Industry 4.0 or the Fourth Industrial Revolution) cannot be ignored (Ghislieri, Molino & Cortese 2018, p. 1; Johansson et al. 2017, p. 282).

Given these changes, knowledge-based professionals are now a critical factor for achieving business success as they are the predominant agents of change and innovation (Wolf et al. 2018, p. 68; World Economic Forum 2018, p. 7; Johansson et al. 2017, p. 285; Lank 1997, p. 406; Thurow 1997, p. 114; Prusak 1996, p. 6). Knowledge-based professionals now have a greater impact on economies and societies (Mohelska & Sokolova 2018, p. 2237; Standards Australia 2017, p. 7). A point identified in the literature of note is that it is inexact to consider knowledge-based professionals as a homogeneous group. Various authors have provided alternative terms or categorisations of knowledge workers (Dueck 2001, p. 887; Kidd 1994, p. 118) to help provide greater clarity about the group, although they do not always offer a sound basis for the distinctions they make.

These insights provide guidance on the need that requires consideration. Hence they have influenced and informed how this research has been conducted. The review of the literature enabled conclusions to be drawn from the analysis. These conclusions can be grouped into three categories.

1. Task orientation - there was a tendency in the literature reviewed to employ a focus on the task (execution-centric) approach rather than focussing on the individual performing the task (Leon 2015, pp.677-683; Reinhardt et al. 2011, p.158; Brinkley et al. 2009, p. 22). The research in this group was relevant to the time it occurred however on-going applicability has been limited due too the changes that have occurred to work in the intervening period.

2. Contextual conclusions - the research reviewed was culturally targeted emanating from second and third world economies trying to replicate aspects identified in first world economies. This category also includes research focussing on knowledge-workers in large organisation or government departments (Barnett & Koslowski 2002, p. 240; Jacob & Ebrahimpur 2001, pp.77 & 79; Hecht & Proffitt 1995, p.92).

3. Approach to empirical studies - of the research reviewed, it was not possible to find studies that focussed on knowledge-workers as individuals. Alternatively, they used prescriptive models such as Mintzberg (Poeppel 1982, p. 148) often encoring the use of command and control approaches with the objective of increasing knowledge-worker productivity.

This literature review suggests that the reality of who knowledge-based professionals are is not as straightforward as it seems and that there is value in conducting more in-depth analysis. This is supported by Óskarsdóttir and Oddsson (2017, p. 23) who wrote that: "there is a lack of empirical studies that observe and analyse knowledge workers". Darr and Warhurst (2008 p. 26) add "The lack of empirical sensitivity to work practice hampers both debates because evidence-based analysis is displaced by assertion *cum* assumption." This research will attempt to address aspects of this deficiency.

Given that a review of the literature on knowledge-based professionals left unanswered many questions about their characteristics and attributes, a decision was made to review the literature on expertise (expert and expert performance) to see if any insights could be obtained. These constructs were chosen for review as they were often used within the knowledge-worker literature and thus could be considered sensitising concepts (Dunne 2011, p. 116; Liu 2004, p. 250) for the purposes of this research.

2.5 Expertise, (Expert and Expert Performance)

2.5.1 Background

As stated in the introduction, the construct of expertise is considered to be closely aligned construct to that of knowledge-workers. Expertise in the literature is found under three different, yet related headings: expertise, expert and expert performance. All three aspects were referenced for analysis, however, just the term expertise will be used throughout this discussion incorporating all three aspects.

To gain greater insight on the topic, 42 articles were reviewed and analysed using the same filters as for the knowledge-worker literature, with nine articles adopting a historical perspective and 33 from a contemporary viewpoint. Of the 42 articles, 13 were empirical studies (including literature reviews) and 29 were theoretical in nature.

As with the knowledge-worker literature, the initial discussions focuses on understanding how expertise is defined, followed by a review of the empirical studies and then a thematic analysis of the theoretically oriented studies, outlining how they may or may not contribute to understanding knowledge-based professionals. Then the construct of knowledge-based professionals is compared with that of expertise and any gaps in the research will be discussed.

2.5.2   Analysis of Definitions of Expertise

As with knowledge workers no agreement has been reached on a definition of expertise. (Jennings et al. 2005, p. 21). However, some of the aspects highlighted related to expertise are that; it is a person having specialist skills and knowledge (Cornford & Athanasou 1995, p. 10); and have a fluency of skill in a given domain area and who is grounded in an accumulated set of experiences in that domain (Jennings et al. 2005, pp. 19-24). While useful, these aspects describe external traits and capabilities and not necessarily characteristics and attributes an individual may possess. The are descriptions formed about experts not developed with them.

Only one definition   examined for this review gave a comprehensive description of expertise: Bender and Fish (2000, p. 126) cited and supported Sveiby's (2007) comment that neither knowledge or expertise have a universally appropriate definition, and that how they are defined depends on the context (p. 1639). Bender and Fish (2000, p. 126) went on to explicitly define expertise:

> *Expertise is specialised, deep knowledge and understanding in a certain field, which is far above average. Any individual with expertise is able to create uniquely new knowledge and solutions in his/her field of expertise. In this sense, expertise is gained through experience, training and education and is built up from scratch over a long period of time by an individual and importantly remains with that person.*

What this definition offers that is not clearly found elsewhere is that expertise is typically assessed in terms of skills and abilities, particularly at the elite level that can improve with continued practice, common examples music, chess, mathematics, medical diagnosis or sports (Ericsson 2008, p. 989; Horn & Masunaga 2006, p. 600; and Barnett and Koslowski 2002, p. 258). Deliberate practice is defined as:

The type of practice that is focused, programmatic, carried out over extended periods of time, guided by conscious performance monitoring, evaluated by analysis of levels of expertise reached, identification of errors, and procedures directed at eliminating errors. (Horn & Masunaga in Ericsson et al. 2006, p. 601).

The problem with this definition, in the context of this work, is that not all aspects deliberate practice are observable and easy to monitor in the case of knowledge-based professionals. Thus this research attempts to see if deliberate practice activities emerge from discussions with the interview participants that can be specifically associated with knowledge-based professionals. Barnett and Koslowski (2002, p. 258) have done analysis on deliberate practice and suggest that other factors such as abstraction, breadth of experience in acquiring deep and transferable abilities and the roles they have played will affect the development of expertise.

2.5.3 What the Literature Says About Expertise – Empirical Studies

The empirical studies were analysed using a methodology similar to that undertaken for the empirical studies of knowledge-based professionals is detailed in Table 2.7. Eleven empirical studies of experts were identified, two of which were literature reviews. De Arment, Reed & Wetzel (2013, pp. 219-221) focused on reviewing the literature related to adaptive expertise (a more in-depth discussion on adaptive expertise will be provided in the discussion of theoretical studies of expertise, whereas Shanteau (2015, p. 170) looked at the literature to consider why experts may or may not agree across a range of domains of expertise. Both considered a very specific aspect of expertise – adaptive expertise and whether experts agreed on its definition and characteristics, rather than considering the construct as a whole. Understanding that there are different types of expertise is helpful as it may assist with making distinctions among knowledge-based professionals.

The analysis of the expertise literature shows a number of possible weaknesses in how the empirical research has been conducted (Table 2.8):

- Organisational specificity – may only be relevant to the specific organisational context studied.

- Occupational specificity – may only be relevant to specific occupational groups.

- Affiliation specificity – may only relate to specific groups.

- Cultural specificity – may only relate to a specific cultural group.

- Age diversity – using different age groups within one study which may make comparability difficult.

- Pre-defined frameworks – force-fitting participants into a classification system rather than allowing placement to evolve.

- Tenure specificity – participants must have been in specific roles for specific periods of time.

- An elevation of the role of knowledge where the focus is on the knowledge itself and not the people who have the knowledge.

The risk, therefore, is that these studies are too narrowly focused to transport the findings to other studies because they have limited capacity for the findings to be transferable.

Researcher(s)	Year	Participant Group	Potential Difficulties with Participant Group
Barnett & Koslowski	2002 p. 240	Business consultants Restauranteurs Students	Occupational specificity Organisational specificity Comparability of respective participant groups
Benner	1982 p. 127	Nurses assessed using the Dreyfus and Dreyfus (1980) model of expertise	Occupational specificity
De Arment, Reed & Wetzel	2013 pp. 119-121	Literature review –adaptive expertise	Not applicable
Ellis & Boyd	2015 p. 2498	Technology-education teachers Looking at intrinsic motivators for teaching their subjects	Occupational specificity
Harlim & Belski	2011 p. 435	Novice and expert engineers assessing ability to solve problems	Occupational specificity

Researcher(s)	Year	Participant Group	Potential Difficulties with Participant Group
Hecht & Proffitt	1995 p. 92	Students from a German university, average age 25 Waitresses at Oktoberfest average age 43 with more than five years' experience Male bartenders in Munich, average age 33 Bus drivers in Munich, average age 49	Occupational diversity Age diversity Cultural and geographic specificity Given the diversity of those involved could be perceived as an incongruent participant group
Kirton	1976 p. 624	Senior managers Pre-determined list of statements drawn from adaption-innovation typology	Organisational role specificity Pre-determined framework (constricting approach)
Lyon	2015 p. 90	Experienced dental educators Academic deans in dental faculty with more than 10 years' experience	Occupational specificity (super sub-set) Tenure specificity
Jacob & Ebrahimpur	2001 p. 77, 79	Swedish company High-tech organisations - biomedical - automative Focus on knowledge not the individual	Cultural and geographic specificity Organisational specificity Focus on study of knowledge not people
Mylopoulos & Regehr	2009 p. 129	25 medical students	Affiliation specificity Occupational specificity
O'Leary, Fisher, Low-Choy, Mengersen & Caley	2011 p. 2151	Marine-science taxonomists/ecologists	Discipline specificity Occupational specificity
Martin, Petrosino, Rivale & Diller	2006 p. 36	Third year undergraduate students Use of beliefs survey Focus is on adaptive expertise	Affiliation specificity Pre-determined assessment framework
Shanteau	2015 p. 169	Literature review – what causes or influences experts' agreement or disagreement	N/A

Table 2.8 – Review of Participant Groups in Empirical Research on Expertise (references as cited in table)

This analysis of the literature has highlighted the fact that participant selection is often arbitrary and not based on sound reasons for selection. Bearing this in mind it was decided that specific selection criteria would be used for participant selection to avoid replicating the arbitrary nature of participant selection.

The research on agreements and disagreements emanating from the analysis of these empirical studies highlights some important points for consideration:

1. Homogeneity can be good for analytical purposes, but may be too simplistic to provide a detailed appreciation of the research topic;
2. Focus in the expertise literature is on output, with limited consideration of input;
3. Quantitative methods alone are not able to sufficiently describe the nuanced influences on what experts do;
4. Research approach used may not consider realities experts encounter in their working lives.

As with the empirical studies on knowledge-based professionals, participants in the empirical studies on expertise were selected with a specific purpose in mind or because they were accessible, available or had the desired association and/or affiliations. The studies also showed a tendency for authors to want to validate experience by the use of assessment tests, peer evaluations or the ability to solve problems, which do not of themselves provide a comprehensive and robust understanding of expertise.

2.5.4 What the Literature Says About Expertise – Theoretical Literature

As with the analysis of the theoretical literature on knowledge-based professionals, that in expertise, expert and expert performance offered a number of different perspectives about knowledge are offered. Cornford and Athanansou (1995, p. 11) mention such things as episodic knowledge which is unique knowledge not previously experienced in a particular way, compared with case knowledge, where commonalities with previous knowledge make it easier to draw on already known information to solve a problem. Jacob and Ebrahimpur (2001, p. 81) categorise and describe knowledge as embodied,

credentialised and practice-based. These are examples of separating the knowledge from the knower, as discussed by Adelstein (2007, p. 83). Mylopoulos and Regehr (2011, p. 129) provide a word of caution against trying to externalise and understand knowledge without considering the context in which it is used.

The most common theme found in the literature on expertise relates to stages of expertise or competency levels. Sometimes the comparison is as simple as comparing novices to experts in other instances a more multi-level competency scale is offered. The seminal work by Dreyfus and Dreyfus (1980, p. 15; and revised in 1986) as shown in Table 2.8. Others (including Collins & Evans 2007, p. 14; Jennings et al. 2005, pp. 27-28; Cornford & Athanasou 2005, pp. 11-12; Benner 1982, pp. 128-132) have applied the competency levels they proposed to specific occupations. While there are other variations on competency scales than the one outlined in Table 2.9, this is the one most commonly used, especially in the medical field.

Competency Level	Explanation of Competency Level
Novice	• Limited knowledge and experience • Learning the ropes
Advanced Beginner	• Expressed to contextualise theoretical knowledge • Not able to determine importance or priority • Typically looks at factors in isolation
Competence	• Able to make conscious choices on courses of action • "Knows what" to do • Some ability to prioritise • Increased responsibility for what occurs
Proficient	• "Know-how" more important than "know what" • Can identify patterns and similarities • Increased predictive abilities • More holistic approach
Expert	• Intuitive understanding of any given situation • Performance is fluid and effortless • Knows what to do when • Understands the complete context • Internalisation of skill is complete

Table 2.9 – Multi-stage Competency Levels to Explain Expertise
(Collins & Evans 2007, p. 14; Jennings et al. 2005, pp. 27-28; Cornford & Athanasou 2005, pp. 11-12; Dreyfus & Dreyfus 1986 & 1980, p. 15; Benner 1982, pp. 128-132)

The *Cambridge Handbook of Expertise and Expert Performance* (Ericsson et al. 2006) presents many perspectives on expertise:

- Approaches to the study of expertise – psychologically based, professionalism, elitism etc. (pp. 41-126).
- Methods to study the structure of expertise – workplace practices, psychometric testing, task analysis, laboratory methods etc. (pp. 127-264).
- Methods for studying the acquisition and maintenance of expertise – laboratory studies of training, retrospective interviews studying expertise and expert (pp. 265-307).
- Historiometric methods – historical review of individuals to determine their levels of expertise (pp. 319-338).
- Domains of expertise – covering a variety of professions including medicine, transportation, software design, writing, professional judgement, decision-making, what expert teams do, arts, sports and motor skills, games such as chess, mathematics and the relevance of exceptional memory (pp. 339-586).
- Expertise relative to other topics - for example: intelligence, tacit knowledge, practical intelligence, situational awareness, brain changes when developing expertise, the role of deliberate practice in developing expertise, the role of self-regulation in developing expertise, ageing and expertise, societal factors and developing expertise and expertise and creative thinking (pp. 587-788).

This resource was given extensive consideration as it was the most consolidated and comprehensive resource on this construct. This overview of the comprehensive text on expertise and expert performance demonstrates that the constructs of expertise and expert performance have many facets, but this fragmentation can result in lack of clarity on what expertise and expert performance actually are. Ericsson, Prietula and Cokely (2007, p. 116) provide some insights in their outline of the factors that go into developing expertise:

1. What they experience – struggle, painful self-assessment and not taking shortcuts.
2. What they have – more than 10 years' experience, advanced cognitive abilities, sophisticated knowledge structures and flexible reasoning processes.

3. How they best operate – using individual autonomy and exercising independence of judgement, practiced intensely.

This is a valuable dissection which provided a basis to consider this research and help to inform the selection of participants and research method.

Ericsson, Prietula and Cokely (2007) provide indicators of how expert performance is demonstrated and suggest that "experts have studied with devoted teachers and supported enthusiastically by their families throughout their formative years" (p. 116).

These factors also help to provide a broader perspective on the individual. They have been used to help formulate some of the interview questions for this study (Appendix 3.1 provides the rationale for the questions used in this research).

A point of contention found in the expertise literature is how long it takes to develop expertise. Researchers such as Lyon (2015, p. 93); Harlim & Belski (2011, p. 436); Ericsson (2008, p. 991); and Ericsson, Prietula and Cokely (2007, p. 119) suggest that a minimum of 10 years is needed; others, such as Hoffman (1996, p. 84), who undertook extensive analysis of expertise during the 1990s suggests a more specific timeframe, in this instances, that it can take 20 to 30 years to develop expertise in a specific domain area. The one point of consensus in this area is that it takes time. There is a need to consider the sorts of experiences, attitudes and skills that the expert has encountered that may have contributed to the development of their expertise (De Arment, Reed & Wetzel 2013, p. 222; Barnett & Koslowski 2002, p. 238). The discussion on the aspect of how long it takes to develop expertise contributed to the determination of the selection criteria re length of experience and it was decided to use 15 years experience as the baseline.

Proficiency can be interpreted in a multiplicity of ways. Mylopoulos and Regehr (2009) provide the best overall perspective on this when they suggest that expertise "is a multi-faceted construct" (p. 1161). The factors that are identified in the literature as contributing to the development of expertise are:

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1. The type of learning that occurs (Fraser & Greenhalgh 2001, p. 802);
2. Overall experience and exposure to situations and circumstances (Barnett & Kowlowski 2002, p. 262);
3. Occupational groups (Martin, Currie & Finn 2009, p. 1193);
4. Associations and affiliations (Hoffman 1996, p. 89);
5. Knowledge and natural ability (Mylopoulos & Regehr 2007, p. 1162).

Each of these items were taken into account when developing selection criteria for participant inclusion. This is discussed in more detail in Chapter 3.

Collins et al. (2015 pp. 1-7) note that theories on expertise are prone to a number of shortcomings:

- Many aim too low when determining levels of competency.
- They are limited to what is measurable, tangible and technical (analogous to the literature on knowledge-based professional).
- They can tend to ignore aspects such as moral, emotional and relational factors.
- They do not always consider the impacts of complexity, uncertainty, predictability and discretion (Bell et al. 2012, p. 218).
- They do not routinely recognise the importance and need for practice.

This again provides factors that contribute to our inability to identify and map the characteristics and attributes of a knowledge-based professional. As a result these aspects were taken into account when the selection criteria were being developed and the interview questions formulated.

The final aspect of expertise that needs acknowledgement and understanding is routine versus adaptive expertise. The next section will discuss this aspect in more detail.

2.5.5   Adaptive versus Routine Expertise

The final aspect of expertise requiring consideration is to review the two most common types of expertise discussed in the literature, that is, routine and adaptive expertise. This discussion is best prefaced by acknowledging that expertise is a mutli-faceted concept (Bell et al. 2012, p. 217-219). Accepting this aspect it is then possible to recognise that different types of expertise use different types of knowledge where routine expertise are more likely to use case knowledge and adaptive expertise to use episodic knowledge (Cornford & Athanasou 2015, p. 11). Alongside this fact is that lifelong learning has different characteristics depending on whether routine or adaptive expertise is being employed (De Arment, Reed & Wetzel 2013, pp. 219-221). Given that different approaches are adopted by the two different groups of experts efficiency and effectiveness receive different emphasis depending on whether routine or adaptive expertise is applied (De Arment, Reed & Wetzel 2013, pp. 219-221; Hatano & Inagaki 1986, p. 31; Mylopoulos & Regehr 2011, p. 923) whereby, adaptive expertise requires higher levels of flexibility to facilitate managing unfamiliar situations (Ellis & Boyd 2015, p. 2497) understanding that contextualisation of knowledge is always an important consideration (Froyd 2011, pp. S3B-1 – S3B-3; Avedisian & Bennett 2010, p. 255).

These different descriptions from the literature highlight that routine experts are more effective in familiar situations where the patterns to solve issues and problems are known, and predictable, although they typically demonstrate less flexibility in how they approach decision-making and problem solving. In contrast, adaptive experts can cope with complexity, the unknown and uncertainty, and tend to be more willing to challenge the status quo and undertake learning. This brings to the fore the fact that expertise comes in multiple forms. The recognition of this has not occurred in the knowledge worker literature. This research acknowledge this and will consider the implications of this as the characteristics and attributes are identified and analysed.

There are different opinions on how or whether someone has developed routine or adaptive expertise. Some suggest it is a fork in the road (Martin et al. 2006, p. 44) or a different pathway altogether (Bell et al. 2012, pp. 217-218; Mylopoulos & Regehr 2007,

p. 1164.) The idea of routine expertise has alignment with the knowledge-based professionals literature that focuses on productivity. If knowledge workers were equivalent to routine experts and their outputs were predictable, it would be much easier to measure their output (productivity) than it would be for adaptive experts whose output is unpredictable and often unmeasurable. Mylopoulos and Regehr (2007) suggest, "Adaptive expertise is not a state of accomplishment but rather is best considered to be an approach to practice an on-going continual reinvestment of cognitive resources to transform practice and extend boundaries of knowledge and technique" (p. 1164). This definition is most aligned to the definition offered for knowledge workers in Chapter 1 where a definition of knowledge-based professional has been defined for the purposes of this research.

Eraut (2005, p. 178) states that the biggest problem with the literature on expertise, expert and expert performance is cognitive bias: the analysis pays too much attention to the mental processes being used, mental representations, tools and knowledge existing in the environment and assumes that intellectual processes follow a short and predictable timescale and path, where results from reasoning processes are instantaneous rather than developed over time and that results can typically be attributed to the individual and their capabilities and to the the context the activity occurs or the people they interact with. Findings from this research may help to clarify and validate the relevance of this and other perspectives in the literature.

2.6 Insights from the Literature on Knowledge-Based Professionals and Expertise

Reviewing the literature on knowledge-based professionals and expertise, expert and expert performance has provided some insights, but does not provide a clear perspective on knowledge-based professionals. This in itself provides a justification for undertaking the current research to identify and map the characteristics and attributes of a knowledge-based professional. Table 2.10 brings together both knowledge worker and expertise schools of thought under common headings. This consolidation provides a synthesis of what is known and lays the foundation for how this research was approached and the aspects requiring consideration.

Class of Characteristic	Perspectives on Knowledge-Based Professionals (Adapted from: Frick 2011, pp. 368-387; Whelan & Carcary 2011, pp. 675-687; Ascente 2010, pp. 279-287; Tyman & Stumpf 2003, pp. 12-20; Alavi & Leidner 2001, pp.107-136; Alvesson & Kärreman 2001, pp. 995-1018; Marshall & Rossett 2000, pp. 23-40; Vogt 1995, pp. 21-34)	Perspectives on Experts (Adapted from: Bell et al. 2012, pp. 211-224; Jennings et al. 2005, pp. 19-31; Cornford & Athanasou 1995, pp.10-18; Glaser 1992, pp.261-275)
General	• Uniqueness	• Takes years to attain expertise • Possesses idiosyncratic sets of information
Ability	• To observe, synthesise and interpret data • To work with ambiguity and uncertainty	• To possess specific proficiencies • To use knowledge to contribute to self-regulation • To "slow down to look up" • To remember more information than novices • To have more-advanced self-monitoring
Aptitude	• Possesses superior cognitive skills and abstract reasoning • Is free from conventional boundaries and controls	• Can 'chunk' and work with large amounts of meaningful information • Can remember more • Possesses enhanced levels of discernment • Attempts to develop automaticity: the state of being spontaneous and self-regulating
Attitude – own	• Needs and desires autonomy • Needs relationship with others • Adopts a committed and avid approach to learning • Operates via informal networks	• Employs "deliberate practice" in enhancing their capabilities • Invests more time in practice
Attitude – others	• Considered to lack a willingness to conform • Given less prestige by others • Seen as difficult to manipulate • Others find it hard to know what to do with them	
Capacity	• The individual not the organisation owns the knowledge	• May have the capacity for both routine and adaptive expertise • Flexible about using resources focusing attention • Excels in their area of expertise • Has the ability to understand at a deeper level

Table 2.10 – Comparative Analysis of Characteristics of Knowledge-Based Professionals and Experts (references as cited in Table)

An analysis of the themes found in the literature yielded the following insights. Knowledge-based professionals are often analysed within an organisational framework (most commonly that of a large organisation) and studies seek to answer the questions: what do they bring?, how can they be used?, how do we benefit from this asset?, what is the nature of the type of work they perform? These could be considered extrinsic assessment parameters.

The literature on expertise emphasises the competencies of the individuals and how they use the knowledge they possess. Coupled with this is a tendency to see the acquisition of expertise as a continuous process when in fact it has been shown to be "discontinuous" (Martin et al. 2006, p. 36). There is still a tendency to stick to the tangible and observable components rather than considering the intangibles.

This analysis of the literature shows that studies of both groups fail to adequately discuss the individuals' ability, aptitudes, attitudes and capacity to absorb and use information. This research will identify and map the characteristics and attributes of a knowledge-based professional to address this deficiency.

2.7 Summary of Chapter

This chapter commenced by stating that a qualitative approach using Constructivist Grounded Theory would be used to conduct this research followed by a review of the debates about the efficacy and suitability of conducting a literature review when using this approach. The discussion early in the chapter outlined the rationale for conducting a literature review for this research supported by relevant references.

This chapter discussed two situating concepts relevant for this research which were knowledge and knowledge work. Knowledge is a widely researched topic and yet there is little agreement on what it is. It was possible to identify a definition of knowledge that helped to explain what knowledge-based professionals bring to an organisation that would enable them to remain competitive over a sustained period. Knowledge work was analysed across four significant paradigm shifts that moved societies from manual work

to knowledge work and consideration was given to the future and nature of work as it will occur under Industry 4.0.

The chapter then undertook a comprehensive review of the research on knowledge workers and expertise highlighting the gaps in the literature and pointing out that although knowledge-based professionals are considered important they are underrepresented in the literature compared to the volume of research undertaken on management, leadership and entrepreneurship.

This chapter analysed approximately 100 empirical and theoretical articles on knowledge workers and 45 articles on expertise, expert and expert performance. This analysis found there is no agreement on the definition of knowledge worker or knowledge-based professional and that the definitions that do exist are inadequate or incomplete.

A review of empirical studies related to knowledge-based professionals showed that typically studies focused on the review of tasks or chose populations of participants that were convenient and not necessarily the most relevant examples for understanding knowledge-based professionals. Empirical studies accounted for less than 25% of the reviewed articles relating to knowledge-based professionals. In other words, knowledge-based professionals are more often talked about than talked to, a situation this research will attempt to address (at least in part).

This chapter then examined the themes that emerged from the literature that took a theoretical perspective. While much of the work in the area is based on that of Peter Drucker, whose original intent in the late 1950's was to distinguish knowledge work from manual or physical work. Drucker himself said that his comments were relevant a specific point in time. A common theme identified in the literature analysed in this chapter was how to increase knowledge workers' productivity; however, the lenses and frameworks used belonged to an earlier time when command-and-control environments were commonplace. However in the 21st century these environments and approaches are no longer considered the best for harnessing the abilities of knowledge-based professionals. The analysis in this chapter also found that much of the discussion has

been about what knowledge-based professionals look like and can be observed doing, rather than how they think and act. As Adelstein (2007, p. 853) wrote, knowledge workers have been sidelined from the discussion and their voices have not been heard in a meaningful and helpful way to enhance and ensure organisational sustainability and longevity.

The literature on expertise, expert and expert performance was analysed in a similar way. A deficiency highlighted in this analysis was the emphasis on competency (the level of skill and proficiency and individual possesses) rather than capability (one's capacity and ability to undertake requisite tasks and activities based on skills and attitudes).

The literature also considered the similarities and differences between routine expertise, which is applied to performing routine and repetitive tasks expertly, and adaptive expertise , which is applied to responding to and resolving complex issues. The literature indicates that these types of expertise are quite distinct. Understanding these concepts has relevance for the approach to this research.

The insights from the literature review conducted for this study have contributed to the progression of this research by:

- Sensitising the researcher - the review of the literature enabled the researcher to understand and identify how knowledge workers (knowledge-based professionals) and expertise (expert and expert performance) is currently to ensure no duplication takes place and a definable gap existed justifying the benefit of this research;
- Informing the approach to participant selection - a review of the literature helped to determine objective selection criteria to identify appropriate participants for the purposes of this research; and
- Development of interview questions - the review of the literature aided the formulation of relevant interview questions that would provide insight into the characteristics and attributes of a knowledge-based professional.

Chapter 3 will outline the methodological approach, paradigmatic considerations and specific tools (interview style, participant selection, selection criteria, sample size, coding approach, and validation interviews) used in this study. All of the aspects discussed in this chapter have influenced how the research was conducted and how the eventual findings emerged from the data alongside constant comparison to the literature.

CHAPTER 3 - RESEARCH METHODOLOGY AND PROCESS

3.0   Introduction

The previous chapter provided an understanding of knowledge, knowledge work, knowledge workers and expertise. This analysis of knowledge-based professionals highlighted the facts that they are a group that has not been understood sufficiently and that their voice is under-represented in research, particularly given the perceived importance of their role when considering the nature and future of work.

Analysis of the literature indicated there was no pre-existing study on knowledge-based professionals that provided guidance or an exemplar on how this research could be conducted. Hence, a ground-up approach was used commencing with determining that a qualitative methodology was most appropriate (Section 2.1.1).

Considering the shortfalls identified in the literature, especially the empirical studies, of which most are quantitative studies using questionnaires and case studies, purposeful decisions were made about the methodology and the associated approaches and techniques that would be used to help answer the questions of this research. After a review of the relevant methodology literature, coupled with insights gained from the literature on knowledge-based professionals an Interpretivist/Constructivist Grounded Theory approach was selected. This approach has not previously been used to understand knowledge-based professionals. The research focus lends itself to 'discovery' as this is all uncharted waters as shown by the literature review. This resulted in Constructivist Grounded Theory being identified as the optimal approach to enable unique characteristics and attributes to emerge that are not constrained by pre-existing assumptions or predefined frameworks. This study's research methodology involves eleven discrete considerations which were iterative in nature with continuous influencing and informing of each aspect on the other aspects.

1. Paradigm - Interpretivist;
2. Methodology - Constructivist Grounded Theory;

3. Data capture - Intensive semi-structured interviews;

4. Development of selection criteria;

5. Determination of sample size;

6. Formulation of interview questions;

7. Recording and storage of interviews;

8. Sourcing of participants;

9. Coding of interviews;

10. Memoing;

11. Two categories of validation interviews: i) respondent validation interviews (conducted with original participants) and ii) peer debriefing and consensual validation interviews (with informed and objective third parties who would can be considered knowledge-based professionals).

A consolidated framework of the approaches and techniques used to complete this research to ensure its efficacy, credibility and suitability for answering the defined research question is presented at the end of the chapter.

3.1   Paradigmatic Considerations for this Research

Paradigms influence and direct how research is conducted. The paradigm chosen for this research is an Interpretivist/Constructivist Paradigm. Cooksey and McDonald (2011, p. 192) have provided justification for why using an Interpretivist/Constructivist paradigm is most appropriate. Their work, which clearly outlined the benefits and costs of using such an approach. The seven benefits identified by Cooksey and McDonald are:

1. It allows for in-depth analysis.
2. Flexibility is inherently built in to accommodate the emergence of nuances in what the participants say. Emerging themes will determine those aspects requiring exploration and deeper analysis to facilitate the overall contribution to knowledge this research will provide.
3. The collection of data is natural and not overly controlled.

4. The approach fosters a depth and thoroughness to data collection.

5. Early analysis helps to guide on-going data-collection activities.

6. The approach accommodates small samples sizes but supports the idea of "theoretical saturation" (Sekaran & Bougie 2013, p. 270) – the point at which no new ideas emerge from the data being analysed.

7. It considers differences as well as commonalities as part of the analytic process, and thus does not immediately exclude aspects that do not naturally agree with the more common findings emerging from the data.

These aspects help to highlight how this paradigm is conducive to allowing insights and themes to be 'discovered' in the data that are not limited by the need to fit pre-determined frameworks and models.

However, an Interpretivist/Constructivist approach also presents costs. The five costs identified by Cooksey and McDonald (2011, p. 192) include:

1. It is inherently time-consuming to obtain rich data.

2. It requires a high-intensity of input from the researcher, as they cannot solely rely on automation to provide findings.

3. There are few pre-established rules on how the data needs to be analysed to optimise findings emerging from the data.

4. There is a higher risk of researcher bias influencing the findings from the data or influencing what information the participants provide.

5. The stories provided are not easily translated into generic rules or predictions that can be automatically applied on a wider basis.

Consideration of the benefits and costs outlined previously informed the decisions made on the paradigm most appropriate for this research. A review of the trade-offs between the benefits and costs (particularly the time it requires) of the Interpretivist/ Constructivist approach, shows it to be an appropriate choice for this research. The factor hardest to address is that of researcher bias. In this instance, the researcher is a trained and credentialled business and life coach possessing advanced skills in remaining non-judgemental about what people say as well as superior questioning skills

77

and the ability to listen and ensure they have correctly heard what the participant has said through the strategic use of paraphrasing and summarising. Another technique used in this research to ensure impartiality was to have the interviews independently transcribed. This technique was used to ensure that what participants' said was correctly recorded and was the words they had actually spoken with no possibility of them being adjusted or interpreted in any way.

This research is not trying to define a stereotypical knowledge-based professionals rather, it aims to articulate what might be some evident characteristics and attributes that a knowledge-based professionals may possess that can be used to help harness the value of this group of workers.

3.2   Methodology – Grounded Theory

Grounded Theory as an approach to qualitative research was first described and used by Glaser and Strauss (1967) and has been widely employed in subsequent research (see, for example, Charmaz 2014, p. 5; Bazeley 2013, p. 9; Maxwell 2013, p. 49; Sekaran & Bougie 2013, p. 103; Urquhart 2013, p. 3; Easterby-Smith, Thorpe & Jackson 2012, p. 58; Birks & Mills 2011, p. 3; Denzin & Lincoln 2011, p. 363; Noerager Stern & Porr 2011, p. 33; Eriksson & Kovalainen 2008, p. 155.). Its key proponents include researchers such as Glaser and Strauss separately, Anselm Strauss with Juliet Corbin and also Kathy Charmaz individually, and also Anthony Bryant. In Australia key proponents of the methodology especially in the discipline of nursing, are Melanie Birks and Jane Mills.

An unfortunate detractor for grounded theory is that, the original proponents Glaser and Strauss over time diverged in how they believed the approach should be used, especially in the undertaking of literature reviews and the approach to the coding of data.   The key points highlighted by Charmaz (2014 pp.7-8) to understand about grounded theory as an approach are that data collection and analysis occurs simultaneously with codes and categories emerging from the data they are not based on a preconceived hypothesis. As an integral part of this method constant comparison occurs at every stage of the analysis. This allows theory to develop as part of each

step of the process becoming richer as more data is analysed and understood. This is achieved because samples are chosen to help develop theory not to represent specific populations. Literature reviews occur throughout after independent analysis (this aspect has been discussed in more detail in Section 2.1.2). A supplementary and supportive process is memo writing which helps to articulate insights emerging from the data thus facilitating the process of identifying gaps.

These aspects were given consideration when determining what would be the most appropriate method to be able to 'discover' previously unidentified characteristics and attributes of a knowledge-based professional.

The attempts to define and explain Grounded Theory are numerous. Most references on qualitative research provide explanations and descriptions of the approach, (see, for example, Tashakorrie & Teddie 2003; Denzin & Lincoln 2011; Cresswell 2009; and Easterby-Smith, Thorpe & Jackson 2012). However, Ng and Hase (2008, pp.156-157) have provided details of the guiding principles of Grounded Theory. These principles were considered when determining a suitable approach to undertaking this research.

1. *Theory emergence from the data* – this requires that the data interpretation is an iterative process with links to the researcher's own worldview (Ng & Hase 2008, p. 156).

2. *The need to avoid preconceptions* – this highlights the fact that any insights are derived from the data – in this instance intensive, semi-structured interviews with constant comparison to relevant literature. To do this the researcher needs to have an "open mind" (Ng & Hase 2008, p. 156).

3. *The need to be theoretically sensitised* – this principle highlights the fact that the researcher needs to be able to recognise patterns presented in the data. As Glaser and Strauss (1967, p. 252) have said, "the root source of all significant theorising is the sensitive insights of the observer himself [sic]" (sourced from Ng & Hase 2008, p. 156).

4. *The constant-comparison method of data analysi*s – this approach allows for similarities and differences within the data to be explored. This exploration provides a guide to what other data might need to be collected. Participant responses in the research are compared with each other as well as with the extant literature (Ng & Hase 2008, p. 157).

5. *An iterative research progression* – this is one of the key distinguishing features of this approach. There is no linear pathway when using this method. Data analysis occurs from the moment the research activity starts and cycles back and forth as required based on what the data presents (Ng & Hase 2008, p. 157).

These aspects underpin the approach used in this research and align with the paradigmatic Interpretivist/Constructivist approach (in some instances they are common to the paradigmatic approach principles and in others they support them rather than replicating them).

3.2.1   Using the Constructivist Approach to Research

There are numerous approaches when conducting a grounded-theory study. The three most common forms of grounded-theory are Classical (Glaser, Glaser & Strauss), Straussian (Strauss, Strauss & Corbin) and Constructivist (Charmaz, Charmaz & Bryant). This study has chosen to use the Constructivist Grounded Theory approach.

Constructivist Grounded Theory has emerged from a rich historical background with its origins in the 1950s and a constant evolution of its precepts since that time (Charmaz 2014, p. 5). The context for its development was a debate about the respective merits of qualitative research from a sociological perspective compared to the rigour and objective analysis possible when undertaking quantitative research (p. 6).

There are four aspects that make Constructivist Grounded Theory distinctive:

1. The data used for the research is co-constructed by the researcher and participants (Thornberg 2012, p. 248; Mills, Bonner & Francis 2006, p. 31).

2. The analysis and findings will always be "colored by the researchers perspectives, values, privileges, positions, interactions and geographical locations" (Thornberg 2012, p. 249).

3. The approach "recognises the interactive nature of data collection and analysis" (Glaser 2002, p. 7).

4. It "fosters the development of qualitative traditions through study of experience from the standpoint of those who live it" (Glaser 2002, p. 7).

Although Constructivist Grounded Theory sits amidst other paradigmatic positions, in this instance realist and post-modern (Thornberg 2012, p. 249) it has its own distinctive epistemological roots. As Glaser (2002, p. 2) states, it is this aspect that positions Constructivist Grounded Theory to be a method for "taking qualitative research into the twenty-first century". "As a consequence, constructivist grounded theorists advocate recognising prior knowledge and theoretical preconceptions and subjecting them to rigorous scrutiny" (Thornberg 2012, p. 249.)

The Constructivist Grounded Theory approach accommodates the ability to use the literature as a source of inspiration recognising prior knowledge and conceptions (Thornberg 2012, p. 254) that can help the researcher make associations and sight patterns not previously identified and avoid duplication or repetition.

Mills, Bonner and Francis (2006, p. 31) state that the writing style of a constructivist grounded theory researcher, while analytic, needs to honour and reflect the experiences of the participants. Further, "the researcher's voice need not 'transcend experience' but re-envis[age] it" (Mills, Bonner & Miller 2006, p. 32.) Having this ability through the use of a Constructivist Grounded Theory approach enables constructs to emerge from the data as direct representations of the participants experience.

Constructivist Grounded Theory is not a "mechanical process" (Thornberg 2012, p. 254) but a method that enables and encourages what Charmaz (2014, p. 137) calls "theoretical playfulness" allowing for the testing of ideas to see where they lead. This permits the broadest possible scope for analysing the data without it being unduly confined with certain parameters or frameworks, and lets the researcher be the "author

of a reconstruction of experience and meaning" (Mills, Bonner & Francis 2006, p. 26). These aspects individually and collectively support why constructivist grounded theory is the most relevant approach for this research.

Taking into account the gaps identified in the literature, and reviewing the precepts of grounded-theory generally and specifically, constructivist grounded theory was identified as having the most appropriate epistemological and ontological basis for this research. The principles of constructivist grounded theory in terms of data sampling, data collection and data analysis have been used. However, it is not the intention to develop a theory from this research to explain a social process as this is not what the focus of the research requires.

3.3 Data-Capture Approach - Intensive Semi-Structured Interviews

Given there were no pre-existing approaches to use for this research, as this method has not been used with this group previously (as outlined in Chapter 2), and results using this approach are typically emergent, consideration was given to the most effective instrument for the purposes of data capture. Several options were considered including questionnaires, case studies and interviews. The empirical studies on knowledge-based professionals suggested that questionnaires and case studies would not provide the requisite data set nor sufficient capacity for individual experiences to emerge therefore interviews were chosen as the preferred tool for data capture as they would accommodate detailed responses.

Interviews posses the flexibility to adjust the questions as needed depending on the participants' responses. In this study, these interviews would led by the researcher as a "director or consciousness" (Riach 2009, p. 359) to ensure that specific components were addressed as well as permitting other factors to emerge. Participant-led interviews (Stevenson & Holloway 2017, p. 87; Birks & Mills 2013, p. 75; Braun & Clarke 2013, p. 78), analogous to unstructured interviews, increase the risk that the specific components requiring investigation may not emerge.

Researcher-led interviews establish a suitable environment for the participant by asking some basic factual questions that help build the rapport required for the interview to meet its objectives (Harkness & Warren 1993, p. 336). Another factor that makes this approach more appropriate is that it accommodates multiple interviews with each subject if needed. This enables breadth and depth to be achieved through the interview process.

Literature about conducting interviews for the purposes of qualitative research is plentiful. The most common description relates to the three common types of interviews best explained by Qu and Dumay (2011, pp. 244-246):

- *Structured* – this is useful when there needs to be a standard approach to how the interviews are conducted. It allows for a limited number of responses to the questions posed and typically uses closed questions or questions that have a selection of pre-defined responses. This approach to interviews is thought to be rigid requiring the researcher to rely on a script from which there is little opportunity to. Minimal flexibility is possible when this approach is adopted.

- *Unstructured* – this interview style is open and adopts informal, conversational interaction. This style does not require the researcher know all the questions in advance they can emerge as the conversation progresses. The researcher plays the role of an empathic listener.

- *Semi-structured* – this style sits mid way between structured and unstructured interviews. This approach, which is the most common in qualitative research requires the preparation of questions related to themes that the researcher wishes to explore. These questions help guide the conversation, although there is flexibility to supplement or modify questions should the need arise. This flexibility allows latent aspects to emerge.

This research will use the qualitative research method of semi-structured interviews alongside the constant-comparison method of grounded theory for data analysis

(Charmaz 2014, p. 57; Urquhart, 2013, p. 17; Bryman 2012, p. 568; Clarke 2005, p. 170).

Different methods that can be used for conducting the interviews include (Charmaz 2014, pp. 56-57):

- Informational interviews – these seek accurate responses to typically demographic questions. There is a need and intention to obtain the "facts".

- Intensive interviews – like informational interviews, these can include the acquisition of demographic information; however, they also seek to "gently guide a one-sided conversation that explores a person's substantial experience with the research topic".

- Investigative interviews – these seek accurate details related to specific circumstances or events. They are often trying to uncover "hidden actions and intentions or exposing policies and practices and their implications". This style is the typical approach used within law enforcement.

Analysis of the interview methods indicated that the most suitable method, for the purposes of this research, was the intensive interview approach using semi-structured interviews. Charmaz (2014, p. 57) states that an intensive interviewing approach is typically used by grounded theorists, recognising that there will be components of the interview that could be classified as informational interviewing. Table 3.1 analyses the similarities and differences between informational, intensive and investigative interviews. While there are common features among the three interview types, the differences that make intensive interviewing the most appropriate are a) that it enables flexibility and adaptability, relying heavily on open-ended questions and allowing stories and insights to emerge; b) it adopts a guiding style; c) it is used with a small number of participants on a particular theme; and d) it is typically conducted in a relaxed manner if the right questions are asked with care and skill.

Approach to Interviewing	Informational Interviewing	Intensive Interviewing	Investigative Interviewing
Similarities	• Typically an encounter between strangers requiring the ability to build rapport in a limited timeframe • Conversations with a purpose • Seek to gather relevant and reliable information • Using silence aids the interview process allowing the participant to convey their thoughts, ideas and experiences • Concerned with obtaining information that has validity and truth relevant to the purpose of the interview		
Differences	• Low level of formality	• Balanced degree of formality	• High degree of formality
	• Low importance placed on interpreting and understanding non-verbal inputs	• Understanding and interpreting non-verbal inputs can help aid understanding and meaning	• High importance placed on interpreting and understanding non-verbal inputs
	• Low demands placed on and low expectations of interviewer	• Interview enhanced if interviewer is skilled in the art of interviewing	• High demands placed on and high expectations of interviewer
	• Purpose is to gather facts – needs to obtain accurate responses – more likely to used closed questions	• Needs flexibility and adaptability, and so relies more heavily on open-ended questions to allow stories and insights to emerge	• Needs to obtain facts about circumstances and situations
	• Can be a simple as striking up a conversation	• Needs to acquire information on themes and topics	• Needs to deliver accurate accounts of events
	• Adopts a relaxed style	• Adopts a guiding style	• Adopts a directive style
	• Often used in helping people develop interview skills or learn about job roles	• Often used with a small number of participants on a particular topic, theme or area of experience	Often used with victims, witnesses and possibly suspects in crimes/breaches of the law
	• Could be considered directionless putting at risk the objective of obtaining specific data and information	• Capable of providing a relaxed atmosphere to obtain more-detailed and richer responses if undertaken with care and the ability to ask suitable qustions	• Usually best conducted when done in teams which runs the risk of the interviewee feeling overpowered or intimidated
	• More in control of how much time and effort is put towards the interview process	• Can be time-consuming and costly as a higher level of intensity and involvement is needed	• Can be constrained by strict guidelines on how these types of interviews are conducted

Table 3.1 - Similarities and Differences in Approaches to Interviewing (Adapted from Driskell & Salas 2015, pp. 273-274; Charmaz 2014, pp. 56-58; Shelton 2014, pp. 22-24; Green 2012, pp. 31-34; Boyce & Neale 2006, pp. 1-12; Crosby 2002, pp. 32-37; USAID 1996, pp. 1-4; Brown 1995, pp. 4-6; Harkness & Warren 1993, pp. 317-320; and Gaske 1984, pp. 404-407)

The interviews took place face-to-face with the interviewees on an individual basis. Selection criteria were developed and approved by the UOW Ethics Committee Ethics Number HE14/114. Discussion of how these criteria were developed will be discussed in Section 3.2.

A deliberate approach to this research was to involve people from diverse professional backgrounds to reduce the possibility of focussing on specific professional archetypes (an identified deficiency of previous research outlined in Chapter 2) . The interviews were conducted being mindful of 6 crucial factors.

1. *Building trust* (Jacob & Furgerson, 2012, p. 3) – the level of trust present affects the potential value of the information provided by the participant.

This was addressed by forwarding a request to participate, participant information sheet (Refer Appendix 4.3) and consent form to participants via email before the interviews. This established an initial link with the participants. If a participant wanted to discuss the interview beforehand, time was made available to clarify expectations and outline what was to take place. Participants were also given a chance to ask questions prior to the interview. These opportunities and interactions provided instances to develop good rapport and trust between the participant and the researcher.

2. *Social interaction* (Dworkin 2012, p. 1319; Myers & Newman 2007, p. 11) – participants' perception of the researcher affect what they provide in their responses.

Little could be done in advance to address this with each participant. However, at the end of the interview several questions were asked about how the interview had been conducted. Each time feedback was provided any suggestions were reflected on for subsequent interviews. Participants indicated that they were pleased with how the interview took place, saying that the questions made sense and were logically sequenced, and that they felt they had plenty of opportunity to talk without being interrupted.

3. *Appropriate language* (Charmaz 2014, p. 60-61; Myers & Newman 2007, p. 16) – questions need to be phrased and framed in a way that participants can easily understood. It is important they are "pitched" at the right level avoiding ambiguity

or any perception of condescension. Minimal use of jargon or complex terms is imperative.

The interview guide was reviewed and approved by the UOW Ethics Committee HE14/114. The suggestions made by the Ethics Committee were incorporated. A test run of the questions with an impartial third party was conducted to ensure that the questions made sense and would elicit usable responses. This third party person was not a subsequent participant even thought they met the requirements of the selection criteria (Section 3.4).

4. *Obtaining access to participants* (King & Horrocks 2010, p. 30; Myers & Newman 2007, p. 4) – this can require getting through a gatekeeper or connecting with a participant who has a busy schedules.

Participants were sourced objectively through professional networks or introduction through third parties. No difficulty was encountered in accessing suitable participants.

5. *Location of interview* (Myers & Newman 2007, p. 13; Elwood & Martin 2000, p. 650) – the participant needs to feel comfortable in the interview environment.

Interviews were conducted, in a neutral space, at the participants' workplaces. In one instance the interview took place in a mutually convenient location as neither party had a workplace that could be used.

6. *Recording interviews* (Harvey 2015, p.11; Mikecz 2012, p. 488; Veal 2005, p. 131) – The act of recording an interview can create anxiety for a participant. This can create an expectation that they need to answer in a certain way.

Participants were advised in advance that interviews would be recorded and were sent a copy of the Participant Information Sheet outlining some of the questions to be asked. They were also advised at the start of the interview that they could stop the tape at any time and then resume. This did occur in one instance where the participant wished to say something but not wish to have it recorded. The researcher agreed to this without question.

All these factors were appropriately addressed and considered for all interviews throughout this research.

3.4 Determining Selection Criteria

Determining selection criteria was the next aspect for consideration. As outlined in Sections 2.4 and 2.5 a review of the knowledge-worker and expertise literature did not provide a specific outline of how to select suitable participants to understand their lived experience of becoming a knowledge-based professional.

3.4.1 Process for Determining Selection Criteria

Given that the intent of this research was to take a generic look at people considered to be knowledge-based professionals it became apparent that it would be necessary to determine a method to objectively identify common characteristics and attributes independent from potential participants' specific profession or level or type of education. Findings from the literature review guided this process. Criteria developed were tested with peers and academic advisors, including supervisors, to gauge the criteria's suitability and sufficiency for identifying research participants, prior to their submission to the UOW Ethics Committee for endorsement.

Two common characteristics of knowledge-based professionals identified in the literature review were educational level and occupation groups. However as the literature has highlighted these are insufficient on their own to clearly identify a knowledge-based professional. The next step was to consider principles from the literature that could be applied generically to aid with the identification of participants. Some principles were more evident in the expertise literature than the knowledge-worker literature. One of these was the issue of competency levels. As stated in Section 2.5.3 there is debate regarding how long it takes to develop expertise, with estimates varying between 10 years and 20-30 years. Taking this into account it was determined

that more than 15 years experience would be a suitable distinguishing factor for the purposes of this research.

While it is recognised in the literature (Bransford, Brown & Cocking 2000, p. 31) that not everyone can teach in their domain area having this ability does add to the value an individual brings to an organisation. To take this aspect into account the criteria of "are you an educator or mentor in your domain area of expertise" was included as a selection criterion.

Another aspect recognised in the literature related to expertise is the role of "deliberate practice" (Mylopoulos & Regehr 2009, p. 131; Ericsson 2008, p. 991; Barnett & Koslowski 2002, p. 258). This was seen as especially relevant to enable the development of adaptive expertise, which is a characteristic considered relevant to an understanding of knowledge-based professionals. Hence, the criterion of "do you demonstrate a recognised commitment to on-going development of professional expertise and continuous education" was included in the selection criteria.

Some authors such as Paton (2009, p. 93) and Hirsh (2006, p. 2) comment that knowledge workers are typically more aligned to their occupation than they are their organisations. Other authors such as Baker and Beames (2016, p. 73); Ascente (2010, p. 284); Arthur, DeFillippi and Lindsay (2008, p. 367); Ehin (2008, p. 373); and Tyman and Stumpf (2003, p. 73) discuss the importance of relationships with like minded people sometimes referred to as "communities of practice". It was considered relevant to investigate with whom these people align themselves and how they attempt to stay connected in their domain of expertise; this led to the inclusion of the selection criterion "are you associated with and/or recognised by a community of practice?".

As a result of this analysis the following 11 criteria were developed to enable the objective and consistent selection of research participants.

1. Do you possess at least 15 years experience in your domain area of expertise?

2. Are you associated with and/or recognised by a community of practice?

3. Are you associated with and/or recognised by a professional association?

4. Have you attained the highest credential level available through your professional association eg: Master, Expert, Chartered, Fellow etc.?

5. Do people seek your opinion and/or guidance within your domain area of expertise?

6. Have you been published by a recognised and reputable third party, not including self promotion?

7. Have you made a tangible contribution within your industry?

8. Are you an educator or mentor in your domain area of expertise?

9. Have you received external awards for you contribution to industry?

10. Do you possess or have you been identified as possessing a highly specialised (unique) skills set?

11. Do you demonstrate a recognised commitment to on-going development of professional expertise and continuous improvement?

The order of this list of criteria is not meant to imply any form of priority. It was felt that years of experience would be an easy starting point for participants. Moreover, it is accepted that it takes time to develop expertise and mastery so it seemed valid to start at this point. For participants to meet the requirements for participation in this research they will need to satisfy 5 of the 11 identified criteria. This is considered to provide sufficient variety to warrant their inclusion as participants.

3.4.2 Testing and Validating the Suitability of Selection Criteria

A number of peers and academic advisors (including supervisors) participated in the initial testing of selection criteria, reviewing and commenting on them. Because both groups provided positive feedback on the criteria, the decision was made to proceed with their use. The second test of the criteria was to seek approval of the University of Wollongong Human Ethics Committee to proceed with interviews. This submission was part of Ethics Application HE14/114.

Each participant was asked how they felt about the criteria as a mechanism for assessing their suitability to participate. They indicated that they found them to be a valid set of criteria. This included the participant who was a master craftsman in that he is a bespoke guitar maker and furniture builder. This type of 'expert' would not typically be included as participants for this type of research. This specific participant had no difficulty understanding the relevance of the selection criteria and met nine of the 11 criteria.

3.5   Determination of Sample Size

Determining sample size is not a straightforward process. However there is increasing pressure from the research community to be able to select an appropriate number of participants (Blaikie 2018, p. 1). Up until the work of Guest, Bunce and Johnson (2006) little research existed on determining sample size. Since the publication of their work, there has been an increased interest in the topic. Of the 22 journal articles on sample size examined for this research, 14 or 64% were published during or after 2010. The topic of sample size is consistently discussed in research methodology texts, for example, Braun and Clarke (2013, pp. 45-50); Sekaran and Bougie (2013, p. 244); Bryman (2012, pp. 425-427); and Denzin and Lincoln (2011, p. 259-261). However, these studies often refer back to Guest, Bunce and Johnson's (2006) seminal study. The identification of the debate around sample size influenced how the number of participants was determined with the work of Guest, Bunce and Johnson (2006) being the most influential as it had been adopted by many other researchers as a suitable guideline to determine sample size. Hence 12 data collection interviews were conducted and to ensure rigour and trustworthiness a subsequent 8 validation interviews were undertaken this aspect is discussed in more detail in Section 3.8.

Realising it is not just about the number of interviews and to ensure a thorough review related to sample size other aspects were considered which lead to the identification of the finding that the gold standard for determining sample size is saturation (Glaser & Strauss 1967, p. 427; Malterud, Siersma & Guassora 2016, p. 1758; Fuchs & Ness

2015, p. 1409; Kerr, Nixon & Wild 2010, p. 271; Guest, Bunce & Johnson 2006, p. 60), which can be defined as the point where no new information emerges or there is nothing more to learn about a code or theme (Ando, Cousins & Young 2014, p. 271; Kerr, Nixon & Wild 2010, p. 271; Onwuegbuzie & Leech 2007, pp. 105-106; Mayring 2007, p. 5). However, how to determine when saturation has actually occurred is not yet clear (Boddy 2016, p. 427). Even the terms used for saturation, which include data saturation, theoretical saturation, thematic saturation, code saturation, meaning saturation, theoretical saturation, code saturation, meaning saturation and saturation, vary widely in the literature. Kerr, Nixon and Wild (2010, p. 271) state that, it ultimately comes down to a matter of judgement to determine when the researcher thinks they have "heard it all and understand it all" (Hennink, Kaiser & Marconi 2017, p. 591). It should be noted however, that the works of Hennink, Kasier and Marconi (2017); Ando, Cousins and Young (2014) and Guest, Bunce and Johnson (2006) do provide a clear outline of how they determined that saturation had been reached which is when no new themes emerge from the data.

In summary, much of the literature reviewed challenges the benefit of saturation as a guiding principle when little guidance is provided on how saturation is achieved, or even what to call it. This means knowing when saturation has been achieved becomes problematic. The next step was to then determine if there was any clear guidance on the determination of sample size that was not predominantly based on the consideration of saturation. Of the 22 articles reviewed on sample size 15 were theoretical in their approach and seven were empirically based research. Again the predominance of thinking in this area is opinion-based rather than empirical.

Recent articles by Blaikie (2018, p. 1) and Sim et al. (2018, p. 620) suggest four common approaches found in the literature.

1. Rule of thumb – these are based on methods, considerations and past experiences with studies of a similar nature (Sim et al. 2018, p. 2). The problem with this approach is that there is typically no justification provided for the number chosen.

2. Conceptual models – when specific models are chosen to determine sample size. Factors typically cited are study aim, theoretical framework and type of analysis to be conducted, scope of the research question, nature of the topic, and study design. A specific approach mentioned in the literature by Malterud, Siersma and Guassora (2016, pp. 1754-1756) raises the idea of "information power", which considers the following factors to determine sample size: aim and breadth of the study; specificity of the sample, which considers experiences and knowledge of the identified participants along with whether these experiences are thought to be dense or sparse; application or not of a theoretical background; strength or weakness of the dialogue between researcher and participant; and whether the analysis strategy is single-case or multiple-case. Whether such approaches are broadly applicable has yet not been evaluated.

3. Numerical guidelines – this approach is based on findings from empirical studies. Hennink, Kaiser and Marconi (2017, p. 595) made a distinction between code saturation, which they assert can be achieved after nine interviews, and meaning saturation which they say is achieved after 16 to 24 interviews. Francis et al. (2010) recommend 10 interviews to achieve saturation, with an additional three interviews conducted to confirm that saturation had been reached; Guest, Bunce and Johnson (2006) who recommend conducting 12 interviews, with an additional three interviews to confirm saturation.

4. Statistical formulae – this references the use of statistics to derive required participant numbers. This was first proposed by Fugard and Potts (2015, cited in Sim et al. 2018). Their approach has created much discussion and opposition and this is not considered to be the optimal approach for qualitative research activities (Sim et al. 2018, pp. 2-5) because qualitative research is based on analysis of words, language and images not numeracy and testing (Polkinghorne 2011, p. 139).

Blaikie (2018, p. 2) considers a number of fundamental issues in the sample-size literature. The first relates to the emphasis placed on thematic analysis, largely when themes are easy to identify so there can be questions raised about depth of analysis. Blaikie (2018, p. 2) describes it as the "go to" technique of qualitative research. The issue with this approach is that there is no clear definition or understanding of what constitutes a theme. Themes are constructed and built in a variety of ways which Blaikie describes as: "imposed on the data", "discovered in the data" and "constructed from the data" (p. 2). Other terms such as "variables" and "attributes" are used in a similar way to "themes", but these are not clearly defined relative to determining sample size. This obscurity adds to the challenge of being able to effectively determine sample size.

The second issue relates to what has been called the "taken-for-granted issue" (Blaikie 2018, p. 3) the meaning and usage of the word "qualitative". Qualitative research is considered to be the paradigm that predominantly relies on inductive reasoning whereby inductive reasoning is, a process where phenomena is observed and based on these observations general conclusions are reached (Sekaran & Bougie 2013, p. 394). The simple qualitative/quantitative distinction ignores the vast array of combinations and subtleties that can occur when doing qualitative research (Blaikie 2018, p. 3) placing arbitrary limits on how research can be conducted.

The third issue that is deemed to be "glossed over" is the logic of inquiry that Blaikie (2018, p. 4) employed. Often the logic of inquiry is not identified and if it is typically only two choices are offered inductive or deductive. However, as highlighted by Blaikie (2018, p. 4) there are others including adductive and retroductive. Blake writes:

> Lack of awareness of the full range of logics of inquiry is compounded by the narrow and inappropriate idea that there is a one-to-one correspondence between form of data and logic of inquiry (Blaikie 2018, p. 5)

The fourth issue, which Blaikie (2018, p. 5) classifies as "not acknowledged or discussed", relates to the ontological assumptions relevant for qualitative research, of which there is a vast array of (p. 5). Combinations of these assumptions depend on the type and purpose of the research being undertaken and therefore are decisions that need to be made in context not isolation.

These issues add to the challenge in being able to determine sample size, particularly when it is attempted a priori, before key themes are identified and defined (Sim et al. 2018, p.2). In practice, the determination of sample size is an on-going decision that occurs before, during and after the research has occurred and is informed by what emerges from the data.

The questions posed to help to determine the sample size for this research were:

a)   Why not a large sample size?

If a large scale study were undertaken for this research it would hamper the ability to allow the depth of each scenario to emerge. The intent is not the distribution of frequencies of a theme but the significance the participants' stories and how they have developed in their domain area of expertise. With this in mind 20 interviews were conducted in three stages to ensure the rigour, trustworthiness and credibility (Amankwaa 2016, p. 121; Åge 2011, p. 1609; Cooney 2011, p. 18; Onwuegbuzie & Leech 2007, pp. 113, 118; Creswell & Miller 2000, pp. 124-126)   of the research findings.

1. Stage 1 – Initial eight interviews. The interviews at this initial stage provided data that enabled the generation of the "process of self-construction" model having used a three stage coding process to achieve the formulation of this model.
2. Stage 2 – eight interviews consisting of four "respondent validation" interviews (Bazeley 2013, p. 89) – that ensured the original accuracy of findings and four "peer debriefing and consensual validation" interviews (Bazeley 2013, p. 409)

conducted with people who were not involved in the original interviews and who could provide an objective opinion on the efficacy of the grounded-theory model.

3. Stage 3 – a second round of initial interviews with a new group of participants to see how this fits with the grounded-theory results; these interviews were supplemented by an abridged version of the peer debriefing and consensual validation interviews.

Thus, in total 20 interviews were conducted for this research. This fits within the recommendations in the literature as to what would be considered an appropriate sample size for studies of this type (Guest, Bunce & Johnson 2006, p. 74).

b)   Why a small number?

The actual number of interviews chosen was based on the guideline provided by Guest et al. (2006, p.74) who demonstrated that 92% of findings occurred in the first 12 interviews, and recommended that three additional interviews be conducted to confirm that there would be no new insights, and that saturation had been reached. Boddy (2016, p. 429) suggests 10 interviews can be sufficient for homogeneous groups. While the distinction made by Boddy (2016) is helpful there are no clearly defined factors that help to determine whether a group is homogenous. The decision to regard the participants in this study as a homogenous group was based on the fact that they were identified using a common set of selection criteria. While other researchers such as Marshall et al. (2013, p.12), Mason (2010, p. 11), and Sandelowski (1995, p. 182) suggest that 20-30 studies are necessary in a grounded-theory approach, given that this research explores knowledge workers in a way not previously attempted a sample size of 12 primary interviews supported by eight validation interviews was considered appropriate.

c)   Why hour long interviews?

Longer interviews provided more opportunity for the richness of participants stories to emerge. This timeframe allowed participants to give depth and breadth to their stories and made it more likely that the researcher and the participant would build rapport. However, an interview duration longer than an hour would increase the likelihood of both parties losing focus. Veal (2005, p. 128) states that interviews need to be at least half an hour. Seidman (2013, p. 24) says there is "nothing magical or absolute about interview time frame". With this in mind it was determined that one-hour interview would be most realistic and would help to reduce the likelihood of the researcher and interviewee losing focus. This duration was chosen to provide an opportunity to get to know the interviewed knowledge-based professionals in a deeper way and to let them speak in their own voices; this is particularly important because previous research has looked elsewhere in attempts to understand them (Section 2.4.7).

d)   Why were the specific selection criteria chosen?

As stated in Section 3.4 specific selection criteria were determined to enable objective and consistent selection of participants. This step was taken to minimise the potential for researcher bias. These criteria remove the dependence on participants being accessible, belonging to a particular occupational group, possessing higher levels of education or relying heavily on technology to perform their job roles. This study aimed to tell the stories about this group within the workplace in a way that had never been done before. The lenses previously used had been much more about enabling new production methods (Óskarsdóttir & Oddsson, 2017, pp. 2-6;   Mundbrod, Kolb & Reichart, 2012, p. 4; Aral, Brynjolfsson, & Van Alstyne, 2008, p. 16; Ramirez & Nembhard, 2004, p. 603; Davenport 2002, p. 3; Shurig 1983, p. 63) not about understanding knowledge-based professionals themselves and how they undertake their work.

e) Why this sample?

This sample was chosen as it was considered to provide an investigation of knowledge-based professionals in a unique way due to participants' diversity of occupational backgrounds. It was believed that this group could explain who they were and what influenced how they have developed their domain area of expertise, not just describe what they do in their domain area of expertise.

Findings from the sample size and methodology literature and consideration of the preceding five questions all contributed to the determination of sample size for this research. Having determined sample size the next factor for consideration was to determine what questions to ask participants. Section 3.5 outlines and explains the rationale for the questions presented to participants.

3.6   Formulation of Interview Questions

When developing the interview questions a number of guidelines were developed to ensure the maximum input from the participants. The guidelines used involved using open-ended questions that had been framed in a non-judgemental tone. It was a requirement that questions were framed in such a way that the responses could be compared but were sufficiently broad to cover a range of aspects related to the group of participants and included ample scope to facilitate a range of breadth, depth and intensity of response. The questions needed to be non-threatening and unambiguous. It was also necessary to ensure the participants had no artificial or unintended limits on their responses before answering. Including the capacity to maintain flexibility in the order in which the questions could be asked was important taking into consideration what would be of most benefit to the individual participants when they were being interviewed. Consideration of these guidelines allowed a fluidity in how the interview was conducted without minimising the amount of data that could be obtained.

Prior to the formal start of each interview, participants were asked some informal questions and had various aspects explained to them to ensure they were comfortable and ready to participate in the interview. The informal component of the interview consisted of 5 aspects:

1. Is now still a convenient time for us to conduct this interview?
2. Do you have any questions you would like to ask me before we start this interview?
3. Please remember you may stop this interview at any time.
4. There are no right or wrong answers to the questions put to you I am very interested in capturing your opinion and experience.
5. You are aware that we will be exploring the question "What are the characteristics and attributes of a knowledge-based professional?"

Deliberate consideration was given for each interview question which had been informed by insights gleaned from the knowledge worker and expertise literature. These questions were formulated with the objective of being able to obtain data-rich, "fertile exemplars" (Polkinghorne 2005, p. 140) for analysis that would help to identify and map the characteristics and attributes which have not previously been identified. Appendix 3.1 provides detail of the intent of the question asked, information to be obtained from the question and how the data provided may help to address the gap.

At the conclusion of the interview participants were given the opportunity to comment on how the interview had been conducted and were asked the following three questions:

1. What would you consider to have worked well with this interview?
2. What would you consider to have not worked well with this interview?
3. Are there any other comments you would like to add, or questions you would like to ask about your participation in this interview?

These responses were not analysed in-depth however, the information provided let the researcher know the participant had had a positive experience.

To conclude, the interview participants were thanked for their time and participation. They were encouraged to make contact with the researcher if they had any questions at a later time. They were advised that a copy of the transcript of their interview would be provided to them should they wish to have it.

After the transcription of each interview was completed the coding process was undertaken based on the insights provided by Saldaña (2016); Charmaz (2014) and Jones and Alony (2011) who outlined a three-step process of open coding, selective coding and thematic coding. Section 3.6 provides a detailed overview of the coding and data-analysis process. Sections 4.2 and 4.3 describes in detail the findings from open and selective coding. Section 5.1 outlines the findings from the thematic coding process.

3.7   Process for Coding and Analysing Data Sets - Literature and Interviews

The process for coding data consisted of three phases open, selective and thematic (Saldaña 2016, p. 250; Charmaz 2014, p. 150; and Jones & Alony 2011, pp. 104-107).

Phase 1 – "bottom-up" (open coding) where coding was conducted with no reference to the literature.

Phase 2 – "top-down" (selective coding) with reference to the literature.

Phase 3 – "abstraction coding" (thematic coding) where insights from open coding and selective coding were combined to "identify and map the characteristics and attributes of a knowledge-based professional" as per the research focus.

The overall process for working through the data is provided in Table 3..   This table shows each step in the process, the process components, the sub-process steps and the methods used or actions undertaken; these have been aligned to the work of Gioia, Corley and Hamilton (2013, p. 26).

Gioia, Corley & Hamilton 2013 Method for Grounded-Theory Development	Process Step	Process Component	Sub-Process Step	Method Used
Research Design and Data Collection	*Identify and Capture Data Sets*	Literature	Identify and collate relevant and topical literature	Undertook various searches of on-line databases using key terms including: • knowledge • knowledge work • knowledge workers • expertise Also reviewed literature to determine the optimal method to use for this study
		Interviews	Identify research participants and conduct interviews	• After reviewing literature, determined criteria for selecting participants • Received approval from Ethics Committee • Conducted interviews having provided participants with relevant documentation ensuring confidentiality and willingness to have interviews recorded • Had interviews professionally transcribed
	Code Data Sets- Open Coding	Literature	Review literature for relevance • Code literature • Analyse literature identifying themes	• Developed spreadsheets to capture findings from literature resulting in a spreadsheet that contained a thematic analysis of the literature. Approximately 100 articles in total were reviewed. • Literature was analysed by decade using themes as a basis as well as an in-depth analysis of empirical studies • A mind map was also developed highlighting the key themes found in the literature
		Interviews	Review interviews • Code and analyse interviews • Determine themes emerging from interviews	• Each interview was coded line by line using "verbatim coding" • Provided mind map of impression from each interview • Developed memo outlining overall insights obtained through analysis of each interview • Developed spreadsheet to compare and contrast individual interviews to develop conceptual framework emerging from interviews and enabling comparison to the literature

Gioia, Corley & Hamilton 2013 Method for Grounded-Theory Development	Process Step	Process Component	Sub-Process Step	Method Used
Data Analysis	*Review and Document Findings from Data Sets – Selective Coding*	Literature	Compare and contrast findings and themes from both data sets identifying how they are common and where they diverge	Reviewed and described in depth themes from literature ready for comparison purposes - Round 1 - Knowledge Workers - generic characteristics and attributes and empirical research studies - Round 2 - Interview themes searched in literature - identification of specific characteristics and attributes
		Interviews		Reviewed and described in depth themes from interviews for comparison purposes
	Discuss Findings from Data Analysis of Data Sets – Thematic Coading	Literature	Discuss and explain findings from the literature	a) Undertook a compare-and-contrast approach to writing up the findings from the respective datasets. Developed mind map of overall theme ("drive") emanating from the research b) Mapped the components of 'drive' developing a matrix showing relationship of personal resources (van den Heuvel et al. 2010) to proactive behaviours (Crant 2000). After completion of the analysis of "drive" conducted a detailed analysis on interview base and comparison to a broader base of extant literature, resulting in the development of a map of results on "the formulation of self " component with an analysis of the strength of each component on an item-by-item basis for each interviewee c) Undertook a compare-and-contrast approach to writing up the findings from the respective datasets leading to the formulation of the "process of self-construction" used by participants to achieve proficiency in their domain area of expertise
		Interviews	Discuss and explain findings from the interviews	
Articulation of Grounded Theory	*Determine and Document Contribution to Knowledge*	Literature	Redefined knowledge workers based on the assessment of their characteristics and attributes	Developed a framework that defines knowledge-based professionals with respect to knowledge workers more generally and explained "formulation of self" and "drive" the major components of the 'process of self-construction'
		Interviews		

Table 3.2 – Approach to Analysis of Data – Process Description
(Aligned to work of Gioia, Corley & Hamilton 2013, p. 26)

What this table demonstrates is a comprehensive approach to analysing the data that ensured that the data was given sufficient and appropriate consideration. It also assisted with reducing the risk of researcher bias. To further validate this approach a comparative analysis of the framework used by Jones and Alony (2011, p. 102) was undertaken; the results of this comparison are included in Figure 3.1.


Figure 3.1 - Comparative Analysis: Process of Grounded Theory by Jones and Alony (2011, p. 102) to Process Approach for this Research

The next aspect to be explained is the use of memoing to record and understand insights emerging from the data analysis process.

3.8 Memoing

A beneficial technique used in grounded-theory research is the activity of memoing (Ramalho et al. 2015, p. 7; Glaser 2013, p. 3; and Birks, Chapman & Francis 2008, p. 68): "when grounded theorists write memos, they stop and analyse their ideas about the codes and emerging categories in whatever way that occurs to them" (Charmaz 2015 p. 343). Memoing is described as a reflexive strategy that can be used to ensure the groundedness of the research findings (Ramalho et al. 2015, p. 7). The use of this tool is intended to encourage reflection (Birks & Mills 2011, p. 52): encouraging the researcher to stop and take time to think about what the data is telling them. This enables the emergence of deeper meanings or inferences from the data, not just the obvious and overt meanings of the words (Birks, Chapman & Francis 2008, p. 69). Given that qualitative research is an "evolutionary journey" (Birks, Chapman & Francis 2008, p. 71), memos become the snap-shots of the researcher's thinking process that helps facilitate their understanding of the subject matter. It enables the recording of thoughts, ideas and understanding without judgment or fear of getting it wrong. The purpose is to capture the thought or idea for review at a later date if required (Birks, Chapman & Francis 2008, p. 71). Memoing is a highly private activity and is not intended for review and consideration by others; it therefore allows the free flow of ideas to be captured (Glaser 2013, p. 7; Birks, Chapman & Francis 2008, p. 71). Glaser (2013, p. 8) suggests that it is best to allow memos to flow freely, unconstrained by rules so that ideas, thoughts and concepts can emerge without constraint.

Memoing was used as the primary reflexive strategy for this research; it was supplemented by discussions with supervisor(s) as appropriate to ensure that data was continuously being viewed in alignment with the focus of the research. Memo taking, for this research, took many forms including hand written and typed notes, mind maps, conceptual drawings, relationship diagrams, tables and spreadsheets.

Some suggestions have been made that memos could be categorised as operational – those relating to steps taken at the respective stages of the research process, coding; – those associated with the coding of the research data; and analytical – those related to

analysing the data at greater levels of abstraction to be able to understand relationships and provide explanations (Birks, Chapman & Francis 2008, p. 73). Another suggestion is that memos could be considered "simply as *early* or *advanced*" (Birks, Chapman & Francis 2008, p. 73). The early and advanced categorisation was most relevant for this research. Any other form of categorisation would have limited the free flow of the writing of memos, as the focus would have been on having them fit a particular category. A review of the memos at the completion of this research, suggest that they can be retroactively categorised into 8 groups:

1. Making sense of terminology found in the literature.

2. Understanding and considering expectations of requirements when completing this type of research; for example: how to conduct a grounded-theory study, how to use memos when completing a grounded-theory study.

3. Notes from trying to assimilate and understand suggestions and expectations from supervisor(s), notes on how to implement suggestions offered by supervisors; for example, how to overlay the initial coding framework on a theoretical coding framework.

4. Insights gleaned from the literature – identification of relevant topic area, honing in on relevant constructs for consideration, how to critique the extant literature, determining the current position of identified topic area, relating the literature to findings from the research, nature of the writing process.

5. Insights gleaned from the interviews – understanding insights from interviews individually and collectively, capturing details of non-verbal cues and impressions from interviews, considering how to code and categorise the data from the interviews, how to compare insights from the interviews to the literature.

6. Emerging codes and themes – how to draw relationships between codes and themes found in the data, mind-mapping codes and themes emanating from the data, assessing terms for their suitability and validity.

7. Operational steps – aspects related to completing the research, process steps and how to write up the thesis.

8. Feelings about what was taking place with the research.

The concluding step of the research process was to undertake validation interviews. What this entails and why it was considered relevant for this research is outlined in the following section.

3.9   Validation and Trustworthiness of Research Process

As stated previously, the intent and purpose of qualitative research "is to make sense of and recognize patterns among words in order to build up a meaningful picture without compromising its richness and dimensionality" (Leung 2015, p. 324.). As in any research it is important to be able to validate and ensure the trustworthiness of the research outcomes. The business literature while providing some guidelines does not have a comprehensive perspective on how to achieve validity and trustworthiness. One discipline that has advanced understanding in this area is the medical literature especially the nursing literature. One key aspect where the nursing literature differs from the business literature is that the nursing discipline seeks to understand the human experience which can sometimes   be lost or overlooked in the business literature as evidenced by some of the results of the empirical research outlined in Chapter 2. Hence, much of the information on and insight into validity in qualitative research in this study comes from the nursing literature (Leung 2015, p. 3; Noble & Smith 2015, p. 34; Sousa 2014, p. 213; Whittemore, Chase & Mandle 2001, p. 522-524). It was not until 2018 that a comprehensive analysis of this topic from a management research (business discipline) perspective was conducted: Symon, Cassell and Johnson (2018, p. 134) undertake a "critical review of commentaries on the evaluation and promotion of qualitative research". A conclusion they reach from their comprehensive review is that "the management discipline has not kept up with the development around criteriology, and as a consequence, runs the risk of restricting development in theoretical thinking" (Symon, Cassell & Johnson 2018, p. 151).

Qualitative researchers, like any other researchers, desire to be able to "prove" that their research is valid, reliable and trustworthy (Bryman 2012, p. 389.) There are many methods, epistemologies and philosophies that can come under the qualitative umbrella (Creswell & Miller 2000, p. 124) finding a "one size fits all" approach to validity is

somewhat unrealistic and has created challenges, disputes and lack of clarity as to what needs to occur to consider qualitative research valid. However, some guidelines are necessary to ensure the efficacious undertaking of qualitative research (Whittemore, Chase & Mandle 2001, p. 522).

What Creswell and Miller (2000, p. 124) describe as a "confusing array of terms for validity" includes such terms as authenticity, goodness, adequacy, trustworthiness, plausibilitude, verisimilitude (appearance of truth and/or reality), validity and validation and credibility has led to confusion and lack of clarity.

Creswell & Miller (2000, p. 124) note that "qualitative research [has] routinely employed member checking, triangulation, thick description peer review and external audits" as mechanisms to show the validity of research efforts. It is important to note that: "validity refers not to the data but the inferences drawn from them" (Creswell & Miller 2000, p. 125).

The two approaches used within this research to determine validity were:

1. Respondent validation (member checking) interviews – this strategy, used to confirm findings with participants "at the conclusion of analysis" (Bazeley 2013, p. 89) involves taking the results of the coding and analysis to the participants and getting their input on the "accuracy" and "relevance" of the results as being a valid representation of them and their experience.
2. Peer debriefing and consensual validation interviews (Bazeley 2013, p. 409) – these discussions are undertaken where the researcher seeks to "test their conclusions with peers to clarify interpretations, and to check for gaps and for bias" (Bazeley 2013, p. 409).

Sections 3.8.1 and 3.8.2 detail how these discussions where undertaken for this research.

3.9.1 Respondent Validation Interviews

One method available to determine research validity is to conduct "respondent validation" interviews, as they are known in the United Kingdom, or "member checking" interviews, as they are known in the United States (Torrance 2012, p. 114). Both of these terms are synonymous in their intent so the term "respondent validation" was used in this study.

There is support for using respondent validation interviews; however, they also have their detractors. This section first discusses the different approaches, followed by a discussion of the pros and cons of the approach before outlining which approach was chosen for respondent validation in this study, and why it was considered to be the most appropriate.

Harper and Cole (2012, p. 1) describe member checking as "a qualitative inquiry methodology [that] is defined as a quality control process by which a researcher seeks to improve the accuracy, credibility and validity of what has been recorded through interview." Harper and Cole (2012, p. 2) further state that "member checks may involve sharing all of the findings with the participants, and allowing them to critically analyse the findings and comment on them". Bryman (2012, p. 391) describes "respondent validation, which is sometimes called member validation, as a process whereby the researcher provides the people on whom he or she has conducted research with an account of his or her findings." What these two explanations, using the two distinct terms, highlight is that they are in fact the same activity by different names.

Bryman (2012, p. 391) then goes on to explain the three types of respondent validation that can occur:

1. The participant is provided with an account of what they have said (this can be a transcript or an interpretation of observational data).

2. The researcher feeds back to groups or organisations their impressions and findings related to that group or organisation.

3. The researcher provides the individual or group some of their writings based on their study of the individual or group.

This means respondent validation can occur at various stages throughout the research process including at the time of interview, some time after the interview or after analysis has been conducted. Carlson (2010, p. 1105) provides a word of caution that this process can be approach intentionally, naively or haphazardly. Referencing Creswell and Miller 2000, Carlson (2010, p. 1105) states that doing this process intentionally requires consideration of the researcher, participant and external readers of the final report. If these aspects are taken into account the likelihood of respondent validation achieving its desired objectives is enhanced.

Consideration was given to the benefits and drawbacks of this approach to determine its suitability as part of the research process. The benefits include that: meaning can be co-constructed, respondents feel their input is valued and appreciated, the researcher can verify accuracy and completeness, and the participants are given time to reflect and consider their own story from a more arm's-length objective perspective (Caretta 2016, p. 312; Koelsch 2013, p. 170; Harper & Cole 2012, p. 2; Carlson 2010, p. 1110; Doyle 2007, pp. 892-894). The drawbacks of respondent validation are that: it can create defensive responses in participants as seeing their stories written down can feel confronting, there are doubts about a participants ability to analyse and interpret the information presented in a meaningful way that is of benefit to the research activity and participants may not wish to continue their involvement in the process (Iivari 2018, p. 115; Koelsch 2016, p. 171; Carlson 2010, p. 1103).

Taking these benefits and drawbacks into account, it was considered a viable option to involve participants in respondent validation using synthesised, analysed data (Birt et al. 2016, p. 1804). What this particular approach requires of the researcher be mindful of the reasons for doing this activity. The techniques requires that the researcher return themes to participants to aid the researching in being able to achieve data trustworthiness while enabling the participants the ability to see their own experience presented in themes for review. This approach also involves the researcher in being

willing to accept that more data may be added that may raise questions about the researcher's interpretation of the data. It is important participants feel they can say what they want and need to about the data. A noted risk of this approach is that questions may arise about the trustworthiness of the data if not all participants respond to the request for validation.

A specific and important benefit, especially related to this approach, is that there is less risk of a participant experiencing envy or an adverse reaction as the data has been synthesised and key concepts and constructs have been highlighted (Birt et al. 2016, p. 1104.) The other key consideration, in this instance, is that if a considerable period of time has elapsed since the interviews, participants may not be willing or able to provide information and insights about the data (Birt et al. 2016, p. 1104.) It is important that the researcher does not become offended by this as it is always important to be mindful of ensuring the respect of the participants and their contribution whatever it may be.

As part of this research activity it was decided to undertake one instance of respondent validation as a test case and determine what value this could add to the overall process. This initial respondent validation interview was conducted with Interviewee 6 who was chosen for this as they were easily accessible and had demonstrated a willingness to continue to actively participate in the process. This interview proved to be such a highly positive experience for both the researcher and the participant that it was determined that conducting further respondent validation interviews would be a valuable component of this research and help to validate and enrich the findings from this research. Ultimately, interviews with four respondents, or 50% of the initial sample were conducted as it was not possible to contact all interviewees. Of the other four initial participants, two were e-mailed with no response and two participants were not contacted as the researcher no longer had valid contact information for them. Given that it was not possible to have all previous participants participate in the respondent validation activity, it was considered viable to proceed with the four interviews because more than one respondent validation interview would provide insights into the degree to which the findings were relevant to all participants or whether they only related to one participant.

3.9.2 Peer Debriefing and Consensual Validation Interviews

Another approach available to help to validate research and ensure its trustworthiness is "peer debriefing and consensual validation" interviews (Bazeley 2013, p. 409.) This type of interview is employed to help ensure that there are no obvious gaps or inconsistencies in the findings by asking independent and objective parties to review the findings to "test and check for gaps and for bias" (Bazeley 2013, p. 409) that may be present. It allows and enables an arms-length assessment of the results where the reviewer has no vested interest in the outcomes and can respond based on the perceived relevance of the information.

While this is an option for assessing validity (Noble & Smith 2015, p. 35; Sousa 2014, p. 213; Creswell 2009, p. 192; Onwuegbuzie & Leech 2006, p. 233; Creswell & Miller 2000, p. 124; Cooper, Brandon & Lindberg 1997, p. 2) what is not widely discussed in the literature is how to conduct these type of discussions. The only resource identified where there was some discussion on approaches to conducting these types of interviews was Spillett (2003, pp. 36-40) who used a "who, what, when, why and how" approach to explaining peer debriefings. In other words, Spillett outlines what needs to occur, but gives only limited information on how to accomplish it. Thus careful forethought by the researcher determined what would be most appropriate in this instance. Five specific insights gained from the literature to guide the process of involving objective third parties for peer review are:

1. The technique can be effective when done as part of the final part of the research process (Cooper, Brandon & Lindberg 1997, p. 6).
2. The debriefer needs to be a high level of trust between the researcher and the peer debriefer (Spall 1998, p. 282).
3. Needs to be a peer of the researcher who can make an informed assessment of the findings (Cooper, Brandon & Lindberg 1997, p. 8).
4. The peer debriefer must not have a vested interest in the results of the research (Cooper, Brandon & Lindberg 1997, p. 8).
5. The peer debriefer needs to have the ability to assess for bias and deeper understanding (Barber & Walczak 2009, p. 3).

The peer-debriefers for this study were sourced from the researchers professional networks. Although they themselves would qualify as knowledge-based professionals, but they were not specifically assessed based on the criteria but on their capacity to provide an insightful evaluation and assessment of the research findings and the fact that they would not have any difficulty challenging the results if they felt that was necessary.

These discussions occurred towards the end of the research process, as it was felt that this was where the most benefit would be gained and where they would provide the highest level of validity to the overall research process. They were not meant to assess how the research was conducted; rather, the veracity and usefulness of the researcher findings ensuring there were no obvious gaps and that the findings made sense and could apply broadly. All the third parties were in a position to make this type of assessment, as they had extensive experience in working with knowledge-based professionals on a regular basis as part of their own professional experience and workplace responsibilities.

3.10 Limitations of Research Methodology

As with any research there are always inherent limitations. These have been outlined in Section 1.8. The limitations identified for this study include: recognition of the small sample size involved, limited cultural and geographic reach (Australia), the time-sensitive nature of the findings in a dynamic and rapidly changing workplace, any assumptions or biases of the researcher based on their experience with the researched group, the inability to ensure gender equality and neutrality and the fact that all participants were over 40 years old in order to acquire the requisite level of experience to quality to participate in this research.

3.11   Integration of Research Methodology

Given that there had been no pre-existing model to use for this research an approach was developed from the ground up comprising many component parts. Figure 3.2 provides a schematic of the various components used for this research and how they were integrated.

Typically research is underpinned with a research methodology and paradigm supported by appropriate tools, as represented in Figure 3.2. There are also a number of tools that can be grouped into three categories. Category 1 – data-capture tools includes intensive semi-structured interviews, interview questions and validation interviews. Category 2 - data-management tools includes sample size, selection criteria and recording and storage of data. Category 3 - data-sourcing and analysis tools includes memoing, participant selection and coding of interviews.

Each column in Figure 3.2 needs to be read from the bottom up, as lower levels provide details that support higher-level information. This model also provides a checklist to ensure all relevant considerations for a research activity have been given suitable consideration.

Paradigm	Level	Research Tools			Methodology
		Data-Capture Tools	**Data-Management Tools**	**Data-Sourcing and Analysis Tools**	
Interpretivist	**3**	Validation interviews	Recording and storage of data	Coding of interviews	**Constructivist Grounded Theory**
	2	Interview questions	Selection criteria	Participant selection	
	1	Intensive semi-structured interviews	Sample size	Memoing	

Figure 3.2 – Approach to Research – Overview

3.12   Summary of Chapter

This chapter has discussed the specific tools and approaches used to conduct this research. It has outlined that intensive semi-structured interviews were the most relevant method for this research, given that they provide opportunities for individuals to provide rich descriptions and for participants' responses to be compared, which does not occur to the same extent with questionnaires or case studies. This chapter continued with a discussion of the relevance of the selection criteria, which have enabled an objective, comparable and consistent identification of research participants not previously adopted in earlier studies on knowledge-based professionals.

The chapter then discussed the issue of determining sample size. While theoretical saturation is considered the gold standard, there are a variety of types of saturation that can occur, and choosing the most relevant is a complex task. Analysis of the literature resulted in 12 initial interviews (in two stages - Phase 1 and Phase 3) with eight validation interviews being undertaken, for a total of 20 interviews to ensure a comprehensive assessment and validation of the findings. The three phased approach used to capture and review data was undertaken to enable initial capturing of data for coding, review of the integrity of the coding of the data through both types of validation interviews and the later initial interviews helped to ensure that themes emerging from the coding were fully explored and explained with no key insights being overlooked. This approach helped to ensure the credibility and trustworthiness of the research.

The chapter then discussed the formulation of interview questions, where each question was assessed considering its intent, the information it would ideally illicit and how this information would help contribute to answering the research question. The chapter then outlined the process of coding used to analyse the literature and the interviews, using the work of Saldaña (2016; 2013), Charmaz (2014), and Jones and Alony (2011) as guides. The reflexive process of memoing and how this technique was specifically used as part of this research was described. Finally, the chapter discussed the approach used to achieve validity and rigour: where four respondent validation and four peer

debriefing and consensual validation interviews were conducted with the objective of ensuring that the results were trustworthy.

Chapter 4 will describe the findings from the open and selective coding processes (that is, the Coding Sourcebook) based on the approaches outlined in this chapter and the alignment and differences identified by constant comparison to the literature.

CHAPTER 4 – FINDINGS FROM OPEN AND SELECTIVE CODING – ANALYSIS OF INTERVIEWS AND LITERATURE

4.0   Introduction

Chapter 3 discussed tools and techniques used for this research including interview type, sample size, memoing, coding and validation interviews. This chapter describes the results of the analysis of the interviews and how this information was compared to the findings in the literature related to characteristics and attributes of knowledge-based professionals.

The structure of this chapter is as follows:

1. Approach to analysing datasets;
2. Approach to initial coding of interviews;
3. Selective coding of interviews and development of codebook;
4. Comparison of codebook from interviews and "sensitising" literature related to the characteristics and attributes of knowledge-based professionals; and

4.1   Approach to Analysing Interviews

As illustrated in Figure 3.6 a three-phased approach was used for data coding for this research recognising that the analysis has been conducted in the context of the literature explored for this thesis which is recognised as a limitation.

- Phase 1 – "bottom-up" coding with no cross-referencing between the literature and the interview data.
- Phase 2 – "top-down" coding with cross-referencing across the various interviews and comparisons to the literature (macro-coding).
- Phase 3 – where the insights from Phase 1 and Phase 2 were combined to 'identify and map the characteristics and attributes of a knowledge-based professional.

A more detailed analysis of Phases 1,2 and 3 are provided in Sections 4.2, 4.3 and 5.2-5.4 respectively.

To truly understand the richness and depth of each participant's story, a decision was made to manually code the data (as in Turner & Passmore 2018, p. 128) rather than using dedicated coding software. The researcher deemed that it would enable a higher level of intimacy with the data if a manual coding approach were employed (Saldaña 2016, pp. 29-30, Saldaña 2013, pp. 25-28, Bazeley 2013, pp. 132-136; Braun & Clarke 2013, p. 220).

4.2   Initial Coding of Interviews

To truly understand the characteristics and attributes of a knowledge-based professional a "open-mindedness" approach (Ng & Hase 2008, p. 156) was employed to minimise the risk of unintentionally and inappropriately ascribing characteristics and attributes to this group that could not be affirmed and confirmed by the research participants. The following sections will outline how the interviews have been analysed for the purposes of this research.

4.2.1   Phase 1 – Initial (Bottom-Up) Coding of Interviews

The initial approach to coding adopted a "bottom-up" method (Urquhart 2013, p. 44). This approach employs a detailed, line-by-line analysis (Urquhart 2013, p. 38) of the data and does not seek reference to the literature at this point. This is also known as "in vivo" coding (also called "verbatim coding") which Saldaña (2016, p. 106) describes as an approach that can be used during the initial coding of data when employing a grounded-theory approach. Saldaña (2016, p. 115) adds that it is important to remain open to all possibilities that emerge from the data; in vivo coding supports this requirement. Charmaz (2014, p. 135) provides several reasons why in vivo coding is beneficial. The value of this method is that participant's meaning can be preserved, the

focus on the participant's specific language is possible and the participant's words provide the initial coding that leads to and facilitates further exploration and meaning. Charmaz (2014, p. 135) continues by stating that it is important to "pursue telling terms" that have emerged from the initial in vivo coding process.

In summary, bottom-up, in vivo coding is foundational and fundamental to the grounded -theory method of data analysis. This stage typically creates many discrete codes where relationships and connections have not yet been determined (Saldaña 2016, p. 106; Charmaz 2014, p. 134; Bazeley 2013, p. 166; Urquhart 2013, p. 103).

The first interview is generally considered a lone data set for analysis without comparison to any other interview or the literature. In this study, the first interview was a prototype for the analysis of subsequent interviews. The first interview analysed, was also the first one conducted providing the lens through which all other interviews were analysed. Interviews were analysed in the order they were conducted, because each interview informed the researcher for the conducting of the next.

The line-by-line coding enabled the researcher to become immersed in the data and interact with it. When undertaking this analysis in a manual way, Saldaña (2016, pp. 29-30) suggests using hard copies that can be annotated with circles, underlining or highlighting to permit a closer connection to the data. The initial coding process highlighted potential areas to explore in more depth (Charmaz 2014, p. 121; Saldaña 2013, p. 101.) Commencing with Interview 1, line-by-line analysis determined codes that summarised the essence of what was said; in other words, in vivo or verbatim terms where the participants' own words were clearly and succinctly reflected their intent and to change them in any way would have detracted from that.

Table 4.1 provides an example of the initial coding process as drawn from Interview 1. This approach was employed after having looked at examples provided by Saldaña (2016, pp. 106-107), Charmaz (2014, pp. 119, 121-123), Bazeley (2013, pp. 162-163) and Urquhart (2013, p. 47) to determine whether it was appropriate for this research. The segment of Interview 1 shown in Table 4.1 was considered to be a good

representation of how the coding process was undertaken; this process was adopted for the coding of all interviews.

Each interview was independently analysed line-by-line to identify preliminary codes and themes. A complete example of detailed individual initial coding of an interview is provided in Appendix 4.1. Along with the initial coding of interviews on a line-by-line basis, memos which captured insights from the data and described and documented the essence of each interview, were completed. The overall review of each interview provides insights that supported, and yet were distinctive from, aspects gleaned from the line-by-line coding process. Appendix 4.2 contains an example of an interview memo.

Interview Transcript	Coding of Interview Transcript
Okay. Well my first life was 15 years in the Army which included two overseas deployments, working up to the rank of Sergeant, completing numerous specialist courses, working in a specialist unit for seven years. That develops my ability to lead. It helped me to understand how to motivate and what motivates individuals, particularly in stressful situations. It also taught me to be very lateral in my thinking. Particularly being in the military and particularly in specialised units, it's nothing like what you see on television, people running up and down yelling and screaming and you've got to do as you're told and work, that rubbish. That's not the reality of military life at all, not in my experience.	Military Service • leadership • motivation • thinking style "Ability to lead" "Lateral in my thinking" "How to motivate"
I spent my entire career field force, which means at the pointy end, so I was fortunate in that sense. There's a lot of independence when you work at the end of the stick. So I suppose that was my introduction to adult life. Also, in the military I became painfully aware of my lack of education and I left school at 15, so I didn't complete high school. Whilst I was in the military a new policy was introduced that you couldn't get promoted unless you had reached certain milestones in education and I couldn't get promoted to Sargent because I hadn't completed the high school certificate in those days which is Form 3 or Year 10 or whatever it, it's not the completion of…	Self sufficiency "at the pointy end" "independence" "work at the end of the stick"
So I was put on an education course, an education training course. I spent several months completing that and I topped it and what that did was reinforce in myself that I actually wasn't stupid, that as far as academia I had a capability which I'd always known but I'd never applied because I didn't do well at school, one of the reasons I left. So through that when I got back to my unit in Townsville I applied to do a welfare course. To this day I have no idea why I chose welfare and the Army paid for me to do a welfare course at TAFE and because I did well at that the Army then authorised me to start a degree in Psychology which the military were paying for.	"I have no idea why" payment for education -not an issue
Unfortunately during that time I was medically discharged due to a Staf infection. My knees were pretty shot by the end of 15 years. After I got out the Army I was no longer able to maintain my degree because I wasn't serving anymore, but as part of my compensation package for my medical discharge, I was given the opportunity to complete a diploma of my choice and because I'd been doing psychology at uni and because I completed a welfare qualification at TAFE, I decided to do a Diploma in Counselling and I did a full time training course. It was a 12 months full time on campus course and on the completion of that I worked with the RSL for veterans.	Qualifications Qualifications Specialisation
During that time I founded a Veterans and Community Resource Centre in Woodridge and in the first two years I got granted about $1.8 million worth of funding to develop counselling, lifestyle courses. There was a heap of courses that I developed through the centre and I got promoted to Coordinator of the centre. In the second year I won the DVA Queensland medal for – well the centre won the award, which was given to me for the development of veterans services. I also won the Logan Chamber of Commerce award for welfare development in Logan. There's a few other things. I won the Quest Newspapers – they have awards every year and we won that one for the RSL. I actually won it for my clinic here as well. But you know, I forgot the other ones.	Focus and direction Previous life experience External recognition and validation
So that was pretty much – and that's more about it reinforced my belief in my own ability to develop programs, so not just lead and sit in the chair, but to actually develop what I believe were meaningful programs to help people. So that reinforced that and during that time I decided to go back to uni under my own steam and complete my graduate degree in counselling which I did. It was after I had a very, very successful private practice and it was during that time when I came to realisation that there was a problem with my industry and that was my industry wasn't really recognised as an independent industry. We had no recognition. We had no kudos. We had no training.	More than lead Mental abilities "help people" Developing programmes "under my own steam" "my industry was not really recognised" "no kudos" "no training"
There was nothing and there was no separation between counselling, social work, psychology or anything else, so I decided to become politically involved in the industry to change what I thought was something that needed to be done to the industry, and eventually that led to getting a job with the Australian Counselling Association where I was employed as the Membership Development or the Membership [00:08:35] anyway and from there worked my way up to CEO	"politically involved"

Table 4.1 – Sample Coding of Interviews - Example Drawn from Interview 1

After analysing each interview individually and then giving all 12 (initial) interviews consideration the following common themes and perspectives were identified. Aspects raised and discussed by all participants were that they all had a pragmatic approach to new, unexpected and complex situations. They approached these situations as a normal part of what they did and felt that this aspect did not require special consideration. The relevance of this perspective was that this attitude made them more deliberate in how they addressed new situations. Other aspects that were common to all participants were that they could be considered to be purposeful readers; there were underlying factors indicative of them being driven that flowed alongside their respective experiences; and they all had a positive approach to learning and how it could assist them in their work.

Other factors highlighted that were thematic and occurred in more than one instance was the fact that six participants (I1-I4, I10 and I12), stated, without prompting, that they were users of research, but not necessarily creators. When other interviewees were asked about this they agreed they had a similar approach to using research; most participants (83%) commented on the fact that they loved to continue to learn; a number of participants' early life experiences had affected their chosen career path, either consciously or subconsciously, and certainly their ability to cope more easily with various situations because they had learnt survival skills that they could then apply to their life and work choices; and some of the participants recounted instances where they had been judged on their appearance and not their character. This was especially evident for I1 and I5, and to a lesser degree for I7 and I12 and finally but no less importantly, the importance of having a purpose was first identified by I4 and was purposefully asked in subsequent interviews with I6, I7, I8, I9 and I12; all of these interviewees agreed that this was an important consideration for them and what they did. While other interviewees also acknowledged it, they did not emphasise it as much as did other interviewees.

Specifically regarding the nature of the interviews and how they were conducted, all participants expressed appreciation for being included in the research, they were complimentary in their assessment of how the interview was conducted, saying they felt heard and respected when discussing their experience and participants commented that

they felt that the questions were well ordered and the fact that the researcher probed and explored as necessary demonstrated that the researcher knew what they were doing.

The "bottom-up" (open) coding process provided an overall sense of themes based on interview data; these themes provided a basis for the "top-down" (selective) coding process that led to the development of an Interview Codebook as described in the next section.

4.2.2 Phase 2 – Selective (Top-Down) Coding – Development of Codebook

After the coding of Interview 1 it was felt there were a number of categories emerging from the data. This led to the creation of a codebook that was to be used for the subsequent analysis of interviews and would be adapted as necessary depending on what emerged from later interviews.

The six categories that emerged from Interview 1 were considered to be distinctive and relevant to being able to the research question. The categories and their explanation, which form the codebook for this research are graphically represented in Figure 4.1 and detailed in sections 4.2.2.1-4.2.2.6 with comments from participants to help explain each theme contained in the codebook. The graphical representation of the relationship of these respective items highlights three interrelated intrinsic aspects innate qualities, self-perception and personal and professional mindset – as well as three extrinsic aspects perception of learning and education, transitions and disruptions.
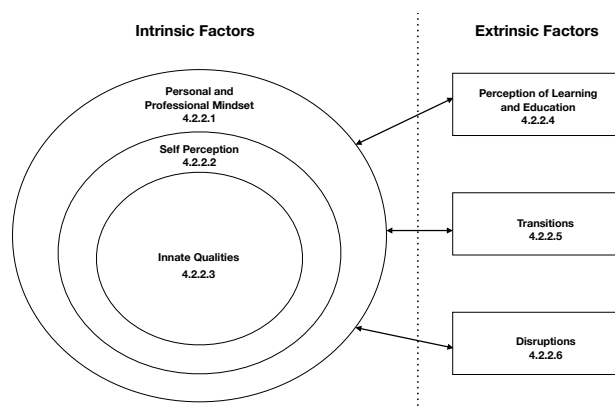
Figure 4.1 – Relationship of Codes from Initial Coding

The overall themes identified from the interviews come under a number of categories:

4.2.2.1   Intrinsic Factor - Personal and Professional Mindset

It became very clear on analysis of the interviews that the participants possessed very strong personal and professional mindsets that affected everything they did. It emerged that they made very little distinction between the personal and professional aspects of their lives. This is not to imply their work life has taken over, rather, that they have integrated what they do into how they have evolved as individuals.

Examples from interviewees of this theme include:

- Politically astute and informed (I1)
- Earned their stripes (I1 & I12)
- Desire to make a difference (I2)
- Dedicated and committed to professional development (I4)
- Gets things done (I5)
- Underlying interest in health (I9)
- Like to know how things happen (I10)
- Believes there is a reason for new situations (I11)
- Committed to the science of something (I12)

4.2.2.2   Intrinsic Factor - Self-Perception

Each participant had very good self-awareness and had no issues in describing themselves and how they approach life and what they do; for example, introvert (I3), extrovert (I4), black-and-white thinker (I7).

Examples from interviewees of this theme include:

- Introvert (I3)
- Extrovert (I4)
- Do not see myself as an expert (I5)
- Black-and-white thinker (I7)
- Open-minded (I8)
- Resilient to change as a result of life experience (I9)
- Never good at just following rules (I10)
- Constant learner (I11)
- Science is my first love (I12)

4.2.2.3   Intrinsic Factor - Innate Qualities

When analysing the interviews it emerged that each participant had innate qualities that influenced how they went about what they did; for example, innate drive to succeed, natural inquisitiveness, curious, natural ability to make things. (After I1 this category was originally called "Leadership Qualities" however, as part of the analysis of subsequent interviews it was changed to "innate qualities" as this was more applicable across all interviews and more appropriately described what was emerging from the interview data).

Examples from interviewees of this theme include:

- "Natural inquisitiveness" and "inquisitive mind"
  (I2 and I8))
- Curious (I4)
- "Not a slow plodder" (I5)
- Innate drive to succeed (I6)
- Natural ability to make things (I7)
- Passion for science (I9)
- Modesty and humility (I10)
- Strong desire to share (I11)

124

- Strong desire to be excellent (12)

4.2.2.4   Extrinsic Factor - Perception of Learning and Education

This theme covered how the participants viewed learning and its importance, and how they approached their own learning activities. Much of their learning was informal, even though most participants (83%) did possess formal qualifications.

Examples from interviewees of this theme include:

- See the value of on-going learning (all interviews)
- User of research not a creator (I1, I2, I3, I4, I10 and I12)
- Learning is circumstantial not deliberate – occurs as a matter of necessity (I5)
- Trial and error enable learning (I6)
- Open-minded approach to learning - depends who the teacher is (I7)
- Learning depends on the context in which it takes place (I7)
- Learning provides tools that might not be available through other avenues (I8)
- Education is imperative to develop and maintain credibility as a professional (I9 and I10)
- Mechanism used to help keep up with change (I9)
- Everyday occurrence (I9)
- The need to apply learning helps to maintain their interest (I10)
- Good learning is when you sit with others and learn from them (I10)
- Most powerful learning has to be on-the-job (I11)
- Learning happens and you may not even realise it (I11)
- On-going activity (I12)
- Helps you stay current and relevant (I12)
- You must keep up with the science (I12)

4.2.2.5   Extrinsic Factor - Transitions

This related to major shifts that had occurred throughout the participants professional and personal progression. Some they had chosen for themselves and others had been imposed on them as a result of life circumstances.

Examples from interviewees of this theme include:

- Relocation either due to family choice or to follow a work option (I1, I2, I3, I4 and I5)
- Changes in career direction e.g., from military to counselling (I1) or teacher and, oncologist to informatics expert (I5)
- Shift to completely working as a private practitioner (I9)
- Transitions more recent than other research participants (I9 and I11)
- Became a mature-age student in new industry (I12)

4.2.2.6   Extrinsic Factor - Disruptions

Many, if not all, the participants had experienced a major disruption in their life that had influenced what they did, their overall approach and philosophy on life, how they undertook their work and the role it played in their lives.

Examples from interviewees of this theme include:

- Medical discharge from the army (I1)
- Relocating to Australia (sometimes in their teens) with no friends or connections (I1, I2, I3, I4)
- Being ostracised from their workplace for speaking up against unethical behaviour (I5)
- Dramatically changing career path later in life (I12)

Applying these codes for the analysis of the interviews provided structure and clarity for understanding and interpreting the interview data. Each story was unique and yet they had similarities. The codes enabled these similarities to be better understood and appreciated without losing the nuances and specifics of the individual stories. This fits with the desire to create a "rich description" (Bazeley 2013, p. 377) from the data by using "emergent codes" defined by what has been seen in the data (Charmaz 2014, p. 342), rather than using preconceived codes that the data needs to "fit into".

Appendix 4.5 documents a wide diversity in how participants expressed the respective aspects. These can be grouped to provide new insight into the characteristics and attributes of a knowledge-based professional. The categories of personal and professional mindset, innate qualities and self-perception reveal intrinsic aspects about the individuals. Other factors extrinsic to the individuals also affected their development, with the major one, being related to their perception of learning and education. While disruptions and transitions they experienced throughout their lives also influenced how they saw themselves and how they responded to their circumstances, this study does not analyse these effects in depth, as they are not typically aspects over which individuals have a degree of control; hence they inform what individuals do but do not always define who they are.

4.3   Phase 1 – Initial (Bottom-Up) Coding of Literature

As stated in Chapter 2, 94 articles were reviewed to understand what was currently known and understood about knowledge workers. Seventy-seven percent of the articles reviewed were theoretical in nature offering a wide variety of opinions about knowledge workers. Four articles were considered too specific, and were excluded from the analysis. The theoretical articles were analysed using a two-step process. The first step was to understand the focus of the theoretical articles (Table 4.3). The second step was to see how the empirical research studies aligned with or diverged from the findings from the interviews. This analysis identified that the categorisations found in the literature were similar to those that emerged from the interviews; however, the

interviews unearthed other factors not found in the literature that enabled a richer and deeper understanding of knowledge-based professionals to be developed. An extensive analysis of each aspect will be provided in the following sections of this chapter. A summary list of the respective categories is provided to give an early appreciation of the differences that came to light as a result of the analysis and coding of the respective data sets.

4.3.1   Findings from the Literature - Characteristics and Attributes

After analysis of the knowledge-worker literature 47 articles were identified that referred to the generic characteristics and attributes of knowledge workers; however, these characteristics and attributes cannot be *uniquely* attributed to knowledge workers, which implies that these workers are not distinctive in any way. It is useful that research to date has been able to provide generic characteristics and attributes, but this is insufficient for research into the 21st-century workplace.

Each group of characteristics and attributes has been referenced to the literature; multiple references are supplied where a characteristic was included, commented on or discussed by more than one set of researchers. To enable better understanding of these characteristics and attributes and to facilitate comparison to the categories in the codebook derived from the interview data, they were grouped into three sub-categories: observable behaviours (18 references - see Table 4.3), role requirements (10 references - see Table 4.4) and location (2 references - see Table 4.5).

Table 4.2 shows some of the commonly assigned characteristics and attributes of knowledge workers found in the literature and compared to the research findings and have been categorised as 'observable behaviour'.

	Sub-Category	Characteristics and Attributes found in the Literature	Findings from the Research Interviews	
	OB – Observable Behaviour		Supportive of Literature	Distinct from Literature
1	OB	• The desire for autonomy (Vangthournout et al. 2014, p. 192; Ascente 2010, p. 280; Paton 2009, p. 93; Benson & Brown 2007, p. 131; Davenport, Thomas & Cantrell 2002, p. 25; Moss Kanter 2000, p. 15)	Yes	Not actively sought, as the literature suggests it is an innate quality
2	OB	• Intrinsically motivated (Leon 2015, p. 680; Huang 2011, p. 926; Mitchell & Meacheam 2011, p. 156; Ascente 2010, pp. 282 and 284)	Yes	
3	OB	• Like to take on challenging work (Carleton 2011, p. 459; Huang 2011, p. 930; Ascente 2010, p. 284)	Yes	It is not the work itself that is attractive; rather it is what can be achieved as a result of performing the work
4	OB	• Have a different attitudinal commitment to other workers (Benson & Brown 2007, p. 122)	Yes	
5	OB	• Are characterised by how they use knowledge (El-Farr 2009, p. 6; Kelman 2006, p. 2; Dueck 2001, p. 886)	Yes	
6	OB	• Learn continuously and informally through the completion of their work (Hirsh 2006, p. 37)	Yes	Learning is considered an essential element, not just a by-product, of what they do
7	OB	• Resist command and control structures (Horwitz, Hang & Quazi 2003, p. 24)		No information to support or refute this aspect
8	OB	• Respond and commit when they believe in a purpose (Howe & Levin 2007, p. 38)	Yes	Very important underlying driver

	Sub-Category	Characteristics and Attributes found in the Literature	Findings from the Research Interviews	
	OB – Observable Behaviour	130	**Supportive of Literature**	**Distinct from Literature**
9	OB	• Possess persistence, communicate with clarity, manage impulsivity, access a wide range of sources to gather data, listen with understanding, take reasonable risks, strive for accuracy (Johnson 2005, p. 12)	Persistence – yes Communicate with clarity – yes Listen for understanding and strive for accuracy – unable to confirm or deny insufficient information Take reasonable risks – yes	
10	OB	• Are fulfilled at work by more than simply a pay cheque (Kelman 2006, p. 4)	Yes	
11	OB	• Are changed by the information they process (Kidd 1994, p. 186)	Yes – by inference rather than explicitly	
12	OB	• Produces an individually unique output for the organisations they serve (Kidd 1994, p. 187)		No information to support or refute this aspect
13	OB	• Do not rely heavily on filed information actively interacting with the information is important to them (Kidd 1994, p. 187)		No information to support or refute this aspect
14	OB	• Dislike bureaucracy, resent administration, work creatively to satisfy their curiosity, thrive on empowerment and self-management (Paton 2012, p. 29; Paton 2009, p. 93)		No information to support or refute this aspect

	Sub-Category	Characteristics and Attributes found in the Literature	Findings from the Research Interviews	
	OB – Observable Behaviour		Supportive of Literature	Distinct from Literature
15	OB	• Have a commitment to change, place a high value on networking, strive to achieve a good reputation, acquire multi-disciplinary capabilities, add breadth and depth to what they know (Sutherland et al. 2015, p. 6)	Commitment to change – yes Strive to achieve good reputation – consequence of what they do rather than specifically acted upon Multidisciplinary capabilities – yes	Unable to support or refute whether they place high value on networking
16	OB	Personal and professional achievement is a trigger for this group (Tampoe 1993, p. 55)	Yes	
17	OB	• Capable of adapting to change, collaborative, reflexive, capable of identifying and solving problems, have persona to commit to life-long learning (Vanthournout et al. 2014, p. 192; Tennant 2004, p. 432)	Yes	
18	OB	• More likely to pursue self-actualisation, own the knowledge they possess; are more independent (Zhan, Tang & Zhang 2013, p. 559)	Yes	May not have specifically labelled it as pursuing self-actualisation but was achieved as a consequence of what they do

Table 4.2 – Comparative Analysis of Knowledge Worker Characteristics and Attributes from the Literature to those Identified in the Research Findings - Observable Behaviours

Table 4.3 shows some of the commonly assigned characteristics and attributes of knowledge workers found in the literature and compared to the research findings and have been categorised as 'role requirements'.

	Sub-Category	Characteristics and Attributes found in the Literature	Findings from the Research Interviews	
	RR – Role Requirements		**Supportive of Literature**	**Distinct from Literature**
1	RR	• The need and ability to be creative, imaginative, innovative, entrepreneurial, adaptable, agile and flexible (Ascente 2010, pp. 242, 284; Johnson 2006, p. 10; Tennant 2004, p. 432; Ware & Grantham 2003, p. 148)	Yes	
2	RR	• Ability to cope with complexity, uncertainty, ambiguity and persistent change (Avedisian & Bennet 2010, p. 255; Bennet & Bennet 2010, pp. 241 and 244; Horwitz, Hong & Quazi 2003, p. 23)	Yes	
3	RR	• Knowledge workers not necessarily spearheading change in the workplace (Brinkley et al. 2009, p. 6) (This could be a contrary view to many other authors)	No	Definitely in the forefront of spearheading change in their respective fields
4	RR	• Possess skills based on theoretical knowledge (Elliott & Jacobsen 2002, p. 78; Heery & Noon 2008, n.p.; Prince 2000, p. 1)	Yes	
5	RR	• Possess high levels of expertise, experience and education (GSA 2011, p. 1)	Yes	Research indicates they are well educated rather than highly educated
6	RR	• Workplace roles are largely intellectually based (Kardos 2012, p. 2)	Yes – by inference rather than explicitly	

	Sub-Category	Characteristics and Attributes found in the Literature	Findings from the Research Interviews	
	RR – Role Requirements		Supportive of Literature	Distinct from Literature
7	RR	• Need specialised knowledge, learning skills, analysis and synthesis abilities, problem-solving skills, time-management skills, written and oral communication skills, teamwork skills, risk-taking skills and ICT skills (Leon 2015, pp. 683-684; Prince 2000, p. 3)		No information to support or refute this aspect Highlights the task orientation found in the literature
8	RR	• Do not consider themselves objects to be manipulated; perform activities that are not always visible; more likely to speak up but need organisations that can cope with that approach (Moss Kanter 2000, p. 15)	Yes	
9	RR	• Possess factual and theoretical knowledge; find and access the information they need, desire and require; can apply information (Prince 2000, p. 2)	Yes	
10	RR	• Learning contributes to their longevity as knowledge workers (Srinivasan 2007, p. 3)		Not directly supported by findings from this research; however, this research highlights the priority knowledge workers place on learning

Table 4.3 – Comparative Analysis of Knowledge Worker Characteristics and Attributes from the Literature to those Identified in the Research Findings - Role Requirements

Table 4.4 shows some of the commonly assigned characteristics and attributes of knowledge workers found in the literature and compared to the research findings and have been categorised as 'location'.

	Sub-Category	Characteristics and Attributes found in the Literature	Findings from the Research Interviews	
	L - Location		**Supportive of Literature**	**Distinct from Literature**
1	L	• Can be found in a wide range of occupational groups (Svarc 2016, p. 400; Darr & Warhurst 2008, p. 31; Benson & Brown 2007, p. 124; OECD 2001, p. 167)	Yes	
2	L	• Perceived to have a closer affinity to their profession than to their organisation (Zhan, Tang & Zhang 2013, p. 558; Paton 2009, p. 93; Hirsh 2006, p. 2)	Yes	

Table 4.4 – Comparative Analysis of Knowledge Worker Characteristics and Attributes from the Literature to those Identified in the Research Findings - Location

An assessment of the literature and interview datasets as provided in Tables 4.3 - 4.5 indicates a commonality between the two data sets. What this analysis of the two datasets has highlighted is that both sought to provide a greater understanding of knowledge-workers. Alongside this aspect they both recognised they were a distinct group requiring understanding and that a number of visible characteristics and attributes can be determined that provide insight in the nature of knoweldge-based professionals.

However, some of the characteristics and attributes attributed to knowledge-workers could be thought of as non-complimentary. These characteristics and attributes suggest that knowledge workers resist and defy administration (Zhan, Tang & Zhang 2013, p. 559); they are not willing to cooperate by resisting structures (Zhan, Tang & Zhang 2013, p. 559); they "resist a traditional command and control structure" (Horwitz, Hang & Quazi 2003, p. 24); and they can be difficult to supervise (Zhan, Tang & Zhang 2013,

p. 559). Other researchers such as Vanthournout et al. (2014, p. 192); Ascente (2010, p. 280); Paton (2009, p. 93); Benson and Brown (2007, p. 125) and Davenport, Thomas and Cantrell (2002, p. 27), state that knowledge workers like to work autonomously and that they are creative, flexible adaptable and agile. (Ascente 2010, p. 282; Johnson 2006, p. 12; Tennant 2004, p. 432; Ware & Grantham 2003, p. 143), hence environments that are highly controlled could be perceived as not suiting their style. However, what this might suggest is that when the individual needs to conform to the organisational construct, and not vice versa, this could be counter-productive to achieving the results the organisation desires and requires.

It is helpful that these generic characteristics and attributes are well known and articulated and that the breadth of analysis has enabled such a comprehensive perspective on knowledge-based professionals to be generated. This research adds more characteristics and attributes to the understanding about knowledge-based professionals and how these characteristics can best be harnessed to achieve personal, professional and organisational goals of benefit to all involved. The following section will discuss in more detail the specific characteristics and attributes identified as part of this research.

4.3.2   Findings from the Literature Specifically Focusing on Empirical Studies

A second comprehensive analysis of the literature was undertaken specifically to review the empirical studies regarding knowledge workers and see how they align with or differ to the results of this research. It is important to note that the empirical studies were also included in the full analysis of the knowledge worker literature. However, empirical studies were reviewed as a specific subset because they include direct participant involvement analogous to what has occurred for this research. As stated previously, 22 of the articles reviewed were empirical studies undertaken to gain insight and understanding about knowledge workers. On closer scrutiny, two of the articles were excluded from the analysis because they were too specific and could not be applied on a broader scale:

Brodeur and Dupont (2006) who examined how Canadian Police use information to conduct their work; and Lamb and Sutherland (2010) who were specifically looking at career capital components relevant for knowledge workers.

The remaining 20 studies were given closer analysis. The objective was to 1) find common ground across both sets of data and 2) determine how each set of data was unique. This objective for analysis provided an unbiased lens to analyse the two sets of data not constraining them to any pre-conceived framework. It was important that both sets of data were allowed to let their respective stories naturally emerge. The following sections will provide insights that emerged from this two-step analysis.

As stated in the previous section, both sets of data were attempting to provide a greater understanding about knowledge-based professionals. The key difference is that the existing literature uses a very different lens to that undertaken for this research. Table 4.5 outlines which themes found in the empirical knowledge-worker literature shows that. The predominant focus is on tasks performed or tools used by knowledge workers, with 45% of the studies having this focus. The second most common theme found was where the emphasis was on understanding knowledge workers through an HR/career focus. In one study the focus was to understand knowledge workers intention to quit (Benson & Brown 2007, p. 121) with the objective of being able to influence these types of decisions. The third common grouping was studies that considered motivating factors for knowledge workers; 10% of the studies adopted this focus. The remaining 25% of the studies reviewed each had a different focus, as the table demonstrates. All the studies are very much focused on external factors and the desire to control the knowledge worker in some way to achieve a specific desired end; none gave sufficient consideration to the needs, desires and input of the individual.

Distribution of Themes in Empirical Knowledge-Worker Literature		
Theme	**Frequency**	**Percentage (%)**
Tasks performed or tools used by knowledge workers	9/20	45
HR/career emphasis	4/20	20
Considered how to motivate knowledge workers	2/20	10
Basic demographic information	1/20	5
Others perceptions of knowledge workers	1/20	5
The impact of information on the knowledge worker	1/20	5
A socialist lens	1/20	5
Knowledge workers approach to learning	1/20	5

Table 4.5 - Themes in Empirical Knowledge-Worker Literature

This research has found consistency to findings from previous research. However, there were some aspects that could not be confirmed or refuted. The fact that this research has found aspects different to those already known adds to its value. The points of commonality that emerged from the analysis of the knowledge worker literature and research interviews were numerous and detailed in Section 4.4. Points to note from the analysis in the table are that knowledge workers exist across all occupational groups. While they are by no means a homogeneous group they have aspects in common. This aspect was identified multiple times in the literature dataset (Marks & Baldry 2009, p. 51; Benson & Brown 2007, p. 122; Sutherland & Jordaan 2004, p. 62). Other commonly found aspects both in the literature and the interviews was that knowledge workers are highly educated (although this education is not always formal) – most of the empirical studies reviewed used highly educated participants; similarly the participants in this study were well educated but not always in a formal manner. Some other commonly found characteristics of knowledge workers were: they possess higher attitudinal commitment than routine workers (Benson & Brown 2007, p. 123); they have more-sophisticated decision-making and problem-solving skills (Dahooie, Afrazeh & Hosseini 2011, p. 443); they are changed by the information they process (Kidd 1994, p. 186) having developed their own strategies for getting work done in complex, dynamic environments (Kogan & Miller, p. 760) however it is worth acknowledging that no one

137

work pattern fits all knowledge workers (Poppel 1982, p. 148); knowledge workers are determined, persistent, self-motivated, driven, flexible and adaptable and they know themselves, have a passion for their industry, understand the big picture, have relevant hands-on knowledge, seek personal growth and prefer autonomy (they are stated as having these qualities, although the qualities themselves are not typically described or defined) (Sutherland et al. 2015, p. 7) which leads to them displaying high levels of self-efficacy (Vanthournout et al. 2014, p. 209). Overall a key finding in both the literature and the interviews is that knowledge workers prefer and engage in deep learning, and desire free choice in their learning options (Vanthournout et al. 2014, p. 194).

Vangthournout et al. (2014, p. 192) was the only study identified as considering the knowledge workers' approach to learning; this has a similarity to the insights emerging from the interviews conducted for this research. However, the instance from the literature imposed a framework to understand this aspect, whereas this research discovered that their approach naturally emerged from the conversations, bringing to light that learning is fundamental to how knowledge-based professionals operate and is not something they need to be cajoled to do.

This research has found consistency to findings from previous research. However, there were some aspects that could not be confirmed or refuted. This research provides more depth to the research on these characteristics and attributes. The fact that this research has found aspects different to those already known adds to its value.

4.4 Comparison of Findings from the Literature to Interview Results

Table 4.6 provides an overview of the categories found in the literature compared to those emerging from the interviews this helps to highlight what more can be learnt about knowledge-based professionals and how this research contributes to knowledge.

Categories Distinctive to the Literature	Categories Distinctive to the Interviews
Two umbrella categories identified: • Individual – those that can be directly related to the individual • Organisational – those that prioritise the needs and requirements of the organisation.	Two umbrella categories identified: • Intrinsic – innate part of the individual • Extrinisic – ascribed to or affecting the individual
Individual categories from the literature: • Definitions and descriptions – many and varied • Characteristics and attributes – many and varied	Intrinsic categories from the interviews • Innate qualities – just who they are • Self-perception – how they perceive themselves • Personal and professional mindset – approach to what they do
Organisational categories from the literature: • Work type/approach (Productivity) • Management of knowledge – control, contain and maximise the use of knowledge • Knowledge possession – who owns knowledge and what can be done with it	Extrinsic categories from the interviews • Perceptions of learning and education – how they perceive enhancing their knowledge and the role learning plays in what they do • Transitions – changes that have occurred • Disruptions – events that have required a change of course

Categories Distinctive to the Literature	Categories Distinctive to the Interviews
Features of Approach Found in the Literature	*Features of Approach Found in the Interviews*
• Perceptual (typically a third-party assessment)	• Introspective (based on an awareness of self)
• Predictive – typically looking to determine what may happen so they can influence it	• Retrospective – looks at what has taken place and tries to learn from it
• Typically treats participants as "passive, reactive respondents to their context" (Parker, Bindl & Strauss 2010, p. 828)	• Makes no judgements about the nature of the participants which brought out the fact that they are more likely to be active, proactive respondents in their context
• Provides insights based on "appearance" – what they seem to be like (distinction made in I5)	• Provides insights based on "character" – essence of who and what they are (distinction made in I5)
• Most studies and commentaries use pre-defined frameworks, models and questionnaires which can lead to insights that are more fragmented and lacking in cohesion	• Does not use pre-defined models
	• Insights and findings are emergent
	• Achieves a richer description and understanding by looking at the participants' whole story not just component parts

Table 4.6 - Comparison of Approaches from Literature and Interviews

As Table 4.6 shows the overall approach used in the literature is quite different to that used to analyse the interview; this has enabled the identification of new characteristics and attributes not previously identified. What this research has highlighted is that knowledge-based professionals to possess the following characteristics and attributes which have emerged from the data but were not found in the literature reviewed for this research. Knowledge-based professionals are very deliberate in how they go about what they do. Some of the aspects emerging from the data is that they adopt a specific style to what they do which includes that they are:

• Resolute and determined – persist even when experiencing adversity.

• Purposeful readers – there is a reason behind the selections they make about what they read.

- Capable of making circumstantial choices – capable of making hard decisions and willing to take calculated risks not always knowing the full picture.
- Open to experience and have a growth mindset – opening to growing individually and professionally.
- Intrinsically motivated (life-long) learners – do not need to be encouraged to learn; rather, they do it automatically.
- Passionate about making a difference – there is an intrinsic desire to make a contribution and "help make the world a better place" (Interview 4).
- Influenced by early life experiences - this contributed to the development of their unique characteristics and attributes (most had experienced disruptions or transitions in their early lives or early in their career) [this aspect has been referred to in the literature as "crucibles" this concept was related to leaders and leadership not specifically to knowledge workers]:

> *Crucible* – "people learn from the most negative events they are able to 'rise from the ashes', they emerge from adversity stronger and more confident in themselves and their purpose, and more committed to their work" (Bennis & Thomas 2002, p. 39) – all participants demonstrated this as part of their development in their domain area of expertise.

Chapter 5 further explains these aspects and how they demonstrate the characteristics and attributes of knowledge-based professionals.

A supplementary analysis (outside the scope of this research) performed as part of this research was to review the approach used for the selection of participants, given that this approach had not been used previously to identify participants who were knowledge-based professionals. Insights from this component of the research are provided in Appendix 4.4.

4.5   Summary of Chapter

This chapter has undertaken a comprehensive analysis of two critical datasets: the literature on knowledge workers and interviews specifically conducted for this research. What this analysis has highlighted is that the fundamental difference between the two datasets was the proximity to the knowledge-based professional when seeking to understand them. In the literature, much of the analysis is at arms-length: the nature of the knowledge worker is discussed without researching them directly, or their insights are explored through a pre-existing framework that are not the optimal way to understand this group. In comparison, the interviews for this research allowed a richer dataset to be obtained from each participant; this resulted in insights not previously known or understood about this group and is the value offered by this research.

In summary, this chapter has discussed the approach to analysing the datasets. It has explained the bottom-up approach to coding used for the literature and the interviews explaining that each dataset was examined independently before being compared. This was followed by an explanation of the top-down coding of the interviews that lead to the development of the codebook. At completions of these activities the chapter explained how the findings from the literature and the interviews were compared.

The constant comparison approach used to analyse the data and outlined in this chapter identified key distinctions between the literature and the interviews where the literature adopted a perceptual, predictive, judgemental approach often analysed through the lens of a pre-existing framework in a compartmentalised or fragmented way. In contrast the comparison showed that   the interviews applied an introspective, retrospective, non-judgemental, character-based, emergent perspective that sought to understand the overall story about participants in a more consolidated and integrated way. Some of the aspects identified as distinctive for this group, as an outcome of this research, is that knowledge workers are resolute, purposeful readers and capable of making circumstantial choices. As well as these aspects, they possess a growth mindset, are intrinsically motivated, are passionate about making a difference and have been influenced by their early life experiences, with many having had "crucible" experiences in their early life.

Chapter 5 will describe how the findings from this research, as outlined in this chapter, have been taken to a higher level of abstraction resulting in the development of a model which maps the characteristics and attributes of a knowledge-based professional: their "process of self-construction" comprising "formulation of self" and "drive".

CHAPTER 5 – FINDINGS FROM THEMATIC CODING

5.0   Introduction

Key distinctions identified between the literature and the interviews discussed in Chapter 4 indicated that the literature adopted a perceptual, predictive, "how they appear" judgemental approach that involved analysis through the lens of a pre-existing framework in a compartmentalised or fragmented way. In contrast, the interviews were introspective, retrospective, non-judgemental, and character-based, and employed an emergent perspective that sought to understand the overall story about participants in a more consolidated and integrated way. Chapter 4 also provided some details on specific attributes about this group not previously identified, (for example, they are purposeful readers) and the initial codebook used to analyse the interviews so that each person's experience was given a consistent and thorough level of consideration. This codebook provides the basis for the next level of coding which will be outlined in this chapter.

Following on from the discussion of the open and selective coding of the literature and interviews, in Chapter 4, this chapter will outline how the primary findings from the research about knowledge-based professionals and their "process of self-construction", comprising two major components of "formulation of self" and "drive" were deduced from the data, and referenced to the literature as part of the constant-comparison aspect of grounded-theory research.

The chapter consists of four main sections:

1. An explanation of the third phase of coding: – thematic coding.
2. A description of the "process of self-construction" and its relevant parts.
3. The significance of a growth mindset as part of the process of self-construction.
4. The relation between the items identified as part of the process of self construction and the codebook identified in chapter 4 including personal and

professional mindset, innate qualities, self-perception and perception of learning and education.

5.1 Thematic Coding of Interview – Phase 3

As discussed in Section 4.1 Phase 2 – selective coding provided the process to outline the distinguishing characteristics and attributes of a knowledge-based professional in a comprehensive and insightful way not previously identified in the literature. This activity derived from the selective coding process those aspects that would identify and map the characteristics and attributes of a knowledge-based professional at a higher level of abstraction.

The thematic coding of the interviews was undertaken using the results of the selective coding process which led to the identification and mapping of the "process of self-construction". The identification of this process could be described as reverse-engineered, where the component parts were identified and interrelationships explored and progressively amalgamated (Chikofsky & Cross 1990, p. 15) under the two headings of "formulation of self" and "drive".

5.2 Process of Self-Construction

The findings from this research have led to the development of a model entitled "Process of Self-Construction". Whilst this model will be described in a sequence, it needs to be synthesised and continuously considered as a whole (Figure 5.1). The model has been numbered to clarify the order in which its components will be discussed. The sequence of this discussion is included below starting with Section 5.2.

5.2   Process of Self-Construction

5.3   Growth Mindset

5.4   Enabling Inherent Capacity – Formulation of Self

5.5   Application of Inherent Capacity – Drive
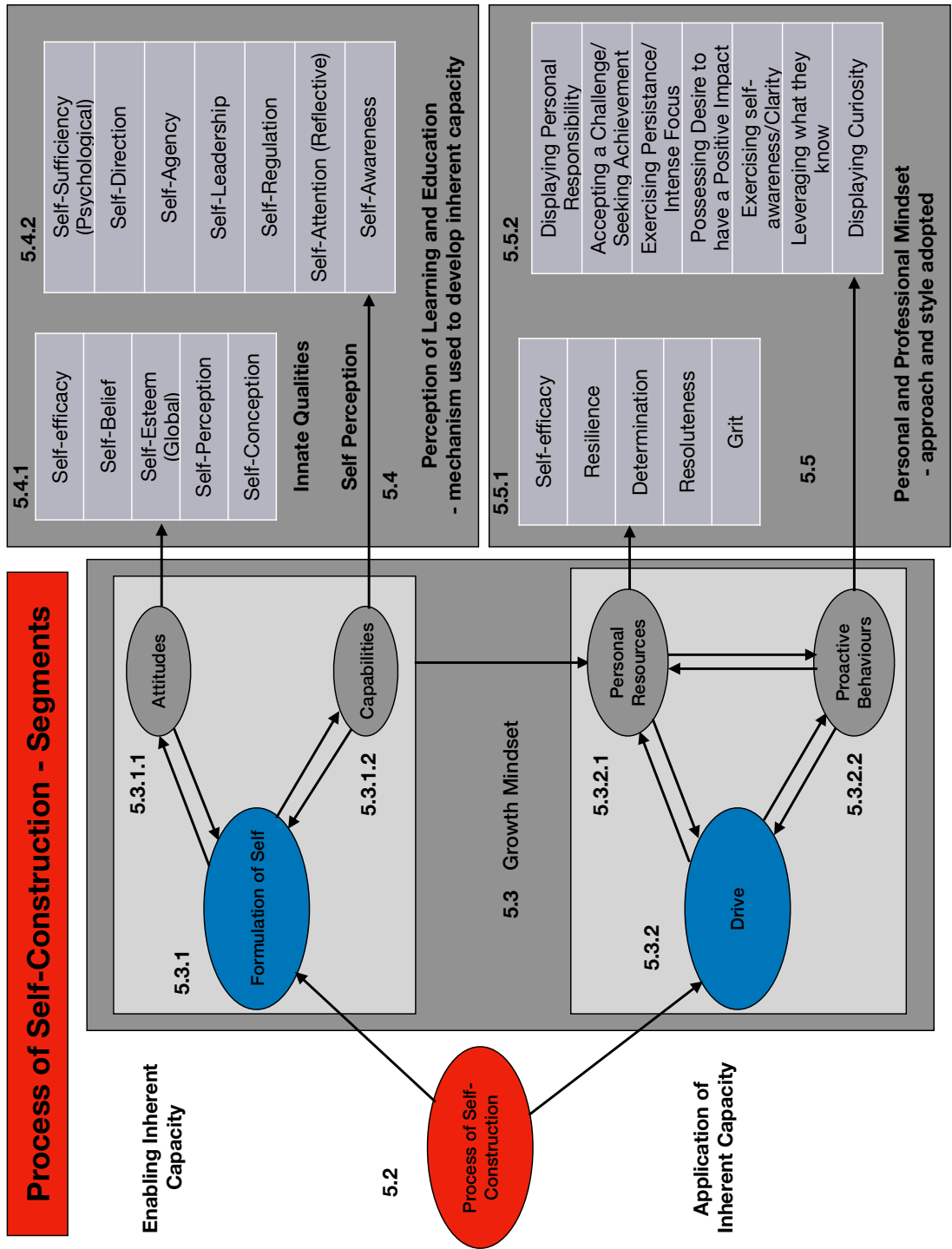
Figure 5.1 – The Process of Self-Construction Model

In addition to insights from the business and management literature insights have been drawn from the field of psychology. Considerable work regarding self-construction has been undertaken, in the field of psychology, by Berzonsky. As Berzonsky (1990, p. 156) states, self-construction is a term closely associated with an individual developing their personal identity, which he defines as "identity is a self-constructed cognitive representation of oneself that is used to interpret self-relevant information and to cope with personal problems and life events" (Berzonsky 1990, p. 156). He goes on to say that: "to achieve identity individuals must 'actively master' their environments and correctly perceive themselves in the world" (p. 157).

Participants in this research have been able to do what Berzonsky has described in an effective way even though they may have approached it quite differently. A key point made by Berzonsky (2016, p. 269; 1990, p. 159) is that identity is not a fixed outcome or achievement; rather, it is consistently evolving. Berzonsky (2016, p. 267) highlights the fact that there is a difference between self-discovery that is, to unearth something that already exists and to self-construction, which means to bring something into existence that has not existed before. Self-discovery is seen as a static state, whereas self-construction is a dynamic state that does not occur in a vacuum (Berzonsky 2016, pp. 268-269).

From this explanation it is reasonable to suggest that self-construction and identity are synonymous. For the purposes of this discussion the term self-construction will be used as how the individuals have constructed their sense of self, rather than a description of self that results from this process, and important distinction for the purposes of this study.

Self-construction assumes a constructivist approach to an individuals' identity formulation via their process of active self-construction, which is achieved by their methodology for interpreting their experiences, their approach to decision-making, their values and how they process, arrange and recall self-relevant information (Berzonsky 2016, p. 270.) This explanation which expressly and overtly typifies the approach adopted by the research participants, will be discussed in more detail in Section 5.4.3. Self-construction requires the use of tools and resources to help facilitate the process.

The tools and resources most relevant in this instance have been outlined in the descriptions provided in Sections 5.3.1 – Formulation of Self and 5.3.2 – Drive.

There are six characteristics that facilitate the self-construction process as outlined by Berzonsky (1990) include:

1. Openness to experience – evidenced by "intellectual curiosity, liberal views, awareness of private feelings, need for behavioural variety" (p. 162).

2. Reasoned action – attitude toward a decision based on a desired outcome and the likelihood of that outcome (p. 163).

3. Elaboration likelihood – ability to deliberately evaluate the usefulness and relevance of information (p. 164).

4. Ego-control – "self-control and regulation, ego resilience, resourceful adaptation" (p. 165).

5. Development considerations – the stage of the individual's development from child to adult (p. 166).

6. Environmental constraints – "specific problems or conditions the individual has to cope with" (p. 166).

Consideration of these factors does provide more insight than can be grained from the business and management literature; in this study most, if not all, of these aspects, emerged from the interview data, but often as a secondary consideration, and not always relating to the individual. The first four (openness to experience, reasoned action, elaboration likelihood and ego-control) can be directly associated with individuals; however, development considerations and environmental constraints, although relevant, were not the primary emphasis of this study. However, these factors alone still did not provide full insight into what was emerging from the data.

The relevance of the work undertaken by George Kelly (1955) called Personal Construct Theory (PCT) was identified through a validation interview with Interviewee #12. This theory purports that "people organise their experiences by developing bipolar dimensions of meaning, or *personalised constructs*. These hierarchically interrelated constructs are used to anticipate and predict how the world and its inhabitants might behave" (Raskin 2002, p.4). This theory was given consideration but was not thought to provide enhanced depth of understanding of the process identified as part of this research. However it does provide an intriguing insight that might justify further investigation and is included in Chapter 7 accordingly.

5.3   Growth Mindset

One of the predominant findings from this research is that all 12 participants possessed a growth mindset. This is the component that underpins the approach adopted as part of individuals' process of self-construction. The leading proponent in the area of growth mindset is Carol Dweck. Dweck and Yeager (2019, p. 481) explains a growth mindset as "the belief that human capacities are not fixed but can be developed over time" This definition strongly aligns to the findings about the participants involved in this research. The mindset a person chooses has considerable bearing on how they approach their work and the circumstances in which they find themselves: "the very dignity of humans lies precisely in their potential to make themselves into what they aspire to be" (Dweck & Yeager 2019, p. 482). The most tangible representation of the participants' growth mindset was their proactive approach to learning and education, seeing it as a key tool for their development. They had a desire to be well educated (breadth and depth of understanding and openness to learning). White (2011, p. 9) writes that being well-educated is about "allowing individuals to become authors of their own story" or "equip them for a life of autonomous well-being" rather than being highly educated in a formal sense. This growth mindset also influenced the participants responded to disruptions and transitions as well as to the unexpected and to new and complex situations. Insights from participants related to a growth mindset include:

- "Ambitious but not always about status" – Interviewee 1

- "Always open to new ideas", "Ask questions to understand what is/has occurred" – Interviewee 4
- Regularly asks "where to next?", and, when reaching a peak, asks "now what?" – Interviewee 5
- Wants to make the most of the opportunity especially related to learning – Interviewee 9
- Believes there is a reason for new situations "will learn something or be better as a result" – Interviewee 11

Within the area of growth mindset there are two key segments that need explanation and exploration which will be discussed in sections 5.3.1 – Enabling Inherent Capacity – 'Formulation of Self' and 5.3.2 – Application of Inherent Capacity – Drive.

5.3.1   Enabling Inherent Capacity – 'Formulation of Self'

Those components that enable inherent provide the individual with the means to do something, in this case help to develop themselves in the way they desire. These components are inherent in that they are part of the individuals' innate abilities and are influenced by how individuals perceive themselves; hence this section emanates from the initial coding groups of innate qualities and self-perception. These enabling inherent capacities are developed through individuals' perception of learning and education, another initial coding category. Sections 5.3.1.1 and 5.3.1.2 outline in more detail the components that make up the "Formulation of Self "aspect of the model used in this study.

Analysis of the interview data revealed 12 terms related to self that were relevant to, and consistent across, all interviews. These terms were originally considered to be descriptive of the participants' "process of self-construction." However, a subsequent comprehensive analysis of the data, memoing, discussions with supervisors and validation interviews found that the "process of self-construction" was the super theme that combined these 12 terms with the concept of "drive". On further consideration, these items were then categorised as individuals' approach to "formulation of self," a sub-theme that bridged the concepts of "process of self-construction" and 'drive.'

The literature was reviewed to find insights or understanding related to "formulation of self," the concept was not discussed in the literature. Identifying it as a major breakthrough in the current research because it describes and makes sense of an overall process never before identified. Typically the use of the term "formulation of self" found in the literature is related to different strands of science and is not a concept commonly associated with people; and yet the data from this research would suggest otherwise as it highlighted how "formulation of self" is a key component of how this group grows and evolves to adapt to change as required.

It is important to recognise there are numerous self-related terms; however, the 12 self-related terms discussed in this study were the ones that emerged from the interview data. The literature was reviewed and used as a mechanism to validate the inclusion of the respective self-related terms as being the most appropriate explanation of what was emerging from the data. In each instance the literature confirmed the study findings. These 12 terms could be grouped into two overarching categories of "attitudes" or "capabilities". The explanation of "attitudes" and "capabilities", is discussed in Sections 5.3.1.1 and 5.3.1.2, respectively. The explanation of each self-related component within the "attitude" and "capability" categories will be explained in Sections 5.4.1 and 5.4.2 respectively.

Each attitude and capability was considered with equal weight, with no specific order or priority associated with them, although each individual demonstrated varying strengths in each. Section 5.4.3 contains the results of a detailed analysis of each interview for each self-related term.

Figure 5.2 demonstrates the relationship between the respective categories without implying any sense of priority or importance.
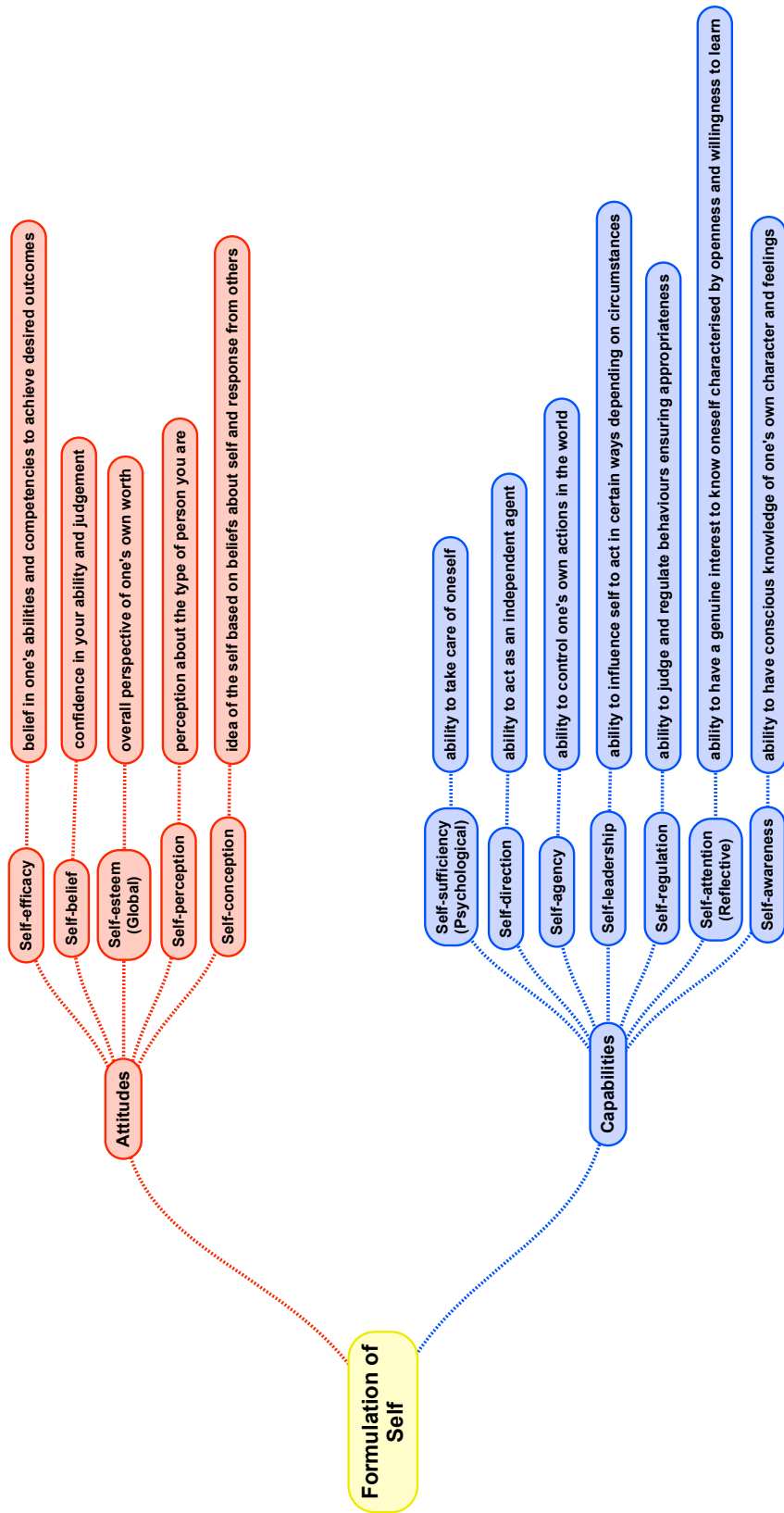
Figure 5.2 – Schematic – "Formulation of Self" as Emerging from Interview Data

5.3.1.1   Formulation of Self – Attitudes

Analysis of the self-related terms led to two sub-categories under "formulation of self": "attitudes" and "capabilities". This section will explain why some of the self-related terms were considered to be "attitudes" rather than "capabilities", and why "attitudes" is the most appropriate term to use for them based on reference to the literature.

Based on the umbrella definition offered by Gawronski (2007, p. 575) and Eagly and Chaiken (1993, p. 1), which is the one most often cited in the more recent literature on this construct an attitude is: "a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour". In this case the "particular entity" being evaluated is the self.

There has been much discussion about, and waxing and waning interest over the past hundred years in, defining and explaining the term attitude (Gawronski 2007, p. 573). In one of the seminal works in this area Bain (1928, p. 943) asks the question "What is an attitude?" This discussion in Bain's paper is from social-psychology perspective that thus provides a viewpoint of relevance to this research, but one that is not the primary focus. Hence Bain's work is acknowledged, but more recent studies refer to the explanation offered by Eagly and Chaiken (2007, p. 582), Gawronski (2007, p. 573) and Schwarz (2007, p. 639).

This research does not intend to explore the subtleties and nuances associated with defining the construct of attitude. Eagly and Chaiken's (2007, p. 598) definition of an attitude as "a psychological tendency that is expressed by evaluating a particular entity with some favor or disfavor" still remains viable because it applies to self equally as any other consideration or perspective and is the one used for this research. Based on this definition, five of the 12 self-related terms identified self-efficacy, self-belief, self-perception, self-conception and (global) self-esteem – were classified as attitudes. Section 5.4.1 gives more details on the meaning and relevance of each of these terms.

153

5.3.1.2   Formulation of Self – Capabilities

The remaining self-related terms were considered to be things the participants were capable of doing; hence they were defined as "capabilities". There was some difficulty in sourcing suitable literature to determine if this was the most appropriate term to describe these aspects. The one resource that did provide a starting point was from the work of Fraser and Greenhalgh (2001, pp. 799-800) which was sourced from the medical literature, as relevant information was not available in the business literature. They defined "capability" as the "extent to which individuals can adapt to change, generate new knowledge, and continue to improve their performance." Further investigation of capabilities comes from the medical literature and relies on this definition (Kaslow, Finklea & Chan 2018, p. 178; Sheehan et al. 2018, p. 275; Humphreys, Crino & Wilson 2018, p. 296; Rees & Richards 2004, p. 1203).

Fraser and Greenhalgh (2001, p. 800) also see capability as something that is accessed and used in unfamiliar environments where there is a low degree of agreement. These circumstances and situations are highly analogous to those that knowledge-based professionals must be able to address (recognising that medical professionals are a subset of the researched group – knowledge-based professionals). It is important to note that capability is different to competency which Fraser and Greenhalgh (2001, p. 799) have described as "what individuals know or are able to do in terms of knowledge, skills and attitudes".

From this analysis it was determined that the term "capabilities" was the most appropriate to describe this group of participants' abilities; these will be discussed in more detail in Section 5.4.2.

The combination of "attitudes" and "capabilities" as outlined in the previous two sections, highlight some of the differentiating characteristics and attributes of knowledge-based professionals. The next section will provide more details in this regard.

5.3.2 Application of Inherent Capability – 'Drive'

After each interview was analysed at the micro level, a macro review was undertaken. This provided some generic categories for consideration such as personal and professional mindset, innate qualities and self-perception as outlined in Chapter 4, Section 4.3, and shown in Figure 4.1. However, analysis of the data still required further analysis to distil it in an informed way that would allow identification and mapping of the characteristics and attributes of a knowledge-based professional. A decision was made to review the personal and professional mindset category in a more holistic way; the aspect that emerged quite strongly was the "drive" that participants showed in what they did, especially their 'drive' to succeed (I4, I6), drive to achieve a purpose (I4, I6 & I10), and to help others (I9 & I11). To help confirm the relevance of "drive" as a construct in this instance, a mind map using participants' comments was created (Figure 5.3).

Figure 5.3 – Drive as Evidenced from Interview Data

There is little literature where "drive" is explained as an independent construct rather than an affiliated construct to something else, such as resilience; one example by Steyn and van Standen (2018, pp. 1-10). Daniel H. Pink in his book *Drive (2009),* reported an incongruity between what science was saying about motivation and the actions organisations were taking to motivate their people. Organisations often adopt a carrot-and-stick approach; however, while people will certainly notice whether it maintains their attention is another matter (Azzam 2014, pp. 12-13). Fernández-Aráoz (2014, p. 54) summarises the three concepts that researcher Daniel H. Pink uses to explain "drive":

- *autonomy* – the freedom an individual has to guide their own life; as stated by Ascente (2010, p. 282) this is a "ubiquitous term" that is not sufficiently distinctive to be a unique characteristic, in contrast to ones found in this research.
- *mastery* – a strong desire to excel, which can apply to specific areas at work or to other interests such as hobbies.
- *purpose* – an individual's strong inclination for their work to serve a higher purpose and for what they do to have meaning.

These concepts are in alignment with this research. However, they are high-level, and their components are not provided in any depth. It is believed that the aspects identified in this research actually provide more depth and granularity, although the concepts could be explored in more depth, as will be discussed in Chapter 7.

To understand "drive" in more detail, work that complements that of Pink, was investigated. Steyn and van Staden (2018, p. 4) propose a construct that explains "drive" as an "individuals acceptance (or self-assurance) concerning his or her capabilities to gather enthusiasm, mental resources and development of tasks effectively accomplish a detailed activity with an agreed framework". They suggest that 'drive' also considers "a person's motivation or attempt to achieve specific managerial tasks to perform the behaviours essential for an effective job" (Steyn & van Staden 2018, p. 4); they also write that "when an individual holds a high level of personal drive it is believed that the individual will see negative feedback (or experiences) as motivation to

reverse it into a more positive manner to encourage better job performance" (Steyn & van Staden 2018, p. 4). Generic definitions suggest that "drive" is an innate, biologically determined urge to attain a goal or satisfy a need. Kirkpatrick and Locke (1991, p.48) have described it as "a broad term which includes achievement, motivation, ambition, energy, tenacity and initiative". Each of these explanations are in accordance with the findings from this research. The next section explains the relevance of this concept and its two components - personal resources and proactive behaviours – in more detail.

5.3.2.1 Personal Resources

Participants displayed a common set of characteristics that could be grouped under the heading of "personal resources", which van den Heuvel et al. (2010, p. 127) define as "aspects of the self that are generally linked to resiliency". They go on to state that personal resources "refer to a person-environment interplay and can pertain to a specific domain, e.g., work-related self-efficacy" (p. 128). Van den Heuval et al. (2010, p. 128) further suggests that personal resources can be changed and modified. Reviewing the experiences of participants validated that these resources were malleable and could evolve as needed. Personal resources are a concept that can be developed over time (van den Heuval et al. 2010, p. 128). Because this explanation was comprehensive and corresponded closely with the interview data, it was considered the most relevant to the context; thus other possible terms to explain what had occurred were not explored in any depth.

While the participants in this study displayed similar personal resources, how each participant employed them was unique to them. The 'personal resources' identified as part of this research are: self-efficacy; resilience, determination, resoluteness and grit.

Each of these aspects will be discussed in more depth in Section 5.5.1.

5.3.2.2   Proactive Behaviours

The interrelated component of "drive" that exists in a matrix relationship with 'personal resources' is "proactive behaviours" defined by Crant (2000, p. 435) as "proactive behaviour that consists of four specific constructs of proactive personality, personal initiative, role-breadth self-efficacy and taking charge" all of which were demonstrated by participants (Figure 5.3). Further analysis identified seven 'key proactive' behaviours:

1. Displaying personal responsibility
2. Accepting a challenge/seeking achievement
3. Exercising persistence/intense focus
4. Possessing desire to have a positive impact
5. Exercising self-awareness/clarity
6. Leverage what they know
7. Displaying curiosity

Each of these aspects is discussed in more depth in Section 5.5.2.

It has been suggested that there is some overlap between "proactive behaviours" to "personal resources", because there are some similarities between the concepts related to what individuals do and how they act as part of their process of responding to change (van den Heuvel et al. 2010, p. 125), however, if only one of the terms had been used it would have detracted from the depth and meaning of "drive" as it relates to this particular group as the interplay between the respective aspects would have been overlooked.

5.4   Innate Qualities, Self-Perception and Perception of Learning and Education

The previous section has outlined they two key sub-components of the "process of self-construction": "formulation of self" and "drive". Three of the initial coding categories provided the data that has lead to the formulation of the components of "attitudes" and "capabilities" as outlined in Sections 5.4.1 – Components of Attitudes, 5.4.2 –

159

Components of Capabilities and 5.4.3 – 'Formulation of Self' by Interviewees. These sections will provide more details on each of these aspects and how they have emerged from the interview data.

5.4.1 Components of 'Attitudes'

Figure 5.3 shows the relationship of the self-related terms and provides a brief description of each term, showing the nuances of each term in relation to the "formulation of self" approach employed in this study.

Self-efficacy and self-belief are closely related. The distinction between the two is that self-efficacy is the attitude someone has towards their abilities and their relative competency, whereas self-belief is a more general consideration of how the individual sees their ability to undertake a task or cope with a situation. Another closely related concept within the attitude category is self-esteem. Rosenberg et al. (1995, p. 141) state that self-esteem is the general attitude that an individual has towards themselves, positive or negative. It helps to identify whether an individual has an internal locus of control (they believe they can influence what goes on around them) an external locus of control (they are simply "victims" of what occurs around them with no ability to influence (de Araujo & Lagos 2013, p. 121). Each of these attitudes was independently found in the interview data and are recognised individually as well as collectively in the literature. It could be said that each of these terms is connected to having an internal locus of control. Each interview participant demonstrated all three aspects; thus all three have been included in the "Process of Self-Construction Model".

The other two concepts contained within the attitude category are self-perception and self-conception. These two terms are closely related but not synonymous; thus they have been included as two independent, yet associated aspects. The seminal work of Bem (1967, p. 184) defines self-perception as "an individual's ability to respond differentially to his [sic] own behavior and its controlling variables"; in other words, the idea individuals have about themselves as expressed by their behaviour. It can be influenced by outside factors such as the opinion of others and environmental considerations, as mentioned by Berzonsky (2016, p. 269). This term has a close

association to the term "self-knowledge", however, in this instance self-perception was seen as the more relevant term, as it is more aligned to the concept of attitude than self-knowledge, which can be seen as a more visible and potentially measurable aspect. There is the potential for debate as to whether self-perception is an attitude or a capability; however, in this instance it is an attitude, as it concerns how the individual perceives their own behaviour. This differentiation does not detract from the fact that there needs to be the capability to do this, but the evidence in the interviews showed that the attitudinal aspect was more evident than the capability component, even though both were present.

Pajares and Schunk (2002, p. 20) explain self-conception as the individual's representation of their overall knowledge, adding that this is influenced by how valuable, beneficial and significant they perceive their knowledge to be; this makes self-conception attitudinal. The degree to which both self-conception and self-perception can be influenced by other aspects was shown in how the interviewees perceived their own skills, abilities and knowledge, oftentimes as a result of having been challenged or disadvantaged, because this led them to strive for something different. Appendix 5.1 summarises this study's analysis of the "attitudes" component of the model.

5.4.2   Components of 'Capabilities'

The remaining seven self-related terms of self-sufficiency, self-direction, self-agency, self-leadership, self-regulation, (reflective) self-attention and self-awareness have been classified as "capabilities" based on comparison to relevant themes in the literature. The rationale for this is explained in the remainder of this section.

The second group of self-related terms that emerged from the data related to the "capabilities" of the researched group. Figure 5.2 gives a graphical representation of this group of items. The first, self-sufficiency, has numerous interpretations, and must be distinguished from economic self-sufficiency, or individuals' ability to look after themselves financially. Psychological self-sufficiency, as explained by Orme-Johnson (1988, p. 188) and Hong, Choi and Key (2018, p. 24), is "the ability to maintain a confident, balanced, happy, productive frame of mind capable of providing one's own

needs without dependence on others". Hong, Choi and Key (2018, p. 24), further explain this concept by stating that "psychological self-sufficiency is positive self-appraisals made about one's abilities, talents, skills and efficacy to provide for oneself". This comprehensive description accords with the interview data from each participant; thus, the term has been included as part of the "formulation of self".

The second self-related term included within capabilities is self-direction. In the literature this term is typically included as part of the phrase "self-directed learning". A more generic description was offered was in the work of Candy (1991) and explained in the analysis by Jones (1993). The description suggests there are four aspects to self-direction: personal autonomy; a willingness and capacity to own one's education (described as self-management); learner control in that the individual can organise instruction in a formal setting; and autodidaxy "the intentional independent pursuit of learning" (Jones 1993, p. 186). Each of these aspects (albeit outside the context of formal education) was evident from the interview data. The idea of self-direction was very much associated with the participants' perception of learning and education and the role self-direction played in their personal development; however, it was also shown in their general approach to what occurred in their lives functioning as a form of taking responsibility for themselves. Jennings (2007, p. 518) defines self-directed learning as "a process in which individuals take the initiative in diagnosing their learning needs, designing learning experiences, locating resources and evaluating their learning". This explanation, while placed within the context of formal learning, is also a precise explanation of the process employed by each participant in this study. More details of how this process occurred for these participants, within their overall knowledge-enhancement process is explained in McGowan, Reid and Styger (2018, p. 38).

The next capability component of the 'formulation of self' is self-regulation. Steele (2015, p. 70) states that "it encompasses a wide range of behaviours, including self-monitoring and deciding causes and effects of one's behaviour, judgement of one's behaviour in relation to personal standards and environmental circumstances, and affective self-reactive behaviours, such as the ability to inhibit motor and language acts that are inappropriate in a particular setting. Self-regulation consists of both emotional and cognitive control aspects." This definitions explains the participants' approach to

162

challenging circumstances and scenarios: they could monitor their behaviour and ensure that their actions enhanced their cause rather than detracting from it, even though there may have been numerous situations when they might have wished to act differently.

Another capability of "formulation of self" is self-awareness; the definition used for this term is provided by Wohlers and London (1989, p. 23: "self-awareness is defined as the degree to which individuals understand their own strengths and weaknesses." It is appropriate to say that not all authors support this definition, for example, Richards, Campenni and Muse-Burke (2010, p. 250) instead suggest that: "self-awareness is awareness and knowledge of one's thoughts, emotions and behaviours and can be considered a state: therefore it can be situational." What this definition provides is an understanding that self-awareness is not a static concept; rather, it changes based on circumstances. This was evident in the interview data. They were able to monitor themselves and take appropriate action enabling them to achieve outcomes that they viewed as beneficial. The more streamlined explanation of self-awareness that Richards, Campenni and Muse-Burke (2010, p. 250) offer is: "self-awareness is simply knowledge about the self". Each participant had a realistic knowledge of self and even if their assessments were not always positive, they could still act so as to benefit themselves, a process that was often facilitated through the learning processes they used or the overall personal and professional mindset that they brought into everything they did.

Self-agency, the next capability component of the "formulation of self" relates to the fact that people consider themselves to be the "initiator or source of action" (Gallagher 2000, p.16). Sato and Yasuda (2005, p.241) describe self-agency as "the sense that I am the one who is generating the action. Self-agency is a willingness to accept the fact that you are responsible for the action you take, and you have control and the ability to influence the actions taken". Each participant was aware of and acted on this premise, as when by both a micro and macro examination of the interview data.

The next capability component of "formulation of self" is self-leadership; this is best explained by Manz (1986) who provides the seminal work in this area. Manz states that self-leadership is "conceptualized as a comprehensive self-influence perspective that

concerns leaning oneself toward performance of naturally motivating tasks as well as managing oneself to do work that must be done but is not naturally motivating" (p. 589). This aspect relates to the fact that even though there may be things people do not want to do because they do not find them motivating, they still undertake them when they know it is necessary. The interviews contain numerous instances of this, particularly when participants were faced with difficult circumstances. For example, when Participant 1 was medically discharged from the army and felt somewhat rudderless as they had seen themselves as a career solider, they were able to carve out a totally new career niche; moreover, although they experienced professional snobbery in their career, they set out to right the wrong as they saw it. For Participant 5, who was exposed to workplace bullying for speaking up, was at a loss as to what they would do next; through taking up a hobby they discovered a new passion, which led to a new career as a specialist.

The final capability component of "formulation of self" is reflective self-attention. A distinction is made here between reflective and ruminatory self-attention. Steele (2015, p. 71) writes that reflective self-attention "involves task, rather than self-diagnostic, thought patterns and assessing one's performance for 'lessons learnt' in order to stimulate learning and development and is subsequently indicative of a high level of emotional control", and that "reflective self-attention is conceptualised as an adaptive process, is thought to be motivated by curiosity and a genuine interest in knowing the self, and is characterised by openness, positivity, and a learning orientation towards self-discovery". In line with this explanation, participants specifically commented on their own "natural inquisitiveness" and "curiosity" (I2, I4, I6) with all participants having varying degrees of desire to know themselves. All were open and positive towards learning expect for I7, who saw learning as something they chose not to do, but could do if they had to, and I5.

Each of these items has its own unique aspects, and each one was found within the interview data and subsequently supported by the literature. How these components of "formulation of self" apply to each participant is outlined in Section 5.4.3. Appendix 5.2 gives details of 'formulation of self – capabilities.

5.4.3   Interviewees' – "Formulation of Self"

The 12 self-related terms of "formulation of self" were analysed for each interviewee; this included the process of determining how strongly these aspects were displayed by each interviewee based on the interview data and the experience of the interview.

Figure 5.4 shows an example of this analysis for one participants' "formulation of self" (Appendix 5.3 contains the data for all participants).

Components of Formulation of Self as Evidenced from Interview Data

Interview No. 1 – PA

Legend: Green - Strongly Evidenced, Blue - Moderately Evidenced, Orange - Low Evidence

ATTITUDES		
Self-Efficacy - belief in one's abilities and competencies to achieve desired outcomes	Self-Belief - confidence in your ability and judgement	Self-Esteem (Global) - overall perception of one's own worth
• Innate ability and desire to lead • Saw himself as a natural leader	• Trendsetter not follower • Very good at developing programmes for others • Realised I had the capability but had not applied it • Believes he can do whatever he sets his mind to • Very strong in the interview articulating what he is capable of and what he wants to achieve	• Developed self-esteem from coping with life independently from a very young age operated in an adult world from the age of 15 • Had various significant knock-backs in life that adversely impacted his global self-esteem
Self-Perception - perception about the type of person you are	Self-Conception - idea of the self based on beliefs about self and responses from others	
• Very sophisticated leadership qualities • Highly advanced decision-making skills • Strong desire to show others how it is done	• Knows own capabilities and uses these to assist others • Self-conception adversely impacted by the opinion and experiences of others	
CAPABILITIES		
Self-Sufficiency (Psychological) - ability to take care of oneself	Self-Direction - ability to act as an independent agent	Self-Agency - ability to control one's own actions in the world
• Independent • Highly efficient • Self-sufficient (own words)	• Willing to step into unknown terrain and take the risk • Worked at the pointy end (including on the battlefield)	• Actively, deliberately and purposefully charted his own course
Self-Leadership - ability to influence self to act in certain ways depending on circumstances	Self-Regulation - ability to judge and regulate behaviours ensuring appropriateness	Self-Attention (Reflective) - ability to have a genuine interest to know oneself characterised by openness and willingness to learn
• Tunnel-visioned in his desire to make a difference • Had to make own way in the world from the age of 15 • Lived in multi different cultures before the age of 15 so learned how to survive	• Have many instances where he was tested and he learnt how to moderate his behaviour to suit the situation and not create unhelpful repercussions eg: discharge from army and experiencing professional snobbery where he was openly treated with derision	• Actively used life experiences to facilitate his learning • Undertaken formal education to aid transition from one domain area of expertise to another drawing on learnings from first career to inform second career • Open to learning from others not unduly influenced by others
Self-Awareness - ability to have conscious knowledge of one's own character and feelings		
• Likes to be an active learner not passive learner • Likes to set the path not just follow it		

Figure 5.4 – Analysis of "Formulation of Self" – Interviewee 1

As shown in Figure 5.4, Interviewee 1 strongly showed three attributes (self-efficacy, self-belief and self-perception) and moderately showed two attributes (self-esteem (global) and self-conception). Self-esteem and self-conception had been affected by the input and opinions of others, which had somewhat lowered the individual's opinion of their abilities and of themselves overall.

After the individual analysis was completed, it was considered valuable to assess the aggregated results for the entire interview group (Table 5.1).

Self - Term		Interview #1	Interview #2	Interview #3	Interview #4	Interview #5	Interview #6	Interview #7	Interview #8	Interview #9	Interview #10	Interview #11	Interview #12
Attitudes	Self-efficacy	Strong	Moderate	Moderate	Strong	Moderate	Strong	Strong	Strong	Moderate	Strong	Moderate +	Moderate +
	Self-belief	Strong	Moderate	Strong	Strong	Moderate	Strong	Strong	Strong	Moderate	Strong	Moderate +	Strong
	Self-esteem (Global)	Moderate	Low	Moderate	Strong	Moderate	Strong	Moderate	Strong	Strong	Strong	Moderate +	Moderate +
	Self-perception	Strong	Moderate	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong
	Self-Conception	Moderate	Low	Moderate	Strong	Strong	Strong	Moderate	Moderate	Strong	Strong	Moderate +	Strong
Capabilities	Self-sufficiency (Psychological)	Strong	Moderate	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong
	Self-direction	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Moderate +	Strong
	Self-agency	Strong	Moderate	Strong	Strong	Strong	Strong	Moderate	Moderate	Strong	Strong	Strong	Strong
	Self-leadership	Strong	Strong	Strong	Strong	Strong	Strong	Low	Strong	Strong	Strong	Moderate +	Strong
	Self-regulation	Strong	Strong	Strong	Strong	Strong	Strong	Low	Strong	Strong	Strong	Strong	Strong
	Self-attention (Reflective)	Strong	Moderate	Strong	Strong	Moderate	Strong	Low	Moderate	Strong	Strong	Strong	Strong
	Self-awareness	Moderate	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong

Table 5.1 Summary of Results for "Formulation of Self" – All Interviews

These results demonstrate that the average rating for "attributes" is lower than for "capabilities", but this did not prevent the participants from being able to achieve a great deal in their domain area of expertise. This suggests that low ratings in "attributes" is not an impediment to growth and success.

Table 5.2 quantifies the respective results in each component of the "process of self-construction". The highest ratings category in the attitudes group was self-perception, with 11/12 (92%) rating strongly and 1/12 (8%) rating moderately; the lowest category was self-esteem, with 5/12 (42%) rating strongly, 6/12 (50%) rating moderately and 1/12 (8%) rating low. Many (Heimpel, Elliot & Wood et al. 2006, p. 1297; Baumeister et al. 2003, p. 2; Rosenberg et al. 1995, p. 143; Campbell 1990, p. 539) would suggest that individual's low self-esteem can stop them from achieving; however, these results would imply otherwise. Table 5.2 clearly shows that the overall average for attitudes is lower than for capabilities. The interview data suggested participants' low overall belief in their abilities (that is, their attitudes) drove them to continue developing their capabilities. The degree of significance of these aspects requires further investigation and could provide an opportunity for future research.

Attitudes		
Self-efficacy	6 Strong	6 Moderate	0 Low
Self-belief	8 Strong	4 Moderate	0 Low
Self-esteem (global)	5 Strong	6 Moderage	1 Low
Self-perception	11 Strong	1 Moderate	0 Low
Self-conception	6 Strong	5 Moderate	1 Low
Capabilities		
Self-sufficiency (Psychological)	11 Strong	1 Moderate	0 Low
Self-direction	11 Strong	1 Moderate	0 Low
Self-agency	9 Strong	3 Moderate	0 Low
Self-leadership	10 Strong	1 Moderate	1 Low
Self-regulation	11 Strong	0 Moderate	1 Low
Self-attention (Reflective)	8 Strong	3 Moderate	1 Low
Self-awareness	11 Strong	1 Moderate	0 Low

Table 5.2 – Overall Results of Analysis of "Formulation of Self"

Table 5.2 demonstrates that the four capabilities that were demonstrated most strongly were self-sufficiency (psychological), self-direction, self-regulation and self-awareness each, with 11/12 (92%) of participants providing evidence of this in their interviews. Self-leadership was next, with 10/12 (83%). The lowest result was self-attention (reflective) with 8/12 (67%) and the second-lowest was for self-agency 9/12 (75%).

These findings are in alignment with the explanations offered by Lawrence and Moore (2019, p. 134) who state that people are multidimensional and that different aspects of the self develop at different rates, in alignment with the precepts of adult development offered by Kegan (1994). The findings are also supported by Lawrence and Moore's (2019, p. 130) assertion that capabilities include the consideration of self and that individuals are dynamic and ever-evolving. Lawrence (2018, p. 33) suggests that to simply focus on competency, as the expertise literature has a tendency to do, is insufficient, and that there is a need to focus on how individuals "expand [their] knowledge set, extend [their] flexibility and become more reflective". Consideration of capability as well as consideration of perspective which is to "reflect on how we think and to access new ways of making meaning" are both important factors. The insights from this research help to identify ways that this can actually be achieved.

Thematic coding and the subsequent in-depth analysis of the interviews resulted in the following answer to the proposed question: the distinguishing characteristics and attributes of a knowledge-based professional are:

their process of self-construction, comprising formulation of self + drive

5.5 Personal and Professional Mindset – Approach and Style Adopted

The final category from the selective coding process (Figure 5.1), Personal and Professional Mindset, provided the data to identify the "personal resources" and "proactive behaviours" that the participants employed and that had not been previously identified in the literature. Based on the interview data, Section 5.5.1 describes the

components of "personal resources" and Section 5.5.2 describes the components of "proactive behaviours".

5.5.1   Components of Personal Resources

The following concepts explain the findings and impressions gained from interviews conducted as part of this research Participants' specific statements that relate to these aspects have been included in Table 5.3, which provides a matrix analysis of the "personal resources" (van den Heuvel et al. 2010, p. 127) and the "proactive behaviour" (Crant 2000, p. 435) aspects of "drive" recognising that this is supported by the individual possessing a growth mindset; the over-arching personal resource all participants had in common.

As Table 5.3 shows the interview data revealed five interrelated "personal resources" associated with "drive":

1. Self-Efficacy (Introspective) – influences how someone acts and perceives their likelihood of success (Bandura 1977, p. 194).
2. Resilience (Perceptual and Behavioural) – indicates the ability to flourish or live within an optimal range of human functioning (Fredrickson & Losada 2005, p. 678).
3. Determination (Perceptual and Behavioural) – an aspect of autonomy; the ability to make choices for oneself (Bennett, Bennett & Avedisian 2015, p. 126).
4. Resoluteness (Perceptual and Behavioural) – indicates bravery, risk-taking and being, "able to withstand heavy loads" (Pinigina et al. 2017, p. 2).
5. Grit (Perceptual and Behavioural) – perseverance toward and passion for long-term goals (Duckworth et al. 2007, p. 1085).

Self-efficacy is an introspective consideration that comes from individuals understanding themselves and what they are capable of. Resilience, determination, resoluteness and grit can all be described as perceptual and behavioural in nature and become known through observation and exploration. They relate not only to how

individuals understand themselves but how they present themselves in the world in which they operate.

The terms "self-efficacy", "resilience", "determination" and "grit" are well researched across a number of disciplines including business as a result they are not explored in depth here. One term less well known and understood, yet very common in the literature, was the construct of "resoluteness". Hence a more detailed review of the literature was undertaken to better understand this term and its relevance for this research.

Exploration of this term had its challenges. The term "resoluteness characteristic" proved to be more fruitful than other search terms, leading to the discovery of a conference paper by Pinigina, Kondrina, Smagina, Tatsienko and Meshkov (2017, p. 2). While this paper was brief, it provided components of a framework to analyse the interviews: a group of qualities called "Professionally-Important Qualities" (PIQs) that were significantly aligned with findings from interview number 1 and, to varying degrees, from subsequent interviews.

Pinigina et al. (2017, p. 2) specify six "professionally important qualities":

1. Responsibility – sense of duty, precise and accurate, like order, conscious, conscientious and highly moral.
2. Self-control – organised, able to control their emotions and behavior, to overcome obstacles, finish of what they start, are aware of social demands and try to fulfil them.
3. Resoluteness – people who are brave, resolute, risk-taking, able to withstand heavy loads; do not get lost when confronting unexpected circumstances.
4. Being a team player – keep good relations in the team, friendly, unenvious, compliant, careful to some extent.
5. Self-confidence – adequate self-esteem, confident in their abilities, actively respond to all events.
6. Restraint – control their emotions, do not take hasty decisions, responsible for assessing events, balanced in their dealings with people.

The description for "resoluteness" perfectly described participants based on a full reading of their interview transcripts. As a result, a more detailed assessment of the specified qualities was undertaken and they too seemed to have relevance for this study. The degree of relevance would vary, but each proved important for understanding knowledge-based professionals.

A search for the terms "professionally-important qualities" and "professionally important qualities" revealed that most of the work on this particular construct appears to be emanating from Russia, and has only occurred since 2010 (the reasons why this is the case was not determinable from a review of the literature, as it was outside the scope of this research to know why it was not pursued in depth). Most of the other articles were from specialised science areas including medicine, the military and physical education, and thus were not relevant to this study, and one that could have been relevant was only available in Russian. The only other article identified using the term "professionally-important qualities", by Radchenko (2015) relates to a self-assessment of future health basics teachers and did not provide any useful information other than to mention that this construct was the basis for the assessment.

Investigation of the search term "resoluteness behaviour" similarly provided research from fields that would provide neither insight nor more detail on what PIQs are, how they are relevant and how they have been applied to date.

The term "resoluteness characteristics" found an article entitled "Which CEO characteristics and abilities matter?" (Kaplan, Klebanov & Sorenson 2012, p. 973) was identified. The article noted that CEOs are seen as demonstrating varying levels of resoluteness which is then translated to equate to overconfidence. This could be seen as a limited and potentially unhelpful translation of the term.

Based on the reference in Kaplan, Klebanov & Sorenson (2012, pp. 1-5) a comprehensive review of the article by Bolton, Brunnermeier and Veldkamp (2008) was undertaken. The article entitled "Leadership, Co-ordination and Mission-Driven Management" states that: "a good leader is able to coordinate his [sic] followers around

a credible mission statement, which communicates the future course of action of the organization"…."Leader resoluteness is a valuable attribute in such a setting, since it slows down the leader's learning and thus improves the credibility of the mission statement" (p. 1).

This deduction seems quite simplistic. It also questions the value of resoluteness suggesting that it can inhibit communication can indicate overconfidence. Moreover, the authors do not make it clear how they reached these conclusions.

Bolton, Brunnermeier and Veldkamp (2008) describe a resolute leader as possessing five characteristics which include them:

1. Having a strong opinion, and potentially being slow to change their minds when new information is presented (p. 3);
2. Attaching an exaggerated value to initial information (p. 3);
3. Showing a higher tendency to rely on their own information than that from others (p. 23);
4. Being bad listeners (p. 5);
5. Displaying greater commitment (p. 21);

The authors suggest that resoluteness is not malleable (p. 18). Kaplan, Klebanov and Sorenson (2012, pp. 973-1007) note that Bolton, Brunnermeier and Veldkamp (2008) view the concept of resoluteness through the lens of bringing followers along to agree and work towards a particular mission for the organisation.

This analysis suggests that resolute leaders have clarity of mind and purpose, which of itself, may be considered beneficial, but may also display less beneficial characteristics such as bad listeners who are more likely to take their own counsel rather than that of others. The suggestion that resoluteness is not malleable (Bolton, Brunnermeier & Veldkamp 2008, p. 18) does align with the general definition of resoluteness as "having made a firm decision and being resolved not to change it", but does little to elucidate what psychological or individual traits might lead to someone being resolute.

172

Kodish's article (2006) 'The Paradoxes of Leadership: The Contribution of Aristotle'. briefly discussed the word "resoluteness", noting that resoluteness have been associated with narcissistic tendencies; that leadership can be seen as a battle between "personal humility" and "professional will" (p. 453); and that leadership is by nature, paradoxical, complex, dynamic and contextualised (p. 452). The current study makes the assumption that an individual's area of expertise does not change the nature of the PIQs they possess, and that findings from the literature can apply to knowledge-based professionals.

5.5.2   Components of Proactive Behaviour

In addition to the five "personal resources" associated with "drive" the interview data revealed seven "proactive behaviours" that demonstrated participants' "drive":

1. Displaying Personal Responsibility – not reliant on someone else to take action.
2. Accepting a Challenge/Seeking Achievement – willing to take on tough tasks for the sake of the sense of achievement this brings.
3. Exercising Persistence/Intense Focus – staying focused and committed in the long term.
4. Desiring to Have a Positive Impact/Contribute to a Purpose – wanting to contribute to the bigger picture for others's sake as well as their own.
5. Using their Self-awareness/Showing Clarity – using what they know about themselves to help them to take action.
6. Leveraging What They Know – using what they know to bring together different ideas or building wisdom so as to maximise benefit wherever possible.
7. Displaying Curiosity – wanting to understand how things work.

This analysis suggests that one of the characteristics of a knowledge-based professional is their "drive", which is a unique combination and application of their "personal resources" and "proactive behaviours.

5.5.3 Drive – Relationship of Personal Resources and Proactive Behaviours

Table 5.3 reflects how 'drive' has been demonstrated by participants by using references from the interview data showing how the "personal resources" and "proactive behaviours" interact to demonstrate "drive". This table shows the matrix relationship that exists between 'personal resources' and 'proactive behaviours'.

Personal Resources (van den Heuvel et al. 2010)	Growth Mindset (as articulated by participants consistently across interviews)				
	Self-Efficacy	**Resilience**	**Determination**	**Resoluteness**	**Grit**
Proactive Behaviours (Crant 2000)					
Displaying Personal Responsibility	Used learning to catalyse change and create opportunity (All)	Learned by having to sink or swim (I11)	Willing to take responsibility to get things done (I1) Earned their stripes (I1) Willing to make hard choices (All)	Do not know if I would have done that much study if I did not have the parallel application to actually use it at the same time (I10)	
	Make the most of opportunities (circumstances and situations) (All)		Engaged, stimulated and challenged by the pursuit of doing things (All)		
	Need to be active in the learning process (I9) Do not want to fail (I12)		Important to apply what you learn (I12) Wanting to be excellent is pretty innate (I12)	Ambitious but it's not about the status (I1) - Willing to volunteer (I1) - It's not about the money its about the subject matter (I2) - It is not about the money you have got to be leading edge (I3)	
	Practice their art every day (I3, I4, I6, I7)	Faced adversity with courage and determination (I1, I5, and I7)			
		Assess risk and take steps to minimise risks (All)			
	If there is a need willing to do something about it (I1 and I5)	Able to determine what they wanted (from an early age) (All)			
		Able to make critical decisions even at a young age (I1)			
		Use failure as an opportunity to learn (I1, I5, I6, and I7)			

174

Personal Resources (van den Heuvel et al. 2010)	Growth Mindset (as articulated by participants consistently across interviews)				
	Self-Efficacy	Resilience	Determination	Resoluteness	Grit
Proactive Behaviours (Crant 2000)					
			Tunnel vision – gave themselves to their work at the expense of everything else (I5)		
			Purposeful reading – how can I use this to help others (I2, I3, I4, I6, and I8)		
Accepting a Challenge/ Seeking Achievement	Like the challenge of new things (I1)		Willing to make hard choices (All)	Take on any challenge that presents itself (I9)	
	Not dissuaded by the unknown (I1)				
	Used learning to catalyse change - create opportunity (All)	Intense learning experienced at Harvard helped to increase their self-confidence (I10)	To be at the top of your game you have to work really, really hard and you need to keep at it (I12)		
	Not overwhelmed by the unexpected, new or complex (All) • Approach with curiosity (I4) • Look for value (I6) • Not deterred (I8)				
	Make the most of opportunities (circumstances and situations) (All)	Resilient to change as a result of life experiences (I9)	Learn to go to next level of success (I3) Push to see what is possible (I4) Do not take "no" for an answer (I7) Get things done (I1, I3, I5, and I7)		
	Faced adversity with courage and determination (I1, I5 and I7)				
			Engaged, stimulated and challenged by the pursuit of doing things (All)		

Personal Resources (van den Heuvel et al. 2010)	Growth Mindset (as articulated by participants consistently across interviews)				
	Self-Efficacy	**Resilience**	**Determination**	**Resoluteness**	**Grit**
Proactive Behaviours (Crant 2000)					
Exercising Persistence/ Intense Focus	Make the most of opportunities (circumstances and situations) (All)		Combine learning and technology to create benefit (I3 and I4) Persistent desire to do things better (All) Strong desire to succeed to achieve a desired end result (I1, I4, I7) Does not know how people can stop learning and growing (I9)	Purposeful reading – how can I use this to help others (I2, I3, I4, I6, and I8)	
	Engaged, stimulated and challenged by the pursuit of doing things (All)		Take calculated risks (All)		
			Purposeful reading - how can I use this to help others (I2, I3, I4, I6, & I8) Engaged, stimulated and challenged by the pursuit of doing things (All)		
			Willing to make hard choices (All)	Ambitious but it's not about the status (I1) - Willing to volunteer (I1) - It's not about the money its about the subject matter (I2) - It is not about the money you have got to be leading edge (I3)	
Desiring to have a Positive Impact/ Contribute to a Purpose	Drive to make a difference (I2 and I12) Drive to share with others (I1 and I4) Drive to educate others (I1 and I4)		Persistent desire to do things better (All) Desire to guide people in the right direction (I9)		

Personal Resources (van den Heuvel et al. 2010)	Growth Mindset (as articulated by participants consistently across interviews)				
	Self-Efficacy	Resilience	Determination	Resoluteness	Grit
Proactive Behaviours (Crant 2000)					
	Drive to go above and beyond (I4) Driven to correct misconceptions that people have about food (I9)				
	Likes to share competence with others (I11) You have to have a purpose (All)		Drive to make the world a better place (I3 and I4) Drive to accelerate change in the world (I3 and I4)		
			Purposeful reading - how can I use this to help others (I2, I3, I4, I6, and I8)		
Exercising Self-awareness/ Clarity	Used learning to catalyse change and create opportunity (All) Natural curiosity (I4) Natural inquisitiveness (I2) Inquisitive mind (I8) Willing to say I do not know (I9) Desire to do for others what has been done for them (I11)	Having someone push them helped make a difference (I11)	Need a lot of internal motivation that gives you the ability to persist (I12)	Consider myself to be "steadfast" (I10)	Success and failure both enable learning (I11)
Leveraging What They Know	Desire to bring their passion for science and food together (I9) Make the most of opportunities (circumstances and situations) (All)		Combine learning and technology to create benefit (I3 and I4) Persistent desire to do things better (All)	Drive to make the world a better place (I3 and I4)	

Personal Resources (van den Heuvel et al. 2010)	Growth Mindset (as articulated by participants consistently across interviews)				
	Self-Efficacy	**Resilience**	**Determination**	**Resoluteness**	**Grit**
Proactive Behaviours (Crant 2000)					
Displaying Curiosity	Natural curiosity (I4) Natural inquisitiveness (I2) Inquisitive mind (I8)		Intrigued and interested by the science (I9, I10, and I12) Persistent desire to do things better (All)	Drive to make the world a better place (I3 and I4)	

Table 5.3 - Drive - Deconstructed Components of Drive as Evidenced from Interviews

5.6   Results from Research Coding

The analysis to this point has led to the following perspectives from the literature to identify and map the characteristics and attributes of a knowledge-based professional. From the literature reviewed it was not possible to identify a suitable pre-existing framework to analyse the interviews from this research, nor was it possible to find a consolidated work in the literature that told the whole story about knowledge-based professionals however, when a number of different approaches and perspectives across a range of disciplines are combined, the situation becomes clearer. The level of segmentation in the literature caused important findings in one area to not be sufficiently considered in another, which can limit the richness of findings, and thus potentially limit what organisations can become capable of. A possible weakness of the approaches used is that knowledge workers have not been afforded the same respect as leaders and managers, and yet many of the constructs explored in reference to leaders apply to knowledge workers. Knowledge workers are leaders in their domain areas of expertise. One distinction to the leadership literature is there is an implied assumption that leaders may occupy a more significant positions within organisations which can provide an opportunity to command and control those who work for them.

Some implications of these insights for this research are that this research has provided an objective, reliable and effective framework to analyse interviews and satisfy the requirement of Grounded Theory with constant comparison to the literature. It has also described one consistent way to process and analyse the interviews with the potential to provide new insights related to existing constructs. Coupled with this is the provision of signposts of where else to look that has not been highlighted in the knowledge-worker or expertise literature that would provide new understanding of knowledge-workers as a group. Another relevant factor emanating from this research is it has provided an objective assessment of knowledge workers without unnecessarily or inappropriately forcing them to fit into predefined approaches independent of them as individuals enabling previously undiscussed aspects about this group to emerge. Findings of this nature have not previously appeared in the literature in this way. As a result it was considered relevant to undertake validation interviews as outlined in Chapter 6.

5.7   Summary of Chapter

This chapter has provided a review of how the thematic coding of interviews was conducted, leading to the identification of the distinguishing characteristics and attributes of a knowledge-based professional to be their "process of self-construction". The "process of self-construction" was identified as having two key components: of "formulation of self" and "drive", the latter of which has not yet been identified or investigated in the literature. This chapter has identified distinguishing characteristics and attributes of knowledge-based professionals, described processes that can be used within a grounded-theory study that have not previously been clearly articulated as a process and shown how the process used in this study relate to other processes identified in the literature.

The approach used in this chapter was to describe the component parts of the "process of self-construction" which consisted of three groupings where each aspect was described in detail in the following sequence:

1. Growth Mindset

2. Enabling Inherent Capacity through their "formulation of self", consisting of "attitudes" and "capabilities"

3. Application of Inherent Capacity via their "drive", consisting of "personal resources" and "proactive behaviours"

Validation interviews were used as the primary mechanism to ensure credibility, trustworthiness and rigour of the research findings having ensured any impact of researcher bias has been minimised. The next chapter will explain the outcomes of the validation interviews conducted:

1) Respondent validation interviews (also known as member-checking interviews) where results are presented to participants for comment.

2) Peer debriefing and consensual validation interviews where independent objective parties review the research to ensure the rigour and validity of research outcomes.

CHAPTER 6 – VALIDATION INTERVIEWS
(Ensuring Research Credibility, Trustworthiness and Rigour)

6.0   Introduction

The previous chapter provided a comprehensive outline of the 'Process of Self-Construction' Model (Figure 5.1) developed through this research. This chapter will describe how validation interviews of two types – "respondent validation" (Bazeley 2013, p. 89) and "peer debriefing and consensual validation" interviews (Bazeley 2013, p. 409) – were used to ensure the rigour, trustworthiness and credibility of the research. Specific data points from the interviews are included, where there were aspects of commonality and where there were differences; the aim was to demonstrate that all findings are based on the available data and not simply derived from the researcher's understanding.

6.1   Approach to Validation Interviews

As discussed in Chapter 5 validation interviews were conducted in three stages which were:

1. Respondent validation (member checking) - four interviews.
2. Peer debriefing and consensual validation - four interviews.
3. Second-round initial interviews including peer debriefing and consensual validation four interviews.

This provides a total of 12 interviews that were used to help with the validation process of the research to help ensure credibility of the findings.

6.1.1 Phase 1 - Responses from Respondent Validation Interviews

After the data was synthesised and conceptualised, the respondent validation interviews were conducted. The first respondent validation interview was conducted with Interviewee 6 based on their accessibility and a keen interest in seeing how the data they had been provided was being used. The nature of these interviews was unstructured however they did follow a similar approach to the first round of interviews. This initial interview, which took about 40 minutes, enabled the interviewee to review and comment on the relevant information. The interviewer began by explaining the process of taking the transcript data and the steps taken to achieve the synthesised results. This approach was based on insights from the literature as described in Chapter 3, Section 3.8.

The documentation of the insights from the respondent validation interviews was emergent, as there were no examples in the literature to suggest how this process should be undertaken or what aspects needed to be documented to help demonstrate the interviews' value as noted by Thomas (2017, p. 27): "Studies reporting use of member checks *(respondent validation)* often provide little or no information about the procedures used, the responses from respondents or changes resulting from member checks."

Prior to the initial respondent validation interview, the participant (Interviewee 6) was asked whether they wanted to look at the information in advance, to which they said yes. It was forwarded to them several days before the interview so they could familiarise themselves with it. This resulted in less time being needed to talk them through the process. Subsequent participants involved in this process chose not to get the information in advance of the interview, instead allowing the researcher to explain it to them in the moment before they responded. Both methods were effective and enabled participants to provide valuable input.

The interviewer explained to Interviewee 6 that a line-by-line coding of each interview transcript had been conducted, and that the statements in each transcript had been categorised as indicating intrinsic factors, such as personal and professional mindset,

self-perception and innate qualities, and extrinsic factors, use as perception of education and training, disruptions and transitions. The interviewer then described how this information had been used to develop the concept of "drive" (Section 6.2.1A). Interviewee 6 was given a chance to review and comment on the process, and asked if they could relate to and see themselves within the deconstructed construct of "drive". They were then given the opportunity to ask questions for clarification to enhance their understanding of the information. The researcher then explained how the data had been analysed to formulate the "the process of self-construction" (subsequently renamed "formulation of self"), and gave Interviewee 6 a copy of their interview analysis as it related to this process. Interviewee 6 was given time to read and reflect on the results, then asked whether they felt it represented them accurately, and whether anything was missing or surprising. They were then involved to offer additional comments.

A very positive result was achieved through this respondent validation interview with Interviewee 6 whose response can be summed up with the following statements that they made when asked how they felt seeing themselves represented using the "Process of Self-Construction":

- "Feel proud"
- "Go you"
- "Gained more insight about myself"
- "Very accurate representation of me"

Interviewee 6 displayed a strong positive emotional response when asked to comment on how they felt seeing themselves in this way. Given this positive response for both the participant and the researcher, it was considered appropriate to undertake a number of such interviews to gain a wider response to the results from this analysis. As stated in Section 3.4, four respondent validation interviews were completed as part of this phase, the results of which are included in the following section.

Following the respondent validation interview with Interviewee 6 requests to participate in respondent validation interviews were sent to the remaining participants for whom the researcher had contact information. Several interviewee requests were

undeliverable. Interviewees 1and 8 agreed immediately to participant in a second interview to review and comment on the analysis of the data; a week after of the initial request Interviewee 4 also agreed.

6.1.1.1   Phase 1 – Respondent Validation Interview Themes and Comments Common to all Respondents

An overview of the participants' comments is included below.

Ten common responses by participants in the respondent validation interviews were identified.

1.   The approach used was understandable:
      - "it sounds rational to me" – Interviewee 1
      - "that makes perfect sense" – Interviewee 4
      - "covered it really well" – Interviewee 6

2.   The concepts highlighted had relevance to them:
      - "that makes perfect sense" – Interviewee 4
      - "absolutely – I can relate to all these things" – Interviewee 6
      - "I wouldn't have necessarily painted this myself, but now that I look at it I go, 'Yeah, that's me'" – Interviewee 8

3.   They appreciated the effort that had gone into consolidating their initial input in this way:
      - "I feel confident because of the approach the theory, the methodology, I guess. That gives me confidence." – Interviewee 8

4.   The analysis represented them accurately:
      - "It's good. It's always challenging to see descriptions of oneself, but nothing there I would challenge" – Interviewee 1
      - "Yeah. This is very representative of me – paints a good picture" – Interviewee 8

5.   They had no negative responses to the data:
      - "certainly no negative feelings" – Interviewee 1

6.   They did not feel anything significant had been overlooked:

- "covered it really well from behaviours" – Interviewee 6
- "no … the content is fine" – Interviewee 8

7. They confirmed that what they had said a few years ago still rang true today:

   - "When you look at things like that, it helps you understand how you got through what you got through" – Interviewee 1
   - "It's quite interesting having this snapshot of how I saw myself years ago and going, 'And could I argue any of those points? No, I can't.' Like, I couldn't argue with it then and I cannot argue with it now" – Interviewee 4
   - "This is interesting. When we did this it was prior to the two biggest traumas in my life accident and separation and I look at this and think, 'If I did not have these things I think I would have been a complete mess'" – Interviewee 6

8. There was nothing that surprised them

   - "There's nothing surprising in the sense [that] there is nothing I didn't know, but it always is a bit – maybe not the word 'surprising', but sometimes it's in your face to actually see it again" – Interviewee 1

9. They considered seeing the information presented in this way to be valuable and to offer insights:

   - "I like this. I like this a lot. I mean, just the journey you have taken me on to get to these two things I think is great" – Interviewee 4
   - "it is a very succulent way of putting it" – Interviewee 6
     (Interviewee 6 did use the word "succulent" however may have meant succinct)
   - "this looks very neat" – Interviewee 8

10. They expressed a sense of pride and pleasure in how they had been viewed as presented in the findings

    - "What can I say – a bit humbled that is me as well. Excited that these characteristics – that is who I am" – Interviewee 6
    - "But that looks very representative of me. Yeah. Definitely" – Interviewee 8

6.1.1.2   Phase 1 – Respondent Validation Interviews - Themes and Comments where Respondents Varied

Participants raised a number of aspects independently (Table 6.1) where some could be actioned as part of this research, while others are included in the opportunities for future research discussed in Chapter 8. Each aspect raised was given appropriate consideration Table 6.1 identifies the aspects raised by the participants and the responses provided by the interviewer.

Respondent	Aspects Raised Throughout Discussion	Response Provided to Participant
Interviewee 1	1. Asked how many participants there were and what their genders were. 2. While initially not happy with some instances of "moderately evidenced", due to his competitive nature, on further consideration they saw that as a positive, as it demonstrated a degree of balance and highlighted opportunities for improvement. 3. Noted that their attitudes, capabilities and abilities were not necessarily something to be assessed as positive or negative; they are simply present and there is no judgement applied to their value. 4. Wanted to know how the grading worked; specifically if strong was from 7-10 were they more a 7 or a 10?	1. There were eight participants and gender had deliberately not been considered for this research to distinguish it from previous research and to reflect the fact that gender was not an influencing factor in this study. 2. Participant was affirmed and not judged for their perspective they used this as an opportunity for reflective practice. 3. Participant was thanked for raising this aspect, which, while an inherent part of this study design had not been expressly articulated. 4. Participant was thanked for this input and then advised that based on the information available it was not necessarily possible to get to this level of granularity but that it would certainly be an opportunity for future research.

Respondent	Aspects Raised Throughout Discussion	Response Provided to Participant
Interviewee 4	1. Questioned the use of the word "assessment" when explaining the term self-esteem (global) as "overall assessment of one's own worth": they felt that the use of the word "assessment" could imply it is a capability, not an attitude. 2. Asked about how "strongly evidenced", "moderately evidenced" and "low evidence" was determined. 3. When discussing the "process of self-construction", asked about how this might be applied. 4. Raised the idea that these items could be considered a deconstruction of what is often referenced as confidence 5. Suggested that it would be good to discuss that this is a look at capability, not competence or competency levels, and that this note might need to be included in the research as a specific statement.	1. This point was discussed and it was determined that the word "perspective" would be more accurate than "assessment" and that the mind map and other documents would be amended to reflect this change. Participant was thanked for helping clarify this point. 2. Researcher explained that this was based on the essence of what they had to say and how they perceived themselves, as derived from the interview transcript, and quantifying these terms in any tangible way would be outside the scope of this work however, it would provide an opportunity for future research. 3. Researcher explained that application of the findings was outside the scope of this research and would be an opportunity for future research. 4. Participant was thanked for their insight on this and told that it would need further consideration regarding its relevance. 5. Researcher noted the need to consider how this idea can best be used.
Interviewee 6	1. Raised the idea that "when you look at an expert performer, it is something that happened naturally and it's not a thought process". 2. Was interested in how this could be applied in the workplace, especially with regard to training and up-skilling knowledge workers. 3. Demonstrated a keen interest in the difference between self-perception and self-conception with the follow-up comment that "it is a succulent way to put it" (correct notation of comment by participant they used "succulent" not "succinct"). 4. Commented that "even the top of the food chain are very critical of themselves".	1. Researcher shared with the participant that this fitted with the initial categorisation of "innate qualities" that these people have. 2. Researcher acknowledged what participant and added that application of the insights was outside the scope of this research, it would certainly provide an opportunity for future research. 3. Researcher acknowledged and showed appreciation for the insight demonstrated and the meaning behind this statement. 4. Participant and researcher spent time discussing what this meant and the possible implications.

Respondent	Aspects Raised Throughout Discussion	Response Provided to Participant
Interviewee 8	1. Felt that the grading scale seemed right and that the colour coding for the respective categories seemed appropriate 2. Discussed the fact that one can be attitudinally weak yet strong in capabilities. 3. Made a statement that appeared to validate the conflation of the personal and professional "I just bring me. I brought the characteristics that I have as a normal human being, and they work in the workplace just as they work personally." 4. Suggested that this information was innovative and they had not seen it presented in this way previously: "modelled it and brought it to a picture of meaning that no one has seen, in a way, and you have represented it in a way no one has seen, and which is going to be accurate because it's rigorous and because it's been through a multi-staged process, I think", "once you put the data in it, it has legs", and "also does look innovative" 5. Was very positive in their support of the findings, given the rigour that had been applied to formulate the end results "I think it is very grounded….I feel confident because of the approach, the theory, the methodology, I guess. That gives me confidence."	1. Researcher asked if this added extra meaning for participant; they said that it did enhance their understanding. 2. Participant and researcher spent time discussing how this was definitely his experience, which further affirmed the findings and how they had been presented. 3. Researcher clarified that the participant had understood correctly in that they were not making a distinction between their personal and professional selves, which helped to support the initial coding of "personal and professional mindset" without any undue prompting from the researcher. 4. Researcher validated that the analysis of the transcript had been a multistage process, and reconfirmed with the participant that in all their particular experience they had not seen this information presented in this way previously. 5. Participant was thanked for their acknowledgement of the effort that had gone in to getting the results and told that it was reassuring that they saw such benefit in the results.

Table 6.1 - Points of Variation among Respondent Validation Interviews

The overarching sense to be made from these respondent validation interviews are best summed up in the following four statements by Interviewee 8:

1. "It's on the money"

2. "It's innovative"

3. "I have never seen anything like it before"

4. "It is truly representative of me"

On review of the approach to respondent validation interviews a number of benefits were identified which can be grouped into two main categories:

1. Benefits to the Research - it provided an opportunity to validate and affirm the findings and to understand the value these types of interviews can add to the research process

2. Benefits to the participants - it provided participants an opportunity to take pride in themselves where they could see the results. Interviewee 6 commented that it is not often you get feedback on your input. The participants also found value in the research to better understand themselves and other knowledge-based professionals they might work with recognising that this researchers' study criteria provided a different result than if knowledge-based professionals were discussed and analysed at arms length.

6.1.2   Phase 2 – Responses from Peer Debriefing and Consensual Validation Interviews

The process undertaken to analyse the initial interviews was explained similarly to the Phase 1 respondent validation interviews (Section 6.6.1A). As stated in Chapter 3, these peer debriefing and consensual validation interviews were undertaken to get objective feedback on research (and the researcher) but, but who had no specific benefit to gain and was willing to challenge the findings.

6.1.2.1   Phase 2 – Peer Debriefing and Consensual Validation Interviews – Themes and Comments Common to all Respondents

The responses from this group of interviewees was similar to those for respondent validation interviews highlighting nine points of commonality in the feedback provided:

1. They thought the approach used was understandable:
   - "it sounds rational to me" – Interviewee PDCV 1
   - "that makes perfect sense" – Interviewee PDCV 2
   - "covered it really well" – Interviewee PDCV 4

2. They thought that the concepts had relevance to them:
   - "drive – makes sense" – Interviewee PDCV1
   - "this is me, this is who I am" – Interviewee PDCV2

3. They appreciated the effort that had gone into the research:
   - "scientific in how it is done" – Interviewee PDCV1
   - "tracing of individual responses is good" – Interviewee PDCV1

4. They had no negative responses to the data:
   - "like the language used; it is meaningful; came up with good language" – Interviewee PDCV1
   - "nothing is missing" – Interviewee PDCV1
   - "no judgement implied in the language used, not implying something is good or bad so language is neutral" – Interviewee PDCV1
   - "really impressed, very impressed" – Interviewee PDCV2
   - "good terms have been clarified, terminology used can mean different things to different people" – Interviewee PDCV3
   - "intriguing insights" – Interviewee PDCV4

5. There was nothing surprising and they found the results powerful:
   - "Because I think this is incredibly powerful. You've definitely created something incredibly powerful" –- Interviewee PDCV2

6. They considered seeing the information presented in this way to be valuable and insightful:
   - "can impact how people relate – spiritually" – Interviewee PDCV1
   - "clarifying some of the terms e.g., global, psychological, reflective – was helpful" – Interviewee PDCV2

7. They were interested to know about the participant group:
   - "what was the age group or the age of people?" – PDCV1

8. They saw the analysis as relevant as an assessment tool or related to other tools:
   - "they're consistent with other instruments and things that I've used in the past, like MBTI, the integral model, the emotional intelligence framework they all I think pick up the same sorts of attitudes and capabilities" – Interviewee PDCV1

- "I think the other thing, going back to the "Process of Self-Construction" and using it in that 360 way and potentially informed by the approach, you know, the immediate feedback" – Interviewee PDCV2
- "it's based, you know, in some respects on Frederick Taylor's work" – Interviewee PDCV3

9. Considered the model to have widespread relevance:

- "could be used in child raising, education, and high school education" – Interviewee PDCV1
- "has high relevance to the people I work with" – Interviewee PDCV3
- "could relate to employee retention and employee satisfaction" – Interviewee PDCV 4
- "could help with the achievement of self-mastery" – Interviewee PDCV 4

6.1.2.2 Phase 2 – Peer Debriefing and Consensual Validation (PDCV) Interviews Themes and Comments Where Respondents Varied

Each participant in this group had a different focus on the analysis which was most often predicated on their own professional background and how they thought they might be able to use the information. All four interviewees in this group had extensive business backgrounds, especially dealing with large groups of people, either within or as external advisors to organisations. All participants had extensive experience working with individuals who would be categorised as knowledge-based professionals. Some of the differing aspects they raised are detailed below. (To ensure distinction from earlier interviews they were labelled as PDCV interviews with a number which ensures differentiation and also maintains anonymity of the participant).

Varied Individual Comments from Peer Debriefing and Consensual Validation Interviews
PDCV 1
• Curious about the doubts and vulnerabilities of this group.   • Pleased with the language used to avoid judgement or to elicit any specific result.   • Thought that self-confidence was necessary to achieve outcomes, and that this could be seen as a deconstruction of self-confidence (this was an intriguing insight that would require further exploration).   • Wanted to know how the participants were selected, and thus were shown the selection criteria.   • Thought the analysis could be used to help address bullying (while this insight was interesting it was considered outside the scope of this research).   • Was curious to know what enables people to have self-efficacy (this was an intriguing insight that would require further exploration).
PDCV 2
• Took time to understand each of the concepts in depth, especially the self-related terms and their distinctions.   • Thought that this information could be revealing of the "shadow self".   • Saw applicability to the work they were doing.   • Thought that the research could help to bring credibility and immediacy into feedback offered to others (this was an intriguing insight that would require further exploration)   • Believed the results to be incredibly powerful.
PDCV 3
• Was curious about whether the participants were aware of what skills and capabilities they possessed.   • Was keen to fully understand the difference between attitudes and capabilities, and suggested that attitudes are internal, and capabilities are external (considered to be a useful insight that helped clarify this research).   • Was curious that this was about how people saw themselves not how others saw

192

them (explained that much of the research to date had been at arms length and that this was an attempt to get a first hand account from this group).

- Made the comment that the participants mixed their "who" with their "do" (considered to be a useful insight that helped clarify this research).
- Was curious to know what effect (if any) time would have on these results (this was an intriguing insight that would require further exploration).
- Was keen to know how this related back to the original coding schematic (Figure 5.2) this was explained to them.
- Was interested to understand the impact of working on attitudes and how this would affect capabilities (considered to be a useful insight that would be an opportunity for further exploration)

PDCV 4

- Was interested to know how the data could be clustered and began proposing categories; researcher explained that these were the categories that had emerged from the results.
- Was interested to know the impact of "social environments" (interesting insight would that provide an opportunity for future research)
- Considered the social construction that is overlaid on self-construction (this related to how social upbringing affects the "process of self-construction"; it was considered to be a useful insight and would be an opportunity for further exploration).
- Considered what allows people to override what they see (an intriguing question but nonetheless was not deeply considered).
- Asked the question what would organisations be willing to invest to get to know their people better accepting that organisation do need to understand their asset base (intriguing question could provide an opportunity for further exploration)
- Considered how knowing these things might help the organisation and the individual (an intriguing question that could provide an opportunity for further exploration)

Table 6.2 – Varied Individual Comments from Peer Debriefing and Consensual Validation Interviews

These interviews with objective third parties to analyse the results, highlighted aspects (some in scope and others out of scope) that had not initially been considered. These aspects will be further discussed in Chapter 7.

6.1.3 Phase 3 – Supplementary Initial Interviews and Respondent Validation Interviews in Combination

The final phase of interviews involved a combination of the previous two interview types. Phase 3 interviews consisted four interviews conducted in two parts. Part 1 was an initial interview to ensure theoretical saturation had been achieved and no new data or information was provided that did not fit the identified model from the initial eight interviews, for a total of 12 interviews, meeting the requirements for sample size (Guest, Bunce & Johnson 2006, p.74) when conducting a study of this nature (Section 3.3). Part 2 of the interviews with this group of four was equivalent to a combination of a respondent validation and a peer debriefing and consensual validation interview, where the participants were shown results from the earlier interviews and asked how well they felt these findings would represent them and whether they could see how their responses might fit into this framework.

6.1.3.1 Phase 3 – Supplementary Initial Interviews

These four additional interviews were reviewed and analysed similarly to the initial eight interviews and were found to fit the framework without any key information or insights being lost; moreover, the information provided supported the initial round of interviews, thus adding to the validity of the model developed in the first round of analysis. Certain comments added clarity to what had previously been said but did not change any of the interpretations of the findings as they had originally stood.

Some of the expansive terminology provided from this set of interviews, which are representative of all participants included:

- "I need to be active in the learning process" – Interviewee 9

- "I like to fill the gap in my knowledge" – Interviewee 9

- "you need to be able to change your approach so you can keep up" – Interviewee 9

- "like to apply what I have learned into practical/real situations" – Interviewee 10

- "I look for theories and approaches that make sense and therefore enhance my understanding" – Interviewee 10

- "I don't understand how people can stop growing and learning" – Interviewee 10 (growth mindset)

- "having someone to push them helped make a difference" – Interviewee 11

- "you maintain competence in what you can do by using it" – Interviewee 11

- "I think you just have to allow yourself to learn and never think that you know everything" – Interviewee 11

- "motivation and learning the two things that allow you to persist when the chips are down" – Interviewee 12

- "developed by being exposed to those that are at the top of their game" – Interviewee 12

- "so I think that adherence or that wanting to be excellent at something I think is pretty innate" – Interviewee 12

These comments and others helped to confirm that the model developed was relevant and had application, and was not just limited to the initial eight participants interviewed.

6.1.3.2   Phase 3 – Respondent Validation Interviews

Part 2 of these interviews were similar to the respondent validation interviews where the model was explained to participants, who were asked how relevant to themselves they thought it was.

Relevant and supportive comments from these interviews include:

- "lots of work has gone into achieving these results" – Interviewee 9

- "has the potential to be applicable to everyone in society" – Interviewee 9

- "having 'drive' is not enough you need to choose to act on it" – Interviewee 10

195

- "categories offered fits well with them – referred to themselves as 'steadfast', which is a synonym of resolute, and this was before seeing the model" – Interviewee 10

- "there are too many competing challenges for a person's time if they're not driven to go somewhere" – Interviewee 10

- "disruption is something that takes you back to ground zero" – Interviewee 11

- "it all makes total sense to me" – Interviewee 11

- "colour-coded maps of "formulation of self" are 'heat maps'" – Interviewee 11

- "I think there are a lot of people out there who are constantly learning, who are doing that because they don't think they are good enough" – Interviewee 11 (This led to consideration of the relationship between attitudes and capabilities alongside the fact that Interviewee 12 was acting to ensure they did not look like a failure and that they came across as knowledgeable.)

- "very easy to relate to the findings" – Interviewee 11

- "labels and constructs seem appropriate and relevant" – Interviewee 12

- "nothing missing – I think you have got the main ones" – Interviewee 12

These comments of themselves are insightful, but also support insights from both original data-gathering interviews and the validation interviews.

One aspect mentioned by Interviewee 12 that requires special mention: when they looked at the Process of Self-Construction Model (Figure 5.1), they asked whether it was related to Kelly's (1955) Self-Construct Theory or Personal Construct Psychology (PCP). While there was no direct connection, as psychology constructs were outside of scope of this research, this comment prompted a review of some relevant literature that explained the concept: "PCP is a position that sees people as adventurers, capable of pushing the boundaries of their lives as they experiment with alternative interpretations of their changing worlds in an attempt to increase predictability" (Walker & Winter 2007, p. 454.) This will be discussed as an intriguing insight in Chapter 7 and as a potential opportunity for future research in Chapter 8.

6.2   Summary of Chapter

This chapter has provided a review of the 12 validation interviews which constituted the primary mechanism to reduce the impact of researcher bias, detailing the interviewees' responses: where they had similar considerations, where they differed, and   the researchers' responses to their questions. These interviews added insights as well as providing input to the usefulness and relatability of the model, showing that it is both understandable and relevant, providing participants with a new understanding of themselves.

The key theme to be outlined in Chapter 7 is that this model (Figure 5.1) is an integrated, multi-layered tool for exploration that provides a common language to understand and work with knowledge-based professionals. Chapter 7 continues with a discussion of how the "Process of Self-Construction" Model (Figure 5.1) aligns with the precepts of systems thinking from the perspective of the individual. Chapter 7 will also explain the models versatility and how it has addressed deficiencies in the literature, providing a first-hand account of knowledge-based professionals, adding insight into the development of expertise and providing understanding for the needs of Industry 4.0.

Chapter 7 ends with an explanation of how the approach used in this research has enabled the development of an integrated multi-layered process for undertaking grounded-theory research in an integrated way not previously identified in the literature.

CHAPTER 7 – DISCUSSION

7.0   Introduction

Chapter 2 reviewed the relevant literature covering the situating concepts of knowledge and knowledge work considering the future and nature of work and the sensitising concepts of knowledge workers and expertise (expert/expert performance). Chapter 3 provided a comprehensive outline of the tools to be used as part of a Constructivist Grounded Theory approach to conduct this research resulting in the formation of an integrated model and a guideline for undertaking research of this nature. Chapter 4 and 5 discussed the findings of this research ultimately leading to the explanation of the "Process of Self-Construction" (figure 5.1) employed by knowledge-based professionals.

The rationale for this work was to identify and map the characteristics and attributes of a knowledge-based professional. This mapping was achieved through the development of a 'grounded' multi-layered and tiered model. The approach was to interview knowledge-based professionals ascertain what could be learned about them that was not already known. This chapter will discuss the findings of this research, identifying how it enhances and progresses understanding of knowledge-based professionals and progresses towards addressing some of the deficiencies identified in the literature.

The relationships of these aspects and how they are presented in this chapter is provided in Figure 7.1; the figure is best understood from the bottom up, with the features providing the foundation for the benefits to be achieved from this model. The features of the model are that it is integrated, multi-layered and, cross-disciplinary and provides a common language for understanding knowledge-based professionals. The model also employs systems-thinking approach to understanding knowledge-based professionals. The benefits of the model are its versatility and broad applicability, as it offers a first-hand account of knowledge-based professionals. The model also adds new insights about the development of expertise and a foundation to meet the needs of Industry 4.0.
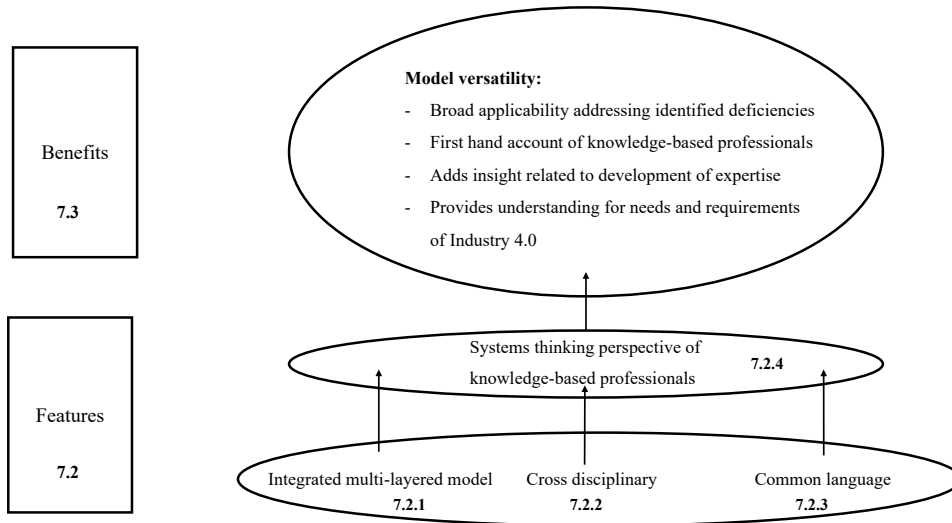
7.1 – Map of Relationships among Discussion Points

7.1 The Significance of the Process of Self-Construction Model

The model produced as a result of this research the "Process of Self-Construction" model (Figure 5.1), has a number of inherent features and benefits that can provide advantages to both individuals and organisations. Sections 7.1 – the significance of the process of self-construction model, 7.2 – specific features of the process of self-construction. model and 7.3 – benefits of the process of self-construction model outline, describe and explain these benefits and features. The explanation of the inherent value of the model is multi-level, covering its features, benefits and versatility.

7.1.1 Features of the 'Process of Self-Construction' Model

The "Process of Self-Construction" model (Figure 5.1) resulting from this research has three key features:

i. It provides an integrated, multi-layered model (Section 7.2.1).
ii. It has been developed by using a cross-disciplinary approach (Section 7.2.2).

iii. It uses a common language to understand and explore the characteristics and attributes of a knowledge-based professional (Section 7.2.3).

These aspects, which help to address some of the deficiencies identified in the literature review, will be discussed in more detail in Section 7.3.

7.1.2 Benefits of the Process of Self-Construction Model

A subsidiary feature alongside those listed in Section 7.1.1 is that the "Process of Self-Construction" model (Figure 5.1) is in alignment with the precepts of systems thinking (Behl & Ferreira 2914, p. 8). It is recognised this is a new concept being included however, it would be remiss not to mention this feature as part of the model as it is an integral aspect to the benefit it provides. The precepts off systems thinking that are significant in this instance are that it encourages seeing wholes, not parts; patterns, not snapshots; and interdependencies, not disconnected components. The relevance for this research is that it acknowledges that humans, are complex systems, incorporating many other sub-systems which enable them to function in a cohesive and productive manner (Section 7.3).

The model's (Figure 5.1) systems-thinking approach allows aspects to be considered at a micro and macro level simultaneously. This provides a versatility not available from previous studies of knowledge workers and addresses some of the shortcomings identified in Chapter 2, such as organisational, cultural, age and occupational specificity. This aspect will be discussed in more depth in Section 7.3.

7.2 Specific Features of the 'Process of Self-Construction' Model

There is agreement that an organisation needs to "manage the potential of its employees" (Igielski 2017, p. 134); that "organizations are made up of individuals, and there is nothing without individuals" (Felin & Foss 2005, p. 441). And yet, understanding organisations requires an understanding of the individuals who constitute them, understanding their "nature, choices, abilities, propensities, heterogeneity,

purposes, expectations and emotions", there is a recognition that there is a "lack of attention to individuals in strategic organizations" (Felin & Foss 2005, p. 441).

Much of the literature regarding knowledge workers, or as they are described in this research knowledge-based professionals, examines what organisations need to extract from this group to get the best out of them. In contrast, the model in this thesis shows that knowledge-based professionals have a great deal to offer, based on their natural predispositions. What they know about themselves and how they use this knowledge of self for the benefit of themselves and others provides an understanding of their value. The following sections will explain the insights provided by this model and the fundamental components and considerations that contribute to the model's visible and inherent value.

7.2.1   Integrated, Multi-Level Model about Knowledge-Based Professionals

The model (Figure 5.1) developed as part of this research helps to address aspects of the identified gap in the literature. It is difficult to understand the perspectives and characteristics of individual knowledge-based professionals because the perspective provided in the literature is often the opinion of others such as managers, leaders and human resource professionals (Lamb & Sutherland 2010, p. 301; Horwitz, Heng & Quazi 2003, p. 30). In contrast, the "The Process of Self-Construction" model (Figure 5.1) reflects the direct voices of the identified employee group. The participants' first-hand accounts reveal the underlying factors that enable this group to do what they do so effectively, and ultimately may provide organisations with a competitive advantage.

Disparate studies were brought together in a meaningful and coherent way to clarify the model's components, as outlined in Chapters 4 and 5. The resulting model possesses a number of positive characteristics associated with integrated, tiered, multi-level models (Batistič, Černe & Vogel 2017, p. 87; Molina-Azorin 2014, p. 103; Gordon et al. 1994, p. 59). They key features of these types of models are:

1.   The structure of the model depicts interrelationships and the multi-dimensionality of concepts and their interrelated and interdependent operations. This therefore

shows the dynamic nature of the component parts as well as the complexity and non-linearity of the identified concepts therefore increasing the inherent power and meaning of the concepts both individually and collectively, which then shows coherence within and across concepts reinforcing how each element is necessary and potentially insufficient if considered alone.

2. The model developed for this research also uses the tiering of concepts to ensure the usability, usefulness and comprehension of concepts as each term is broken down into component parts in the process of defining and explaining them. They help to cross the divide between the study of micro and macro concepts, avoiding potentially unhelpful separation of concepts that can impede or limit understanding which then has the capacity to review concepts in a bi-directional fashion; that is, both bottom-up and top-down.

3. Specifically the 'Process of Self-Construction Model' provides a contextualised framework of the individual, rather than one that has only conceptual validity.

Kozlowski and Klein (2000, p. 53), as cited in Batistič, Černe and Vogel (2017, p. 86), assert that it is important to "understand the whole and keep an eye on the parts".

The value of a model of this nature (Figure 5.1) is best explained in the work of Eveland and Cooper (2013, p. 14088), who state that "an integrated model simply represents a portion of reality either an object or process, in such a way as to highlight what are considered to be key elements or parts of an object or process and the connections among them". Therefore the way very this model (Figure 5.1) has been developed and presented is part of its value, even apart from the understanding provided by the representation of its components. It is appreciated that while this model (Figure 5.1) possesses all the characteristics of an integrated model, this, in and of itself, is not enough. The specific benefit inherent in the model (Figure 5.1) is that a range of options and opportunities become available. The relationships and inter-connections identified provides the opportunity for relevant and direct questions to be asked about how to harness the value knowledge-based professionals offer. This can help with determining where to focus energies to maximise benefits for all key stakeholders. For example, to

date there has been a propensity to focus on capabilities that people and teams possess (as explained in the analysis of the knowledge-worker literature Section 2.4). However, as this model (Figure 5.1) shows, "attitudes" are closely associated with "capabilities". Much of the research focuses on enhancing productivity, with an emphasis on what people do – that is, their capabilities – however, an understanding of their "attitudes" may actually provide a better reference point. When people doubt their ability they are often reluctant to attempt an action; however, when challenged, others may try harder. As this model has shown, knowledge of self is a distinguishing factor for knowledge-based professionals; thus opportunities to enhance this knowledge of self will provide positive benefits for both the individuals and the organisations that employ them.

7.2.2 Cross Disciplinary Perspective about Knowledge-Based Professionals

While this model (Figure 5.1) is new, it does draw from, as well as support, other well-known concepts , including growth mindset (Dweck & Yeager 2019), self-efficacy (Bandura 1977) and drive (Duckworth 2007). The concepts of growth mindset (Dweck & Yeager 2019), self-efficacy (Bandura 1977) and drive (Duckworth 2007) are well-known constructs in the business literature. However, the interlinking shown in this model (Figure 5.1) was not known or understood. This model (Figure 5.1) also shows relationships to less well-known concepts more typically found in the psychology literature than the business literature; for example, resoluteness, self-perception and self-conception. Bringing these concepts into another discipline helps to add to their value, power, usefulness and applicability, which helps both disciplines to advance and minimises issues associated with fragmented understanding of concepts (Stephenson 2008, p. 136).

7.2.3 Common Language about Knowledge-Based Professionals

Two of the benefits associated with developing an integrated model are that the model can thus provide a common frame of reference and language to apply to the group under study, and that it appropriately acknowledges the human element. Using a model such as this would help to avoid the major issue of there being a fragmented and disjointed

understanding of knowledge-based professionals and what they have to offer organisations.

The model lends itself to both qualitative and quantitative analysis of its ongoing efficacy and relevance. A key factor identified as apart of Industry 4.0 is the need for workers to be able to work in complex, dynamic and unexpected environments. The World Economic Forum (WEF 2018, p. ix) commented on the need to develop augmentation strategies in addition to automation strategies; and this model would be one of the first to aid organisations in determining what this could look like. The format of this model has the capacity to maintain relevance over time as the nature and drivers of people persist and maintain longer relevance than does the ever-changing nature of work.

The "common language" used in this model (Figure 5.1) exists at multiple levels. Most terms do not require detailed explanations, as shown by the fact that when participants were first introduced to the model (Figure 5.1), they indicated that they could understand it, it made sense and they could see how it was relevant to themselves, and the majority of participants were thus very positive about it. This suggests that there is less need to try to "sell" the potential benefits because people can determine the model's usefulness, relatively instinctively, for themselves.

An easily understandable common language also makes intangible aspects about individuals easier to comprehend, minimising the likelihood that key elements will be overlooked or dismissed as esoteric or incomprehensible (Stephenson 2008, pp. 137-138).

7.2.4 The Systems-Thinking Approach to the Individual as Explained within the "Process of Self-Construction" Model

The development of the "Process of Self-Construction" model (Figure 5.1) was not intentionally guided by the principles of systems thinking and yet it satisfies all the hallmarks of a systems-thinking approach. (Given this aspect did not appear in the early stages of the research it was not a topic reviewed as part of the initial sensitising

literature review but a construct explored at a later stage of the research process). A premise for systems thinking is that a "system is greater than the sum of its parts" (Behl & Ferreira 2014, p. 105). The model (Figure 5.1) developed in this research recognises that the system that is each individual is greater than the some of the parts in that it shows the dynamic and iterative interactions of the "individual system", these interactions have not previously been identified in this systemic way.

The model (Figure 5.1) aligns with a number of systems-thinking precepts. For example, systems thinking encourages and enables seeing wholes and interrelationships, not just things; it encourages the ability to "see patterns of change and not just static snapshots" (Behl & Ferreira 2014, p. 105); it analyses, syntheses and understands interconnections, interactions and interdependencies that cross boundaries and for a specific purpose; and it acknowledges that the world is a complex system that comprises many subsystems, one of which is the individual (Behl & Ferreira 2014, p. 105).

Statler et al. (2017, p. 328) outlines four key attributes for systems thinking which are that systems are dynamic whereby they employ a holistic perspective that seeks to identify patterns that ultimately are transformative.

The "Process of Self-Construction" model (Figure 5.1) satisfies all these attributes. It shows the dynamic nature of the individual through its layering and tiering. It employs an overarching integrated perspective, rather than a disjointed one, enabling the patterns of the individual to be recognised. This enhanced insight and understanding is by its very nature transformative because it enables consideration of relationships. It also supports the identification and exploration of enablers, boundaries and limitations to better comprehend and employ the system that is the individual in a range of contexts, including the workplace.

7.2.4.1 Systems-Thinking Approach to the Individual

To provide a frame of reference for this discussion, the best work on the individual and systems thinking comes from the field of engineering. The review of this thesis found

very little in the business literature; hence other, more diverse sources guided a determination of the perceived value of the model.

Behl and Ferreira (2014, p. 107) have provided a comprehensive analysis of the research regarding "individual systems thinking elements" producing a list of work capabilities including: being able to understand the whole system, understanding interconnections, thinking creatively and not getting lost in detail. While this summation is helpful, it includes only a few characteristics, such as extroversion, open- mindedness and a tolerance for uncertainty (all aspects possessed by the participants in this research). However, the literature contains only limited references to characteristics, tending instead to focus on tasks or actions. This model thus provides a layer of understanding not previously available for consideration in an integrated and interrelated way. Behl and Ferreira (2014, p. 108) have provided an "Individual Systems Thinking Element Relationship Model" (Figure 7.2).
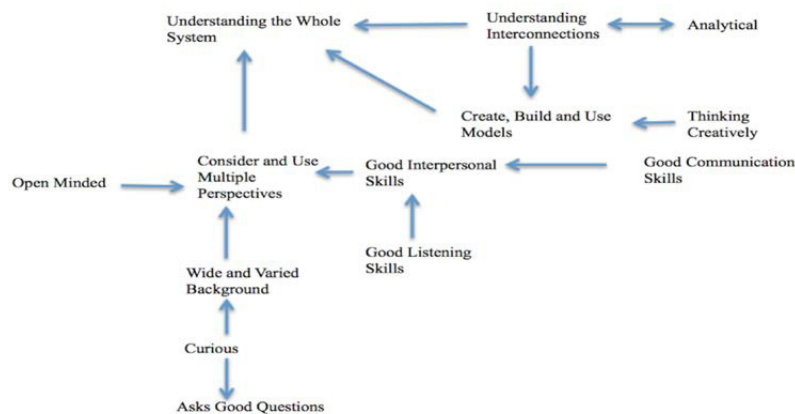
Figure 7.2 – Individual Systems Thinking Element Relationships
(Sourced from Behl & Ferreira 2014, p. 108)

A conclusion that can be drawn is that the "Process of Self-Construction" model (Figure 5.1) provides the antecedent knowledge about what individuals can bring to their systems-thinking capabilities. It helps to provide insight into which individuals might be best placed to undertake this type of work, and into areas of possible focus to

enable and facilitate continuous improvement in an organisations systems-thinking capabilities and competencies.

7.3   Benefits of the 'Process of Self-Construction' Model

Chapter 2 identified a number of deficiencies of the research about knowledge workers and expertise (these were the constructs considered most relevant for the focus of this research). These deficiencies are described in detail in Sections 2.4.5, 2.4.6, 2.4.7, 2.5.2 and 2.5.3.

Some of the potential deficiencies identified from the review of the knowledge worker literature highlighted that it was difficult to find agreement on who knowledge workers are with various arguments existing related to the relevance of the term "knowledge workers". Then there was a strong theme found in the literature where the focus was on the commodity of knowledge (type etc.), who owned it and where it resided rather than focussing on the individuals who possess the desired knowledge. Other limitations that were identified were that perspectives used could be perceived as narrow as they were based on a specific model (business focus) or a particular period of time (sociological focus), and there was a predominance of quantitative studies rather than qualitative and that selection of participants for inclusion was not always objective more often based on accessibility, organisational or cultural affinity, eduction, occupation or age. Unfortunately the risk of these approaches was that they meant that more arm's length perceptions of knowledge workers were formed rather than first-hand accounts. Unfortunately, these approaches do not lend themselves to the identification of 'unique' identifiers of knoweldge workers they could apply to any workplace group.

The deficiencies identified specifically relating to the empirical research on knowledge workers are also addressed by the "Process of Self-Construction" Model (Figure 5.1). How the model addresses these identified deficiencies as outlined in Section 2.4.5 are included below.

- Organisational specificity – participants in this study were drawn from a range of organisations however the participants in this research had multiple features in common (Leon 2015, p. 682; Bakotic 2011, p. 97; Frick 2011, p. 374). Hence organisational alignment is not necessarily a distinguishing factor to identity a knowledge-based professional.

- Occupational specificity – although participants were sourced from a diverse range of occupations, with no two participants having the same occupation, they had characteristics and attributes in common (Sutherland 2015, p. 3; Reinhardt et al. 2011, pp. 151, 154) .

- Educational specificity – participants in this study had a range of educational backgrounds from high school to doctoral level. All were well educated (often informally) rather than highly educated (two participants had no formal education other than high school). All participants considered learning as an integral part of their development both personally and professionally (Hwang, Kettender & Yi 2015, p. 595). Hence education level is not a criteria that can help to uniquely identify a knowledge-based professional.

- Tenure specificity – the common aspect for the participants in this study was that they had at least 15 years' experience in their domain area of expertise not necessarily with on specific organisation. In contrast to some of the empirical studies reviewed (Lyon 2015, p. 90), they did not have to be in a specific role or context. Hence tenure in a specific role is not a criteria that helps to identify a knowledge-based professional.

- Affiliation specificity – in many of the studies reviewed in the literature participants were selected based on how easy it was for the researcher to gain access to them, or on the specific group they were aligned to. The participants for this study were chosen through the use of objective selection criteria, recognising that initial contact was through the researcher's professional network (Frick 2011, p. 374).

- Age specificity – this study was not based on the age of the participants. However, given that a prerequisite for inclusion was that they have at least 15 years' experience; this meant that most participants were 45 or older. However, the concepts of this model are more concerned with mindset, which can be established and developed from any age (Lamb & Sutherland 2010, pp. 298, 301).

Other deficiencies identified in the literature are minimised due to the overarching relevance of the model (Figure 5.1). Some of the models used in the literature to date are more aligned to bureaucratic, command-and-control environments as they are based on old or highly specialised workplace models (Hwang, Kettender & Yi 2015, p. 590; Leon 2015, pp. 678-679, 683). In contrast this model is not limited to any particular management style or organisational arrangement; rather, it aims to capture the commonality of the characteristics of knowledge-based professionals that can nevertheless function in a wide range of contexts.

Much of the work in the literature on knowledge workers has adopted a task orientation with the emphasis on input-process-output to enhance productivity. This is a mechanistic perspective with much less relevance in today's workplace, where advances in robotics and other technologies meant that mechanistic tasks are becoming more automated. The "Process of Self-Construction" model (Figure 5.1) identifies that, in fact, the attitudes and capabilities that an individual brings can affect outputs and outcomes. Seeking to provide environments that support workers and their individuality, in recognition of this fact, could provide the improvements to productivity that organisations are so desperately seeking.

This model (Figure 5.1) could be considered the technical specification of a knowledge-based professional, providing information to organisations about the effective use of their knowledge-based assets. The model also reduces the need to focus on knowledge ownership because the knowledge base includes an understanding of knowledge-based professionals, not just of the content-specific knowledge they possess.

Additionally, this model (Figure 5.1) highlights that the way knowledge is used and understood is influenced by what knowledge-based professionals know about

themselves as well as about their technical (specialised) proficiencies, and the way this adds to their knowledge-based professionals' value as a resource.

Another deficiency identified in the knowledge-worker literature was the relevance of the term "knowledge worker" in the 21st-century workplace. The development of this model suggests that the term has lost its usefulness due not to any intrinsic irrelevance, but to the way knowledge workers have been studied. In this research, as previously stated, "knowledge-based professional" was considered a more appropriate term to help minimise any negative connotations that may be associated with the term "knowledge worker".

It may be possible, through the application of the "Process of Self-Construction" model (Figure 5.1), to reduce some of the negative perceptions of knowledge workers. Their perceived resistance to workplace structures does not reflect their aversion to administration and rules, but their need for an open and supportive environment to realise their potential.

The expertise literature also exhibits deficiencies that this model (Figure 5.1) helps to overcome. The findings from this research, as outlined in the model, support Ericsson, Prietula and Cokely's (2007, p.116) list of factors that go into developing expertise:

1. What they experience – struggle, painful self-assessment and not taking shortcuts
2. What they have – more than 10 years' experience, advanced cognitive abilities, sophisticated knowledge structures and flexible reasoning processes
3. How they best operate – using individual autonomy and exercising independence of judgement, practiced intensely

However, the value of this model (Figure 5.1) adds, especially related to the development of expertise, is that it shows *how* the development of expertise occurs not just *what* occurs.

The literature review highlighted a number of specific deficiencies related to the expertise literature and best summed up by Collins et al. (2015 pp. 1-7):

- Many aim too low when determining levels of competency.
- They are limited to what is measurable, tangible and technical (analogous to the literature on knowledge-based professionals).
- They tend to ignore aspects such as moral, emotional and relational factors.
- They do not consider the impacts of complexity, uncertainty, predictability and discretion (Bell et al. 2012, p. 218).
- They do not always include the importance of and need for practice.

The components of the "Process of Self-Construction" model (Figure 5.1) begin to address some of these identified deficiencies. It has gone beyond looking at skill levels and tangible and technical considerations to incorporate moral, emotional and relational factors and how knowledge-based professionals manage complexity, uncertainty and unpredictability. It also has acknowledge the need for practice to continue to build individuals' strength and self-understanding.

This model (Figure 5.1) also highlights that the mindset associated with developing expertise is critical. This supports the research on deliberate practice and how skills and abilities are developed. Studies of deliberate practice have typically looked at the development of more-mechanical skills like playing chess or a musical instrument. The current research suggests that deliberate practice is also necessary to help self-construction: an individual's development of skills and abilities that are less tangible than the ability to play chess or music but nonetheless significant and valuable.

The findings of this research would suggest that the characteristics and attributes of a knowledge-based professional are more aligned to the abilities of adaptive experts who typically work with episodic knowledge (which is unique, complex and context-dependent) rather than case knowledge (whereby a predefined well-known solution is available) (Cornford & Athanasou 2015, p. 11). The need for and reliance on adaptive

expertise will continue to grow and evolve as the requirements and expectations of Industry 4.0 become more embedded.

Mylopolous and Regehr (2007, p. 41) write that, as with adaptive expertise, being a knowledge-based professional "is not a state of accomplishment, but rather is best thought of as an *approach to practice*" (italics included in original quote). The "Process of Self-Construction" model (Figure 5.1) goes some way toward applying that approach to the study of knowledge-based professionals in the field of business.

Moreover, the methodology used for the current research offers a second contribution to knowledge, which will be discussed in the following section.

7.4 A Model of Tools for Conducting Constructivist Grounded Theory Research

One of the insights that emerged from a review of the methodology literature is that while there is consolidated information on methodologies as a whole, the respective tools to be employed such as interview types, sample size, participant selection and memoing – are considered only in isolation. The review of a vast amount of methodology literature undertaken for this thesis suggested how these individual tools and approaches could be brought together in a cohesive and purposeful way (Section 3.11). The following sections outline the perceived benefits of having a cohesive methodological approach related in particular to grounded theory.

7.4.1 Integrated, Multi-Level Model for Constructivist Grounded Theory Research

As stated in Section 7.2.1 integrated multi-level models have a number of benefits that are relevant when applied to the model represented in Figure 3.9 and reproduced here in Figure 7.3. This model shows, for the first time in the literature, interconnections and interrelationships of activities typically considered in isolation. This model helps to overcome some of the identified shortfalls within the methodological literature.

Paradigm	Level	Research Tools			Methodology
Interpretivist		**Data-Capture Tools**	**Data-Management Tools**	**Data-Sourcing and Analysis Tools**	**Constructivist Grounded Theory**
	3	Validation interviews	Recording and storage of data	Coding of interviews	
	2	Interview questions	Selection criteria	Participant selection	
	1	Intensive semi-structured interviews	Sample size	Memoing	

Figure 7.3 – Approach to Research – Overview

In addition to providing clarity on how one action has implications for other actions in the process, this model has also brought under-examined aspects to light, such as objective mechanisms for selecting participants for research purposes, and the benefit of validation interviews.

7.4.2   The Value of a Cross-Disciplinary Perspective when Undertaking Constructivist Grounded Theory Research

This research deliberately cast a wide net to gain the best insight on the application of grounded theory and constructivist grounded theory in particular, using the work of Charmaz as the primary base. It was determined that the field of medicine, especially nursing has laid the ground work in exploring how constructivist grounded theory can be applied. Best-practice principles have been reviewed and incorporated into the model (Figure 7.3).

This has enabled the development of a multi-disciplinary, broadly applicable model that advances understanding and utility in the business discipline as well as many other fields.

7.4.3   A Reusable Framework for Constructivist Grounded Theory Research

Many of the concepts involved in conducting robust qualitative research (and especially that based on grounded theory) can be confusing and confronting. The language used in this model helps to make the concepts more understandable and easier to apply by explaining each in a straightforward manner.

As stated previously, this research has developed a reusable, multi-disciplinary, applicable model that can be used as a reference point to measure progress and a checklist for ensuring completeness, rigour and credibility when conducting constructivist grounded theory research.

A well-documented shortfall of qualitative research is that the approach employed can be arbitrary and may lack discipline and sufficiency. This model (Figure 7.3) and its parts help to address some of this shortfall. Two key benefits are that it groups the activities to be completed in meaningful ways (for example, data-capture tools, data-management tools and data-sourcing and analytical tools) and that it uses language that is commonly known and understood, which helps to enhance its accessibility and utility but does not detract from the ability to be rigorous in the approach and respectful of research principles and practices. This could then help align the credibility in qualitative research to the robust practices and protocols used in quantitative research.

7.5   Intriguing Insights from the Research

This research has revealed a number of intriguing insights that can provide opportunities for future research. The primary source of these insights was the validation interviews, especially the "peer debriefing and consensual validation" (Bazeley 2013, p. 409) interviews. While the insights are outside the scope of this research as defined in Chapter 1, they have been offered here because they were identified in the course of conducting the study. They are discussed in the following sections:

7.5.1   Model-Related Insights

There were seven insights that are specifically model-related (Figure 5.1) emanating from the peer debriefing and consensual validation interviews which include:

1. The relevance/relationship of Kelly's (1955) Personal Construct Psychology to this research's findings.

2. The development of a grading scale for assessing the strength of the presence of respective attitudes and capabilities as part of the "Process of Self-Construction" model.

3. The value of developing these items into a robust and validated assessment tool.

4. Relationships between attitudes (internal) and capabilities (external); for example, attitudinally weak and capability strong.

5. The model's potential for enhancing the process of giving constructive and objective feedback.

6. The impact of time on the results of the model; that is, whether they are static or change over time.

7. Alignment to the work of Daniel Pink on "drive", in terms of autonomy, mastery and purpose.

7.5.2   Insights into the Impact on Individuals

The six insights from that were identified as relating to the individual coming from the peer debriefing and consensual validation interviews are:

1. How the aspects identified relate to an individual's level of self-confidence.

2. The distinction between capability and competence.

3. The significance of the conflation of personal and professional in an individual.

4. What enables people to have self-efficacy.

5. How this can help individuals differentiate their *who* from their *do* (PDVC 3).

6. The impact of the individuals' social environment on their development of "Process of Self-Construction".

7.5.3 Insights into the Significance for Organisations

The three insights that have significance for organisations emerging from the peer debriefing and consensual validation interviews are:

1. How this could be applied in the workplace to aid up-skilling of knowledge-based professionals.

2. How reduction in waste and cost could be achieved if organisations are willing to invest in getting to know their people.

3. The impact of the individual's "Process of Self-Construction" on ongoing education for the future of work.

7.6 Summary of Chapter

This chapter has provided a discussion of the relative value of the "Process of Self-Construction" model. The value was discussed addressing the features and benefits of the model and was graphically represented in Figure 7.1. The key features and benefits are that the model is integrated and multi-layered, employs a cross-disciplinary approach and provides a common language to understand the characteristics and attributes of a knowledge-based professional. This chapter also outlined how the model aligns with systems thinking and made progress in addressing some of the deficiencies identified in the knowledge-worker and expertise literature.

As well as explaining the value of the "Process of Self-Construction" model, this chapter also outlined how a model for undertaking grounded-theory research has been developed, providing a guideline for future research that assists with ensuring the credibility and rigour of the methodological approach. The chapter concluded by providing some insights that may inform opportunities for future research.

The final chapter will summarise how the research question has been answered, the benefits and limitations of the research and opportunities for future research.

CHAPTER 8 - CONCLUSION

8.0   Introduction

The preceding chapter discussed the findings from this research and the features and inherent value of the "process of self-construction" model (Figure 5.1) the primary output of this research. This chapter will summarise the contribution "the process of self-construction" model (Figure 5.1) makes to the understanding of knowledge-based professionals. It also outlines the limitations of the research and the opportunities for future research to enhance the current understanding of knowledge-based professionals.

8.1   Overview of the Research

The focus for this research was to identify and map the characteristics and attributes of a knowledge-based professional. The literature review highlighted both strengths and gaps in our knowledge and understanding of knowledge-based professionals and this informed and guided how the research was conducted. Gaps identified that this research attempted to address were: that knowledge workers are underrepresented in the literature hence this has led to there being no common language to describe and explain knowledge workers. Also, some of the prevailing perspectives on knowledge workers are outmoded and have lost their relevance. While there has been empirical research undertaken about this group they could be considered limited in their applicability due to the approach used for selecting participants based on proximity to the researcher, or occupational, organisational or cultural alignment. Alternatively, they were relevant to the time when they were conducted but however they could be perceived as having limited ongoing applicability. There is also evidence that attempts to understand this group were typically at arm's length based on the observations and assessment of others not the knowledge workers themselves.

As a result of this review of the characteristics and attributes of a knowledge-based professional identified as part of a review of the literature and having spoken to the research participants the findings have provided a grounded, integrated, multi-tiered model not only showing previously unidentified characteristics and attributes of

218

knowledge-based professionals but also the interrelationships and interactions between the component parts.

As stated in the propositions as outlined in Section 1.5 the nature of work has changed alongside shifts in the world context both socially and with work. Previous research into this group often employed a task-orientation therefore down playing or inhibiting the acknowledgement and understanding of the contribution made by the individual. The model developed for this research has attempted to overcome what could be considered judgemental bias demonstrated in the literature when considering this group, because the insights from this study are from the group themselves and how they have adapted to change, complexity and the unexpected while performing their work.

The predominance of mechanistic models in earlier research on knowledge workers are potentially outmoded means for understanding the twenty-first century workplace. The model developed for this research (Figure 5.1) brings to the fore the dynamic and agile nature of the characteristics and attributes they possess as well as showing the interrelationship and dependencies of the characteristics and attributes described and included in the model. The model (Figure 5.1) is a systemic representation of the individual an approach not found in the literature reviewed for this research.

Earlier studies of knowledge-based professionals have a stated objective of finding ways to enhance their productivity. Again, this emphasis shifts the focus from the individual to the tasks being performed. Industry 4.0 has very different productivity expectations and requirements than Industry 3.0 as outlined in Table 2.4. This is an aspect that has not sufficiently been considered previously when attempting to understand knowledge-based professionals. The need to understand this group has outstripped the current understanding. The "Process of Self-Construction" model (Figure 5.1) helps to bridge this gap.

Using a Constructivist Grounded Theory methodology, this research enabled the voice of the knowledge-based professional to emerge. As a result, characteristics and attributes that were previously unknown were found to be attributable to this group. The characteristics and attributes and the relationships between them were uniquely outlined

in Chapter 5. The "Process of Self-Construction" model (Figure 5.1) enables understanding of this vital group of professionals in new ways. This knowledge is applicable to enhancing both the education for knowledge-based professionals and the on-going management and support practices to enhance productivity and outcomes. To fully understand knowledge-based professionals it became apparent that it is vital not to only understand what they do but to also understand who they are, their drivers, motivations and personal approaches to achieving capabilities in their domain area of expertise. This research also demonstrated that the mechanistic models that currently predominate in the literature fail to capture the characteristics and attributes of knowledge-based professionals. The model (Figure 5.1) developed from this research highlights that the characteristics and attributes are dynamic and highly interrelated. No aspect can be considered in isolation but rather needs to be considered as part of a whole of person, whole of system understanding. If organisations are going to be truly agile and responsive to increasing volatile markets and to thrive in an Industry 4.0 environment, they must have the capacity to learn quickly, match learning opportunities to the needs and speed of those learning providing ample scope for the learning to be applied within the relevant context. Toffler (1970) highlights the requirement for agility and responsiveness when he says:

> The illiterate of the twenty-first century will not be those who cannot read and write, but those who cannot learn, unlearn and relearn.

This research provides a model (Figure 5.1) that is fit for the modern environment and a unique perspective of knowledge-based professionals. This model (Figure 5.1) better aligns to the new and changing nature of knowledge-based professionals and their work in the current emerging environment both in Australia and on the world stage.

8.2   Contribution to Knowledge

By adopting a qualitative research methodology and constructivist grounded theory specifically, rich dense insights into knowledge-based professionals was gained. The systematic process of elevating these insights into a parsimonious model of what this study labels the "Process of Self-Construction" facilitated the ability to compare the

new insights gained to the extant literature and related knowledge in this topic area and identify specific areas where this study has contributed new insights and knowledge. Outcomes of this research has provided an enhanced understanding of knowledge-based professionals and how they can be more effectively used within an organisation to achieve business objectives and remain competitive. Its examination of the specific personal competencies workers need to cope with ever-changing demands and complexity of the workplace has also provided more nuanced insights into how to cope with the needs and requirements of Industry 4.0.

What this research has provided is a mechanism that helps to bridge the gaps identified in the literature by providing a versatile integrated, multi-layered, cross disciplinary model (Figure 5.1) that has broad applicability, provides a first-hand account of knowledge-based professionals, and adds insight related to the development of expertise. The model also employs precepts of systems thinking which enhance its value when seeking to understand knowledge-based professionals. This research has shown that it is not technical proficiency alone that determines the success of a knowledge-based professional's career but rather it is what knowledge-based professionals know about themselves and how they operate and respond to their environment that leads to their success. It is through this lens that the most value from the 'grounded' "Process of Self-Construction" model (Figure 5.1) can be achieved.

This research has also highlighted the importance of considering not just competency, but capabilities. Capabilities provides insights into the individuals' ability to adapt to their environment, which is a key requirement for maintaining relevance in an ever-changing workplace. It has drawn insights from a broad range of disciplines (for example; medicine, philosophy, psychology, knowledge management and economics), and in return can contribute back into those areas, to ensure that it has encompassed the widest range of available knowledge to enhance the business literature.

A second contribution to knowledge comes from the development of an integrated, multi-layered model on how to conduct unified constructivist grounded theory research. It shows there are three key categories of activities that are undertaken which include data capture, data management and data sourcing and analysis. Each category has a

number of tools that can be used. This model provides a simple checklist to guide the process when doing grounded-theory to ensure completeness, credibility and rigour of the research activity.

8.3   Limitations of this Research

It is widely recognised that all research has inherent limitations. While this research has provided new understanding regarding the characteristics and attributes of a knowledge-based professional it is important to recognise there are limitations associated with this research. These limitations include the fact that this research was conducted in Australia, with Australian residents, at a specific point in time. While it could be beneficial to see if these things change over time it was not possible within the parameters of completing PhD and its incumbent timeframes. It was also not possible to do a cross-cultural analysis for the same reason. Inclusion of these aspects had the potential to make the research process unwieldy and unrealistic. An identified deficiency of earlier studies was that participant selection was convenient. To help enhance the value of this research relative to earlier studies a cross section of occupations was included in the study group. However, it was not possible to include all knowledge-based professions in this study. Therefore, it is reasonable to suggest not all characteristics and attributes of knowledge-based professionals has been captured. Another risk or limitation for this research was that only one researcher was involved which can lead to researcher bias being included in the results. Processes used to reduce this risk have been outlined in Chapter 6 where validations interviews were used to ensure credibility and trustworthiness of the research findings. Finally, while hearing a participant's account first hand has its benefits there is also a risk that the participant tells the researcher what they think the researcher wants to hear or they limit their input because they do not know the researcher and so they are somewhat reluctant to open up until they feel more comfortable. Post interview questions to participants would suggest this was not an issue for this research. Specific comments about how the participants felt are included in Section 3.6.

Coupled with the limitations just identified there are also the costs as outlined in Section 3.1 which are some of the limitations that can be associated with this research. These 'costs' included such things as the time required to undertake research of this type, it is quite time consuming, especially for an individual researcher, there are limited rules or frameworks to use to ensure completeness and comprehensiveness in the overall approach to the research and finally stories provided are not easily translated into generic rules or predictions that can be automatically applied on a wider basis (Cooksey and McDonald 2011, p. 192). However, none of the limitations identified significantly detract from the value provided in the development of the "Process of Self-Construction" model leading to the identification of the characteristics and attributes of a knowledge-based professional.

8.4   Opportunities for Future Research

Only in rare instances does research provide a complete all-encompassing answer to an identified gap. All research can be explored in more depth. One of the main features of the "Process of Self-Construction" Model (Figure 5.1) is its multi-layered structure. This provides an understanding of how various components interact and interrelate. To enhance the understanding and to help assess the strength and benefits of this model future research could involve determining how specific aspects interplay, including but not limited to: formulation of self and drive; personal resources and proactive behaviours; and attitudes and capabilities. This analysis would help clarify if the impact and influence is one-directional or bi-directional and whether the level of influence between and across the various components is strong or weak and/or equal or differential in their weighting.

Other opportunities for future research would be to determine how the "Process of Self-Construction" model (Figure 5.1) can help educate, upskill and retain knowledge-based professionals all aspects of importance for organisations to become and remain agile and responsive. Another opportunity relates to an identified limitation stating it was not possible to do a cross-cultural study or a longitudinal study covering a wider base of

223

professions. A review incorporating one or more of these aspects would add to our understanding of the model and its current and future usefulness in helping to develop our understanding of knowledge-based professionals. Also, a study where individuals were able to assess and review themselves against the model could help to determine the overall relevance and usefulness of the developed model.

As stated in Section 7.5 a number of interesting insights (outside the scope of this research) were identified as part of the validation interview process. These insights were grouped into 3 categories:

1. Model-related insights
2. Insights into the impact on the individual
3. Insights into the significance for organisations

Taking the time to explore each of these aspects would also help to develop the understanding and usefulness of the model developed and enhance our understanding of knowledge-based professionals and how organisations can best harness this highly valuable and important business resource.

8.5   Summation

The purpose of this research was to identify and map the characteristics and attributes of a knowledge-based professional. The results of this research have shown that there is an integrated set of characteristics and attributes that can be associated with this group that emerged as a result of speaking directly with knowledge-based professionals. Knowledge-based professionals are a key organisational resource being able to understand this resource in more depth will assist with organisations being able to better harness the characteristics and attributes of this group to remain agile and responsive in the highly dynamic and complex twenty-first century marketplace and continue to adapt to the needs and demands of Industry 4.0.

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Appendices

Appendix 1.1 - Ethics Approval

UNIVERSITY OF WOLLONGONG

In reply please quote: HE14/114

12 May 2014

Mrs Carol McGowan
PO Box 208
Menai Central NSW 2234

Dear Mrs McGowan,

Thank you for your response dated 6 May 2014 to the HREC review of the application detailed below. I am pleased to advise that the application has been approved.

Ethics Number:	HE14/114
Project Title:	Identifying and mapping the characteristics and attributes of a Knowledge-Based Professional
Researchers:	Mrs Carol McGowan, Dr Lee Styger, A/Professor Gary Noble
Approval Date:	8 May 2014
Expiry Date:	7 May 2015

The University of Wollongong/Illawarra Shoalhaven Local Health District Social Sciences HREC is constituted and functions in accordance with the NHMRC *National Statement on Ethical Conduct in Human Research.* The HREC has reviewed the research proposal for compliance with the *National Statement* and approval of this project is conditional upon your continuing compliance with this document.

A condition of approval by the HREC is the submission of a progress report annually and a final report on completion of your project. The progress report template is available at http://www.uow.edu.au/research/ethics/human/index.html. This report must be completed, signed by the appropriate Head of School, and returned to the Research Services Office prior to the expiry date.

As evidence of continuing compliance, the Human Research Ethics Committee also requires that researchers immediately report:

* proposed changes to the protocol including changes to investigators involved
* serious or unexpected adverse effects on participants
* unforseen events that might affect continued ethical acceptability of the project.

Please note that approvals are granted for a twelve month period. Further extension will be considered on receipt of a progress report prior to expiry date.

If you have any queries regarding the HREC review process, please contact the Ethics Unit on phone 4221 3386 or email rso-ethics@uow.edu.au.

Yours sincerely,

K. Clapham

Professor Kathleen Clapham
Chair, Social Sciences
Human Research Ethics Committee

APPENDIX 2.1 – Definitions of "Knowledge" Sourced from the Literature

Appendix 2.1A   **Philosophical Definitions of Knowledge**
                              (Sources outlined in table)

Identified Definitions from the Philosophical Literature		
Reference Source	**Defintion**	**Focus**
The Stanford Encyclopedia of Philosophy (2018)	The traditional tripartite view of knowledge "Justified true belief" (p.2)	The value of this explanation is explored in great depth in this article from an epistemological perspective. However rather than provide clarity it highlights the diversity of opinion that exists when attempting to define knowledge. Much of the dissent relates to how a particular perspective can be justified ie: what basis is used for the justification (pp.3-16).
Evans & Smith (2012)	"Warranted true belief" (p.6)	Another epistemological analysis. This analysis seeks to break the statement down into an equation and then prove the validity of the elements of the equation. Somewhat similar to explanations provided in the Stanford Dictionary of Philosophy Definition.
Cassam (2009)	"Justified true belief" (p.105)	Similar to Evans and Smith seeks to deconstruct the definition into an equation that can be used.
Oxford Companion of Philosophy Honderich (2005)	"True belief" which can be supplemented by the idea of "Justified true belief" (p.447)	The explanation provided goes on to state that knowledge may be a fuzzy concept that has determinate applications only when certain parameters are set, and these parameters can legitimately be set either to the sceptics or to the anti-sceptics taste. Highlights that there is no consensus on the definition of

Appendix 2.1B   **Cross-disciplinary Definitions of Knowledge**
                       (Sources outlined in table)

Identified Definitions from the Cross-Disciplinary Literature		
Reference Source	**Definition**	**Focus**
Dictionary of Creativity Runco & Pritzker (2011)	"Knowledge may be defined as information bearing on an event stored in memory"	Recognises that knowledge has an obvious relationship to information and that it is stored in memory usually of an individual or individuals. This definition was considered relevant as people working with knowledge, as their primary source of the contribution, are regularly required to be creative and innovative in what they do, to be able to solve novel problems. This definition highlights that knowledge is
Dictionary of Psychology Colman (2015)	"Anything that is known"	The definition of itself is not very enlightening however to address this the explanation goes on to provide an explanation of three classes of knowledge: • Declarative knowledge (knowing that) • Procedural knowledge (knowing how) • Acquaintanceship knowledge (knowing people, places and things) This provides some insights regarding the fact that knowledge is routinely broken down into types or parts to provide clarity in attempt to better understanding the term.
Dictionary of Environment and Conservation Allaby & Park (2013)	"Information gathered from experience that has been interpreted and can be used"	Similarly to the definition found in the Dictionary of Creativity it recognises that knowledge has an obvious relationship to information and that experience enables interpretation to enable the information to be
Dictionary of Computing Daintith (2008)	"Information that can be expressed as a set of facts and is known to an agent or program. Knowledge can be distinguished from information and data by its embodiment in an agent, eg: an agent might receive	Seems to make a distinction between information and data that would seem relevant when discussing knowledge from a computing perspective.

Appendix 2.1C **Shallow Definitions of Knowledge from the Business Literature (Sources outlined in table)**

Shallow Definitions Identified in the Business Literature			
Reference Source	**Business Discipline**	**Definition**	**Focus**
Glasser (1999)	General Business	"Knowledge bubbles up from hands-on or brains-on work performed by people in the field" (pp.5/7)	Acknowledges the role of people in the achievement of knowledge.
Tuomi (1999/2000)	Knowledge Management	"Knowledge is information that has been put into a context or when meaning has been added	Recognises the need for contextual placement to enable meaning to occur.
Alvesson (2001)	Human Relations	"A functional resources, representing a 'truth' or at least something instrumentally useful on a subject matter and/or a set of principles or techniques for dealing with material or social phenomena" (p.865).	Similar to the philosophical definition ie: represents a truth. Comments on the fact that it relates to the subject matter.
Sveiby (2001)	Knowledge Management	"Knowledge equals the capability to act" (p.4).	Explanation is limited - 'capability to act' can be interpreted in a variety of ways not all similar in nature thus adding to the ambiguity of the definition offered.
Marren (2003)	General Business	Quotes the Webster Dictionary's definition of knowledge: "The fact or condition of knowing something with familiarity gained through experience or association" (p.5).	Highlights the fact that familiarity is needed which can be gained via experience or the ability to associate.
Jashapara (2011)	Knowledge Management	"Philosophically there is no consensus on the term. Practically may be regarded as actionable information or tacit or explicit knowledge" (p.342).	Clearly states that it is hard to get agreement on the meaning of the term. The commonly accepted aspect is that it is 'actionable' information ie: something needs to happen to it for it to
Mundbrod, Kolb & Reichert (2012)	Information Systems	"Learned information, incorporated in an agent's reasoning resources" (p.2).	*This definition is a summation of the definition provided by Davenport and Prusak and also cited by Tiwana.* Requires reassessing by an agent to change it from information to knowledge.

Appendix 2.1C **Deep Definitions of Knowledge from the Business Literature (Sources outlined in table)**

Deep Definitions Identified in the Business Literature			
Reference Source	**Business Discipline**	**Definition**	**Focus**
Tiwana (2002)	Knowledge Management	"Knowledge is a fluid mix of framed experience, values, contextual information, expert insight and grounded intuition that provides an environment and framework for evaluating and incorporating new experiences and information. It originates and is applied in	*Same definition as Davenport and Prusak.* Highlights that there is fluidity in its development needing experience, context and insight which can be applied by those who have the knowledge.
Davenport & Prusak (1997)	Knowledge Management	"Knowledge is a fluid mix of framed experience, values, contextual information, expert insight and grounded intuition that provides an environment and framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices	This is the most cited definition in the literature. This extended definition to that provided by Tiwana 2000 distinguishes between individual and organisational knowledge a common dichotomy explained and explored in the literature especially the Knowledge Management/Information Technology literature.
Bender & Fish (2000)	Knowledge Management	"Knowledge originates in the head of an individual and builds on information that is transformed and enriched by personal experience, beliefs and values with decision and action-relevant meaning. It is information interpreted by the individual and applied to the purpose for which it is needed. The knowledge formed by an individual will differ from person to person receiving the same information. Knowledge is the mental state of ideas, facts, concepts, data and techniques, recorded in an individual's memory."	Comprehensively recognises the role the individual plays in the existence of knowledge and how it is what the individual brings to the information they receive that will determine what knowledge will be created.
Alavi & Leidner (2001)	Knowledge Management	"Knowledge does not exist outside an agent (a knower). Knowledge is thus the result of cognitive processing triggered by the inflow of new stimuli" (p.109).	Recognises knowledge needs an agent and is the result of a cognitive (thinking) process.

Deep Definitions Identified in the Business Literature			
Bhatt (2001)	Knowledge Management	"Knowledge is an organised combination of data, assimilated with a set of rules, procedures, and operations learnt through experience and practice." In a sense, knowledge is meaning made by the mind	Discusses the relationship to data in that it has been put through a process of assimilation ie: meaning has been ascribed through the mind.
Alavi, Kayworth & Leidner (2006)	Information Technology	"Knowledge can be defined as information possessed in the minds of individuals. Knowledge can also be defined as an individual's experience and understanding, or alternatively as a 'high value form of information that is ready to apply to decisions	Occurs in the minds of individuals and is influenced by their experience and capacity to understand.
Bennett, Bennett & Avedisian (2015)	General Business	"The capacity (potential or actual) to take effective action in varied and uncertain situations, a human insight that consists of understanding insights, meaning, intuition, creativity, judgment and the ability to anticipate the outcome of our actions"	

APPENDIX 2.2 – Definitions and Descriptions of "Knowledge Workers" Sourced from the Literature

Appendix 2.2A   **Definitions and Descriptions – Distinguishing Knowledge Workers from Other Types of Workers (Sources outlined in table)**

Definitions and Descriptions - Distinguishing knowledge workers from other types of workers	
Author	**Definition/Descriptions**
Nickols 1983, p.25	States that knowledge workers are those that work 'with and on' knowledge whereas manual workers typically work 'with' knowleddge.
Drucker 1954 (cited in Mladkova 2011a, p.249)	States that a person uses knowledge in their work with the knowledge they have being partly subconscious. State that knowledge workers typically work intellectually but not always
Spira 2008, p.26	Knowledge workers are not factory workers, labourers or farm or field workers
Ramirez & Nembhard 2004, p.604	Knowledge workers are 'service workers' where the product is produced and consumed simultaneously.
Frick 2011, p.375	Knowledge workers are not 'subordinates' they are 'associates'
Coates 1986, p.7	Separates white collar workers (another term for knowledge workers) ie: clerical, professional and managerial

Appendix 2.2B **Definitions and Descriptions – Distinguishing Knowledge Workers by What They Posses or their Professional Status (Sources outlined in table)**

Definitions and Descriptions - Distinguishing knowledge workers by what they posses or their professional status	
Author	**Definition/Descriptions**
Davenport 2005, p.10	Knowledge workers are people with high degrees of expertise, education and experience. Knowledge workers think for a living.
Horwitz, Heng & Quazzi 2003, p.31	Knowledge workers have a high level of skills/education with technological literacy, high cognitive power and abstract reasoning.
Blackler 1995, p.1027	Knowledge workers are unlike previous generations of workers, not only in high levels of education obtained, but primarily because … they own the organisation's means of production (ie: knowledge)
Bakotic 2011, p.98	Knowledge workers are often defined as groups of different professions or occupations that are most commonly associated with information technology or other high technology eg: scientists, engineers, computer scientist, professors, psychologists, lawyers and doctors …… their knowledge gained is through formal education, training or work experience
Vogt 1995, p.30	This article states types of knowledge workers again by professional categories eg: doctors, lawyers, researchers, academics, architects, engineers, management consultants
Rouse n.d.	The knowledge worker includes those in the information technology fields, such as programmers, systems analysts, technical writers, academic professionals, researchers and so forth
Jashapara 2011, p.9	Knowledge workers can be defined as professionals, associate professionals or managers with graduate level skills in critical thinking, communications and technology

Appendix 2.2C   **Definitions and Descriptions – Knowledge Worker Expansive Definitions (Sources outlined in table)**

Definitions and Descriptions - Knowledge Worker Expansive Definitions	
Author	**Definition/Descriptions**
Horwitz, Heng & Quazzi 2003, p23	A knowledge worker is a person with motivation and capacity to co-create new insights and the capability to communicate, coach and facilitate the implementation of new ideas. The work is non-repetitive and results oriented using both 'traditional' scientific methods and the need for continuous learning intuition, new mindsets and imagination - this definition is sourced from the work of Vogt 1995.
Bakotic 2011, p.98	Those who are significantly involved in problem solving and decision making. They are not focussed on performing routine repetitive tasks, but they spend many working hours in solving complex problems
Frick 2011, p.370	Knowledge workers are individuals who are valued for their ability to gather, analyse, interpret and synthesize information within specific subject areas to advance the overall understanding of those areas and allow organisations to make better decisions
Tyman & Stumpf 2003, p.12	Knowledge workers make their living by accessing, creating and using information in ways that add value to they enterprise and their stakeholders. Knowledge workers can differentiate relevant information from non-relevant information
Davenport, Thomas & Cantrell 2002, p.27	State that knowledge workers differ in three distinct ways: • The work processes they follow • Status and influence • Differentiation of work environment
Mundbrod, Kolb & Reichert 2012, p.4	Knowledge workers have high degrees of expertise, education, or experience, and the primary purpose of their jobs involves the process and accomplishment of knowledge work
Pyöriä 2005, p.121	A knowledge worker is someone who has access to, learns and is qualified to practice a body of knowledge that is formal, complex and abstract

Appendix 2.2D   Definitions and Descriptions – Knowledge Worker Expansive Definitions (Sources outlined in table)

Difficulties with Knowledge Worker Definitions and Descriptions	
Author	**Definition/Descriptions**
Hammer, Leonard & Davenport 2004, p.17	Not all knowledge workers are alike. They need to be segmented.
Spira 2008, p.25	The term knowledge worker is an overlay definition ie: a term used to describe another term
Ascente 2010, p.280	The term knowledge worker may no longer be relevant because all work requires some degree of specialised knowledge p.280
Scarbrough 1999, pp.6-7	Context is what makes a knowledge worker difficult to define The increasing use of the term knowledge worker can be easily criticised for lack of methodological and theoretical rigour. Knowledge workers are not one discrete occupational group and most of the descriptions of such workers tend to lump together a variety of occupations and roles

APPENDIX 3.1 – Rationale for and Analysis of Research Questions

Appendix 3.1 - Rationale for and Analysis of Research Questions

Question	Intent of question	Information hoped to be obtained from question	How information may help address the gap
1. How many years have you been in the workforce?	a) Enables the participant to ease into the interview by being asked a relatively straightforward question that they are likely to find easy to answer. b) To determine the participants' length of experience.	Factual information about the participant also ensure they comply to first selection criteria of > 15 years experience.	Will provide tangible information which can be compared to the literature that says it takes > 10 years to develop expertise in a domain area.
2. What would you say is your domain area of expertise? How long have you been a professional in your domain area of expertise?	a) Another straightforward question to ease the participant into the interview and to further assist with the building of rapport between the researcher and the participant. b) Provides details of their specific domain area of expertise.	Area of experience and expertise.	Provides insight into the variety of domain areas of expertise that could fit within the grouping of knowledge-based professionals. Aligns with the work of (Adelstein & Clegg 2014, p. 8; Cornford & Athanasou 1995, p. 15; and Glaser 1992, p. 263) that it takes many years to develop expertise.
3. Could you please provide an overview of your professional development and work experience?	This provides an open opportunity for the participant to explain their career progression. *Consideration had been given to obtaining the participants resume but this was considered sub-optimal as it would be open to interpretation by the researcher and limit the participant from explaining and describing their career progression in a way meaningful for them.*	Gain an appreciation of the variety of ways people have developed their expertise, experience and knowledge in their domain area(s) of expertise.	Understanding of the variety of ways peoples professional experience and careers can develop that may be more varied than what has been provided in the extant literature.

Question	Intent of question	Information hoped to be obtained from question	How information may help address the gap
4. What have been the contributing factors to your development as a professional?	To determine what factors can influence and have influenced someones development in a particular domain area of expertise. Although there is much theoretical commentary on this in the literature it was felt important to gain insight from the individuals concerned and not speculate or consider from the view of the organisation or a specific perspective associated with knowledge work.	An overview of the ways professional careers can develop from the perspective of the individual involved.	To help fill the gap where there are only assertions cum assumptions (Darr & Warhurst 2008, p. 26) regarding these aspects when referring to knowledge workers. Provides a point of comparison to the work of Barnett and Koslowski (2002, p. 238) regarding factors that influence the development of expertise.
5. Which of these do you see as being the most significant? Why?	There could be more than one factor involved in someone developing as a professional and what is has been the most significant factor for one person may not be the same for someone else.	To obtain an individual practitioner viewpoint that is experiential not theoretical.	There is no information in the literature on this particular aspect especially in relation to prioritising what factors may be more important than others.
6. Who or what have been the greatest influences in your professional development?	It was felt that asking this after the previous two questions might encourage the participants to provide more details on their process of developing professional competency. *Could be seen as similar to questions 4 and 5 however it was felt that if it were asked in a different way, the participant would provide more information.*	To obtain an individual practitioner viewpoint that is experiential not theoretical about factors that have affected their professional development. Considered to be a form of scaffolding to facilitate the development of a personalised framework about their own individual experience.	There is no information in the literature on this particular aspect especially in relation to focussing on specific factors that have affected an individual's professional development. Can be compared to the work of Barnett and Koslowski (2002, p. 238) to determine what other factors have influenced the development of their expertise such as breadth of experience and roles played to influence the expertise they develop.

Question	Intent of question	Information hoped to be obtained from question	How information may help address the gap
7. Could you please describe your attitude and approach to learning?	Approach to learning is often mentioned in the literature on knowledge workers hence it was felt relevant to ask the individuals what their approach to learning was. Has relevance to two other aspects: deliberate practice and a life-long learning mindset.	Ways practitioners perceive learning, its important and relevance for them. A participant-guided exploration of learning.	The literature suggests that three attributes of knowledge workers is that they have a focus on learning, a need for deliberate practice to build expertise and an attitude and propensity towards life-long learning. Answers to this question could help to refute or support these comments. Can be compared to the work of Fraser and Greenhalgh (2001, p. 800) to better understand the role learning plays in the development of ability in a specific domain area.
8. How does learning impact your professional development?	Same rationale as question 7.	Considered to be a form of scaffolding to facilitate the development of a personalised framework about their own individual experience especially related to learning and its impact on professional development.	Similar to expectations of question 8. These responses would help with making the lived-experience connections between learning and professional development.
9. How do you respond to the unexpected?	To gain data to be able to understand how knowledge workers cope with the unexpected.	Individual experience with how they cope when faced with the unexpected.	To support or refute what the literature says knowledge workers need when coping with the unexpected. Influenced by the comments from Bell et al. (2012, p. 20) who state that adaptive experts need to be able to manage uncertainty.
10. How do you respond to new situations?	To gain data to be able to understand how knowledge workers cope with new situations.	Individual experience with how they cope when faced with new situations.	To support or refute what the literature says knowledge workers need when coping with new situations.

Question	Intent of question	Information hoped to be obtained from question	How information may help address the gap
11. How do you respond to complex situations?	To gain data to be able to understand how knowledge workers cope with complex situations.	Individual experience with how they cope when faced with complex situations.	To support or refute what the literature says knowledge workers need when coping with complexity. Influenced by the comments from Bell et al. (2012, p. 20), who state that adaptive experts need to be able to manage complexity.
12. How do you maintain your professional competence on a day-to-day basis?	To understand how participants, keep their knowledge current.	What resources, information and other factors participants use to complete their work tasks and maintain their abilities.	There is nothing in the literature that specifically discusses this aspect; thus any insights here would be new information about knowledge workers. Helps to provide some insight on how the individual has developed their expertise and expert performance that could support the comments in the literature by Ericsson, Prietula and Cokely (2007, p. 117). Helps to provide support for the statement by Mylopoulos and Regehr (2007, p. 1164) that expertise "it is not a state of accomplishment, but rather is best thought of as an approach to practice ".
13. Do you participate in mastermind groups? If so, what encourages you to participate in such groups?	To understand what networks and connections participants have. The literature suggests that social networks and contacts are important for knowledge workers.	How and why participants connect with others, how they use these groups and what benefits they may derive from them.	To support or refute what the literature says knowledge workers rely on and whether they need networks to help maintain their competency and stay connected.
14. How would you describe your level of capability?	To gain insight into how participants view their own capabilities: not just what these are but how participants perceive what they do and what they are able to do.	How participants perceive themselves and what they do.	This type of question have never been asked of knowledge workers.

Question	Intent of question	Information hoped to be obtained from question	How information may help address the gap
15. What factors did you take into account to determine this assessment of your capabilities?	Provides the opportunity for the participant to give their perspective on what they value as important when assessing capabilities.	Considered to be a form of scaffolding to facilitate the development of a personalised framework about their own capabilities. Gains information directly from the individual, thus avoiding assumptions about the meaning of what the person has said. Ensures clarity regarding the participant's intent.	Similar to question 14 this type of question has never been asked of knowledge workers. Provides a point of comparison between the participants and the comments found in the literature by Anders Ericsson, Prietula and Cokely (2007, p. 117) on how expert performance can be and is assessed.
16. What else would you like to tell me about your professional capabilities and experience that we have not already covered?	Gives the opportunity for the participants to add more should they want to. Also ensures that aspects that the participant may consider important are not overlooked. This is a participant-guided opportunity for self expression related to their professional experience and domain area of expertise.	Any other insights not already obtained by the earlier questions.	May provide insights not previously considered.
Any other comments?	This is a second participant-guided non-directional opportunity for self expression related to their professional experience and domain area of expertise.	Scaffolding building on the previous question allowing any other insights not already obtained by the earlier questions to emerge.	May provide insights not previously considered.

eScribe
Transcription & Web Video Captioning

APPENDIX 4.1 – Initial Coding – Interview 1

Transcript: **Research Interview Manual Analysis**   Staff-In-Confidence

Speaker Index:

"**Bold Content**"	**Carol McGowan**	**Interviewer**
"Plain Text"	PA	Interviewee

Start of Transcript

File 1 of 1

So Philip, the first question I have for you is how many years have you been in the workforce?	
This specific workforce?	
Generally. How long have you been in the workforce?	
I started work when I was 15. So that's 40 years.	Work experience Starting Age Longevity
What would you say is your domain area of expertise?	
That's a difficult one. My expertise is eclectic like my counselling. It's varied between management, development and practice.	

Job Name:
Date of Recording:
Carol McGowan
PA

Research Interviews
9 July, 2014
Interviewer
Interviewee

Practice of what?	
Counselling and supervision.	
And how long have you been in that particular area of expertise or domain area of expertise?	
Well counselling practice is 17 years. Management is 10 years. Supervision's about seven years.	Professional exertise
How did – sorry, go on?	
And development, my whole life.	
So this might be a little bit of the verbal version of your CV, but could you give me an overview of your professional development and work experience, especially because you've got a number of different strands to your -	
We're keeping this specific to counselling?	
No. We're talking about Philip.	
Okay. Well my first life was 15 years in the Army which included two overseas deployments, working up to the rank of Sergeant, completing numerous specialist courses, working in a specialist unit for seven years. That develops my ability to lead. It helped me to understand how to motivate and what motivates individuals, particularly in stressful situations. It also taught me to be very lateral in my thinking. Particularly being in the military and particularly in specialised units, it's nothing like what you see on television, people running up and down yelling and screaming and you've got to do as you're told and work, that rubbish. That's not the reality of military life at all, not in my experience.	Military Service - leadership - motivation - thinking style "Ability to lead" "Lateral in my thinking" "How to motivate"
I spent my entire career field force, which means at the pointy end, so I was fortunate in that sense. There's a lot of independence when you work at the end of the stick. So I suppose that was my introduction to adult life. Also, in the military I became painfully aware of my lack of education and	Self sufficiency "at the pointy end" "independence" "work at the end of the stick"

Job Name:

Date of Recording:

Carol McGowan

PA

Research Interviews

9 July, 2014

Interviewer

Interviewee

I left school at 15, so I didn't complete high school. Whilst I was in the military a new policy was introduced that you couldn't get promoted unless you had reached certain milestones in education and I couldn't get promoted to Sargent because I hadn't completed the high school certificate in those days which is Form 3 or Year 10 or whatever it, it's not the completion of…	"I have no idea why" payment for education - not an issue
So I was put on an education course, an education training course. I spent several months completing that and I topped it and what that did was reinforce in myself that I actually wasn't stupid, that as far as academia I had a capability which I'd always known but I'd never applied because I didn't do well at school, one of the reasons I left. So through that when I got back to my unit in Townsville I applied to do a welfare course. To this day I have no idea why I chose welfare and the Army paid for me to do a welfare course at TAFE and because I did well at that the Army then authorised me to start a degree in Psychology which the military were paying for.	Qualifications Qualifications Specialisation
Unfortunately during that time I was medically discharged due to a Staf infection. My knees were pretty shot by the end of 15 years. After I got out the Army I was no longer able to maintain my degree because I wasn't serving anymore, but as part of my compensation package for my medical discharge, I was given the opportunity to complete a diploma of my choice and because I'd been doing psychology at uni and because I completed a welfare qualification at TAFE, I decided to do a Diploma in Counselling and I did a full time training course. It was a 12 months full time on campus course and on the completion of that I worked with the RSL for veterans.	Focus and direction Previous life experience
During that time I founded a Veterans and Community Resource Centre in Woodridge and in the first two years I got granted about $1.8 million worth of funding to develop counselling, lifestyle courses. There was a heap of courses that I developed through the centre and I got promoted to Coordinator of the centre. In the second year I won the DVA Queensland medal for – well the centre won the award, which was given to me for the development of veterans services. I also won the Logan Chamber of Commerce award for welfare development in Logan. There's a few other things. I won the Quest Newspapers – they have awards every year and	External recognition and validation More than lead Mental abilities "help people" Developing programmes

we won that one for the RSL. I actually won it for my clinic here as well. But you know, I forgot the other ones. So that was pretty much – and that's more about it ==reinforced my belief in my own ability to develop programs, so not just lead and sit in the chair==, but to actually develop what I believe were ==meaningful programs to help people==. So that reinforced that and during that time I decided to go back to uni ==under my own steam== and complete my graduate degree in counselling which I did. It was after I had a very, very successful private practice and it was during that time when I came to realisation that there was a problem with my industry and that was ==my industry wasn't really recognised as an independent industry.== We had no recognition. We had no kudos. We had no training. There was nothing and there was no separation between counselling, social work, psychology or anything else, so I decided to become ==politically involved== in the industry to change what I thought was something that needed to be done to the industry, and eventually that led to getting a job with the Australian Counselling Association where I was employed as the Membership Development or the Membership [00:08:35] anyway and from there worked my way up to CEO.	"under my own steam" "my industry was not really recognised" "no kudos" "no training" "politically involved"
How long have you been in that role?	
CEO about seven years. I started with ACA in 2000 and during that time I've written a couple of books and text books and co-authored text books and developed supervision, but just worked and what I've done as the CEO, so it's all been primarily at that.	CEO "written….books"
What do you think have been the major ==contributing factors== to your development as a professional?	
What contributing factors to the developments of professional as a solider was ==ambition==, ambition to be the best but not ambition for rank. I was ==very physical== in the service. I always ==volunteered for anything== that was a difficult task and it was more about ==proving myself to myself== I think more than anything else. A ==man thing== more than anything else which was why the ==best thing that ever happened to me was being medically discharged==. It	"ambition" "very physical" "volunteered for anything" "proving myself to myself" "man thing" **Turning Point**

was after I realised there was a lot more to being a man let alone a person than simply doing that.	
Okay.	
What has driven me in counselling is – what triggered my motivation in counselling particularly politically was the <mark>utter contempt</mark> I was treated with by <mark>psychologists</mark>. That was something particularly as a soldier I wasn't used to, particularly having rank in the service and having earnt it. In the military non-commissioned officers earned their rank if they're not given it. They don't pay for it. It's not something that's given to you because of education. It's something you have to earn.	
I had a brother.	
So that was something I felt I'd earned my stripes as a counsellor. I'd done my degree. I'd done it the hard way. I worked through the RSL. <mark>I put in a lot of hard work</mark> and I was getting <mark>very good results and I didn't believe I deserved it</mark>, but not only that, I didn't believe that I was put on this Earth to actually have to put up with it. So that was my motivation to do something politically about it and to help move the industry because I believe the industry allowed us to be treated with contempt, to be honest, through lack of representation and all the rest of it. That's what prompted me initially to join [00:11:38]. So had the contempt continued, primarily because the people in leadership positions impacted were psychologists and that's what then motivated me to join ACA. Because I was very fortunate in being given a leadership position with the ACA, I was able to use that motivation to take what <mark>I believed was</mark> what the industry needed for all its members, for all councillors to be able to be <mark>treated with respect</mark> and to be respected for what they've done, what they do and what they contribute.	"put in a lot of work" "didn't believe I deserved it" self-evaluation worth "treated with respect"
Maybe a couple of things have impacted your progression in the professional world. Which of those do you think has been the most significant and why?	

The most significant thing that ever happened to me was when I went to a meeting of counsellors and psychotherapists and I was ignored and I'd actually had a person in a leadership position in the Counselling Association refuse to acknowledge me or even shake my hand when I met him because even though he was in a counselling organisation, he was a psychologist and didn't believe that I should have been there, didn't believe I deserved to be there at that meeting. For me that was the ==defining moment== particularly as a therapist.	"I was ignored" contempt "defining moment" drive and impetus
Okay.	
To "Okay, if that's how you feel. You might have got away with that with other counsellors, but not this one." Since then I have certainly risen above that person and that person's not in the best of ways professionally and not because of me. I didn't set out to -	Taking a stand Not willing to be dismissed Not accepting others opinion Proving them wrong
No, I didn't [00:13:42] that way. Okay. So, who or what have been the greatest influences on your professional development?	
That's a difficult one because everything we do at ACA we're breaking the ice. ==We're not following anybody and so there is no one I look up to in the sense of try to achieve or emulate or use as a mentor because we are leading the pack,== so there's no one that we're following, and I don't say that in an egotistical sense. We just do what we do at ACA. We sit around and we "What if?" but I suppose the President of ACA, Simon Clarke has had a lot of influence on me. He's successful in his own right. He was fortunate he had ==a good opportunity in life, a good start== but he certainly ==made the most of it through his own hard work.== So I can say that Simon Clarke is the President and he's had some influence on me inasmuch as I see what he's achieved and what he's done and that continues to motivate to me to continue to achieve.

I suppose within the industry though that's a difficult one. I know Alan and Erin (mary) Ivy (Ivey). I look up to them. They're people I respect and I have a lot of respect for, the Ivy's. But I actually have more ==respect for== | "leading the pack" "breaking the ice" "I made the most of it through his own hard work" Respect for those doing it tough |

Job Name:

Date of Recording:

Carol McGowan

PA

Research Interviews

9 July, 2014

Interviewer

Interviewee

==those out there doing it tough day-to-day== than I do people in senior positions within industry.	
This isn't necessarily about rank. This is just about people that impact you, influence you, you draw -	
I draw strength from every time I get members who are struggling, not because of lack of competency, not because of inability or anything else, but because it is tough out there and we as an industry tend to be treated as second grade therapists and that continues to motivate me.	
Okay. Could you describe your attitude and approach to learning?	
==My approach to learning is interactive and hands-on==. I believe counsellors are better trained than psychologists and social workers because of that, particularly now with the new curriculums that are available on the bachelors of counselling, the diplomas, because we don't focus on [00:16:58] stats, we don't focus on diagnosis and we don't focus on assessment. A lot of the current research particularly in neuropsychology, a lot of the research on gene therapy, genetics, a lot of the ==current research is showing us that actually diagnosis and assessment is the horse's rear end.== It doesn't work. It's ineffective and a lot of it's wrong, and the problem with the diagnosis and assessment is we take it into a medical model and then we start looking at medication, and yet research I read only this morning was highly critical of medication in children, that there's absolutely ==no research that demonstrates that medicating children works.== It doesn't, and yet we continue to medicate children and that's because of diagnosis and assessment and the medical model. But also the continued use of antidepressants and anti-anxiety drugs and yet there is still no solid connection between drug therapy and depression and anxiety. ==There is an assumption== that a decrease in dopamine, serotonin and these sorts of chemicals are causes of depression, therefore if we up their rates through manmade chemicals to increase that, well there is actually still no defined connection between them. All we know is people with depression have lower dopamine and serotonin but we don't know whether that's a cause	"interactive and hands-on" belief set challenging/questioning the status quo assumptions

and effect or whatever, and yet we continue to give them medication that increases it, but no one's getting better.	
Is there not an assumption that A causes B when we don't really know that A causes B? They might both coexist but we don't know that A causes B?	
Well it's like psychology. It's like psychologists now with the Better Access Initiative. This is something I spoke to the Minister on and something they're actually taking a very close look at is there is an assumption of outcome. Psychologists will see people for nine sessions against better access and when people stop seeing them, the government, the Medicare system, the psychologists, everyone except for the client assumes there's been a positive outcome and yet there is no assessment to demonstrate that, there is no reporting to demonstrate that, there is ==no recording of data to support that,== there is nothing, and yet there is an assumption that psychology works and yet we have absolutely nothing out there on a day-to-day basis that actually proves or reflects that everyday psychologists out there who are getting paid enormous amounts of money by Medicare and us tax payers are actually achieving anything and that's because we work on a [00:19:46] model, because we work on a diagnosis and also we're still waiting to see the research that actually shows that antidepressants work.	Assumption Challenge status quo Accepted norms and axioms
So I think that's where my model lies in being ==hands-on, interactive, working with people, using the talking therapies as they were meant to be used==, without diagnosis, without assessment, and I say that acknowledging the things like schizophrenia and bipolar and that exist, and they do need diagnosis and assessment, but they're not necessarily what we work with and what we work in anyway and they are the small minority. We're talking three or four percent of people with mental health issues, so we're not talking about the majority.	Use methods as intended
The majority of people who come in within primary care or secondary care, very few come in within tertiary, which is your bipolars and that. So, why we need to focus on diagnosis and assessment when 90% of people with mental health problems don't have a diagnosable illness, which is why I	

like chemists then because we don't do that and it always worry me that's where we're going to go.	
Okay. So how does learning impact your development as a professional? So you've said what your approach is -	
Because I am not a researcher, I don't like research, however I can't get enough of reading research. So I love reading research. I don't like applying research and actually the more research I read the more I realise that the people out there who are telling us what to do don't know what they're doing because they're not reading the research, and like medicating children, it doesn't work. Like diagnosing clinical depression and then giving somebody anti-depressants, it doesn't work. There are other alternatives. So, what influences me is my learning is actually reading the research, the real research, the goal standard research, the research that's not influenced by drug companies. So it's about understanding research but also understanding who undertook the research and how was the research undertaken. I think that is something that is lacking in this industry that we need, not necessarily to become researchers but to understand research, what it is we're reading.	Not a doer or research Practitioner – user Recognising other alternatives Critical analysis
We'll take a slightly different tack now, how do you respond to the unexpected?	
Two ways, either aggressively – it's something I've spent the last 15-20 years working on because it's a natural response for me after being in the military because it's not healthy and it doesn't work a lot of times, and the one that I have developed when I'm in control and depending on what it is, is I stop. I stop and think and I generally will spend time on an issue first of all looking at the obvious, then looking at the laterals.	Aggression "stop and think" "look at the laterals"
What brought out the change?	
When I had the Army I had a lot of trouble transitioning. When I undertook my training as a Counsellor, I did 18 months of self therapy on that. When I started training as a Counsellor seriously, I realised that unless you've	"trouble transitioning" "unless you have been in the chair, …. You'ree always going to have a weak spot"

Job Name:

Date of Recording:

Carol McGowan

PA

Research Interviews

9 July, 2014

Interviewer

Interviewee

been in the chair, I think you're always going to have a weak spot in your counselling practice, and so I chose to go the chair and I enjoyed it. I really enjoyed it and actually the – if you believe it, she was a social worker because there wasn't any counsellors really in those days [00:23:55] or there was hardly any counselling degrees. So she was a social worker but she was an excellent therapist and excellent counsellor and I spent 18 months with her and she became my first supervisor. It was brilliant and she helped me work through the anger.	work the spanners walk in the other person's shoes "work through the anger"
There was anger from being discharged because I wasn't discharged from my own steam. I pretty much settled down to the military was going to be my life and after 15 years it was. So then to suddenly leave out of your control because it was medical discharge, wasn't good. It ended my first marriage because my wife didn't want to – my wife actually was weird. My wife used to, when we were [00:24:44] around in trouble, she'd say "I just want my soldier back." I'd say "I can't be a soldier anymore because it doesn't work out here." So we both had trouble transitioning.	"trouble transitioning"
So there was that, but going in the chair for 18 months and working through that and having her help me come to the realisation I had anger issues and they were to do with the military, they were to do with my medical discharge but they were also to do with my lack of understanding that what worked in the military doesn't work in the city street, and then how – okay, "So what are you going to do about it?" and so that's what we worked on. In the military I was considered to be a significant strategist in the military and that was because I've always had the ability to be a lateral thinker. So that was something that we worked on, was my ability to think laterally. So, it was to use that when I was confronted with an issue, but to stop and think and so she helped me to develop the ability to utilise my ability to think laterally.	Strategist "ability to be a lateral thinker" using skills effectively getting help
Okay. So what do you think you do that helps you be a good lateral thinker? Or what do you think you've got at your disposal?	
Because I've been a black sheep my entire life.	"black sheep"
Okay.	

Job Name:

Date of Recording:

Carol McGowan

PA

Research Interviews

9 July, 2014

Interviewer

Interviewee

My life for a start, I was born in Africa, I was brought up in a game park. My father was my father but Jomo Kenyatta in jail. We had to leave Kenya in a hurry when Jomo got out and became the first president, so we left in a hurry and went to England for several years. Then we moved from England to Australia and I lived in a hostel and I can tell you that any refugee on Mt Asylum who thinks they've got it tough should have lived in Australia as an immigrant in an immigration hostel because I can tell you what… But, I lived in Australia for two years and didn't realise that Australians spoke English.

We were the only English speaking people in the hostel. Most of them were Yugoslavs, Greeks and Italians and the school I went to, most of the kids didn't speak English and because we were barb wire fences, the whole lot, it was – yeah, it was tough, it was really tough. So then we went to move into country Victoria which was the best time of my life. We spent quite a long time – so I was brought up in the country of Victoria which was like being back in Africa, but my father moved a lot because of his job and then we moved into the city. Then we moved around, so I had to become very flexible in the way we lived. I went to school on three different continents. I went to five different state schools and three different high schools and because of that, you've got to become flexible because you can't make friends because you're never there long enough.

Then when I was 15 because in those days you had a choice – you don't now – but at 15 I sat down with my father and said "Look, it's not working. School's just not working." So my father said "Look, if you get a job you can leave school," so I got a job. Then when I got a job I decided I didn't like living at home either, so I left home. So at 15 I had my own unit and my own flat, had a job. So I had to become independent very quickly, but even at that age I was identified as leadership material. I worked in an optical company and was training as the junior manager before I joined the Army Reserve which then led to me joining the rigs (regs).

So, my background and my upbringing more than anything else really taught me to be independent, to be self reliant, but also to be flexible because for a large proportion of my life I've worked with people,

Moving around

Different cultural experience

Lifestyle

Different cultural experiences
"barb wire fences"
tough experience

Country – "best time of my life"

Moving around

"had to become very flexible "

Relocation

Different cultural experience

Relocation

Very flexible

Independent @ a young age (15)
- home
- work

Leadership material

Upbringing + personal attributes
- independent
- self reliant
- flexible

"worked with people"

protection

social life

Job Name:

Date of Recording:

Carol McGowan

PA

Research Interviews

9 July, 2014

Interviewer

Interviewee

particularly when I was younger, who were a lot older than me, who were mature aged and I always enjoyed it. I was 16 in Melbourne drinking at the pubs and I was drinking with blokes who were brought up to the 6:00 o'clock swill. So I used to go to the pub and they'd be drinking like this and I'd be going "Holy crap," and they were very ==protective== because obviously I shouldn't have been there, but they were really ==protective==. So they'd go to the pub and they'd just have a bit of a circle and for my shout someone would always go and buy the drinks. I'd give them the money and they'd go buy the drinks and all that sort of stuff, but as a 16-year-old I was living like a 20-year-old and when I was training as a junior manager I was 17 when my boss took me to the Bunny Club in St Kilda. All the different areas – this was in the era when you had the four hour lunch.	Different times Social norms
Yes.	
And the business paid for it. So you went and because I was ==training== as a junior manager I was ==under the wing of the manager== and he loved his four hour lunches. So we used to go and have four hour lunches and come back to work at 4:00 o'clock drunk as skunks just in time to knock off and go home. Then when the overseas guests and that – we used to go over on Friday nights and he used to take me in St Kilda where the Bunny Club was down on the Esplanade. It's not there anymore, but at 17 I was going to the Bunny Club. He used to go in there and because there was all these American businessman with us, we'd go in there, there was women and I was 17 and I was surrounded by all this stuff. Common theme about transitions So, I was ==exposed to the adult world very young. I was never a teenager==. I went from 15 at school to become an adult and I thoroughly enjoyed it. I certainly didn't miss being a teenager. I don't know what I missed to be honest, but having a look at my own children I just must, but I enjoyed the transition. So that again, was part of it, learning to associate and relate to adults, to be able to converse with them, to integrate with them and to be part of it. So I ==learnt very quickly== what that took but also we're talking back in the '70s now. There was alcohol and there was drugs and there was all this	"under the wing of the manager" training – how to live and work

sort of stuff, and I was exposed to it all which was good in a sense because I was exposed to it in the sense of how to do it but how to do it with [00:31:22] but with some sort of responsibility because you were in a position of – I wasn't the manager but my boss was a manager, so there was always a line in the sand that you would only go so far because of the responsibility that came with it and that's something that's held me in good stead particularly in the military because I did drink a lot in the military but I was never a drunken [00:31:48]. I would drink and I would go home.	
So, these questions were done long before I knew I was going to speak to you and some of what I've said, so I'm still going to ask them because there might be something else that comes back.	
Yeah.	
How do you respond to new situations?	
Love them. I love anything that's new.	Love of uncertainty
Okay. Why do you think that is?	
For a start I get bored quickly, because anything that's new that's challenging, but it requires a new set of thinking. Most new things require new things, if you know what I mean. If you come across something new it requires a new set of rules, a new set of boundaries, a new set of thinking, a new set of possibility, ethics in how you approach it and that sort of stuff. I love innovation. Anything that's new requires innovation and that stimulates me.	"Bored quickly" Likes a challenge "new set of thinking" new rules new boundaries new possibilities Loves innovation Avoid boredom Stimulation
Okay. I'm going to ask an extra question based on your background here, how much do you think your life experiences contributed to your love of new situations?	
Significantly because you either survived or died with my sort of background. I sort of did to my siblings and they didn't survive as well as I did.	Life experience impacting professional competencies

Job Name: Research Interviews
Date of Recording: 9 July, 2014
Carol McGowan   **Interviewer**
PA   Interviewee

Okay. So it was also about who you are as well, it wasn't that you all coped as well?	
No.	
Okay. How do you respond to complex situations?	
Initially with frustration.	Frustration
Okay.	
And then I sit down and I work through them. I'm very bulldog-ish. Because I continually like moving forward. As soon as something stops me moving forward there's initial frustration. Then there's "Okay, what do we do about it?"	Frustration "bulldog-ish" "like moving forward" avoid stagnation
Another question that's [00:33:59] based on what you've said, again, I'm drawn to think that these experiences and these approaches have come from your life experience but service you well in your current role?	
Certainly. Yeah, they've made me capable of doing what I do and I come across a lot of people who have been CEOs who don't understand the position and what I do because it's not a traditional CEO position, but it also gets misconstrued by people as being a control freak or an authoritarian too. People initially, particularly depending on what's motivating them to look at it, don't truly look at it with their eyes open. They see power and they believe that the power's wielded by one person and it's "This way or no way." They don't really have the ability actually to understand, but certainly not that. There's no sole decisions made in this organisation, but also yeah, there is a certain amount of power but they don't understand the price you pay for it or the repercussions and responsibilities that come with it because not all decisions I make or what I do are right. I make wrong ones. Sometimes I don't make the right one and there's significant repercussions for it. Working with the politicians there's no room for making the wrong decisions and the wrong moves and so again, it's a point of sometimes	Misconstrued "control freak" "authoritarian" assumptions "power" "ability to understand" "price you pay for it" "repercussions and responsibilities" decision making -> consequences - perceptions - outcomes Misunderstanding "ignore other people to a degree"

you have to be closed off and focused which <mark>at times people misread or they don't understand that's what's required to get the job done</mark>. So that is the one thing that my background has taught me, that you really have to ignore other people to a degree.	independence self sufficiency
I've got the concept of thick skin.	
Yeah. I get insulting emails every day.	
How do you maintain your professional competence on a day-to-day basis?	
Supervision. I think supervision is very important, but I am surrounded – I am very, very fortunate I am surrounded by a <mark>great team</mark>. I'm talking about the employees here, the girls, but also the ACA Board. I am <mark>surrounded by people who are motivated and who want to achieve</mark> – they're not necessarily all high achievers, but they want to achieve, they <mark>do their best to achieve</mark> and they <mark>don't get bogged down in negativity</mark>, and that's what makes it easier to keep going actually. Going to work's a pleasure.	"great team" "motivated" "want to achieve" "do their best to achieve" not "bogged down in negativity"
Do you or have you ever participated in mastermind groups, and if so what encourages you to participate?	
No.	
No you don't. If you were describing to someone else your level of capability, how would you describe it?	
Honestly an interesting question. How would I describe my capability? I don't think I can answer that question. I just <mark>do what needs to be done</mark>. I really don't honestly sit down and think of it from that perspective.	"do what needs to be done"
Do you mind if I ask you that in a slightly different way?	
Yeah.	
See whether something comes out. So, you obviously encounter other CEOs or people in equivalent positions. If you were considering yourself against, say someone you respect or maybe	

Job Name:
Date of Recording:
Carol McGowan
PA

Research Interviews
9 July, 2014
Interviewer
Interviewee

even Simon you mentioned before, what would you say – how would you perhaps compare your capabilities? I don't know Simon and it is your opinion?	
How can you say it without being egotistical?	
This is an honest answer. I've got no judgement.	
I make better decisions than he does and unfortunately [00:38:44] me right on that.	
So one of the ways you would describe your capability is you're a good decision maker?	
Yeah.	
Okay. Is there anything else?	
I like to believe I lead by example.	Leadership "Lead by example"
Okay, anything else?	
I think leading by example pretty much says all, that I don't ask members to do anything I don't do.	"leading by example"
So walk the talk?	
Yep, and I generally try to do it better and harder than most because I understand as a leader you need to, but I think again, a capability is that I try my damndest anyway to [00:39:34] the group first, the members. Every time I see something, before I do anything I think "Is this for the benefit of the members?" and if it is then just do it. Sometimes that's difficult because sometimes I might think something is not for the benefit of the members and I could be wrong.	"better and harder than most" understanding responsibilities of leadership "try my darnndest" "put the group first"
Let's just take it looking closest to the staff or the board at the moment, what sort of feedback do they give you about your capabilities? You can take that either way, good, bad or indifferent.	

Okay. I work very closely with the CEO of PACVA. Her greatest envy is my autonomy I have in my position.	Autonomy
Okay. So you're autonomous.	
And as I explained to her it took me 10 years to get that autonomy's been earned by trust and making the right decisions and taking ACA from nothing to where it is now. When I go out there now not only we are far better known than PACVA, we probably get far greater respect now within the industry where people used to laugh at us five or six years ago. People now come to ACA first from politics and industry and even educators where with education it took us a long time to get respect. A lot of the unis and that come to us first. PACVA's lost a lot of its gloss and that's possibly because it didn't earn it. So, that autonomy has been something that's been earn through, well as I said, walking the talk.	"earned by trust" "making right decisions" earned it autonomy "walking the talk"
But it's another way of you've earnt your stripes though isn't it Philip, to use that analogy. You've earnt your stripes through what you did.	
Yeah. So when it's all about the boredom and that, I do get a hell of a lot of autonomy. I am given the freedom to make decisions and to act on them immediately which again is something PACVA and I know that Maria suffers greatly from is one of her biggest frustrations within her position. If I see something I go for it. Just the latest one for instance, the stronger relationships. We got told the prime practitioners couldn't get access to it, so I sat down and looked at, thought about it laterally. I went to the policy. I looked at it and I think I found a hole and I'm now going for it. You would have seen the email that's got -	Boredom Autonomy Freedom Decision making Acting "Go for it"
Yeah, I did.	
- the register and I'm now getting all the names. Next week hopefully I'll be sending a document to the government and hopefully if I've read the loophole correctly, it depends on their response, but they may or may not be. If I do it it's a great kudos for ACA but there's no reason why PACVA couldn't be doing it, but the reason why they can't do it is because their CEO hasn't been given the independence to be able to do it. I don't know	Kudos Independence Latitude

Job Name:
Date of Recording:
Carol McGowan
PA

Research Interviews
9 July, 2014
Interviewer
Interviewee

whether she's seen it or not. She's a very cluey person. I've got a lot of respect for Maria. Whether she's seen it or not, I don't know, but even if she did, she couldn't do what I've done and that is without even informing the Board, sent out an email to members and I've already got the paperwork from the department, I've filled in the paperwork here. I had the Board meeting yesterday and I told them "This is what I'm doing," and they said "Great."	
So, now that we've got some stuff out of that, the question that came after that was what factors did you take into account to determine your assessment of your capabilities? So what did you start to take on board? Think about it.	
Look, I suppose to answer that question you've got to look at your <mark>achievements</mark> and then how did they come about. You've obviously got to look at your <mark>failures</mark> too and work out how they came about and the answer is they both come about from the same process. But as they know, process isn't 100% perfect, is it?	Achievements Failures Balanced assessment
No.	
So, yeah.	
All right. Is there anything else you'd like to tell me about your professional capabilities and experience that we haven't already covered, that you think could be relevant?	
Well one thing we haven't focused on, my ability to develop programs and the first one was the supervision. So, not only have I been very successful in developing a program and training supervisors, and at my position within ACA, it helped. Having said that, the course is now being run in the Philippines, Singapore, Hong Kong and Malaysia and that's not because of my position. They don't know who ACA is and they don't really care. That is because of my networking and my business skills and the reason why the course is running very well in those countries is because they've seen it and they appreciate that the course meets the needs and it has very good outcomes. So the ability to develop programs.	Developing programmes Educating others Helping others Networking Business skills

Job Name:

Date of Recording:

Carol McGowan

PA

Research Interviews

9 July, 2014

Interviewer

Interviewee

Also the healthy weight program. We're still looking at that, but the Minister's Chief Advisor has now asked me to write a paper on it and send it to the Review Commission because she believes that actually it definitely meets the obesity and weight issues that are being confronted by Australians now, but also I've had significant bites from the United States to deliver the program in the States and I've got two universities, one here in Queensland and one in Alabama who want to work in partnership and build some research on the program. So that program that I developed and that's years of development is coming to fruition, in different ways than I expected but again it's again because of my ability to develop programs. So I certainly have a capacity to develop programs or identify needs and my ability to identify needs is not because I have a special ability. It is because I spent a significant amount of time researching.

When I came up with the idea of a weight program, I went to the board with a document about that thick with all the research and the research just wasn't in obesity and the growth of obesity, but I had all the figures for the commercial organisations, what they were making, what it cost Australians in health care and all the rest of it, but also I had gone to some good research companies to work out what was the potential of delivering a commercial program, what was the competition like. So the document was quite significant. That was I did before I then said "Okay, I'm now going to go into this." So as I said, I don't think I've got any god's gift to just see - | "coming to fruition"

developing programmes

"not special ability"

"significant amount of time researching" |
| **So you do your homework?** | |
| Yeah and the same with supervision, and I've done my homework on a lot of subjects and realised that there's no momentum to keep them going, so it is that. Obviously if I don't know whether I've actually met anybody who's got god's gift to actually identify a deed in anything. Nearly everyone I've met who's been successful have done their homework. | "done my homework"

"momentum to keep them going"

"done their homework" |
| **Okay. Any other comments?** | |
| Not really. | |

Okay. So we've finished the formal interview. I wouldn't mind asking you though your thoughts on the interview itself and how it was conducted?	
All fine. It was good. There was no judgement. I felt free. I felt safe to express myself. To be honest with you, dig deep.	"dig deep"
It did? Is that what you said?	
I dig deep.	"dig deep"
You had to dig deep?	
But aside from the ability to dig deep, the interview itself allowed me to do that.	
Okay.	
Have no interruptions and over talking or anything else. So, I felt it was okay to do that. Yeah, because there's still some sensitivity in some areas.	"sensitivity in some areas"
Sure.	
So I didn't feel restricted in visiting those areas. So that was good.	
Thank you for your candour.	
That's all right.	

[End of Transcript]

Looks like a well planned strategy

In reality fortuitous, co-incidental, good luck

Key Words

Self-sufficiency

At the pointy end

Dig deep

Help others

Try my darndest

Work harder and better than most

Autonomy

Freedom

Decision-making

APPENDIX 4.2 – Initial Interview Memos

Interview Memos from Initial Coding

Interview-Based Memo - Interview 1

Being the first interview conducted it was somewhat confronting for a range of reasons. Insecurity on behalf of the researcher wondering how well the interview would progress and also the intensity of some of the responses provided by the participant when conveying various aspects of his experience. Intensity does not mean to imply that he used a loud voice it was evident in the changes in his voice when discussing various aspects of his experience. Two specific instances where this was the case was when he was medically discharged from the army and there was a sense of sadness in his voice. A contrasting instance was when he spoke about experiencing professional snobbery by being blatantly ignored by a psychologist because he was 'only' a counsellor. there as an indignation in his voice that he should be slurred in this way for no viable reason. This instance lead to him pursuing the cause of getting better visibility and recognition for counsellors in the therapeutic professions. It triggered him determining his life course.

The overwhelming sense drawn from this interview was that this participant has been very resolute throughout his life which started at a very young age. He had to grow up quickly and was living in an adult world at 15. He did not really have a childhood. He underwent a number of major disruptions in his life starting from when he was young and living in multiple countries with diverse cultures before migrating to Australia. He then joined the military where he learned discipline and discovered he had 'leadership abilities'. He had considered this would be his lifelong career until being medically discharged. Whilst being aimless for a short period (no clear direction or purpose) he made choices that were wise and ultimately lead him to his domain area of expertise in counselling.

He demonstrated pride in the fact he has 'worked at the pointy end', 'has leadership abilities' 'is politically astute and aware'.

This participants path to his domain area of expertise was not straightforward or linear in any way and yet each stage and experience has contributed to his ability to develop his skills and abilities in his domain area of expertise. Skills and abilities he learnt in the military stood him in good stead for what came later.

Participant presented as very self-assured and aware of his abilities and capabilities and stood proud in them.

They had acquired tertiary qualifications later in life. It was when he started this process that he said he realised "I was not actually stupid"

Overall sense from this interview was that he was resolute, determined and demonstrated courage in times of uncertainty.

The essence of this interview prompted the researcher to consider what is the significance of early life on how one develops their domain area of expertise?

Interview Memos from Initial Coding

Interview-Based Memo - Interview 2

The sense and situation of this interview was very different to the first. The location for this interview while at the participants choosing was very cramped and meant that there was very close proximity between the researcher and the participant. The participant was somewhat overawed by being asked about his experienced and on a number of instances apologised that his responses might not have been suitable. The researcher took time to assure the participant all that he had to offer was valuable. He was quite humble in the assessment of his own abilities and only when asked to compare what he can do to what others might do or whether others asked his opinion did he start to appreciate and realise the value and extent of his own abilities.

The key theme that emerged from this interview was that the participant was 'fascinated' by his subject matter and especially fascinated by how things work in the natural sciences as opposed to how things work that mankind does. He used the term 'fascinated' or 'fascination' on multiple occasion throughout the interview and was the most common phrased used by him. He also said he loved being able to use technology and his subject matter to connect with others he might not otherwise get to interact with. He did state he was socially inept and found it very difficult in social occasions. He stated he had low emotional intelligence.

Again at the end of his interview he apologised that his answers might not have been adequate and hope that I might get something out of it. I again reassured him that his input was valuable and would provide useful insights. I thanked him for his willingness to participant to reassure him of the value of his contribution.

Acquiring tertiary qualifications was just a natural way for them to develop competence in their domain area of expertise. They had achieved the highest credentialling level in their chosen field something difficult to acquire and yet they were still unsure about their own level of competence and capability.

Overall sense of this interview - he was fascinated by his subject matter.

The mood and sense from this interview raised questions about the importance of one's self perception and also how their mental state could impact the development of a person's domain area of expertise.

Interview Memos from Initial Coding

Interview-Based Memo - Interview 3

This participant was very willing to participant but was unsure how she could participant so she requested the questions be sent to her in advance so she had time to think about her responses rather than needing to consider them on the spot. The questions were sent to the participant 1 week in advance so she had sufficient time to consider her responses and not feel under pressure.

Similar to Interview 1 this participant had come to Australia at a young age causing early disruption in her life and a sense of being left out as she had not been able to make long-lasting friendships until later in life. She left school early out of necessity and took positions that were available to her and unskilled if and when required. It was when she had a chance to be in the training room and she realised she loved it that her domain area of expertise started to emerge and evolve. Again out of necessity she started her own business in her chosen area and her expertise and reputation started to expand allowing her to have more influence in her domain area of expertise of mentoring.

She has not formal tertiary qualifications however she is widely read and highly conversant with advances and the latest thinking in her field including having been asked to co-author academic journal articles. She does lament that she has not acquired tertiary qualifications but her circumstances have not allowed this to happen nor has it had any adverse impacts on her ability to obtain work and be sought out as a thought leader in her field. This participant stated she has a "Love of Learning" and that she is a reflective learner. It was when she made this statement that understanding was gained as to why she might have wanted to questions prior to the interview so she could have sufficient time to reflect on them. She had not realised she was a good learner until she tried it and was surprised by what she discovered.

Stated that she sees herself as an introvert and this impacts how she goes about what she does. Her self awareness influences how she performs in her domain area of expertise. Does practice what she preaches by having a mentor. She has a good commercial acumen and tries to leverage the benefits of technology to enhance her product offering and maintain the viability of her company. Very open to change if it helps to expand her and what she offers her clients.

She is pragmatic in her approach and says she plans for what she can and tries to respond as best she can to unexpected, new and complex situations. Her natural tendency as an introvert she believes allows her to observe, listen, ask questions and think before taking action.

It is interesting to note that this participant made a very similar comment to Interview 1 when she said that it was through some of the opportunities she had at work and her commitment to learning that she realised "I was not stupid actually". It is interesting to note the strong similarity to Interview 1 and that both came to more formal learning opportunities post their teenage years.

Interview Memos from Initial Coding

Interview-Based Memo - Interview 4

This was one of the longer interviews and the participant was extremely engaged in the process and revelled in being able to answer questions of this nature and to have the dedicated time to reflect on his experience.

This participant was a trailblazer in his field and hence was able to learn from some of the thought leaders in his bourgeoning field. He has been able to develop conceptual abilities and procedural abilities simultaneously and believes he has a unique mix of competencies not typically found together. Often people have conceptual skills or procedural skills but not often both was his perception.

This participant has an unwavering commitment to professional development saying he dedicates 3 hours per week to this and states it is "built into my regular routine". He attempts to draw his learnings from a wide and diverse range of sources to keep him stimulated and ensure things do not become repetitive.

He states he is a big user of research as it informs how he interacts and becomes involved with clients. He also clearly stated that when he is looking for things to learn about what he also considers is how he might share that learning with others and what might be the best way to do that.

This participant stated that the most signifiant influence on his development was to have someone early on in his career give him he space to spread his wings and learn but he knew they had his back. He said he was freely offered trust and autonomy to help facilitate mastery of his skills. He said this experience and opportunity taught him to be self-directive. While he is the first participant to actually use this term 'self-directive' all previous participants also demonstrated this characteristic in how they have gone about developing their respective domains of expertise.

It was obvious from the animation in his voice that he had a distinct and obvious love of learning. However what he added to this was "that it's important to have a purpose for learning" ie: "my learning pathways are based on the impact I think that that learning would have for me and for others." He lives the fact that he can choose how he learns it does not have to be the same way each time. Went on to state he uses the 70:20:10 model approach to learning where only 10% of learning is formal, 20% is talking about it and 70% is doing or applying it in some way. That is where the real learning takes place.

He stated that his approach to the unexpected, new and complex situations is with curiosity. He also stated in the case of new situations the fact that "just because it's new does not make it bad." He stated that he is not a person that likes to maintain the status quo. When discussing complexity he was able to articulate the difference between complex and complicated indicating he had a very good understanding of what we were discussing thus enhancing his capacity to provide a meaningful response to the question being asked.

He perceives himself to "have an exceptionally high level of capability" and believes he could pass any external measurement and you would find it supported this perspective he had of his abilities. He has received external recognition for his competencies in his domain area of expertise.

He has a number of hobbies that provide him with an escape from the intensity of what he does professionally and he sees these as stress relief mechanisms. He too went on to comment that he is 'fascinated' by the laws of nature which is similar comment to that espoused in Interview 2.

Has a values based philosophy of "pay it forward" and has an on-going desire to reach as many people as he can to make the world a better place. Many of his comments highlight the level of drive and commitment he gives to his work and the impact he wants to have in the world. He wants to "accelerate that change in the world" and has very strong viewpoints on some of the

Interview Memos from Initial Coding

Interview-Based Memo - Interview 5

This interview came somewhat as a surprised as it was arranged by a colleague on short notice given the availability of the participant within a very short window of opportunity. This participant had quite a strong presence and a very clear view of who they are and what they believe is right and wrong. They were very forthcoming and not afraid to point out a situation that they felt was wrong when appropriate to do so. What this lead to was a discovery that they had spoken up about unethical workplace behaviour which had had a negative impact on their career and had subsequently influenced how they interacted in the workplace since that time. They typically made decisions to avoid unpleasant situations which may have led to them missing out on some opportunities because they were not willing to be exposed or potentially made vulnerable.

The interesting point to note about this interview was the diversity of experience this participant had had and yet each domain area of expertise supported the other. This person had started out as a teacher, became a medical oncologist and was now transitioning to become a health informatics advisor. They felt that while each aspect was quite different all of these different types of experiences actually stood them in good stead for their understanding of health informatics and how they could be used to best effect both for the medical institutions they serve and more importantly the patients they will need to help. Again the participant made that a comment about their combination of skills similar to interview 4 which said "as a result of that I found out that I'd developed skills and abilities that really don't exist in many people or at all in my particular area." Hence the path taken had lead them to be quite different to others in their field which was not always well understood by others and this lead to some workplace difficulties.

There were some contradictory comments made during this interview. There was one instances where the participant said "there's not a lot of professional development once you've finished your training" however they did go on and say they like to learn new things so its important to note that while his area of training in and of itself did not necessarily provide lots of learning opportunities this did not prevent him from going on and finding areas of interest to investigate. This was especially the case when he took time off work while a doctor and discovered he had no hobbies because his whole life had been devoted to his work. It was during this period of exploration he found health informatics which opened him up to new opportunities. Hence what started as a hobby became part of his professional competencies. A fortuitous discovery rather than a deliberate one. He likes the challenge of discovering and determining how something works or could be applied. The stimulation of learning he finds immensely satisfying.

He stated that he typically went about things with "enthusiastic involvement" and became involved in things because as he stated "my psyche is not well built for slow plodding". He realised through his explorations that he was good at starting something off but was not the right person to manage it day to day.

He was very honest in his self assessment stating he is "honest, blunt, motivated and enthusiastic" and that he likes to push the boundaries. He really wants to see the benefit in a situations stating he can be simultaneous selfless and hard. He offered some counterintuitive responses stating his greatest learning came from someone who he perceived as incompetent. From this he learned what not to do. He has said others have commented that he is 'unapproachable' his response to this was incredibly insightful when he said "thats not my character, that's my appearance." This lead the researcher to ponder the question is this how knowledge workers have been typically judged on their appearance and not on their character.

He used an interesting analogy regarding what he knows stating the knowledge he has is like a filing cabinet that he goes to and accesses as he needs to. He likes to fit his knowledge into frameworks hence enabling him to file it for a later date. He says he is constantly asking where he might step next.

It is important to this participant how others perceive him and he desires to be considered competent and that he knows what he is talking about. He has strong boundaries about what he

Interview Memos from Initial Coding

Interview-Based Memo - Interview 6

This participant had a strong sense of self and a very strong desire to succeed. He took opportunities to go into a profession that was only starting to emerge as a mainstream option ie: physiotherapy. He had a drive to commit to whatever he did from a young age initially demonstrated through his prowess as an athlete. He stated "my drive was always to do something for myself…" going on to say "I've always had an internal drive to succeed and to do well and to learn." He stated having good role models in his parents and having a stable home life contributed to his belief in what was possible if you set your mind to it. He related this comment again later when he said "I've always hd the innate ability to want to do my best and to be the best."

He typically drew inspiration from reading the stories of people who have succeeded including sportspeople and business giants such as Steve Jobs. One of the things he learned from his life experience and reading these stories was to maintain a positive mindset even in the face of adversity. He has used these instances as learning opportunities. He prides himself on being able to lead by example. He makes no distinction between personal and professional development he believes they are closely intertwined and one automatically impacts the other.

Another telling statement made by the participant was "Knowledge is everything. If you don't have the education and knowledge then I think the success or end result or outcome won't happen." Moving on from this he says that the ultimate learning comes from when you put into practice what you have learnt and to then see the results this brings. He believes "you have learned nothing unless it's been put into practice."

He makes a clear distinction between is technical professional skills and the people skills needed to be a good physiotherapist and accepts that it is the people skills that make the difference it is all about how you treat the patient that will make the biggest difference in the end.

He adopts a pragmatic approach to new, unexpected and complex situations and is not phased by them when they occur. He tries to break them down into manageable parts to organise and orchestrate solutions and outcomes that are beneficial to all who may be affected. With complexity his approach is to "break it into chunks of digestible material."

He is a deliberate user of research to inform his practice. He looks for the evidence and outcomes and then incorporates that into what he offers his clients. He takes time to educate his staff and his patients on what is occurring so they are all well informed and can ultimately make informed choices.

He belongs to a professional association which he uses to access information and resources that may be of benefit to him. He tries to place himself in the 'distinction class' which provides room for improvement but regularly strives for a high level of competency as a minimum. He did state he is less idealist about what is possible than when he first started in his field and believed he could fix everything. He now realises that might not always be possible so it is trying to achieve the best outcome in any given situation that drives him.

He is adamant that it is important for people to have a purpose. It provides the reason why you get up in the morning. He thinks that if people do not have a purpose their drive will be low there will be nothing to spur them on to do bigger and better things. He has taken risks throughout his career that have enable him to continue to make progress and also stretch his abilities allowing him to grow and evolve as required. His passion for sports of many kinds provides him with an outlet and escape from the intensity that comes with being a small business owner. ….."They take it at a personal level, as distinct from what I have in may head as the principle of the matter."

Again has a pragmatic approach to new, unexpected and complex but explains it in a quite different way by saying you still have to get the job done and losing your cool will not help with

Interview Memos from Initial Coding

Interview-Based Memo - Interview 7

This participant would be traditionally considered as a tradesman or blue collar worker rather than a white collar worker and yet he fits the criteria for selection in this study relative to consideration of the selection criteria. He comes across as very proud of the work he does and the uniqueness of the work he is involved in. His field is antique restorer but also is a bespoke guitar maker. He is involved across a wide range of woodworking activities. His experience started by completing and apprenticeship and getting to work with experts in their field who were providing high end work to clients so he was working in a highly specialised area from the start of his career rather than more mainstream woodworking activities. He said he had an interest in this field before he formally started in it because other members of his family were involved with wood working and so he got to get hands on experience and exposure at a young age. he also found he loved to get involved with things that were challenging and especially try to do something others said could not be done.

He was very engaged in the interview process but also somewhat perplexed as to what he might be able to provide that would be of benefit for the purposes of the research. He was advised his story provided the interest and there were not other special requirements. His answers to the questions of themselves would be helpful. Due to difficulties at school he used woodworking as an escape which eventually lead to a profession. His learning really came from observing others rather than what he learned academically or theoretically. His interest in the medium of wood and his father he sees as the two biggest influences in his career. The main thing he said he learned from his father was professionalism. (This is similar to comments made in Interview 6 where he said he learned a lot from observing his parents and father in particular). Another learning for this participant was to see an experience of non-professionalism and lean what was not good (this is similar to comments made in Interview 5 where the participant said he learned a lot from someone who was not competent probably more than learning from someone who was competent).

This participant stated they have an open mind to learning but was quick to add that it depends who the teacher is and the context in which the learning takes place that makes the difference. This participant found it very difficult to be in a learning environment where his experience and expertise is not recognised and/or respected. He stated he feels quite hamstrung. This sentiment was also expressed in how he feels with what he is able to do in his profession. He can only really do what clients are willing to pay for which may not allow him to fully utilise his full range of skills and abilities. He summed it up in this comment "I feel very hamstrung and pushed into a corner again."

This participant demonstrated and articulated a very strong desire to succeed and achieve in his chosen industry. He wanted recognition from his peers and from within his industry. He did comment on the lack of parity of pay vs. work performed comparing the type of pay sportspeople get vs. people who toil harder and get less monetary compensation for what they do. You got the sense from how he spoke that he saw this as unfair and needed to be rectified.

He stated he was a very black and white thinker and that this can lead to him being taken the wrong way. This seemed to be similar to the comment made in Interview 5 where he said he was seen as unapproachable and hence judged on his appearance not his character. It could be similar in this instance for this participant. The participant explained the situation as follows "that's where people end up taking me that I'm personally having a go at them and berating them, when I'm trying to point out in a principle based conceptual conversation - is the way I perceive it, with leaving the personal aspects aside."

There was a strong sense at the end of this interview that the participant was in a hurry to get somewhere and this was summed up when he said "You've got to get there you want to get as quick as you can" … "There's a level of freedom I'm hoping to achieve in regard to the lack of pressure to be succeeding." He seemed to be craving recognition for what he does. He brought this back to the unfairness of how people get paid for what they do.

Interview Memos from Initial Coding

Interview-Based Memo - Interview 7 (Continued)

He went on to say that he finds complex fun because that stretches him and what he is capable of doing and he likes that. The problem as he saw it was that the pay for solving complex is inadequate. The new and unexpected while having a pragmatic approach to this can frustrate him and he does not always handle it as well as he would like to. He rarely takes no for an answer and believes most things can be done if you set your mind to it. He enjoys the process of his work and making new things.

Sees it as compulsory to have a purpose. It is important to have something to aspire to.

Has had hobbies but they have no been overtaken by his pursuit of his specialist field in bespoke guitar making. He believes you need the mental and physical abilities to see things through to completion. A passion will help see someone through.

Interview Memos from Initial Coding

Interview-Based Memo - Interview 8

This participant had a quite confidence about his abilities and what he had to offer. He was very unassuming but also confident in his persona. He was grateful for the breadth of experience he has been able to have by working with a large number of different organisations as an IT Management Consultant.

Similarly to I4 he has had two people who have seen and nurtured his potential allowing him to develop his confidence and capabilities in his domain area of expertise. He stated the experience with these two "outstanding bosses" was that "they both had a pretty significant influence on my realisation that I can do a lot more than what I thought I could do. They pushed me and stretched me and allowed me to get out there and just try things and do things."

He believes that in recent years he has good from being a good practitioner to having superior skills and abilities enabling him to work with senior executives because he has an expansive understanding of how businesses tick. He considers himself able to work at their level of expertise. Having the faith from his bosses has enabled him to develop and expand his capabilities in this area. He has more confidence in his own abilities.

He stated that he adopts a very active approach to learning stating that he believes he has an inquisitive mind and does not ever feel like he knows everything. He has an unchanging attitude that he wants to keep on learning. He has invested the time to obtain a Masters Degree relevant to his workplace responsibilities. He things the best way to learn is to get out there and try and stretch yourself especially in things you have not done before or may not have succeeded in previously. Does not shy away from an activity that might stretch him and his abilities. He believes he has an academic bent. Learning provides him with tools to perform his workplace responsibilities better.

Given the type of work he does new, unexpected and complex are everyday aspects of his working life and is not unduly phased by them. He uses each instance as a learning opportunity trying to glean what he needs to from each instance. He typically tries to break complex situations down into component parts that are more manageable to help better understand the situation and what he might be able to do or need to do. He strongly stated he is not a specialist and cannot be a specialist given the work he does.
The sentiment about his work is expressed as follows "I love what I do, it's great, I've got a really good job actually."

He has developed a level of competence where he is considered by his peers to be a thought leader in his field and he is very appreciative this is the case. He uses his thought leaders group as an avenue for learning and seeks insights from leaders in their field. He is regarded by others as being senior in his field. He believes that over time he has become a much more efficient worker as he can leverage off what he knows to his benefit rather than having to start from a zero base. The intensity he applies to his work has changed but not his passion for it. He has got wiser in how he goes about what he does. His self perception is that "I've got a pretty strong work ethic." While not stated by other participants this seems to be a common feature of how they go about their work all demonstrating a strong work ethic without saying it explicitly.

Believes that having a purpose is a strong driving force. "I just think generally a purpose if you didn't have a purpose be that for life or for your job or whatever I just think you're not giving yourself the opportunity to grow and shine and have a base to measure something by. He believes that having a purpose has played a major role in his career. His measure of success is when he has done something really good for someone else. The measure of success are usually external and are based on what you have achieved. The assessment of the body of your work determines how successful you have been.

He has hobbies to give him interests outside of work. He likes to go bike riding, play sport and he has an interest in planes.

Interview Memos from Initial Coding
Overall Comments
All participants, in varying ways, appreciated being included in the research.
All participants were complimentary in their assessment of how the interview was conducted saying they felt heard and respected when discussing their experience(s).
Participants commented that they felt the question were well ordered and that the researcher probed and explored more as necessary demonstrating they knew what they were doing.
All participants had a pragmatic approach to the new, unexpected and complex situations they saw it as a normal part of what they do and did not necessarily require special consideration. Where it might be relevant is that they become more deliberate in their process of how to address the situation that they have encountered.
All of the participants could be considered to be purposeful readers.
All participants have an undercurrent of being driven that flows alongside their respective stories.
All participants have a positive approach to learning and how it can develop them and aid them in the work they undertake.
At least half of the participants openly stated (I1 - I4) that they are users of research but not necessarily creators. Each one clearly stated they rely on research to inform their work but they do not seek to create it.
Most of the participants commented on the fact that they love to continue to learn.
A number of participant's early life experiences have impacted their chosen career path either consciously or subconsciously. It has certainly impacted their ability to cope with various situations they found themselves in more easily because they learnt survival skills early one that they could then apply in the workplace.
Where some of the participants have recounted instances where they have been judged on their appearance and not their character this could be similar to some of the comments found in the knowledge worker literature that are not so flattering of who they are and what they do because they are being judged on their appearance and not their character. This could support the comments made by Drucker 1999 where he implied that - what is said about knowledge workers is often based on judgement and not on valid measurement criteria or through having spoken with them to understand their actions, activities and approaches.
Several participants have commented on the importance of having a purpose ie: I4, I6, I7 & I8.

APPENDIX 4.3 – Request to Participate

Appendix 4.3-1

REQUEST TO PARTICIPATE IN RESEARCH SHEET

Re: **"IDENTIFYING AND MAPPING THE CHARACTERISTICS AND ATTRIBUTES OF A KNOWLEDGE-BASED PROFESSIONAL"**

PURPOSE OF THE REQUEST

The purpose of this request is to identify suitable candidates to participate in research being undertaken by a PhD Candidate (Mrs Carol McGowan) at the Sydney Business School, Faculty of Business, University of Wollongong. The purpose of this research is to identify the specific characteristics and attributes a of a 'Knowledge-Based Professional.' This research will identify what contributes to someone being identified as a 'Knowledge-Based Professional'. It will consider the impact of the connection between knowledge, competency and capability in their field of expertise and how this is relevant to today's workplace and the types of skills, knowledge and capabilities needed to operate in today's knowledge-based economy where there is now a higher reliance on what people know rather than what they can do. It seeks to demonstrate it is more than just the difference between having knowledge or having capability and that this has implications for businesses and how they manage their people to gain competitive advantage within the 21st Century business environment.

In order to assess your suitability to participate it would be good if you could answer the following questions:

1. Do you possess at least 15 years experience in a domain area of expertise?
2. Are you associated with &/or recognised by a community of practice?
3. Are you associated with &/or recognised by a professional association?
4. Have you attained the highest credential level available through their professional association eg: Master, Expert, Chartered or Fellow etc.?
5. Do people seek your opinion &/or guidance within your domain area of expertise?
6. Have you been published by a recognised and reputable 3 party not just self promotion?
7. You have made a tangible contribution to understanding within their industry?
8. You are an educator or mentor in their domain area of expertise?
9. You have received external awards for their contribution to industry?
10. You possess and have been identified as possessing a highly specialised (unique) skill set?
11. You demonstrate a recognised commitment to on-going development of professional expertise and continuous education?

    If you have answered 'yes' to five or more of these questions then we would like to speak with you about your willingness and ability to participate in this research.

If you would like to participate could you please contact the researcher Mrs Carol McGowan at cgm145@uowmail.edu.au providing contact details either e-mail &/or relevant contact phone number to enable timely follow up.

ETHICS REVIEW AND COMPLAINTS

This study has been reviewed by the Human Research Ethics Committee (Social Science, Humanities and Behavioural Science) of the University of Wollongong. If you have any concerns or complaints regarding the way this research has been conducted, you can contact:

UOW Ethics Officer

Email: rso-ethics@uow.edu.au

Phone: +61 2 4221 3386

Thank you for your consideration of this study.

APPENDIX 4.4 - Approach to Selection of Participants

Appendix 4.4 - Approach to Selection of Participants

To ensure that interviewees were suitable candidates to participate in this research, the following approach was adopted. First, candidates were sent an approved (by UOW Committee HE14/114) Request to Participate Form (Appendix 4.3). This form outlined the overall purpose and nature of the research, who would be conducting the research and the university endorsing and supporting it. Potential respondents were then asked to assess their suitability to participate by answering 11 questions related to selection criteria (Section 3.4). If they answered "yes" to five or more of these criteria and were willing to participate, they were contacted to arrange a mutually convenient interview time.

This research will not provide any demographic data related to participants, as the inclusion of this information would not provide any pertinent insights (Mladkova 2014, p. 302) to assist with understanding the characteristics and attributes of a knowledge-based professional. The use of selection criteria for participants is seen as being more relevant for understanding the types of people interviewed as part of this research. Table 4.7 provides an overview of how the participants aligned with the identified selection criteria. Potential participants who did not match five or more of the criteria, were not included in the research activity.

Selection Criteria	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	TOT
Do you possess at least 15 years' experience in your domain area of expertise?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	**12**
Are you associated with &/or recognised by a community of practice?	✓	✓	✓	✓	✓	✓		✓	✓	✓		✓	**10**
Are you associated with &/or recognised by a professional association?	✓	✓	✓	✓	✓	✓		✓	✓	✓		✓	**10**

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	Total
Have you attained the highest credential level available through your professional association eg: Master, Expert, Chartered, Fellow etc. ?	✓	✓		✓	✓			✓	✓	✓		✓	**8**
Do people seek your opinion &/or guidance within your domain area of expertise?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	**12**
Have you been published by a recognised and reputable 3rd party not just self-promotion?	✓	✓	✓	✓	✓		✓	✓	✓			✓	**9**
You have made a tangible contribution within your industry.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	**12**
You are an educator or mentor in your domain area of expertise.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	**12**
You have received external awards for your contribution to industry.	✓	✓	✓	✓	✓	✓	✓			✓		✓	**9**
You possess and have been identified as possessing a highly specialised (unique) skills set.	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	**11**
You demonstrate a recognised commitment to on-going development of professional expertise and continuous education.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	**12**
Total	**11**	**11**	**10**	**11**	**11**	**10**	**8**	**9**	**10**	**10**	**6**	**11**	**Ave. 9.9/ 11**

Table 4.7 – Participant Assessment Relative to Research Selection Criteria

This led to an overall average of 9.9/11 matches to the criteria for the 12 participants involved in this research.

Table 4.7 highlights that the most common selection criteria among the participants where all 12 participants satisfied the criteria were:

- Possessed more than 15 years' experience in their domain area of expertise

- Others sought out their opinion and guidance in their domain area of expertise

- They believed they had made a tangible contribution to their industry

- They were an educator or mentor in their domain area of expertise

- They demonstrated an on-going commitment to professional development

Table 4.7 also highlights that the least common criteria met by the participants were:

- They had attained the highest credentialing level in their professional area of expertise – (8/12 participants or 64.67%)

- They had been published by a reputable third-party – (9/12 or 75%).

The interviews with these participants brought to the fore the fact that they are *well-educated*, with much of their knowledge gained on the job or vocationally, rather than *highly educated*. This finding is contrary to findings in the literature and is worthy of further exploration.

The factors shown as most common amongst this group based on the selection criteria differ to what is found in the literature (Ericsson 2008, p.988; Jacob & Ebrahimpur 2001, p. 81; Kelloway & Barling 2000, p. 289) which would be more aligned to the least commonly found alignment to selection criteria of of obtaining the highest credentialing level and/or had been published by a third party based on their work. What they contribute is more subtle and less overt than is often suggested in the literature. Expertise is typically evaluated based on highly visible external factors, such as peer recognition, rather than the more intangible aspects knowledge workers bring to their work, such as their on-going commitment to learning, their desire to commit themselves to their industry, and their desire to assist others in their learning process.

APPENDIX 5.1 - Formulation of Self - Attitudes

APPENDIX 5.1 - Formulation of Self - Attitudes

Formulation of Self - Attributes			
Attitude	**Self-Related Term**	**Reference**	**Definition, Description, Explanation**
Attitude	Self-efficacy	Bandura (1977) - Self-efficacy: Toward a Unifying Theory of Behavioral Change Bandura (2001) - Social Cognitive Theory: An Agentic Perspective Stajkovic, Bandura, Locke, Lee and Sergent (2018) - Test of three conceptual models of influence of the big five personality traits and self-efficacy on academic performance: A meta-analytic path-analysis	Self-efficacy relates to "people's beliefs in their capability to exercise some measure of control over their own functioning and over their environment" (Bandura 1977, 2001, p. 10 referencing Bandura 1977). Self-efficacy beliefs influences the actions people take and impacts their behaviour. "Self-efficacy beliefs are rooted in the core belief that one has the power to produce effects by one's actions." (Bandura 2001, p. 10)

Attitude	Self-belief	Turner (2014) - Development of self-belief for employability in higher education: ability, efficacy and control in context	Three components to the concept of self-belief: "1. that ability can be improved
			  2. that one has the ability to achieve one's goals
			  3. that the environment will allow for goal attainment"
			(Turner 2014, p.592)
			
			"Self-belief impacts how people react in certain situations it enables action and contributes to a drive to make new things happen." (Turner 2014, p. 593)

Formulation of Self - Attributes			
Attitude	**Self-Related Term**	**Reference**	**Definition, Description, Explanation**
Attitude	Self-esteem (Global)	Rosenberg, Schooler, Schoenbach & Rosenberg (1995) - Global self-esteem and specific self esteem: Difference concepts, different outcomes	"Self-esteem is an attitude" (Rosenberg et al. 1995, p.141) There are two types of self-esteem global and specific self-esteem and while one can influence the other they are not the same (Rosenberg et al., p. 141) The part relevant for this study is global self-esteem. "Global self-esteem is the individual's positive or negative attitude toward themselves in totality." (Rosenberg et al., p. 141)
		de Araujo & Lagos (2013) - self-esteem, education, and wages revisited	"general attitude towards oneself" (de Araujo & Lagos 2013, p.121) A concept related to self-esteem is locus of control. "an individual with an internal locus of control believes that they have control over various outcomes, while an individual with an external locus of control believes that other factors such as fate or luck, determine various outcomes." (de Araujo & Lagos, p. 121) For the participants of these interviews they all demonstrated an internal locus of control believing their could control and influence outcomes.
Attitude	Self-perception	Bem (1967) - Self-Perception: An alternative interpretation of cognitive dissonance phenomena	"Self-perception is an individual's ability to respond differentially to his (sic) own behavior and its controlling variables" (Bem 1967, p.184)

Formulation of Self - Attributes			
Attitude	**Self-Related Term**	**Reference**	**Definition, Description, Explanation**
Attitude	Self-conception	Pajares & Schunk 2002 - Self and Self-Belief in Psychology and Education: An Historical Perspective (In J.Aronson (ed.) Improving Academic Achievement, New York, Academic Press)	"An individuals representation of all of his or her self knowledge" (Pajares & Schunk 2002, p.20) (This is an encompassing term for some of the other terms but is worth mentioning independently as it is a component of the overall self-construction process.)

Table 5.1 - Self- related components of 'Formulation of Self - Attitudes'
(References as outlined in the table)

APPENDIX 5.2 - Formulation of Self - Capabilities

APPENDIX 5.2 - Formulation of Self - Capabilities

Formulation of Self - Capabilities			
Capability	**Self-Related Term**	**Reference**	**Definition, Description, Explanation**
Capability	(Psychological) Self-sufficiency (PSS) This is distinguished from Economic Self-Sufficiency (ESS) which looks at people being able to fend for themselves financially and is the predominant explanation of the concept of self-sufficiency which is not relevant for this study however psychological self-sufficiency is relevant.	Orme-Johnson (1988) - The cosmic psyche as the unified source of creation Hong, Choi & Key (2018) - Psychological Self-Sufficiency: A Bottom-Up Theory of Change in Workforce Development Mellor (2009) - Self-evaluation and union interest: The empirical relevance of a mediated model	"the ability to maintain a confident, balanced, happy, productive frame of mind capable of providing for one's own needs without dependence on others" (Orme-Johnson,1988, p. 188), (Hong, Choi & Key 2018 p. 24) "PSS is positive self-appraisals made about one's abilities, talents, skills and efficacy to provide for oneself" (Mellor 2009, p. 371) ; (Hong, Choi & Key 2018, p. 24)

Formulation of Self - Capabilities			
Capability	**Self-Related Term**	**Reference**	**Definition, Description, Explanation**
Capability	Self-direction (Encompassing self-directed learning)	Song & Hill (2007) - A Conceptual Model for Understanding Self-Directed Learning in)nline Environment Candy (1991) - Self-direction for lifelong learning - Book Jones (1993) - Book review of Candy Brookfield (1993) - Self-directed learning, political clarity and critical practice of adult education	Four related characteristics of self direction: 1. A personal attribute (personal autonomy) 2. Willingness and capacity to conduct one's own education (self-management) 3. As a model for organising instruction in formal settings (learner control) 4. Individual non-institutional pursuit of learning in a natural society setting (autodidaxy) (Candy 1991 cited in Song & Hill 2007, p. 29) *This concept is often associated with an individual's learning process and is typically referenced as part of the term self-directed learning (SDL). The distinction by Candy as outlined is more generic but is associated with how someone learns. This is a relevant association for this research as each participant employed very proactive self-directed learning approaches. Hence it is self-direction (encompassing self-directed learning)*

Formulation of Self - Capabilities			
Capability	**Self-Related Term**	**Reference**	**Definition, Description, Explanation**
Capability	Self-regulation	Steele (2015) - Examining the relationship between leader developmental readiness and the cognitive, emergence, and effectiveness outcomes of leader development (Thesis)	"Encompasses a wide range of behaviours, including self-monitoring and deducing the causes and effects of one's behaviour, judgment of one's behaviour in relation to personal standards and environmental circumstances, and affective self-reactive behaviours, such as the ability to inhibit motor and language acts that are inappropriate to a particular setting or situation." (Steele 2015, p. 70) "Self-regulation consists of both emotional and cognitive control aspects." (Steele 2015, p. 70)
Capability	Self-awareness	Wohlers & London 1989 - Ratings of Managerial Characteristics: Evaluation difficulty, co-worker agreement and self-awareness Richards, Campenni & Muse-Burke 2010 - Self-care and Well-being in Mental Health Professionals: The Mediating Effects of Self-Awareness and Mindfulness	"Self-awareness is defined as the degree to which individuals understand their own strengths and weaknesses" (Wohlers & London 1989, p. 236) Suggest there are issues defining the term but offer the following: "Self-awareness is awareness and knowledge of one's thoughts, emotions and behaviours and can be considered a state; therefore, it can be situational." (Richards, Campenni & Muse-Burke 2010, p. 250) "self-awareness simply put is knowledge about the self" (Richards, Campenni & Muse-Burke 2010, p. 250)

Formulation of Self - Capabilities			
Capability	**Self-Related Term**	**Reference**	**Definition, Description, Explanation**
Capability	Self-agency	Gallagher 2000 - Philosophical conceptions of self: implications for cognitive science	"self agency - the sense that I am the initiator or source of the action" (Gallagher 2000, p. 16)
		Sato & Yasuda 2005 - Illusion of sense of self-agency: discrepancy between the predicted and actual sensory consequences of actions modulates the sense of self-agency but not the sense of self-ownership	"self-agency, that is the sense that i am the one who is generating an action" (Sato & Yasuda 2005, p. 241) "I am the one who is causing or generating an action. Implies and presumes a sense of self-ownership." (Sato & Yasuda 2005, p. 243)

Formulation of Self - Capabilities			
Capability	**Self-Related Term**	**Reference**	**Definition, Description, Explanation**
Capability	Self-leadership	Neck & Houghton (2006) - Two decades of self-leadership theory and research	"Is the process through which individuals control their own behaviour, influencing and leading themselves through the use of specific sets of behavioral and cognitive strategies" (Neck & Houghton 2006, p.270) "Self leadership consists of specific behavioral and cognitive strategies designed to positively influence personal effectiveness" (Neck & Houghton 2006, p. 271)
		Seminal work Manz 1986 - Self-leadership: Toward an Expanded Theory of Self Influence Processes in Organizations	"Self-leadership is conceptualized as a comprehensive self-influence perspective that concerns leading oneself toward performance of naturally motivating tasks as well as managing oneself to do work that must be done but is not naturally motivating." (Manz 1986, p. 589) "Self-leadership is conceptualised as a process that encompasses behaviorally focussed self-management strategies and further addresses self-regulation of higher-level control standards to more fully recognise the role of intrinsic motivation" (Manz 1986, p. 595)

Formulation of Self - Capabilities			
Capability	**Self-Related Term**	**Reference**	**Definition, Description, Explanation**
Capability	(Reflective) Self-attention This is different from ruminative self-attention which is motivated by negative factors such as perceived threats, losses and perceived injustices to self. (Trumpnell & Campbell 1999, p.72)	Steele (2015) - Examining the relationship between leader developmental readiness and the cognitive, emergence, and effectiveness outcomes of leader development (Thesis) Trapnell & Campbell 1999 - Private Self-Consciousness and the Five-Factor Model of Personality: Distinguishing rumination from reflection (Work referenced by Steele)	"Reflective self-attention is conceptualised as an adaptive process, it is thought to be motivated by curiosity and a genuine interest in knowing the self, and is characterised by openness, positivity, and a learning orientation towards self-discovery" (Steele 2015, p. 71) "Reflective self-attention involves task, rather than self-diagnostic, thought patterns and assessing one's performance for 'lessons learnt' in order to stimulate learning and development, and is subsequently indicative of a of a high level of emotional control." (Steele 2015, p. 71) "Reflective self-attention assists individuals in assessing their strengths, and in directing goal-related behaviours towards developing their weaknesses by assisting in the identification of areas for future skill development, and consequently is also characteristic of a high level of cognitive control." (Steele 2015, p. 71)

Table 5.2 - Self- related components of 'Formulation of Self'
(References as outlined in the table)

APPENDIX 5.3 - Individual Analysis of Formulation of Self

Components of Formulation of Self as Evidenced from Interview Data   **Interview No. 1**

Legend: Green - Strongly Evidenced, Blue - Moderately Evidenced, Orange - Low Evidence

ATTITUDES		
Self-Efficacy - belief in one's abilities and competencies to achieve desired outcomes	**Self-Belief - confidence in your ability and judgement**	**Self-Esteem (Global) - overall perception of one's own worth**
• Innate ability and desire to lead • Saw himself as a natural leader	• Trendsetter not follower • Very good at developing programmes for others • Realised I had the capability but had not applied it • Believes he can do whatever he sets his mind to • Very strong in the interview articulating what he is capable of and what he wants to achieve	• Developed self-esteem from coping with life independently from a very young age operated in an adult world from the age of 15 • Had various significant knock-backs in life that adversely impacted his global self-esteem
Self-Perception - perception about the type of person you are	**Self-Conception - idea of the self based on beliefs about self and responses from others**	
• Very sophisticated leadership qualities • Highly advanced decision-making skills • Strong desire to show others how it is done	• Knows own capabilities and uses these to assist others • Self-conception adversely impacted by the opinion and experiences of others	
CAPABILITIES		
Self-Sufficiency (Psychological) - ability to take care of oneself	**Self-Direction - ability to act as an independent agent**	**Self-Agency - ability to control one's own actions in the world**
• Independent • Highly efficient • Self-sufficient (own words)	• Willing to step into unknown terrain and take the risk • Worked at the pointy end (including on the battlefield)	• Actively, deliberately and purposefully charted his own course
Self-Leadership - ability to influence self to act in certain ways depending on circumstances	**Self-Regulation - ability to judge and regulate behaviours ensuring appropriateness**	**Self-Attention (Reflective) - ability to have a genuine interest to know oneself characterised by openness and willingness to learn**
• Tunnel-visioned in his desire to make a difference • Had to make own way in the world from the age of 15 • Lived in multi different cultures before the age of 15 so learned how to survive	• Have many instances where he was tested and he learnt how to moderate his behaviour to suit the situation and not create unhelpful repercussions eg: discharge from army and experiencing professional snobbery where he was openly treated with derision	• Actively used life experiences to facilitate his learning • Undertaken formal education to aid transition from one domain area of expertise to another drawing on learnings from first career to inform second career • Open to learning from others not unduly influenced by others
Self-Awareness - ability to have conscious knowledge of one's own character and feelings		
• Likes to be an active learner not passive learner • Likes to set the path not just follow it		

Components of Formulation of Self as Evidenced from Interview Data **Interview No. 2**

Legend: Green - Strongly Evidenced, Blue - Moderately Evidenced, Orange - Low Evidence

ATTITUDES		
Self-Efficacy - belief in one's abilities and competencies to achieve desired outcomes	**Self-Belief - confidence in your ability and judgement**	**Self-Esteem (Global) - overall assessment of one's own worth**
• Technically proficient • Did not naturally rate his domain of expertise skills highly even though they are sophisticate, intricate and specialised	• Knew he had specialist skills however very modest in his assessment of his abilities • Demonstrated strong concern re value he could offer to the analysis	• Described himself as socially inadequate • Constantly sought reassurance • Suffers from depression (as he advised voluntarily) and this impacts his self-esteem
Self-Perception - perception about the type of person you are	**Self-Conception - idea of the self based on beliefs about self and responses from others**	
• Low level of emotional intelligence • Humble and restrained • Pessimistic viewpoint	• Modest • Insecure •	
CAPABILITIES		
Self-Sufficiency (Psychological) - ability to take care of oneself	**Self-Direction - ability to act as an independent agent**	**Self-Agency - ability to control one's own actions in the world**
• Pessimistic viewpoint and depressive state of mind had some impact on his self-sufficiency • Has been able to relocate and reestablish himself in a totally new environment	• Has strong conviction about what he does • Acts independently which is driven by his desire to make a difference in the world • Direction comes from what he is interested in ie: the laws of nature	• Is able to adjust to diverse circumstances however has experienced a wide range of challenges that has impacted is degree of self-agency
Self-Leadership - ability to influence self to act in certain ways depending on circumstances	**Self-Regulation - ability to judge and regulate behaviours ensuring appropriateness**	**Self-Attention (Reflective) - ability to have a genuine interest to know oneself characterised by openness and a willingness to learn**
• Has worked hard and deliberately to address (what he perceives as) weaknesses and inadequacies • Various instances of taking responsibility for his own actions ie: relocating to Australia for work and finding his highly specialised niche in which he works	• Very open to learning and becoming more aware given he sees being able to regulate behaviours as somewhat challenging • Knows when to act and when to step back	• Is extremely interested in knowing himself however his depressive state can adversely impact this at times making it more difficult for him to do what he would like to • By understanding himself worked out a way to learn about himself in a safe environment by connecting with colleagues often through technical means to make it safer
Self-Awareness - ability to have conscious knowledge or ones own character and feelings		
• Sensitive • Aware of personal and social inadequacies		

Components of Formulation of Self as Evidenced from Interview Data

Legend: Green - Strongly Evidenced, Blue - Moderately Evidenced, Orange - Low Evidence

ATTITUDES		
Self-Efficacy - belief in one's abilities and competencies to achieve desired outcomes	Self-Belief - confidence in your ability and judgement	Self-Esteem (Global) - overall assessment of one's own worth
• Able to see what is being said • Laments she has not acquired tertiary qualifications	• Not put off by what might seem difficult believes she has the ability to do what is needed - resourceful • Not much life can throw at me that I cannot get through	• Impacted by her view of not having tertiary qualifications this has an overriding impact for her • Does mix with masters in their field and this contributes to her assessment of her own self-worth
Self-Perception - perception about the type of person you are	Self-Conception - idea of the self based on beliefs about self and responses from others	
• Introvert • Natural predisposition to learning • Needs practical learning not an academic learner • Likes time to think about ideas and concepts (asked for interview questions in advance)	• Sees herself as somewhat lesser because of lack of formal education • Interacts with people who have high visibility and profile and hence this impacts her conception of self	
CAPABILITIES		
Self-Sufficiency (Psychological) - ability to take care of oneself	Self-Direction - ability to act as an independent agent	Self-Agency - ability to control one's own actions in the world
• Very determined • Not put off by what might seem difficult	• Avid self-directed learner • Deliberate and purposeful in where she focusses her attention and who she interacts with to gain advantage and insight	• Intrinsic and insatiable desire and drive to learn • Can make the most of any given situation • Strong in her belief that she can control her own actions and outcomes
Self-Leadership - ability to influence self to act in certain ways depending on circumstances	Self-Regulation - ability to judge and regulate behaviours ensuring appropriateness	Self-Attention (Reflective) - ability to have a genuine interest to know oneself characterised by openness and a willingness to learn
• Resolute in her approach to what she does • Consciously drives her own actions and activities • Learned how to respond to a variety of circumstances and has no issues with the unexpected and unforeseen • Learned to survive when coming to Australia with limited resources	• Sets own schedule and is diligent in sticking to it • Learnt how to respond in a myriad of situations due to necessity • Consciously and deliberately focusses on the end goal which is typically underpinned by a desire to help others	• (Own words) Reflective practitioner • Wants to learn and apply what she has learned for herself and others
Self-Awareness - ability to have conscious knowledge or ones own character and feelings		
• Nature - observe, listen and think • Introvert • Able to see patterns and connections • Not a detailed person, more big picture		

Legend: Green - Strongly Evidenced, Blue - Moderately Evidenced, Orange - Low Evidence

ATTITUDES		
Self-Efficacy - belief in one's abilities and competencies to achieve desired outcomes	Self-Belief - confidence in your ability and judgement	Self-Esteem (Global) - overall assessment of one's own worth
• Systems thinker • Technically proficient • Very skilled at developing programmes and materials for others	• Unwavering belief in his own abilities • Can do anything he sets his mind to	• High self-worth • Values himself vey highly • Made active commitments to himself to honour his worth
Self-Perception - perception about the type of person you are	Self-Conception - idea of the self based on beliefs about self and responses from others	
• Curious • Extrovert • Highly driven to succeed and make a difference • Driven to do a good job • Highly committed to personal development • Sees himself as having a unique and powerful mix of skills and abilities	• Nurtured by an innate curiosity of how things work • Believes himself to be highly valuable • Has received a lot of external validation of what he does contributing to the high belief he has about himself	
CAPABILITIES		
Self-Sufficiency (Psychological) - ability to take care of oneself	Self-Direction - ability to act as an independent agent	Self-Agency - ability to control one's own actions in the world
• Highly responsible to take care of himself (innate driver) • Relocated and re-established himself in a new location for work and adapted quite easily and naturally	• Demonstrates high levels of commitment to learning • Describes himself as self-directive	• Reads with a purpose • Actively pursues learning in his areas of interest • Learned how to respond positively to adversity
Self-Leadership - ability to influence self to act in certain ways depending on circumstances	Self-Regulation - ability to judge and regulate behaviours ensuring appropriateness	Self-Attention (Reflective) - ability to have a genuine interest to know oneself characterised by openness and a willingness to learn
• Highly driven to succeed it is a life giving force for him	• Pursued learning in areas of interest • Actively learned how to regulate behaviour to ensure appropriateness • Very conscious of his language choices • Exceptional commitment and discipline towards learning and personal growth	• Prides himself on being a reflective practitioner • Very conscious of understanding how he can take what he learns and apply it not only for himself but others • Passionate about keeping up with the latest understanding in the areas he explores
Self-Awareness - ability to have conscious knowledge or ones own character and feelings		
• Fascinated by nature • Needs to stay socially connected • Intense and highly focussed		

Components of Formulation of Self as Evidenced from Interview Data   **Interview No. 5**

Legend: Green - Strongly Evidenced, Blue - Moderately Evidenced, Orange - Low Evidence

ATTITUDES		
Self-Efficacy - belief in one's abilities and competencies to achieve desired outcomes	**Self-Belief - confidence in your ability and judgement**	**Self-Esteem (Global) - overall assessment of one's own worth**
• Adversely affected by negative experiences - has been known to retreat • Technically proficient • Uses reverse process for learning - takes what he knows and works backwards • Highly diverse skill set which is complimentary	• Gets things done and has to wait for others to catch up • Experiences have caused him to back away rather than step up in some instances	• Believes he has been unfairly judged on his appearance and not his character which has impacted his level of self-esteem • Impressions and pushback from others has impacted how he perceives his personal worth
Self-Perception - perception about the type of person you are	**Self-Conception - idea of the self based on beliefs about self and responses from others**	
• Being a leader does not make him better • Does not see himself as an expert but he does know things • Has strategic and pragmatic capability • Supportive, purposeful and focussed	• Persona unhealthily tied to work had to adjust • Reinvented himself in a new field (twice)	
CAPABILITIES		
Self-Sufficiency (Psychological) - ability to take care of oneself	**Self-Direction - ability to act as an independent agent**	**Self-Agency - ability to control one's own actions in the world**
• Navigated a rocky terrain when he was ostracised at work which lead to him establishing a new career path	• Follows his interests • Strong desire to be professional so takes this into account when he takes action	• Able to adjust and adapt as required • Able to turn adversity into benefit
Self-Leadership - ability to influence self to act in certain ways depending on circumstances	**Self-Regulation - ability to judge and regulate behaviours ensuring appropriateness**	**Self-Attention (Reflective) - ability to have a genuine interest to know oneself characterised by openness and a willingness to learn**
• Evidenced when navigating turning point in his career • Used avoidance behaviours to navigate away from a tricky situation	• Seeks to be professional in what he does and how he acts • Developed deliberate strategies and approaches to navigate a difficult workplace situation • Ensured that his approach did not adversely impact his professional reputation	• Occurs by necessity not by preference • Not something he actively seeks to do but can do it when he has to
Self-Awareness - ability to have conscious knowledge or ones own character and feelings		
• Was forced into a position to take stock and realised he had become somewhat one-dimensional • Does not apply broad brushstrokes • Not a slow plodder • Keeps to the boundaries • Honest, blunt, motivated, selfless, enthusiastic, hard		

Components of Formulation of Self as Evidenced from Interview Data   **Interview No. 6**

Legend: **Green** - **Strongly Evidenced,** **Blue** - **Moderately Evidenced,** **Orange** - **Low Evidence**

ATTITUDES		
Self-Efficacy - belief in one's abilities and competencies to achieve desired outcomes	Self-Belief - confidence in your ability and judgement	Self-Esteem (Global) - overall assessment of one's own worth
• Inherent belief in his ability to succeed evidenced throughout the entire interview and also his demeanour	• No such thing as failure it is about learning and making the most of what takes place • Observing others succeed gave him confidence in his own ability to succeed • Willing to take risks into unknown places and spaces	• Had many instances where he learnt what he was capable of winning or succeeding from an early age led to a confidence about himself • Positive environments aided the development of a positive assessment of self
Self-Perception - perception about the type of person you are	Self-Conception - idea of the self based on beliefs about self and responses from others	
• Success has always been important • Saw himself as part of a surge (growth in an industry) • Leads by example (participants own words not an observation) • Looks forward to a challenge	• Can survive whatever he is faced with - proven on many occasions • Works towards a standard not typically attained by others	
CAPABILITIES		
Self-Sufficiency (Psychological) - ability to take care of oneself	Self-Direction - ability to act as an independent agent	Self-Agency - ability to control one's own actions in the world
• Driven to be the best at what he does and has the resources and capabilities to do so • Has the ability to survive adversity	• Highly focussed on succeeding at whatever he does so employs conscious effort to achieve what he wants • Uses learning as a mechanism for self direction and growth	• You can create your own future • Has the ability to deal with bumps and downturns
Self-Leadership - ability to influence self to act in certain ways depending on circumstances	Self-Regulation - ability to judge and regulate behaviours ensuring appropriateness	Self-Attention (Reflective) - ability to have a genuine interest to know oneself characterised by openness and willingness to learn
• Actively and consciously taken control of the direction of his life • Taken leaps of faith when necessary - venturing into a new domain on more than one occasion • Seeking active ways to develop complimentary skill sets	• Taken active responsibility for being professional • Uses professional development to gain insight on how to effectively judge and regulate behaviour ensuring appropriateness	• Actively reviews experiences to learn from them • Takes learning seriously and consciously and actively devotes time to it • Failure provides opportunities to learn
Self-Awareness - ability to have conscious knowledge of one's own character and feelings		
• Likes to see success fun for others • Well-rounded with diverse interests which inform his knowledge of self and his practice		

Legend: Green - Strongly Evidenced, Blue - Moderately Evidenced, Orange - Low Evidence

ATTITUDES		
Self-Efficacy - belief in one's abilities and competencies to achieve desired outcomes	Self-Belief - confidence in your ability and judgement	Self-Esteem (Global) - overall assessment of one's own worth
• Wants to have his experience acknowledged by others • Working at the high-end in his field • Very high estimation of his own skills and abilities	• Believes he has a natural ability to make things and this generally stands him in good stead	• Strong desire to accepted by peers • External recognition is important and this impacts his overall assessment of his self-worth
Self-Perception - perception about the type of person you are	Self-Conception - idea of the self based on beliefs about self and responses from others	
• Negative school experiences impacted his sense of self and the type of person he is • Flexible within his skillset • Sees himself as a black and white person	• See themselves as a professional like their father and this is important to them • Uses measures determined by other to formulate beliefs about himself	
CAPABILITIES		
Self-Sufficiency (Psychological) - ability to take care of oneself	Self-Direction - ability to act as an independent agent	Self-Agency - ability to control one's own actions in the world
• Learned the hard way from difficult experiences • Took risks to find a niche he wanted to work in • Circumstances necessitated self-sufficiency	• Self-taught in chosen field • Does not stop at 'no'	This was best assessed based on his attitude to formal learning • Educational standing does not have to hold you back you can still take advantage of opportunity • Feels he has been somewhat disadvantaged by his circumstances and experiences
Self-Leadership - ability to influence self to act in certain ways depending on circumstances	Self-Regulation - ability to judge and regulate behaviours ensuring appropriateness	Self-Attention (Reflective) - ability to have a genuine interest to know oneself characterised by openness and a willingness to learn
• Sense was that he was looking for situations to arise where he would receive what he needed rather than actually having to go out and chase it • Seemed to only act when he had to not as a part of his natural approach	• There was a bitterness in his tone as he explained his situation • Took time to recount in detail situations where he felt he was hard done by • Minimal evidence of deliberate action more circumstantial - forced into it	• Looked more towards external indicators ie: recognition and acknowledgement from peers
Self-Awareness - ability to have conscious knowledge or ones own character and feelings		
• Does not like being a student in a formal setting • Needs to have respect for the teacher • Likes to do things because they are fun		

Components of Formulation of Self as Evidenced from Interview Data

Legend: **Green** - **Strongly Evidenced,** **Blue** - **Moderately Evidenced,** **Orange** - **Low Evidence**

ATTITUDES		
Self-Efficacy - belief in one's abilities and competencies to achieve desired outcomes	Self-Belief - confidence in your ability and judgement	Self-Esteem (Global) - overall assessment of one's own worth
• Heavy hitter • Thought leader in his field	• Confident in trusting his own judgement • I know I am better at what I do now - I can do it quicker • Confident to go and do something	• Very strong belief in his own abilities
Self-Perception - perception about the type of person you are	Self-Conception - idea of the self based on beliefs about self and responses from others	
• Humility about his abilities even though he has a strong belief about them • Open minded • Optimist • Strong work ethic • Practical and academic learner	• Sees himself as a 'good practitioner' • Underlying humility impacted how he formulated his self-conception	
CAPABILITIES		
Self-Sufficiency (Psychological) - ability to take care of oneself	Self-Direction - ability to act as an independent agent	Self-Agency - ability to control one's own actions in the world
• Can deal with a wide variety of situations, circumstances and people • Skills and abilities have evolved over time helping him enhance his ability to cope	• Never stops learning Stills wants to be better - keep striving	• More balanced approach not so 'gung ho' • Tempered how he approaches things but still working on it
Self-Leadership - ability to influence self to act in certain ways depending on circumstances	Self-Regulation - ability to judge and regulate behaviours ensuring appropriateness	Self-Attention (Reflective) - ability to have a genuine interest to know oneself characterised by openness and a willingness to learn
• Learning provides tools that might not be available through other means • Voluntarily took on postgraduate studies to enhance his skills and keep him skilled in his field	• Learned to adapt behaviours given what he does at work • Learned to hone his behaviours to work with different stakeholder groups • Learned when to act and when to do nothing	• Uses learning as part of his reflection process • Self-attention is a by-product of what he does rather than a deliberate action
Self-Awareness - ability to have conscious knowledge or ones own character and feelings		
• Likes to be made to think outside the box • Inquisitive mind • Actively seeks out learning • Does not know everything there is to know • Not emotional about the unexpected takes it in his stride		

Components of Formulation of Self as Evidenced from Interview Data

Legend: **Green** - Strongly Evidenced, **Blue** - Moderately Evidenced, **Orange** - Low Evidence

ATTITUDES		
Self-Efficacy - belief in one's abilities and competencies to achieve desired outcomes	Self-Belief - confidence in your ability and judgement	Self-Esteem (Global) - overall assessment of one's own worth
• Has moment of not feeling adequate enough • Seeks input to others re abilities • Underlying interest in health, science food which led to their chosen field	• Able to read between the lines • Used reflection to determine advances in abilities - present day from when they were an undergraduate • Willing to accept challenges - knows their limits	• Very capable based on where they have come from • Contribution to their field
Self-Perception - perception about the type of person you are	Self-Conception - idea of the self based on beliefs about self and responses from others	
• Drive to inform others accurately • Reflective learner • Humble • Passion for science and address misconceptions • Desire to educate others re food • Does not ignore where gap exists	• Needs help to identify learning needs • Resilient to change due to life experiences • Highly experienced and knowledgeable	
CAPABILITIES		
Self-Sufficiency (Psychological) - ability to take care of oneself	Self-Direction - ability to act as an independent agent	Self-Agency - ability to control one's own actions in the world
• Takes action - active not passive	• Positive and specific approach to learning • Shift recently into full-time private practice - backing themselves • Strategic and tactical re learning outcomes	• Earned their stripes in their field • Can adjust quickly and positively to the unexpected
Self-Leadership - ability to influence self to act in certain ways depending on circumstances	Self-Regulation - ability to judge and regulate behaviours ensuring appropriateness	Self-Attention (Reflective) - ability to have a genuine interest to know oneself characterised by openness and a willingness to learn
• Always the one to ask questions - want to know more • Take any opportunity that presents itself • Seeks supervision when required	• Willing to say to people 'I don't know' • Deliberately desires active involvement in what they do	• Wants to maximise the bang for their buck when it comes to learning

Self-Awareness - ability to have conscious knowledge or ones own character and feelings		
• Has moments of not feeling adequate enough • Needs to be active in the learning process • Want more and more learning as you get older		

Legend: Green - Strongly Evidenced, Blue - Moderately Evidenced, Orange - Low Evidence

ATTITUDES		
Self-Efficacy - belief in one's abilities and competencies to achieve desired outcomes	Self-Belief - confidence in your ability and judgement	Self-Esteem (Global) - overall assessment of one's own worth
• Very few who can do what they do - experience and knowledge	• High estimate of own abilities give uniqueness of skill set • Higher performer worldwide in their field	• Able to provide calm in times of pressure - valuable ability to have
Self-Perception - perception about the type of person you are	Self-Conception - idea of the self based on beliefs about self and responses from others	
• Assess situations to make sense of them • Need to be able to apply the theory in real situations • More interested in use of knowledge then creating knowledge	• Told capabilities highly valued by others • Looks for things that make sense • Highly skilled - endorsed by others • Interested to learn what drives things	
CAPABILITIES		
Self-Sufficiency (Psychological) - ability to take care of oneself	Self-Direction - ability to act as an independent agent	Self-Agency - ability to control one's own actions in the world
• "Just as an individual you want to keep growing don't you?" • Seeks challenges	• "Growing, developing and striving are just how things are for me" • Can use own experience to help • Educate others • Steadfast and determined	• Role models helped this process done this from an early age
Self-Leadership - ability to influence self to act in certain ways depending on circumstances	Self-Regulation - ability to judge and regulate behaviours ensuring appropriateness	Self-Attention (Reflective) - ability to have a genuine interest to know oneself characterised by openness and a willingness to learn

• People develop faster if they seek good guidance • Has drive - undeniable • Wants to get to the top	• Never been goo at following rules fits in to circumstances	• Understands that good learning can come from observing others old and young • Sees learning as essential sits with others and learns from them
Self-Awareness - ability to have conscious knowledge or ones own character and feelings		
• Likes to apply what they have learned in real situations • user of research not creator • "Just as an individual you want to keep growing don't you? • Cool headed and makes judgements how to deal with things		

Components of Formulation of Self as Evidenced from Interview Data   **Interview No. 11**

Legend: Green - Strongly Evidenced, Blue - Moderately Evidenced, Orange - Low Evidence

ATTITUDES		
Self-Efficacy - belief in one's abilities and competencies to achieve desired outcomes	Self-Belief - confidence in your ability and judgement	Self-Esteem (Global) - overall assessment of one's own worth
• Only recent growth and belief in own abilities having had a major upheaval • Might be a need for more formal learning	• Other people's faith helped her grow her self-confidence • People recognised qualities in me I could not see • Belief in capabilities is influenced by the opinion of others	• Potentially devalued her capabilities until recent times • Believes they can add value to a business
Self-Perception - perception about the type of person you are	Self-Conception - idea of the self based on beliefs about self and responses from others	
• Able to adopt and adjust • Learn by doing, not by learning • Willing to share	• Capable based on input from other and having positive experiences when taking a risk • Maintains competence by suing abilities consistently	
CAPABILITIES		
Self-Sufficiency (Psychological) - ability to take care of oneself	Self-Direction - ability to act as an independent agent	Self-Agency - ability to control one's own actions in the world
• New situations may provide discomfort but they provide opportunity to learn • Wants to keep growing - looking for opportunity to do this	• Had someone give them a push - knew they had a safety net	• Learn by having to sink or swim • Was pushed out of their comfort zone
Self-Leadership - ability to influence self to act in certain ways depending on circumstances	Self-Regulation - ability to judge and regulate behaviours ensuring appropriateness	Self-Attention (Reflective) - ability to have a genuine interest to know oneself characterised by openness and a willingness to learn
• Being willing and able to go with the sink or swim scenario • Maintain competence by learning and growing	• Learn by having to sink or swim • Adopts a positive mindset to their circumstances	• Had supporters to help them learn while trying to learn how to swim • Willing to step into unfamiliar situations

Self-Awareness - ability to have conscious knowledge or ones own character and feelings		
• Don't be too simplistic in your approach • Need to plan and prepare - don't jump in too quick • "You just have to allow yourself to learn and never think that you know everything" • Does not do well with the unexpected initially - needs to reflect and plan		

Components of Formulation of Self as Evidenced from Interview Data   **Interview No. 12**

Legend: Green - Strongly Evidenced, Blue - Moderately Evidenced, Orange - Low Evidence

ATTITUDES		
Self-Efficacy - belief in one's abilities and competencies to achieve desired outcomes	Self-Belief - confidence in your ability and judgement	Self-Esteem (Global) - overall assessment of one's own worth
• Motivation and learning - "the two things that allow you to persist when the chips are down" • Striving to achieve - no end goal	• Believes they make a valuable contribution to their field • Strong sense of abilities on a world scale	• Actions predicated on not fearing • Learnings used to help turn abilities into strengths • Insecurity - does not want to fail or bee seen as a fraud • Employs and avoidance response
Self-Perception - perception about the type of person you are	Self-Conception - idea of the self based on beliefs about self and responses from others	
• Creator of research and user • Needs time to read and absorb information • Motivated and loves learning • Science and their first love • Desire to be excellent is innate	• Possess a broad professional mindset • You need to be at the top of your game • You need to keep up with the science	
CAPABILITIES		
Self-Sufficiency (Psychological) - ability to take care of oneself	Self-Direction - ability to act as an independent agent	Self-Agency - ability to control one's own actions in the world
• To be at the top of your game you need to work really, really hard and keep at it	• Drive to make a difference in the world • Deliberate in who they interact and work with	• Drive to make a difference a driving force • Particular about where and how to focus their attention
Self-Leadership - ability to influence self to act in certain ways depending on circumstances	Self-Regulation - ability to judge and regulate behaviours ensuring appropriateness	Self-Attention (Reflective) - ability to have a genuine interest to know oneself characterised by openness and a willingness to learn

• Important to apply what you have learned	• Does not want to be held accountable for what they don't know • Professional area of expertise aids her abilities in this area	• Internal motivation is key - you must have it • Professional grooming and personal style enhances their abilities in this area
Self-Awareness - ability to have conscious knowledge or ones own character and feelings		
• Believes in the science - what does it say • Does not want to fail • Has numb er of psychological skills used to help them keep going • Has an attitude I want to know as much as anybody		