COMPLEX PROBLEMS AND COLLABORATION

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ABSTRACT

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This study examines theory about complex problems and investigates inter-organisational collaborative practice. A collaborative imperative is required to address complex societal problems. However, much research about addressing complex problems assumes the need for collaboration, but does not pay attention to the intricacies and sophistication of collaborative practice. Nor does this body of research pay attention to the 'wickedness' of complex problems. This thesis challenges the assumption and expectation that increased collaboration effort has the capacity to resolve complex social problems in and of itself. A major strength of this study consists in the connections made between two disconnected theories.

MASTER BY RESEARCH DECLARATION

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"I, Helen Lesley Bayne, declare that the Master by Research thesis entitled *Complex problems and collaboration* is no more than 60,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work".

Signature   Date

ACKNOWLEDGEMENTS

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CHAPTER 1: RESEARCH PARADOX

1.1 INTRODUCTION

1.1.1 COMPLEX PROBLEMS AND COLLABORATION

This study examines theory from two areas. One is complex problems; the other is collaboration. These two theoretical frames are closely related, but are dispersed. According to complex problem theory, responses to resolving complex problems are dependent on collaboration. However, many contributions to this body of research ignore the scholarly evidence on collaboration. At the same time, the collaborative imperative is being somewhat driven by a need to address complex societal problems, yet many contributions to collaborative theory overlook the extensive research undertaken in furthering our knowledge on addressing complex, 'wicked' problems.

This study is interested in the dispersed nature of these two theories, and in particular how this might inhibit the practice of resolving complex problems. It aims to determine whether the practical outcomes of resolving complex social problems might be improved, given that practice draws on knowledge from both theories. The aim is to gain a better understanding, not to establish 'proof'.

This chapter describes the research paradox that underpins this study. It briefly introduces key information to support this study's challenge that increased collaborative effort has the capacity to resolve complex social problems in and of itself. This hypothesis will be developed throughout this thesis.

The remainder of this chapter is organised into four sections. The following section presents the context for this study. It outlines the researcher's interest and motivation for this research. This is followed by an introduction to the two respective theories examined by this study, and these establish the justification for an inter-disciplinary study. Next, section 1.3 presents the aim and research questions of this study, and this is followed by an outline of the structure of this thesis.

This thesis challenges the assumption and expectation that increased collaborative effort, will solve complex social problems. The concluding section summarises key evidence of

different kinds introduced in this chapter, all of which provide a platform on which the main argument of this study is developed.

1.1.2 COMPLEX SOCIAL PROBLEMS

Many of today's societal problems, such as educational reform, are considered to be complex problems (Breakspear 2017; Gray & Purdy 2018). In the past, governments have mostly taken responsibility for addressing societal problems. However, this is changing, as evidence demonstrates that complex social problems cannot be effectively addressed by governments.

One reason for this is the hierarchical structure of government departments, largely because these are based on historical foundations, and specifically designed for authoritative approaches. These foundations substantially limit opportunities for dealing with today's complex, rapidly changing societal problems (Innes & Booher 2010; Kettl 2015; Nickerson & Sanders 2013; Wanna 2008). Consider, for example, indigenous disadvantage in Australia, an ongoing, entrenched complex policy problem that crosses many boundaries. These barriers include education and training, health, human services, justice, social services, and indigenous affairs, each of which requires cooperation and coordination across all levels of government.

Added to this, Leavitt and McKeown (2013) maintain that bureaucratic government models are becoming increasingly disadvantaged, and are less capable of providing the value, speed, and innovation needed in today's complex social landscape.

Complex policy problems are not amenable to quick fixes. Rather, Nair, Howlett and Fraser (2017) assert that complex problems require long-term policies with "a need for constant monitoring and evaluation to ascertain if policies are still continuing to meet their intended goals and objectives" (p.111). The reality is, however, that as governments change, so too does policy, making it problematic to administer a consistent, long-term antidote to complex policy problems. Added to this is that the fact that it is not uncommon for the recommendations from independent government-directed inquiries into complex policy problems to get lost or diluted with changes of government.

Nickerson and Sanders (2013) make the point that current government structures are not well designed to respond to today's social complex problems adequately. They contend reforms needed to restructure government departments will always lag behind the dynamics of social change, and "with substantial inertia slowing such processes, structural responses always will be insufficient for providing enterprise-wide solutions to wicked[1] problems" (Nickerson & Sanders, p.3).

Some scholars maintain that governments need to support the development of a new leadership paradigm within the public service sector; one capable of addressing social complex problems (Innes & Booher 2010). Other scholars call for a far broader paradigm.

> … addressing wicked problems calls for public officials to forge new ways of thinking, leading, managing, and organizing that recognize the complexity of the issues and processes, and that make new demands not only on their own organizations but also on other relevant actors and institutions in their environments (Head & Alford 2015, p.722).

It has been accepted that no single person, organisation, government department or government, can solve complex problems in isolation (Emerson & Nabatchi 2015; Gray & Purdy 2018; Keast & Mandell 2014; O'Leary & Gerard 2012). Rather, a common response is the growing practice suggesting collaboration as a resolution (Daviter 2017; Innes 2016).

1.1.3   THE COLLABORATIVE IMPERATIVE

Collaboration is characterised by uncertainty, and which cannot be solved by individuals. It involves a form of working together that crosses agency boundaries and which draws on differences constructively.

An increasing demand for collaboration is being driven by numerous and varied forces. These include: the expansion of democracy, market economies and globalisation, scarcity of resources, improving efficiency and effectiveness, responding to financial pressures and the moral imperative for addressing complex issues (Huxham & Vangen 2005; Keast 2011; Leavitt & McKeown 2013; Thomson & Perry 2006). Added to these are the failures

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[1] The term 'complex problem' is often used interchangeably with 'wicked problem'.

of implementation of policy downstream, the high cost of politicisation of regulation, the growth of knowledge becoming increasingly specialised, and the trend of distributed and institutional infrastructures becoming more complicated and interdependent (Ansell & Gash 2008).

Emerson, Nabatchi and Balogh (2010) assert the driving forces of the collaborative imperative are interdependence and uncertainty. They describe 'interdependence' as a situation where individuals and organisations are unable to accomplish something on their own, and 'uncertainty' as a situation where managing wicked problems drives groups to collaborate in order to reduce, diffuse and share risk. As Emerson, Nabatchi and Balogh (2010) write:

> Uncertainty that cannot be resolved internally can drive groups to collaborate in order to reduce, diffuse, and share risk. … Were parties or organizations endowed with perfect information about a problem and its solution, they would be able to act independently to pursue their interests or respond to risk (pp.9-10).

More recently Emerson and Nabatchi (2015) added a further two forces they see as driving collaboration. These are consequential incentives and initiating leadership. 'Consequential incentives' are pressures that must be addressed to mitigate risk for key stakeholders and the community, and 'initiating leadership' being necessary to drive preliminary work and create the conditions to launch collaborative dynamics.

Innes and Booher (2010) refer to the notion of 'collaborative rationality', which they maintain is driven by three trends. Firstly, the notion that in order to generate feasible and legitimate decisions to complex problems, "the traditional linear methods of decision-making relying primarily on formal expertise are being replaced by nonlinear socially constructed processes engaging both experts and stakeholders" (p.5). Secondly, there is the realisation that a diversity of knowledge is important to get an understanding of problems. In addition to recognised, conventional expertise, lay people and people with unique local knowledge are necessary to generate a joint understanding of the problem faced and the potential range of options that may improve their situation. Thirdly, they contend that traditional methods relying on logical steps and objective evidence need to be broadened to include a variety of other methods of making sense of a complex problem.

This, in turn, leads to the development of new options and components that can be assembled in various ways to create new approaches.

The drive for collaboration is not restricted to governments, with for-profit, not-for-profit, philanthropic organisations and the business sector turning to collaboration, along with communities and individuals (Keast 2016, Le Pennee & Raufflet 2018).

1.1.4 COLLABORATION IS NOT THE PANACEA

Simply teaming up with other stakeholders does not offer a magic bullet for tackling an issue or problems…Just agreeing to collaboration does not ensure success (Gray & Purdy 2018, p.32).

This thesis challenges the assumption and expectation that increased collaborative effort *alone* will solve complex social problems.

A major factor to support this challenge is the fact that the collaborative imperative is somewhat driven by an apparent need to address complex problems, but collaborative theory does not acknowledge or consider the extensive knowledge assembled to advance our understanding of addressing wicked problems. Complex problems are messy, ambiguous, and they fight back (Ritchey 2013). The uniqueness of these problems requires particular practical responses at a range of levels. Further, these ways of working are very different to those that practitioners may be familiar with for solving both tame and complicated problems (Grint 2008; Head & Alford 2015; Keast, Mandell, Brown & Woolcock 2004; Ramaley 2014; Snowden & Boone 2007).

Meanwhile, some current research on addressing complex problems implies the need for collaboration, but does not elaborate on the intricacies involved in the sophisticated and superior work of collaboration practice. Collaborations are vehicles for working across organisations, requiring a shift from familiar ways of working that are appropriate for working within an organisation, to less familiar ways that are necessary for working at an inter-organisational level (Archer & Cameron 2013; Bommert, 2010; Keast & Mandell 2014; O'Leary & Gerard 2012; Williams 2012).

Simply put, the two theories, which in practice appear to be closely related, are dispered.

1.1.5 THE RESEARCH PARADOX

Herein lies a paradox that underpins this study. Can the sophisticated and superior work of collaborative practice be effective if it is not driven by theory, or guided by empirical evidence on resolving complex problems? Can the advanced practice of addressing complex problems be effective if it is not guided by the theory of collaboration?

This study involves a process of systematic inquiry to investigate this paradox. It interrogates two theories from two different areas of research. By adopting this vantage point, this study aims to investigate whether the outcomes of the practice of addressing complex social problems might be improved if practice draws on knowledge from the two disconnected areas. This aim entails gaining a better understanding, rather than setting out to create proof. In order to do so, the study involves interpretation of data based on the researcher's perceptions, with the study's research conclusions based on these interpretations.

1.2 CONTEXT

1.2.1 MOTIVATION AND INSPIRATION

In my work as a partnership broker, a key task is the facilitation of strategic, sustainable partnerships involving a range of stakeholders from different organisations. In some cases, individuals not representing organisations, are also involved. Once a partnership has been established, I am expected to provide guidance for these stakeholders to work effectively together. One of the expectations of my role is to lead these stakeholders to create an environment for innovation that ensures the sustainability of the activity or the program that the collaboration creates.

My experience and research suggest that the work in collaborative practice is complicated; fraught with difficulties and barriers. No professional body exists in Australia to accredit courses of study or provide professional development opportunities. There is no higher qualification offered in Australia for this role. Practitioners like myself go into this field of work without any specific training and development.

Motivated to achieve positive outcomes in this work, I started exploring a range of literature on collaboration. Some of the available material has been written by scholars,

some by scholars who are also consultants, and some by consultants. In some of this reading, I learned about the notion of complex social problems and its association with collaboration. This led me to attend an international and a national conference that I felt would help advance my thinking. One of these boasted it would "empower participants with new ways to lead and implement social change in their work to respond to complex social problems" (Collaboration for Impact Conference 2016, p.2). At the time of these conferences, my reading was well advanced, and the conferences did not meet my needs. Some of the conference presenters claimed expertise in working on 'wicked' problems. However, at the time, I closely observed their work which did not acknowledge research publications or theory. As Ritchey (2013) observed:

> …the term "wicked problem" is currently being transformed from a management science and design theoretical term *d'art* into a media buzzword and piece of consultancy jargon that has lost its original meaning. This is especially the case since the 2008 "credit crunch", where we find quick-fix policy consultants and self-help management gurus telling us how they can "solve your wicked problems". This only shows that these individuals have, at best, missed the point (p.3)*.*

My continued exploration of the literature provided me with growing insight into complex social problems, that resulted in both professional and moral concerns.

Despite much effort into addressing a range of complex problems, it appears that many attempts are not yielding improvement and in some cases the outcomes of problems are in fact getting worse (Salignac, Wilcox, Marjolin & Adams 2018).

An example is child exploitation and trafficking which has reached epidemic proportions despite nearly every country providing criminal sanctions (Kendall & Fury 2017).

There are however promising examples. Research in New Zealand suggests the use of complexity theory provides an innovative perspective to the complex problem of intimate partner violence (Gear, Eppel & Koziol-McIain 2018). Hassett and Stevens (2014), point out that despite current efforts responding to child protection, "children continue to be abused and die regularly" (p. 97). They argue the need to rethink current traditional and linear approaches, and that complexity theory is needed to be applied to child protection issues in social work in England and Wales. Similarly, Case and Haines (2014), assert that the youth justice system in England and Wales "is potentially flawed in its thinking,

methods and analysis" (p. 133), and is "grossly insufficient in the modern age' (p, 133). They argue for the need for an overhaul of the system using Complex System Science.

My motivation for this study is, therefore, to examine how collaborative practitioners (as in my employment role), who work on complex problems with diverse groups of stakeholders, could be better supported by research and theory.

1.2.2 COMPLEX SOCIAL PROBLEMS: AN INTRODUCTION

The term 'complex social problems' refers to a diversity of issues. These include, but are not limited to, education (Gray & Purdy 2018; O'Leary, Choi & Gerard 2012), homelessness (Stroh 2015), human trafficking (Emerson & Nabatchi 2015), humanitarian relief (Masys 2016), poverty (Gray & Purdy 2018), radicalisation and terrorism (Nickerson & Sanders 2013), safety of nanotechnology (Head & Alford 2017), and urban violence (Brown, Deane, Harris, & Russell 2010).

In addition to complex social problems, there are also wicked environmental problems. Examples include climate change (Wright & Nyberg 2017), fuel emission control (Brown et al. 2010), land degradation, species extinction and water degradation (Lin 2016), and the vulnerability of the Great Barrier Reef (Walker 2017).

This study will investigate the different types of problems, and the differing characteristics of each category that warrant particular processes and responses. Simple and complicated problems sit within one discipline, and tend to interact in one place (Van Asselt 2000). For simple problems, such as building a house, it is relatively easy to assess what is happening and what is needed. It is easy, too, to determine appropriate responses based on past experience and knowledge. For complicated problems, such as designing an environmentally sustainable multi-storey building, expertise is required usually involving investigation of options, knowledge and application of traditional work practices.

In contrast, wicked problems are multi-dimensional, and lie across or at the intersection of many disciplines (Van Asselt 2000). They comprise a large number of nonlinear interacting elements, which are unpredictable, constantly changing and unable to be pinned down (Ritchey 2013; Termeer, Dewulf, Breeman & Stiller 2015). Complex problems fight back, are highly resistant to solutions and unable to be solved, but have to resolved over and

over, requiring approaches that are not imposed but arise from emergent practice (Batty 2016; Kurtz & Snowden 2003; Ritchey 2013). Their uniqueness requires particular responses at a range of levels, involving specific ways of thinking and working that are different to approaches that suit simple and complicated problems, and that are different to those with which practitioners are familiar (Snowden 2003, 2005). While Chapter 3 investigates some of these new ways of working, an example is appropriate at this point.

It is not possible to solve a complex problem. Rather the aim is to alleviate the consequences of the problem, by employing a range of ongoing, coordinated, interrelated and sustained responses (McCall & Burge 2015, Termeer et al., 2015, Zivkovic 2012). This is challenging and requires a new way of thinking. Added to this, traditional evaluation approaches which identify clear, specific and measurable outcomes achieved through processes detailed in a linear logic model, are not appropriate for complex problems (Patton 2011). Rather, new and emerging types of evaluation models are necessary. These models need to be proven, or have the potential to measure initiatives that seek to bring about major social change in the face of complexity (Patton, McKegg, & Wehipeihana, 2016).

In order to resolve a complex problem, it is necessary to pay close attention to the wickedness of the problem at hand (Snyder 2013). And in order to do so, the creation of a particular type of environment is required, with conditions that nurture creative and novel thinking to achieve innovation, as well as experimentation and decision-making that broadens knowledge and opens up a range of options (Head & Alford 2015). This involves gathering information from diverse sources, and making decisions about what is desirable and possible with the current situation, and how it might be improved (Gray & Purdy 2018). Rather than discovery of the 'best' or 'right' solution, the focus becomes a discovery for improvement (Innes & Booher 2010).

Hence, the contextualisation of the complex problem itself is particularly important:

> In short, wicked problems are forcing a rewriting of the rules on solving problems. It's basically Ashby's law of requisite variety whereby complexity in the environment has to be matched with complexity in the system in order for the system to adapt to its environment. That's why hierarchist, egalitarian, and

individualist leaders alone cannot solve wicked problems. They must forge the right collaborations to match the complexity in their environments (Fairfax 2016, p.68).

One of the interests of this investigation consists in the challenges facing organisations and individuals to work collaboratively to solve complex problems. This study has identified two key factors that relate to these challenges, both of which contribute to this study's argument that increased collaborative effort alone will not solve complex social problems. While these two factors will be developed in Chapter 3, a brief introduction is necessary at this point.

The first point to make is that most approaches to addressing wicked problems do not apply the theory (Hasan & Kazlauskas 2014). The second is that wicked problem theory mostly focuses on the principles of complexity (Farrell & Hooker 2013), with limited consideration given to what is needed to assist practitioners to adopt the particular responses that are necessary for complex problems (Head & Alford 2015; McCall & Burge 2015). To interrogate these factors further, this study investigates theoretical positions on addressing complex problems in order to better inform the practice of collaboration.

1.2.3   COLLABORATION: AN INTRODUCTION

Collaboration is a process for resolving complex problems where there is uncertainty which cannot be solved by individuals. It involves a form of working together that crosses agency boundaries and which constructively draws on the differences of those involved to unleash the positive potential for innovative resolutions (Gray & Purdy 2018; Gray & Ren 2014).

While the demand for collaboration is strong, Lohr, Weinhardt, Graef and Sieber (2017) point out that collaborative practice has a high risk of conflict and failure. Keast (2016) boldly asserts that more than fifty per cent of collaborations fail to achieve their purpose. In this regard, this study points to four key factors inhibiting collaborative practice. These factors support the argument that will be developed in this thesis: that increased collaborative effort alone will not resolve complex social problems. While these factors will be discussed in Chapter 4, a brief introduction will suffice here.

The first is that practice in generally driven by theory, but this is not the case with collaborative practice, which is driven by practitioners and individuals, with scholars following behind (Emerson & Nabatchi 2015; Innes & Booher 2010). In the words of O'Leary & Vij (2012),

> it is disturbing and worrisome that the academic community is not able to significantly influence the world of collaborative practice. Research seemingly does not inform or influence the world of practice at large. In addition, there is a general lack of aggregation of knowledge on collaborative public management. As a result, we are not making great breakthroughs in understanding. The knowledge that is produced is not widely read, and so has little relevance to the scholarly and academic readership, as well as practitioners. This leads to the problem of producing more research but running the risk of knowing relatively less (p.518).

This situation is a cause of concern, as this study investigates collaborative practice as highly sophisticated and superior work, yet there is a disconnect between theory and practice. In particular, there is limited understanding of the evidence-based enablers of collaboration that are indicators of collaboration effectiveness.

The second factor identified by this study relates to the notion of 'embedded management practice' which was introduced in the seminal work of Barbara Gray (1989), and which inhibits or even prevents people from changing to the practices needed for working across organisations. This means that stakeholders are continuing to apply practices that are effective at an intra-organisational level, rather than the different ways of working that are necessary for working at an inter-organisational level.

The third factor, is the misconception about what collaboration entails. A number of terms are used to describe inter-organisational ways of working together, including networking, cooperating, coordinating, and collaborating, and each of these are different (Himmelman 2002; Keast 2016). In practice, these terms are often used interchangeably (Gray & Purdy 2018), but mean different things to different people (Williams 2012). And this study had found these misunderstandings pose a challenge for effective collaboration.

The fourth factor relates to the notion of 'process'. Scholarship about collaboration is clear that it involves a process, and although various models have been developed to depict this process, this concept is still not well understood (Thomson & Perry 2006).

To interrogate these factors further, this study investigates theoretical positions on collaboration, including enablers and barriers.

1.2.4 AN INTER-DISCIPLINARY STUDY

There is, however, increasing appreciation of the limits to certainty, so that in the last 60 years there has been a flurry of activity in numerous disciplines and practice areas to rectify the centuries-old neglect of uncertainty. The major limitation in this activity has been the paucity of exchange across disciplines and practice areas, so that specialists are usually unaware of developments elsewhere (Bammer & Smithson 2008, p.3).

This study investigates two theories that are dispersed.

The two theories (wicked problem and collaboration), call for different ways of thinking and working compared to the ways familiar to practitioners. Therefore, this study is an investigation of the juxtaposition of two areas. Drawing on elements from the two theories, connections are made, and information traded between the two, with the aim of finding a new way of looking at the practice of addressing wicked social complex problems.

1.3 RESEARCH AIMS AND QUESTIONS

This inter-disciplinary study closely investigates the two theories of wicked problems and collaboration. The overarching aim of this study is to explore how better theoretical understanding has the capacity to impact the resolution of complex social problems.

The research question guiding the study is "How can theory inform the practice knowledge of addressing complex social problems?" This is supported by six sub-questions:

1. What contributions on addressing complex problems does the literature make to informing practice?
2. What gaps and weaknesses in the literature on addressing complex problems inhibit practice?
3. What contributions of collaboration theory help to inform the practice of addressing complex problems?

4. What gaps and weaknesses in collaborative theory inhibit the practice of effective collaboration?

5. What are links and gaps between the theories of addressing complex problems and collaboration? And what are the strengths and weaknesses?

6. Can these strengths and weaknesses, links and gaps reveal insights into the practice of addressing complex social problems?

1.4   THESIS STRUCTURE

This chapter has introduced the paradox on which this study is based. It has introduced the provocation that led to this study, outlined the researcher's motivation and interest for this research project, and introduced the key contributing factors. These features collectively build a platform to argue why increased collaborative effort alone is not a panacea for resolving complex social problems.

In Chapter 2, the methodological choices made for the conduct of this study are outlined and justified. Chapter 3 provides a detailed review of the literature on addressing complex problems, followed by a chapter with a review of the literature on collaboration. Chapter 5 provides an account of this study's juxtaposition of the two areas, including the strengths and weaknesses of the two, along with their links, nuances and gaps.

In the final chapter, the arguments developed throughout this thesis are brought together. This chapter considers the overarching research question that has guided the study, the question of how theory can inform the practice knowledge of addressing complex social problems. To address this question, key strengths and weaknesses of the two areas identified from this study's juxtaposition exercise are considered. These are proposed as springboards for improving the practice of addressing complex social problems. Chapter 6 also outlines the key gaps in literature identified by this study.

1.5   SUMMARY

This thesis challenges assumptions and expectations that increased collaborative effort has the power to solve complex social problems. In this chapter, six sources of evidence were introduced that provide a platform on which the main argument is developed. Each of

these sources relate to the overall paradox that the collaborative imperative is somewhat driven by a need to address complex problems, in light of the contradictory fact that collaborative theory largely ignores the extensive research that has been undertaken in addressing wicked problems. Meanwhile, wicked problem theory implies the need for collaboration, but pays little attention to the intricacies and sophistication of collaborative practice.

One factor identified by this study is that wicked problem theory identifies the need for close attention to be paid to a complex problem, and responses must, hence, be tailored to the wickedness of the particular problem. This in turn requires new ways of thinking and working, compared to those that are effective for tame and complicated problems. Despite this theoretical knowledge, most practical approaches to addressing wicked problems do not apply the theoretical knowledge.

Secondly, the research on resolving complex problems mostly focuses on the principles of wicked problems. What is needed in practice to assist practitioners to adopt the particular responses that are necessary for complex problems, is a largely neglected aspect of this body of research.

Thirdly, the highly sophisticated and superior work of collaborative practice is susceptible to high levels of conflict and failure, yet it is driven by practitioners and individuals, with scholars following behind. Consequently, scholars seemingly are not informing or influencing practice.

The fourth contributing factor inhibiting collaborative practice is embedded management practice. This means that practitioners are continuing to apply practices that are effective at an intra-organisational level, rather than the different ways of working that are necessary for working at an inter-organisational level, and which is exacerbated by the limited attention paid by scholars to 'unlearning'.

The fifth contributing factor identified by this study, is a commonplace and vested misunderstanding of 'collaboration'. The multiple interpretations of the actual meaning of 'collaboration', pose a challenge for effective collaboration, with collaborative naivety attributed to the confusion in the meaning and understanding of collaborative work and the frequent failure of collaborations.

The sixth of the contributing factors identified by this study relates to a notable neglected aspect in scholarship on collaboration. While the literature recognises that collaboration involves a process, and various models have been developed to depict this process, the interactive process of collaboration is not well understood. This study has found that scholarly attention tends to be paid to the various elements of collaborative practice, such as leadership and governance, but largely ignores theoretical positions on the interplay of the various elements.

To focus my intentions further, this study investigates theoretical positions on addressing complex problems in order to better inform the practice of collaboration, and to identify more clearly the specific ways of working that are required. It takes an alternative approach to that taken by most of the contributions to research in this field by not only drawing on the wicked problem theory, but also a second less known theory, with the intention of providing richer dimensions and directions for this study. In addition, rather than offering a superficial account of wicked problem theory, this study delves deeply into both theories, searching for pointers to practice, with an emphasis on the different ways of thinking and working which can be adopted by practitioners at a local level, and how these compare to ways of working familiar to practitioners. By juxtaposing two areas of research and drawing on elements from the two theories, I aim to find new insights via this cross-fertilisation, with the goal of finding a new way of looking at the practice of addressing wicked social complex problems.

The study concludes by summarising the gaps and weaknesses in existing research, specifically that relating to how improvements in practice might be made and how greater theoretical knowledge may help.

CHAPTER 2: METHODOLOGY

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2.1   INTRODUCTION

This inter-disciplinary study involves a systematic inquiry of two bodies of research, that have much in common, but are segregated. It investigates whether the outcomes of the practice of addressing complex social problems might be improved if practice were to draw on knowledge from the two areas of research. To enhance understanding of this phenomenon, the study involves interpretation of data based on my perceptions and subjective opinions, basing the conclusions firmly within my own interpretations.

This chapter describes and justifies the principles of this study, and the processes and techniques used to guide its journey of systemic inquiry. It is organised into three sections.

The following section explains how I went about learning about scholarship, and in doing so, gradually moved from a position of practice into the academic realm.

Section 2.3 describes why this thesis takes an unconventional route in that it does not consider empirical data, but instead investigates theoretical positions on addressing complex problems and collaboration by way of thesis by discourse and social constructionism. This section explains how the seminal work of C. Wright Mills guided this study. It also describes how particularly characteristics of the two areas of research interrogated, were used to tailor methodological choices for this research project. Finally, the role that juxtaposition plays for this study is introduced. The final section provides a summary of this chapter.

2.2   LEARNING TO BE A SCHOLAR

2.2.1   BARRIERS AND IMPEDIMENTS

This study required that I transition from practice to the world of academic research. I was aware, that in order to complete this study to the required standard, I needed to learn the requirements of good scholarship and ensure these were consistently applied and demonstrated. I expected this would be challenging, but did not anticipate that the paradigm shift to academia would be formidable.

Embedded work practices automatically dominated my approach, and constantly diverted me from applying good scholarship. In a relatively short period of time, my enthusiasm was overtaken by a lack of confidence because of the apparent need to appear 'scholarly'.

One contributing factor for my struggle relates to what Bryman calls the 'messiness' of the social research process, which he states is "full of false starts, blind alleys, mistakes, and enforced changed to research plans" (2012, p.15). My work tends to involve an imperative for outcomes within strict time constraints. In this context, I found it difficult to accept that following a lead that ended up being a 'blind alley', was a perfectly acceptable and necessary part of my research journey. It was not until I diagnosed that I was unconsciously applying embedded work practices that I was able to address this and other obstacles.

I came to this study as an experienced practitioner, with an abundance of 'opinions'. I anticipated this would be a benefit to my study, and to some extent this was the case. However, this also generated practitioner bias. In the earlier stages of undertaking my review of the literature on collaboration, an area that I have extensive practical experience, I became unconsciously critical of perspectives I did not agree with. It was not until I learned of the theory-practice gap (introduced later in this section), that I appreciated my preconception. Initially, I thought this meant that I had to disassociate my practitioner experience completely from my study. However, the seminal work of C. Wright Mills (1959/2000), helped me to realise differently.

Mills advises student researchers that the most admirable thinkers do not split their scholarly work from their lives, rather they use each for the enrichment of the other. Mills proposes that student researchers need to learn to control the interplay of past experience with their intellectual work. He suggests this can be achieved by setting up journal that enables the scholar to join both experiences. He states that the process of keeping a journal allows the researcher to combine what they are doing intellectually with their practical experience. Mills proposes that carefully accomplished thinkers closely organise their experience, and treasure their smallest experiences, knowing that experience is vital as a source of original work. His contribution was a breakthrough in addressing my lack of confidence, in particular I was empowered by the following passage:

To be able to trust yet to be skeptical of your own experience, I have come to believe, is one mark of the mature workman. This ambiguous confidence is indispensable to originality in any intellectual pursuit, and the file is one way by which you can develop and justify such confidence (Mills 2000, p.127).

A further factor contributing to my initial struggle was the difference in the writing styles of researchers, specifically a perceived disjuncture between what they said and how they said it. By this, I mean some scholars appear to need to display not only their knowledge of the subject matter, but also their linguistic abilities, and in doing so, opt to use relatively elaborate language. Once again, my practitioner bias caused me to be dismissive of such scholars. However, once I recognised this, and as I became more proficient at reading a range of different styles, I overcome this preconception.

A further difficulty that I encountered, although minor, was associated with reading materials from two different disciplines. Hart (1998)[2] points out that these difficulties are due to different styles in which various disciplines present ideas.

The final contributing factor that blocked my transition from practitioner to scholar was my scholarly naivety. I assumed that scholars would have the answers, and point me in directions for my quest. A particular example here was my decision to begin my investigation by studying the literature on collaboration. I had made an assumption, that as I was an experienced collaborative practitioner, I would find the scholarly literature in this field relatively easy to grasp, and this would be the least challenging part of my study. I was, however, wrong. I learned that typically, practice is driven or guided by theory and evidence, but this is not the case with collaboration, where collaborative practice has been driven by practitioners and individuals (O'Leary & Vij 2012).

2.2.2 THE THEORY-PRACTICE GAP

Initially, I assumed the situation where collaboration scholars were trying to keep up with collaboration practitioners was unusual. After all, scholarly research aims to develop knowledge which translates into skills to advance practice (Pullins, Timonen, Kaski &

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[2] Although published in 1998, the seminal work of Hart has been reprinted seven times, and on 6 January 2018, Google Scholar reported this work has 2566 citations.

Holopainen 2017), and practice is normally driven by and built on theory. Theory provides ways of seeing how and why practices do or do not work in particular ways; it offers a critical distance that probes surface unexamined assumptions and places activities in perspective; it provides a basis for an evaluation framework; and it generates insights into new ideas and directions (Innes & Booher 2010, p.15).

However, as my reading expanded, I learned differently. According to Van de Ven (2007), while research can expand knowledge in professional fields, studies demonstrate that practitioners often do not adopt research findings from a range of fields. Added to this, there are "growing concerns that academic research has become less useful for solving practical problems and that the gulf between science and practice in professions such as management is widening" (Van de Ven, p 2). In fact, there is a growing theory-practice gap across many disciplines, and it is not a new phenomenon (Kinyaduka 2017; Posner 2009; Pullins et al., 2017). Using Google Scholar (on 29 December 2017), and a search for 'theory-practice gap', produced 41,200 results from 2017 alone. The range and diversity of professions in the articles included accounting, autism education research, black carbon mitigation technologies, ecology and conservation, human resource management, marketing, midwifery, nursing, statistical process monitoring, sustainable tourism research, and teacher education.

My personal discovery of the theory-practice gap across many professions was an important juncture for my research journey. At the beginning, my scholarly naivety led me to think the literature would readily point me in directions relevant to my study, which is to advance our understanding as to how theory might improve the practice knowledge of addressing complex social problems. After much reflecting, I decided that rather than bemoaning the disconnection between the two related disciplines, along with their gaps, I should turn vice into a virtue. However, in order to do so, I needed to get a better understanding of the key factors that contribute to the theory-practice gap across disciplines.

Essentially, the theory-practice gap means there is a disparity between research topics and the concerns and needs of practitioners. Research agendas are often generated by a need for publication in academic journals, tenure and promotion, rather than relevance to the issues and agendas facing practitioners (Posner 2009). Here, a relatively harsh accusation is made:

> Scholarly researchers increasingly start with their own interests, and not specific applications or practical problems (Pullins et al., 2017, p.18).

Lack of relevance of research to practice is considered to be a major contributing cause for the gap (Nenonen, Brodie, Stobacka & Peters 2017; Pullins et al., 2017). Further, relevance here means opportunity for practical application (Bushouse, Jacobsen, Lambright, Llorents Morse & Poocharoen 2011). Banks, Pollack, Bochantin, Kirkman, Whelpley and O'Boyle (2016), refer to this as 'knowledge production', where academics develop knowledge of limited use or interest to practitioners. This relates to the tendency for some research to be incremental to existing contributions, in comparison to a demand by practitioners for research that is innovative, more speculative and boundary pushing (Brodie et al., 2017; Nenonen, Brodie, Storbacka, & Peters, 2017). In this regard, Moller (2017) argues there is a need to push theoretical boundaries, including more speculative work. Conclusions drawn from such studies often point to the need for further research, rather than deriving guidance for practice (Baldvinsdottir, Mitchell & Norreklit 2010).

Many practitioners face pressures to achieve results, and in an environment of rapid change, seek relevant and credible research that meets their emergent needs (Posner 2009). In these circumstances, practitioners need guidance from scholars on how to adapt to change, as opposed to research that simply provides static solutions (Pullins et al., 2017).

Use of seemingly impressive language by some scholars is proposed as a particular reason why practitioners ignore some studies (Kinyaduka 2017).

Techniques used by scholars for the dissemination of their work also contribute to the theory-practice gap. Banks et al. (2016) refer to this as a 'knowledge transfer problem'. The relatively poor accessibility of scholarship to the broader practitioner community appears to be associated with promotion and tenure incentives linked to outlets for other scholars, including refereed journals and academic books (Bushouse et al., 2011).

A lack of collaboration between academics and practitioners is a further contributing factor to the gap. Research is supposed to inform practice, and vice-versa:

> Practices developed in the field should provide context and feedback on the usefulness of theories. However, a gap emerges when knowledge of theory and practice are developed in isolation of each other (Banks et al., 2016, p.2207).

As mentioned, my discovery of the theory-practice gap was an important juncture in my research journey. This discovery led me to explore the literature in this field, and in doing so, I recognised that many of the impediments blocking my transition from practitioner to scholar, were in fact due to the theory-practice gap. This discovery also helped me to me to grasp the 'collective impact phenomena'. In the words of Posner (2009),

> Research fails to address the larger questions facing practitioners and publics alike, creating gaps that are filled by popularizers lacking academic credibility and competent research skills (p.21).

2.3 RESEARCH DESIGN AND PARADIGM

2.3.1 RESEARCH PARADIGM

Engaging in systematic inquiry about your practice — doing research — involves choosing a study design that corresponds with your question; you should also consider whether the design is a comfortable match with your worldview, personality, and skills. It is thus important to understand the philosophical foundations underlying different types of research so that you can make informed decisions as to the design choices available to you in designing and implementing a research study (Merriam 2009, p.1).

Worldview

Undertaking social research does not take place in a vacuum, rather it takes into account the existing knowledge the researcher has in their area of inquiry (Bryman 2012). Researchers need to find and articulate the position from which they speak (Mills 1959/2000). This includes their assumptions about how they know the world, what constitutes their reality of that world, and what permissible and appropriate actions they are prepared to take in their world, that is norms that govern their behaviour (Scotland 2012, Yin 2015). Furthermore, these assumptions are grounded in who they are and how they learn (Rallis & Rossman 2012).

Yin (2015) maintains that a belief system comprises the beliefs a person holds about ways of knowing what they know. Conversely, Rallis and Rossman (2012) argue that knowing

comes from a process of inquiry, which is influenced either consciously or unconsciously, by our life development and interactions with the world in which we live.

Influences that impact on our belief systems are many and varied. According to Rallis and Rossman (2012), these include sex, age, culture, physical ability, life experiences, professional experiences, previous learning, values, and passions. These scholars provide an example to help to explain this. They refer to a woman's experience of living in Paris being different to a man's experience. They propose that these two people use the same public transport, do the same type of work, and socialise at the same venues. Despite this, they will have different experiences and may react differently to similar experiences:

> In the end, each will view Paris through their lens of their unique experiences, and this becomes their reality (Rallis & Rossman, p.75).

According to Vanson (2014), a researcher will filter for preferences according to their worldview, which in turn influences what is noticed and what is ignored. In short, a researcher's belief system influences their ontological and epistemological assumptions, and this phenomenon is discussed in the following section.

Rallis and Rossman (2012) argue that exploring their own world view will help a researcher to clarify their perspective throughout their research, and this exploration is necessary to determine their orientation, (also described as stance, perspective, or the paradigm where the researcher situates themselves, relative to their study).

In order to determine my worldview, I studied a range of literature, and found a suggestion from James (2015) to be useful. He proposed using the metaphor of an iceberg when thinking about research methods, methodology, epistemology and ontology, all of which are always present in a research project, and they are not separate things but are always locked together. The small part of the iceberg that can be seen above the waterline consist in the research methods of the study, that is the techniques that will be adopted to undertake the research. The large part of the iceberg underneath the water cannot be seen, and because of this, it is hard to determine its shape and extent. The layer of the iceberg under methodology is the epistemology (meaning what is knowable and worth knowing) on one side, and ontology (meaning any debate about what it is to exist, and what it is to be) on the other. Together, these four inseparable elements, ontology, epistemology, methodology, and methods, generate a research paradigm, which is:

a term deriving from the history of science, where it was used to describe a cluster of beliefs and dictates that for scientists in a particular discipline influence what should be studied, how research should be done, and how results should be interpreted (Bryman 2012, p.714).

2.3.2 RESEARCH METHODOLOGY AND METHODS

Habermas and discourse analysis

A thesis can be empirical work, involving a proposition that is either maintained or proved, conceptual work, involving an investigation that looks to existing theory for new insights and concepts, or a combination of both. A less common approach involves a detailed and thought-provoking discourse, resulting in new concepts and insights (Aveyard 2014; White 2004).

In my readings of the literature on discourse, I soon realised that a research strategy that adopted discourse would fit well the aim of this study, which is to explore how better theoretical understanding impacts on resolving complex social problems. Goddard and Carey (2017) clarify that the term 'discourse' comes from Latin 'discursus', meaning 'to run to and fro' (p.1).

Acknowledged authority on discourse John Drysek (2013) provides a definition on this term:

> A discourse is a shared way of apprehending the world. Embedded in language, it enables those who subscribe to it to interpret bits of information and put them together into coherent stories of accounts (p. 9).

Discourse is about 'holding forth' on a subject by presuming authority, with the intention of convincing the reader or listener in some way (Mills 2004). It constructs meanings and relationships based on assumptions, judgements and contentions (Drysek 2013). Discourse requires a substantive, thorough and systematic investigation of relevant literature, followed by an analysis of the data gathered by way of complex reasoning to form what Machi and McEvoy (2016) refer to as a 'discovery argument' about the topic. They propose that the argument of discovery sets up the foundation for a second argument, the argument of advocacy. This involves an analysis and critique of the

knowledge produced from the first argument, providing an answer to the research question, and in doing so generates new knowledge. Everything must be conveyed clearly and persuasively, telling a story that unfolds over time, and which explains how the researcher's experiences have shaped the interpretation of their findings (Cresswell 2013; Mills 2000). Goddard and Carey (2017) advise that the researcher needs to set clear parameters and to keep themselves focused.

In my reading of the discourse literature, I noted that many scholars draw on the work of Michel Foucault, and I considered doing the same. However, my reflection on the work of Jurgen Habermas, a theoretical rival of Foucault (Baxter 2011), enabled me to find my scholarly voice and to orient my epistemology as a scholar.

Habermas (1992/1996) speaks of 'communicative reason', made possible by "the linguistic medium through which interactions are woven together and forms of life are structured" (p.3). Communicative reason is not prescriptive; it does not tell listeners or readers what they must do. Rather it orients readers to validity claims, pertaining to research insights. Habermas (1984) applies systematic 'argumentation', meaning communication where validity claims are made, followed by an attempt to either vindicate or criticise them through arguments (p.18). He suggests that scholars should consider argumentation as 'procedure', whereby a claim is contested with reasons to determine whether it stands or not.

When I started writing this thesis, I was inexperienced in scholarly discourse, and I found it difficult to clearly articulate my 'claim' and systematically validate it by way of argument. Adopting the advice of Habermas (1984; 1992/1996; 1993/2001) was instrumental in helping me to articulate this study's claim, that increased collaboration alone will resolve complex social problems, and to present evidence systematically to verify it.

C. Wright Mills and 'research Imagination'

To formulate my methodological approach, I sought guidance on how to think, reflect, and adopt a scholarly mindset. I returned to the masters. C. Wright Mills (1959/2000)[3] provided

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[3] While this reference is 60 years old, it has stood the test of time. According to Oakes (2016), The Sociological Imagination, remains a source of inspiration, particularly for scholars.

guidance in research imagination, literary craftmanship, the interplay of writing and thinking, and thinking and reflecting.

Mills' advice on developing a 'research imagination' requires student scholars to loosen their imagination, allowing a combination of logic, chance, curiosity and playfulness to enter the research process. This involves being open to discovering unsuspected connections. The research imagination, or 'sociological imagination' requires the researcher to make sense of the world, shifting between perspectives, as I set out to do in this study. It requires researchers to pursue vague notions in pursuit of original ideas. I applied Mills's thought in my juxtaposing of the two areas of research. In particular, as I explain in Chapter 5, the relentless pursuit of vague ideas led to an important discovery.

In pursuit of 'literacy craftmanship' and membership of an academic discourse community, scholars are urged to find a researcher 'voice' as opposed to defaulting into "prose manufactured by a machine … full of jargon" (pp.140-141). When I began writing this thesis, I lacked confidence with the idea that I should be taken seriously as a scholar. Without realising, I had adopted a passive voice, and what I wrote lacked conviction. I found Mills's suggestions of finding my voice and targeting my discourse to my audience helpful. I realised I needed to adopt an active voice and to guide my reader through my analysis of why increased collaborative effort alone is not a panacea for resolving complex social problems. Through reflecting on Mills, I was able to reconcile myself as an iterative thinker and field practitioner with my role as a reiterative academic research writer.

The role of literature review for this study

This study interrogates two theories from two different disciplines of research, addressing complex problems and collaboration. These are closely related but not directly connected.

Chapter 3 presents the results of the literature review on addressing complex social problems. This study noted two particular characteristics of this body of literature and these were used to tailor methodological choices for this research project.

The first, demonstrated in Chapter 3, is that this research has a strong focus on theory, with scholars mostly drawing on a single influential seminal work. This study, however, takes an alternative approach, drawing on a second body of work. This strategy enriches

this study by providing broader dimensions, helping to inform the practice of resolving complex problems.

The second characteristic of the corpus related to addressing complex problems. Chapter 3 suggests that limited attention has been paid to applied knowledge practitioners' needs. In order to fill the gap, my review of literature on addressing complex problems needed to apply two such dimensions. The first dimension involved presenting the theoretical positions of different categories of problem. The second set up a foundation for an interrogation of how wicked problems might be understood and managed by practitioners. This strategy aims to provide insights and answers to sub-questions 1, and 2 of this study. Chapter 3 begins with summary of the theoretical properties of wicked problems and how these differ to other types of problems. Analysis of literature provides foundation for an interrogation of insights into how wicked problems might be understood and managed by practitioners.

Chapter 4 presents the results of the literature review on collaboration. This chapter commences with an overview of deficiencies in this corpus. For example, the collaborative literature is described as untidy, unwieldy, confusing, disjointed, piece-meal and fragmented (Ansell & Gash 2008; O'Leary & Bingham 2009; O'Leary & Vij 2012; Williams 2012). I determined there was no way to overcome these deficiencies; rather my own study needed to implement a two-phase approach to review the literature. Phase one determines the key enablers and barriers for effective collaboration. Phase two uses the key enablers identified in phase one to guide the selection criteria for resources reviewed in this second phase. This enabled a process to address sub-question 3 of this study, while sub-question 4 addressed the need to work around, rather than overcome, the deficiencies in the literature.

The role of juxtaposition in this study

The theories of addressing complex problems and collaboration are closely related, but they are not epistemologically connected, and this study applies juxtaposition to address this. This strategy is designed both to enable the ramifications of the disconnection to be understood and to determine how the outcomes of the practice of addressing complex

social problems might be improved, given that practice draws on knowledge from the two areas of research.

Juxtaposition is a technique where two or more phenomena are put side by side to find comparisons and contrasts. Methodologically speaking, a range of evidence demonstrates the value of such comparison to promote learning and understanding (Kurtz, Boukrina, & Genter 2013).

This study uses this technique to draw on elements from the two theories to find insights via cross-fertilisation and to discover fresh ways of looking at how research could address wicked social complex problems. The intent of this is to find insights and answers for this study's sub-questions 5 and 6 (Chapter 5). A qualitative method, juxtaposition involves the researcher's perceptions in interpretation of data.

2.4   SUMMARY

This chapter has provided justification for the study's approach. This study explores how better theoretical understanding impacts on resolving complex social problems. There is no application of quantitative methods to elicit proof, but my qualitative approaches aim to make available alternative, richer understandings. To achieve this, discourse analysis emerged as the most appropriate methodology. Discourse analysis involves a thorough investigation of relevant literature, followed by an analysis of the data gathered by way of complex reasoning to answer research questions, and in so doing to generate new knowledge.

Discursive analysis draws extensively on social constructionism, which requires that we take a critical stance toward our taken-for-granted ways of understanding the world and ourselves in contrast to positivism and empiricism. Adopting this alternative paradigm opens a range of possibilities for a deeper understanding of the practice of resolving complexity and offers a more productive approach to the enquiry. The work of Mills guided my methodological approach. In particular, adopting and developing a research imagination, literacy craftmanship, the interplay of writing and thinking, and thinking and reflection.

The review of the literature on addressing complex problems draws on two works to enable understanding of characteristics and dimensions of different types of problems. This offers broader dimensions, informing the practice of resolving complex problems. Further, to address the gap in literature on the applied knowledge practitioners need, two dimensions have been applied with the goal of offering insights into how wicked problems might be understood and managed by practitioners.

There are many gaps, too, in the collaborative literature, notably a disconnect between collaborative theory and practice. Once again, a two-phase approach to the review of the collaborative literature is adopted to determine the key enablers and barriers for effective collaboration and to guide the selection criteria for resources reviewed in phase two.

Finally, I identified how juxtaposition addresses the disconnection between the related disciplines of addressing complex problems and collaboration and described how this enables the ramifications of the disconnection to be understood. The goal is to improve ways of better addressing and understanding the practice of addressing complex social problems via cross disciplinarity. Thus, it challenges the assumption and expectation that increased collaboration will resolve complex social problems.

CHAPTER 3: RESOLVING COMPLEX SOCIAL PROBLEMS

3.1   INTRODUCTION

This chapter presents a discussion of scholarly contributions relevant to the practice of resolving complex social problems. It relates to two core questions:

What contributions on addressing complex problems does the literature make to informing practice?

What gaps and weaknesses in the literature on addressing complex problems inhibit practice?

This chapter proceeds as follows. The following section presents an overview of the theoretical properties of wicked problems and how these differ from other types of problems. This is followed by a review of the literature on addressing complex social problems in search of insights to improve the practice of resolving these types of problems. The final section provides a summary and includes the three factors underpinning my refutation of the assumption and expectation that increased collaboration might solve complex problems. It also outlines key areas for further research, particularly the priorities necessary to bridge the theory-practice gap in this field.

3.2   CATEGORIES AND DISTINGUISHING PROPERTIES OF PROBLEMS

3.2.1 INTRODUCTION

A small range of studies informs our knowledge and understanding of different types of problems, including simple (also referred to as tame problems), complicated and complex problems. These include Heifetz (1994), Rittel and Weber (1973; 1984), Roberts (2001), and Snowden (2003).

Much of the research on addressing complex problems tends to draw on Rittel and Webber. Examples include Balint, Stewart, Desai and Walters (2011), Conklin (2006), Farrell and Hooker (2013), Head and Alford (2015), Horn and Weber (2007), McCall and Burge (2015), Nair, Howlett and Fraser (2017), Ramaley (2014), and Ritchey (2013).

This study, however, takes an alternative approach, and also draws on Snowden and his colleagues. After considering both of these works, I realised that neither is better than the other. Rather, they offer different perspectives, and by drawing on both, richer dimensions and directions are offered, particularly with regard to helping to inform the practice of resolving complex problems.

These two works establish that complex, wicked problems are inherently unpredictable, and their uniqueness requires particular responses at a range of levels, and these responses are very different to those practitioners currently acknowledge.

This chapter begins with a summary of the theoretical positions of these works. In particular it establishes that different categories of problems have different characteristics, which in turn require different responses. This leads to a discussion of insights into how wicked problems might be understood and managed by practitioners.

3.2.2 WICKED PROBLEM THEORY

Wicked problems…They are those complex, ever changing societal and organisational planning problems that are difficult to define and structure properly because they won't keep still. They're messy, ambiguous and reactive, i.e. they fight back when you try to do something with them (Ritchey 2013, p.1).

Tame and wicked problems

The 1970s and 1980s was a time when a range of scholars became critical and dissatisfied with the traditional, rational-technical approaches to decision-making, problem-solving and planning. These scholars felt that expert-driven, technical approaches did not take into account the experiences of individuals associated with difficult social problems (Head & Alford 2015). In response, some scholars searched for and developed alternative approaches.

One of the most important works that emerged was 'the wicked problem theory', developed by Rittel and Webber (1973, 1984). They contrasted two categories of problems, tame and wicked, suggesting that the types of problems that scientists and engineers mostly deal with are tame or benign, providing some simple examples**:**

Consider a problem of mathematics, such as solving an equation; or the task of an organic chemist in analyzing the structure of some unknown compound; or that of a chess player attempting to accomplish checkmate in five moves. For each the mission is clear. It is clear, in turn, whether or not the problems have been solved (Rittel & Weber 1973, p.160).

In contrast, they proposed societal problems that planners deal with are 'wicked' problems, describing these as stubborn, and intractable. Unlike 'tame' problems, these types of problem are difficult to define. They maintain that wicked problems can never be solved, but rather have to be resolved over and over. They assert that that there is no right or wrong solution to a wicked problem; rather, answers that are better or worse. They describe their meaning of the 'wicked':

… a meaning akin to that of "malignant" (in contrast to "benign") or "vicious" (like a circle) or "tricky" (like a leprechaun) or "aggressive" (like a lion, in contrast to the docility of a lamb) (Rittel & Webber 1973, pp.160-161).

Principles for resolving wicked problems

Rittel (1972, pp.394-395.), proposes 10 principles are necessary for resolving wicked problems. Before I present these, it is relevant to share a discovery made by this study. In my examination of Rittel and Webber's theory on wicked problems, I noted a reference to Rittel (1972), titled *On the planning crisis: Systems analysis of the 'first and second generations.* This discovery was of note, as almost all of the literature refers only to Rittel and Webber's (1973) work, and their later 1984 publication. Google Scholar resulted in one hit for this 1972 publication. Of note is that this 1972 paper not only examines the distinguishing properties of wicked problems and compares these with tame problems, it also provides an explanation of why approaches used to address tame problems will not work for wicked problems. It then goes on to provide an overview of the principles, as opposed to properties, of wicked problems and advice on what is needed in practice to address these principles. This important work, however, has gone unnoticed, appears to have been lost with time, and has been completely overshadowed by the landmark 1973 publication that has a predominantly theoretical basis. This study suggests this is a perfect

example of the theory-practice gap for this discipline. The 10 principles for resolving wicked problems follows.

(1) The knowledge needed to address a wicked problem is usually distributed over many people, requiring expertise in guiding the process of dealing with a wicked problem.

(2) People who are affected by a planning process must have maximal involvement, in contrast to imposed planning with a top-down approach.

(3) Every step of the process of developing a solution to a wicked problem involves assumption and judgements that are not based on scientific expertise.

(4) Solutions to wicked problems cannot be correct or false, but only good or bad, and there is no way of determining if a solution is good or bad. Rather judgements are called for, requiring procedures in place enabling each person to explain their view point.

(5) There is no scientific planning; rather dealing with wicked problems is political.

(6) Planners for wicked problems are not experts; rather they are more like a midwife in comparison to a doctor.

(7 & 8) Planners for wicked problems must have an attitude of moderate activism and optimism.

(9) As an alternative to the expert model used for tame problems, planners must adopt a conspiracy model of planning, meaning that, because all consequences to plans and solutions cannot be anticipated, the approach must be viewed as a venture, involving risks.

(10) The practice of wicked problem solving must be understood as an argumentative process, requiring processes are in place to enable different positions to be heard, with arguments built for and against the different positions, and resulting in decisions made on the best way forward.

This study has found these 10 distinguishing properties essentially focus on two dimensions, characteristics and solutions. For tame problems, the problem can be readily defined, criteria can be used to find the best solution, and it can be determined when the problem is solved. Conversely, a wicked problem defies certain definition, challenges

solution identification, and there are no criteria to judge the likely effectiveness of a solution or solutions.

More recently, the concept of super wicked problems has been introduced by Levin, Cashore, Bernstein and Auld (2012), who suggest that climate change is an example of such an extreme problem. They maintain that these types of super problems have four key features: "time is running out; those who cause the problem also seek to provide a solution; the central authority needed to address them is either weak or non-existent; and irrational discounting occurs that pushes responses into the future" (Levin et al., p.124).

3.2.3   THE CYNEFIN FRAMEWORK

Domains of problems

This section presents a second theory developed to further our knowledge on categories of problems.

In 2003, Snowden proposed that we are entering a new age in the management of knowledge, requiring substantial changes for academics and practitioners. In response, Snowden and his colleagues developed the Cynefin framework, designed to improve decision-making and planning.

The framework is based on complex adaptive systems theory and action research into using narrative and complexity theory in decision-making, strategy and policy-making (Kurtz & Snowden 2003). These researchers point out that the framework started in areas of knowledge management, cultural change and community development, but as their work continued, the framework expanded into other areas:

> Cynefin (pronounced ku-nev-in) is a Welsh word that signifies the multiple factors in our environment and our experience that influence us in ways we can never understand. (Snowden & Boone 2007, p.2).

The framework is divided into knowledge domains, the known, the knowable, the complex, chaos, and a fifth domain, disorder, which applies when it is unclear which of the other four contexts is predominant. This fifth domain is a black hole, positioned in the middle of the framework. This study has chosen not to include this domain in the examination of this

framework, as it would not serve this study any purpose, but rather be an unnecessary distraction.

The conditions in the known and knowable realms are rationalist and reductionist, whereas in the complex and chaos domains, new approaches are needed (Snowden 2003). Cause and effect relationships for each of the four domains were added to the framework (Kurtz & Snowden 2003). These are referred to as simple, complicated, complex and chaotic. Decision-making and leadership for each of the four domains were later added to the framework (Snowden & Boone 2007).

Figure 1 aims to provide a succinct summary of the various publications of the creators of the Cynefin framework.

Figure 1: Cynefin framework

UNORDERED / **ORDERED**

COMPLEX

Context: flux and unpredictability

Knowledge: shared experiences, values and beliefs, can be learned

Cause and effect: none clear; no right answers, emergent instructive patterns

Leadership: matriarchal/partriarchal

Practice: emergent

COMPLICATED

Context: patterns and consistent events, but they are not self-evident

Knowledge: knowable, logical, codified in textbooks, can be taught

Cause and effect: not immediately apparent, but discoverable by experts

Leadership: oligarchic

Practice: good

CHAOS

Context: high turbulence

Knowledge: have neither the experience not the expertise because the situation is new, can be learned

Cause and effect: none clear

Leadership: charismatic or tyrannical

Practice: novel

SIMPLE

Context: repeating patterns and consistent events

Knowledge: known, explicit and open, can be taught

Cause and effect: evident to everyone; right answer exists (based on an understanding of the past)

Leadership: feudal

Practice: best

Sources: Kurtz & Snowden 2003, pp. 462-483; Snowden 2003, pp. 24-26; Snowden 2005, pp. 47-54; and Snowden & Boone 2007, pp. 2-7.

Simple problems

According to the Cynefin framework, with simple problems it is relatively easy to assess what is happening, and, therefore, to determine a response with predefined procedures that are based on past experience and best practice, and that a traditional style of leadership is required:

> Our decision model here is to sense incoming data, categorize that data, and then respond in accordance with predetermined practice. Structured techniques are not only desirable but mandatory in this space (Kurtz & Snowden 2003, p.468).

Complicated problems

Meanwhile, the complicated space is the domain of experts applying established good practice. And adopting a leadership style where power rests with a small group of people. The creators of the framework argue that for complicated problems, there may be multiple right answers requiring investigation of several options, in search of good practice as opposed to best practice.

Chaos

According to the Cynefin framework, the state of chaos is caused by excessive structure or massive change, causing all connections to break down, resulting in a state of turbulence where cause and effect are not perceivable. This requires crisis management where the most important thing is to act immediately by way of novel practice and exploration. Leadership in this space is about power and imposing order (Snowden 2003, 2005). As Kurtz and Snowden (2003) explain,

> the decision model in this space is to act, quickly and decisively, to reduce the turbulence: and then to sense immediately the reaction to that intervention so that we can respond accordingly (p.469).

Complex

The domains of complexity and chaos are considered to be unordered, with 'un' used not to highlight a lack of order, but a different kind of order.

> The nature of un-order means that we cannot look at the system without changing it in some way; we are either managing or creating patterns. Accordingly, we have to do something – either probe or more decisively act, before we can gather data with validity (Snowden 2005, p.50).

3.3 TRANSFORMATION OF PRACTICE

We are living in unusual times. Every day we are challenged to navigate an increasingly complex and dynamic world. This is true not only for us as individuals, in our private and professional lives, but also for the organizations we create and are part of. Public organizations and companies alike are learning the hard way that the problems before us now cannot be resolved in the way we approached problems in the past. But if the old ways do not work anymore, what do we do now? How can we create progress and deal with the new challenges that the world is putting before us? (Dorst 2015, p.xv)

.3.1 INTRODUCTION

Now that the theoretical properties of different types of problems has been established, I turn to literature informing the practice of addressing complex problems.

There are a number of contributions to the literature on resolving complex problems that are devoted to a range of theoretical methods for responding to complexity (Farrell & Hooker 2013). These include cognitive mapping (Martin & Hanington 2012), dialogue mapping (Conklin 2006), engaged scholarship (Van de Ven 2007), general morphological analysis (Ritchey 2013), integration and implementation sciences (Bammer 2008), mess mapping (Horn & Weber 2007), public value theory (Geuijen, Moore, Cederquist, Ronning & van Twist 2007), social entrepreneurship (Beugre 2017)**,** systems thinking (Stroh 2015), and transdisciplinary imagination (Brown, Deane, Harris & Russell 2010).

There is a growing body of literature that considers both collaboration and complexity in the context of policy and public management with some public management scholars showing particular interest in the relevance of complexity theory to the study of public policy and public management field. In this regard, Eppel and Rhodes (2018) describe complexity theory and public management as a 'becoming' field. Examples of scholars contributing to this becoming field, and which are explored in this chapter, include Bore and Wright (2009), Head and Alford (2015), Innes and Booher (2010), Scott, Woolcott, Keast and Chamberlain (2018) and Williams (2012).

A neglected aspect however of scholarly research is local approaches driven by practitioners, individuals and consultants, and how the practice of how wicked problems are understood and managed by practitioners (Head & Alford 2015; McCall & Burge 2015). This posed a dilemma for this study. To find a pathway around this, I acted on the advice of Mills (1959/2000), and released my research imagination to find recurring notions that I will describe later in this section. This resulted in identification of a common theme found in both the wicked problem theory and Cynefin framework. This proved to be the need for new ways of thinking and learning, as traditional responses that work for tame and complicated problems do not work for complex social problems (Grint 2008; Head & Alford 2015; Keast, Mandell, Brown & Woolcock 2004; Snowden & Boone 2007). This is well put by Ramaley (2014):

> Workable responses and solutions to today's problems require new ways of learning, new ways of working together, and new definitions and measures of progress and success (p.9).

These new ways are not only necessary for practitioners and scholars; they are also necessary for organisations, as Head and Alford (2015) claim:

> Addressing wicked problems calls for public officials to forge new ways of thinking, leading, managing, and organizing that recognize the complexity of the issues and processes, and that make new demands not only on their own organizations but also on other relevant actors and institutions in their environments (p.722).

This section presents a review of the literature that provides insights into the new ways of working and thinking necessary to respond to complex social problems.

The literature assembled in this chapter indicates that resolving complex problems requires different ways of thinking and working, compared to those that are effective for addressing tame and complicated problems. Despite this knowledge, Hasan and Kazlauskas (2014) assert that most practitioners seem to ignore the notion of complexity. Glouberman and Zimmerman (2002) argue that most practical approaches to addressing complex problems do not apply the research evidence, but instead apply approaches that are appropriate for simple and complicated problems, often leading to interventions that do not work as they neglect many aspects of the complexity.

I suggest this does not contradict scholarly evidence. Rather, most practitioners are completely unaware of the distinction between categories of problems, and that responses need to be tailored to the category of a particular problem, and for complex problems, further tailored to the wickedness of the problem (Head & Alford 2015).

This section assembles key drivers for the practice of responding to complex problems. These include ongoing resolution, leadership, governance and decision-making, evaluation, collaboration, mindset and learning and unlearning. As there is no consensus in the literature regarding the key drivers, selection was based on my interpretation of the data based on my own perceptions.

3.3.2 ONGOING RESOLUTION

Recent scholars propose that in order to resolve a wicked problem, it is necessary to gain and maintain an understanding of the wickedness underlying the problem's persistence. Grady and Purdy (2018) argue that "wicked problems are plagued by complexity, conflicts and entanglements that impede easy resolution" (p.36). Wicked problem theory and Cynefin framework theory both point out that responses to simple and complicated problems are different to the level of responses necessary for complex problems. Snyder (2013) compared initiatives targeting single problems to casting a pebble into the sea. Those solving wicked problems must unfurl intersecting systems to pressurize the system at many key points, involving "as many actors across as many levels, as possible to nudge systems towards desired outcomes" (p.13).

Coordinated, interrelated and sustained responses

Complex problems are not amenable to one-off, quick fixes, rather a range of coordinated, interrelated and sustained responses are required. McCall and Burge (2015) call for responsibility from (re)designers involved in resolving wicked problems both for the attack and the consequences. This is no one-shot process:

> Design of wicked problems is better viewed as an ongoing process of design and redesign stretching over many iterations of design and even over generations of designers (p.26).

The imperative for ongoing resolution is necessary as complex problems are highly resistant to solutions (Head 2008; Rittel & Webber, 1973; Termeer et al. 2015). Rather, they have to be resolved over and over, in order to alleviate their consequences (Camillus 2008; Grint 2008; Zivkovic 2012). We need to "mitigate the difficulties of wicked problems" (McCall & Burge 2013, p.23), understanding that ongoing resolution as opposed to a solution is the norm (Horn & Weber 2007).

What type of resolutions?

It has been suggested that a realistic outcome for ongoing resolution is for small steps of continuous change, rather than radical change (Termeer et al., 2015). Drawing on the work of other scholars, they assert:

> Such small wins should be understood to be marginal adjustment or changes in degree rather than large-scale achievements or changes in kind … they are a concrete, completed, implemented outcome of moderate importance … they produce small steps of continuous change (p.703).

Other scholars propose that stakeholders need to identify and address the root causes of the complex problems, pointing out that this is a new way of thinking, different from traditional linear thinking, that "often ends up in addressing the symptoms of complex problems via 'quick fixes" (Bosch, Nguyen, & Sun 2013, p.50). In this regard, Snyder (2013) proposed that practitioners should focus on key systemic issues and pursue them collaboratively:

Analyse and identify the most pressing issues, address them with vigour, and all the self-organizing property of complexity to bring other aspects of the system into alignment through continuous feedback (p.29).

Batty (2016) reminds us that complex problems fight back and resist solutions, and that finding interventions at appropriate entry points, or critical leverage points, means that as we learn more, we intervene less. Similarly, tipping points, described as "the threshold, the boiling point" (Gladman 2000, p.12), have the potential for significant change to address a complex problem by way of cascading effects (Snyder 2013).

Senge (2006) refers to the notion of 'leverage' where "small, well-focused interventions can sometimes produce significant, enduring improvements, if they're in the right place." (p. 64). He asserts that tackling complex problems requires identifying where the high leverage lies, however these leverage points are usually highly nonobvious to most. He points out that while there are no simple rules for finding high-leverage points, thinking in terms of processes of change is helpful, in comparison to 'snapshot' thinking that focuses on rigid 'ether-or' choices at a fixed point in time.

In the complex domain, there is clear relationship between cause and effect, but these are not easy to identify. In response, it is recommended practitioners investigate several emergent practice options, based on good practice as opposed to best practice, as "best practice is, by definition, past practice" (Snowden & Boone 2007, p.3).

Daviter (2017) proposes three approaches to resolving complex problems. 'Holistic strategies', that aims to resolve the problem as comprehensively as possible. 'Taming strategies', that aim to alleviate the consequences of a problem, making them more manageable, and 'coping strategies', which recognise the uncertain and ambiguous nature of the problem, and which adopt a range of disjointed and tentative processes.

Theory-practice gap

Despite this knowledge, some practitioners act as if wicked problems are all the same, and fail to understand that a one-size-fits-all response will not succeed (Briggs 2007; Head & Alford 2017). Added to this, some scholars continue to ignore the evidence that complex

problems cannot be solved. Daviter (2017) argues for tacking complexity in non-traditional, non-prescriptive routes and more devotion to understanding 'the problem-solution nexus':

> In stark contrast to the widely shared notion that solving wicked problems is not a viable option, a sizable part of the more recent debate appears to promote strategies that are designed to accomplish exactly that (p.574).

3.3.3 LEADERSHIP

The term 'leadership' is not used by Rittel and Webber (1972) but it is implied in the term 'experts':

> If experts there are, they are only experts in guiding the process of dealing with a wicked problem, but not for the subject matter of the problem (p.394).

In contrast, the term 'leadership' is used extensively throughout the Cynefin theory literature. Here, the leader's role is to guide the decision-making process, by creating an environment of probing, sensing, and responding. The role is to "open up discussion, set barriers, stimulate attractors, encourage dissent and diversity, and manage starting conditions and monitor for emergence" (Snowden & Boone 2007, p.7). Leaders in complexity need to understand that their actions need to be different to familiar ways that work for tame and complicated problems. They need to resist temptations to fall back into command-and-control mode, and for facts rather allowing patterns to emerge. The role of leaders in the complex domain is to manage the tension between "initiating democratic, interactive, multidirectional discussions" (Snowden & Boone 2007, p.6), and at the same time encouraging dissent and diversity, and to "encourage order to enable the emergence of well-forged patterns and ideas" (Snowden & Boone 2007, p.6).

Eppel (2012, p. 900) cites the work of Weick and Sutcliff (2007) suggesting that leaders need to create a climate "where it is safe to question assumptions and report problems candidly"; "where people are wary of success, suspicious of quiet periods and concerned about stability, routinization, lack of challenge and variety"; and "to allow a variety of analyses to be heard".

Senge (2006) proposes that leaders need to work relentlessly to foster a climate "where it is safe for people to create visions, where inquiry and commitment to the truth are the

norm, and where challenging the status quo is expected" (p. 172). He also stresses that leaders should rely heavily on intuition to figure out complex problems, relying on hunches, recognising patterns and drawing "intuitive analogies and parallels to other seemingly disparate situations" (p. 168).

A new type of leadership, but what does it look like?

Snowden and Boone (2007) maintain that working in complexity requires a more experimental mode of leadership compared to the leadership required for working on simple and complicated problems.

> Leaders who try to impose order in a complex context will fail, but those who set the stage, step back a bit, allow patterns to emerge, and determine which ones are desirable will succeed. They will discern many opportunities for innovation, creativity, and new business models (p.5).

The literature is in agreement on the need for a new type of leadership for dealing with wicked problems in comparison to traditional, top-down approaches (Fawkes 2012). Some scholars assert that a leader in complexity needs to have a new set of practices (Berger Garner & Johnson 2015). In this regard Murphy, Rhodes, Meek & Denyer (2017) suggest an 'enabling' leadership practice that shifts stakeholders beyond "either/or" choices toward paradoxical thinking and mind-sets, enables stakeholders to thrive with pressures and search for new possibilities. Similarly, others state that wicked, complex problems "require a new kind of leader and a new kind of leadership development approach" (Nickerson & Sanders 2013, p.3). Grint (2008) adds to the conversation, asserting that "the leader should initiate a different narrative that prepares the collective for collective responsibility" (Grint 2008, p.9). He states the leader's position is to ask apposite questions and not provide the answers he or she perceive as 'right' in a top-down way. This is because, he argues, "the answers may not be self-evident and will require a collaborative process to make any kind of progress" (p.3). Hence, the real leader does not try to remove uncertainty but to remain effective regardless (Grint 2008).

While the research literature is clear on the need for a new type of leadership, scholars offer a range of approaches for the exact type of leadership required. One is 'adaptive leadership', which involves an emergent dynamic (rather than a person) among

stakeholders with conflicting needs, ideas and preferences, that aims to generate new knowledge, creative ideas, and learning (Heifetz 1994; Uhl-Bien, Marion & McKelvey 2007; Nelson & Squires 2017). Another is 'agile leadership', which requires "responsive, quick to spot emerging problems or opportunities, and work in short-iterative cycles of adaptation, learning, and improvement" (Breakspear 2017, p.69). Another suggested approach is 'complexity leadership', which comprises "a transformational, collaborative, reflective, relationship-based leadership style" (Crowell 2016, p.6). This involves a new way of thinking radically different from top-down authoritarian approaches. A further alternative is 'complex adaptive leadership', which views leadership "as a complex dynamic system rather than just an attribute or something only assigned leaders do, and is based on the dynamics and feature underscoring complexity science and chaos mathematics" (Obolensky 2014, p.9). 'Emergent leadership', is another suggestion. This involves leaders acting in ways that generate "contextual conditions that produce beneficial emergent outcomes and new orders" (Zivkovic 2012, p.2), and which aims to facilitate social interactions enabling innovation and regulates complexity. An additional option is 'enterprise leadership', which involves a "leader who can encourage and facilitate collaboration by leveraging shared values and interests to achieve a resolution that is greater than the sum of individual actions" (Nickerson & Sanders 2013, p.4). 'Innovative leadership', is also proposed for finding innovative solutions to wicked problems, by way of driving processes that "cut across traditional jurisdictions and routines of organizations, that cross the boundaries between public and private sectors, and that create new synergies, new learning and new commitment" (Termeer & Nooteboom 2014, p.170).

Distributed model of leadership

More recent research points to the need for more than one leader, with a view that it is unlikely that the requisite knowledge, skills and fields of influence to transform a system to be found in one single leader (Fawkes 2012; Tal & Gordon 2016). Rather, a 'distributed' model of leadership is proposed, also referred to as 'shared' leadership, and 'collective leadership' (Tal & Gordon 2016). Murphy et al. (2017), cite the work of Uhl-Bien, Marion and McKelvey (2007), pointing out that recent research on complexity leadership shifts

attention away from the characteristics and actions of individual leaders toward the dynamic and distributed nature of leadership process.

This distributed model of leadership is capable of unlocking the capacity for innovation for shaping alternative futures, with the role of leaders "to draw on a broad diversity of disciplines, theories of success, tool, and techniques in order to build bridges between current challenges and desirable futures" (Banerjee, Ceri & Leondardi 2016 p.54).

3.3.4   GOVERNANCE AND DECISION-MAKING

Given that no existing solutions exist for complex problems, governance and decision-making in complexity requires different ways to those that are suitable for simple and complicated problems. This results in a decision-making process that becomes one of 'problem governance' (Daviter 2017). In this context, "constantly changing wicked problems may require changing governance systems" (Termeer at al. 2015, p.699).

Problem governance requires environments and experiments that allow patterns to emerge, including opportunities that arise unexpectedly, allowing resolutions to emerge and adapt over time, as opposed to good or best practice (Snowden & Boone 2007). This environment requires a particular type of thinking and decision-making that is creative and novel, and which gets as many perspectives as possible, in order to broaden knowledge and open up a range of options. The experts must be listened to, but at the same time novel thoughts and solutions from others encouraged. Snowden and Boone (2007) suggest that barriers need to be set to delineate behavior and these may comprise a simple set of rules.

The concept of 'governance capability' is discussed by Termeer et al. (2015). They state that governance capability is the ability to observe wicked problems and to act accordingly. They argue that the governance of wicked problems is responsible for ensuring three conditions are in place. One is the need to ensure conditions are in place to enable the wickedness of the problem to be observed and analysed. The second is the need to ensure conditions are in place to enable stakeholders act by way of developing action strategies to handle the problem's wickedness. The third is the need to ensure enabling conditions by way of the governance systems that allow stakeholders to observe and act in meaningful ways. In addition, they assert that stakeholders require four governance

capabilities. These are reflexivity, resilience, responsiveness and revitalisation, each of which "acts as lens to observe particular aspects of a wicked problem situation" (Termeer et al. p.702). With the varied set of lenses "observations become more varied and more complete, leading to more possible action strategies" (Termeer et al. p.702).

Grint reminds us that wicked problems are political rather than natural or rational and require careful negotiation of the common ground (2008). Negotiation is an important component of the complex problem-solving process, that should not be considered as bartering, but the negotiation of common ground of the stakeholders (Beers, Boshuizen, Kirschner & Kirschner 2006). The goal is to gain a shared understanding of the problem and its solutions (Head & Alford 2015).

The governance of complex problems must refrain from immediate actions, opening up for the emergence of possibilities not yet apparent. This means refraining from action, particularly in previous and predictable ways, is important. This "begins in attending, noticing and being present without the compulsion to act" (Brook, Pedler, Abbot & Burgoyne 2016, pp.385-6). Brook et al. (2016) suggest it is important to start negotiation open-mindedly without a pre-determined position. Grint (2008), provides two reasons why doing nothing at all in an ambiguous situation is preferable. For the first reason, he uses the metaphor of being very close to a cliff edge when fog descends. Staying still until the fog lifts will get you home safely but late. The alternative is to act decisively, which may result in going over the cliff edge. For the second reason, he points out that doing nothing and reflection may appear to be related, but they are not the same thing. He states that doing nothing "implies indecisiveness, indolence and weakness" (p.10), while reflection "implies a proactive philosophical assessment of the situation" (p.10). Grint (2008) suggests that we should adopt the world of the Bricoleur, the do-it-yourself craft worker, who understands they do not have the answer, but instead tries new ideas, and conducts experiments to see what works and what doesn't. Of significance, is that the Bricoleur is innovative in that they begin with an acceptance of "imperfection and making do with what is available" as the way forward (Grint 2008, p.7).

In practice, however, there is a perception that being decisive is not only needed, but a leader is perhaps viewed as weak and ineffective if they appear indecisive:

since we seem to have developed an image of leadership that conjoins
decisiveness to success we expect our leaders to cut their way through the fog of
uncertainty with zeal (Grint 2008, p.11).

Drawing on the seminal work of Peter Senge (2006), decision making for complex
problems requires nurturing of new and expansive patterns of thinking, in search for
collective aspiration and where stakeholders are continually learning how to learn together
in order to create a new future.

3.3.5 EVALUATION

Workable responses and solutions to today's problems require new ways of
learning, new ways of working together, and new definitions and measures of
progress and success (Ramaley 2014, p.9).

While this study found evaluation to be a largely neglected area of the research, in recent
times, scholars are turning their attention to this important topic.

Scott et al. (2018) have paid attention to the notion of supporting collaborations to be
sustainable by way of applying a complexity theory lens. Their research concludes that the
sustainability of a collaboration needs to be treated "as an ongoing process, initiated from
project outset" (p. 1084), and that "must be measured from project outset, through the
establishment and use of a new set of variables and indicators" (p. 1084). They assert that
moving forward, a challenge is the development and use of evaluative tools that draw on a
complexity approach. Drawing on the work of other scholars, they acknowledge the need
for new evaluation approaches that may not be controllable and that involve uncertainty.

Traditional evaluation approaches usually involve identifying clear, specific and
measurable outcomes that are achieved through processes detailed in a linear logic model
(Patton, McKegg, & Wehipeihana 2016). These approaches typically involve monitoring
outcomes that are controllable, measurable and mostly predictable (Patton 2011). They
are not appropriate for complex problems seeking emergent practice, where implemented
resolutions generate a range of consequences over a period of time, and the full
consequences can only, if ever, be determined with time (Rittel & Webber 1973).

Traditional approaches are unsuitable for the turbulence associated with attempts to innovate complex problems. Patton (2011) argues this is because they are non-linear:

> there are ups and downs, roller-coaster rides along cascades of dynamic interactions, unexpected and unanticipated divergences, tipping points and critical mass momentum shifts (p.5).

Patton (2011) further argues that a relatively new form of evaluation, 'developmental evaluation', which is informed by complexity theory and systems thinking is relevant as an evaluation approach for initiatives seeking to bring about major social change in the face of complex, dynamic environments. It:

> tracks and seeks to make sense of what emerges under conditions of complexity, documenting and interpreting the dynamics, interactions, and interdependencies that occur as innovation unfolds (p.7).

Developmental evaluation involves a collaborative, focused, interactive process where the meaning and significance of information attempts to make sense of emergent findings. This form of evaluation does not apply to a fixed period of time; rather it is ongoing, and an integral part of the innovation process, with evidence suggesting that it can, in fact, enhance the innovation process (Patton et al., 2016).

McKegg and Wehipeihana (2015) completed an evaluation of case studies involving developmental evaluation, resulting in identification of three dispositions that are at the core of readiness for developmental evaluation. The first is 'embracing unknowability', which is "to be comfortable about there not being a sure destination or known pathway, to acknowledge risks, and to begin the journey anyway" (p.282). The second is 'an inquiring mindset', meaning "the developmental evaluator and others in the innovation team are open to multiple possibilities, perspectives, puzzles, and learnings" (p.282). The third is 'perseverance', requiring courage and a commitment to stick with an unknown journey. This research concluded these three dispositions have a broader application than just the evaluation component of working on complex problems. Rather they capture important attributes needed by practitioners seeking to address wicked social problems.

3.3.6 COLLABORATION

> *In short, wicked problems are forcing a rewriting of the rules on solving problems.*
> *… That's why hierarchist, egalitarian, and individualist leaders alone cannot solve*
> *wicked problems. They must forge the right collaborations to match the complexity*
> *in their environments* (Fairfax 2016, p.68).

Although the term 'collaboration' is not explicitly used by the authors of the wicked
problems theory or Cynefin framework, it is central to both theories, and more recently,
acknowledged by a range of literature (Bryson, Crosby & Middleton Stone 2006; Grint
2008; Head & Alford 2105; Ramaley 2014).

This section elicits guidance from both wicked problem and Cynefin theory to decide who
should be included in a collaborative effort.

The wicked problem theory, proposes that addressing a wicked problem requires a group
of people, especially those who are likely to be affected by the solution. Rittel (1972)
argues the solution does not depend on a single specialist, but multiple stakeholders:

> Those people who are the best experts with the best knowledge, are usually those
> who are likely to be affected by your solution. Hence, ask those who are likely to be
> affected but not the experts (p.394).

What remains unclear is Rittel's interpretation of what 'affected' means, and whether he
refers to direct or indirect effect or both.

Compared to simple and complicated problems, which can be solved with knowledge from
one discipline, solutions to complex social problems cross disciplinary boundaries and
need to take into account multiple perspectives. Beers et al. (2006) argue that the multiple
perspectives of multi-stakeholder teams can impact positively, bringing to bear "multiple
representation of the problem within one" (pp.531-532).

The research is clear on the role of non-experts. Whereas the domain of simple and
complicated problems lies with experts, lay people and people with unique local
knowledge are essential for addressing wicked problems (Innes & Booher 2010).

In contrast, there is conflict with regard to the role of experts. At one extreme is a view that
complexity is not the domain of the expert. This is because, as stated previously, "starting
from not knowing from which position fresh questions may be asked" is likely to yield

positive results (Brook et al. 2016, p.385). Contrarily, Brown et al. (2010) argue for a space for experts alongside those with understandings of "the personal, the local and the strategic" (p.4). In between these two, Dettmer (2011) writes:

> In the complex domain, the knowledge of experts may be of limited value, and the effectiveness of cause-and-effect analysis is likely to be marginalized, or of short duration (p.14).

While there are alternative views on the roles of experts, there is agreement by scholars that addressing complex problems requires a range of perspectives, values and knowledge bases relevant to the issue, from stakeholders with divergent interests or values (Innes & Booher 2010; Head & Alford 2015).

3.3.7 MINDSET

The previous section discussed the point that complex problems require a range of stakeholders with divergent interests or values. This section goes a step further, and interrogates the necessary mindset for stakeholders involved in resolving complex problems.

The mindset required for complex problems is a fundamentally different mindset to that required for tame and complicated problems (McMillan & Overall 2016). Garvey Berger and Johnson (2015) provide some insightful contributions in this regard. They present a matrix to demonstrate how a person's mindset influences the questions that a person thinks to ask (refer Figure 2). They assert that in situations seeking innovative solutions to complex problems, a mindset of opportunity, openness, and curiosity is required.

Figure 2: Questions and mindsets for different problems

Opening to explore	**Mindset:** Seeing abundance of possible risks. **Questions:** What else could go wrong? What bad thing would happen if … ?	**Mindset:** Creating a better future. **Questions:** What are other ways of looking at this? What if we thought about it in a new way?

	Mindset: Minimising present risks.	**Mindset:** Looking for quick wins.
Narrowing to decide	**Questions:** Who is at fault for this? What needs to be fixed? What is the most important issue?	**Questions:** What is the very best move to make here? If I had one bet where would I place it?
	THREAT	**OPPORTUNITY**

Source: Garvey Berger and Johnson 2015, p.17.

Eppel (2012) reminds us that resolutions to complex problems are likely to lead to "new and unexpected phenomena – so called 'surprises' " (p. 899). She suggests this requires a state of mind that expects unknowns and makes arrangements to capture evidence of unexpected unknowns and to use these as opportunities for further learnings, while at the same time recognising some of these could be impediments.

In their research into supporting collaboration sustainability by way of applying a complexity lens, Scott et al. (2018) determined a future challenge is the design and use of new evaluative tools that draw on complexity theory. In this regard, they acknowledge that this may pose an uncomfortable mind-set for some stakeholders, but if not done, there is a risk of creating resolutions that are not contextually adaptive or flexible over time, and not achieving desired outcomes.

A point to be made here, is that the research literature located by this study for mindset and complex problems tends to focus on highlighting that a 'different' mindset is needed for complex problems, but it pays little attention to what is needed in practice to support practitioners to change from their embedded mindsets. This is a dilemma, because as pointed out by Stacey (2012), practitioners often don't think about what they are doing, but are trapped in the ways they have always thought and done.

3.3.8 LEARNING AND UNLEARNING

Change often involves not only the learning of new behaviours, ideas or practices, but also giving up, or abandoning some established ones (Hislop, Bosley, Coombs & Holland 2004, p.540).

Learning

Senge (2006) refers to 'metanoia', a Greek word meaning a fundamental shift or change of mind and he stresses that the type of learning needed to address complex problems requires a deeper understanding of learning that involves a fundamental shift of mind. He proposes this this movement of mind requires adopting systems thinking.in order to find the deepest insights into a problem – acknowledging that "systems thinking is both more challenging and more promising than our normal ways of dealing with problems (p. 63).

Practitioners seeking to resolve complex social problems must adopt a continual learning mode. This is well put by Senge (2006, p. 142):

Learning in this context does not mean acquiring more information, but expanding the ability to produce the results we truly want.

Unlearning

This study suggests that another contributing factor causing practitioners not to think and work in new ways, is that research has largely neglected the practice of how wicked problems are understood and managed. In order to effectively resolve complex problems, practitioners need to understand practices that are effective for simple and complicated problems, are not suited to complex problems. New styles of leadership are required, as are new approaches to decision-making and evaluation. A different type of mindset is required, one which is a fundamentally different mindset to that required for tame and complicated problems.

A dilemma here, however, is that while the changes needed from working on simple and complicated problems to complex problems can be achieved, they appear to be causing difficulty. Snowden (2003) cogently points out that:

These changes are not incremental, but required a phase shift in thinking that appears problematic, but once made reveals a new simplicity without the simplistic and formulaic solutions of too much practice in this (complex) domain (p.23).

This may relate to an entrenched culture of traditional management perspectives and practices. Dettner (2011) suggests managers trained in an era where linearity and 'best practice' was normal are ill-equipped to manage in complex and chaotic environments. Not versed in risk-taking, they "avoid experimentation, with its consequent risk of failure, in favour of options with quantifiable, predictable costs and benefits" (p.4).

In this regard, the concept of 'entrained thinking', helps to explain why some practitioners struggle to work and think in the different ways required for working in complexity. Snowden and Boone (2007) call it "a conditioned response that occurs when people are blinded to new ways of thinking by the perspectives they acquired through past experience, training, and success" (p.2). As a practitioner in this field and a researcher investigating it, I was perplexed by the lack of attention paid to how a practitioner makes the transition to new ways of thinking and working, particularly within an entrenched culture of traditional management perspectives and practices.

In response, this study sought to find some insights into this dilemma. This investigation located an article titled 'On stopping doing those things that are not getting us to where we want to be: Unlearning, wicked problems and critical action learning'. Published in 2016, and written by four scholars, this article was part of a larger study involving 73 social workers, with the research aiming to uncover the social workers' accounts and experiences in dealing with wicked problems through critical action learning. The authors make the following statement.

To address intractable or wicked problems, characterized by having multiple stakeholders with competing perspectives and by an absence of obvious solution, it may be necessary to first unlearn existing responses and to ask fresh questions to illuminate what is as yet unknown (Brook et al. 2016[4], p.369).

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[4] This research is an example of a misunderstanding of wicked problems. The authors claim that "social work is an especially relevant setting for the study of unlearning, because social workers struggle to deal with many intractable or wicked problems from child protection to homelessness to drug addiction" (p.). Aside from this statement, there is barely any other reference to the nature of wicked problems in the publication. Rittel and Webber, the developers of the wicked problem

Hislop et al. (2014), state that "unlearning has been very broadly defined as abandoning or giving up knowledge, ideas or behaviours" (p.541). They say it can occur both unconsciously and deliberately.

Despite the assumptions made by Brook et al., the notion of unlearning as a potential strategy to deal with entrenched traditional management practices and perspectives, which they refer to as 'stuckness', offers real potential. They propose that using critical action learning as an enabler for unlearning can provide a significant role to support practitioners to gain the new understandings and learnings necessary to address complex problems. They suggest that, although the process of acquiring new learnings requires effort, it is not difficult, whereas the process of unlearning is hard, even painful. This is because, they argue,

> existing stocks of knowledge and practice routines are not made redundant, but are re-evaluated, re-positioned and overlain in a wider repertoire, usually supplemented by some new learning (Brook et al. 2016, p.384).

Brook et al. (2016) state that critical action learning provides apposite unlearning contexts via critical reflection. It affords the opportunity "to discover new ways of seeing and acting" (p.384), heightening awareness of not-knowing and opening up the possibilities of a decisive non-action consisting of attending, noticing and being present rather than compelled linear action.

According to Hislop et al. (2014), there has been a significant academic focus on learning and acquiring new knowledge and practices with limited attention paid to unlearning. They assert that more research is needed in this field, and that for practitioners, further understanding would be valuable to overcome barriers to desired change.

Seeking insights into how practitioners might make the transition to new ways of thinking and working, I located a recent publication which confirms the potential of unlearning for resolving complex problems. Nygren, Jokinen and Nijula (2017) assert that unlearning old beliefs and assumptions is needed to tackle wicked problems and to make space for

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theory, designed their theory for *societal* problems. While it is likely that many of the problems that social workers deal with are challenging, the wicked problem theory is for societal problems at a macro level (international, national, state or regional level), and was never intended to be applicable at a micro level (one on one interaction between a practitioner and their client).

learning. Their research related to the conservation of Siberian flying squirrels in the Tampere urban region in Finland, where "participating actors had to unlearn dominant beliefs and assumptions to make space for a more strategic, comprehensive and proactive approach to collaborative conservation" (p.473). They assert that unlearning facilitates change, innovation, and learning, and that unlearning old assumptions is essential to create conditions for necessary innovations, and providing the catalyst for dynamic change. Of note, is that their view is that unlearning may be the first step needed in resolving wicked problems. The words of Nygren, Jokinen and Nijula (2017) are worth quoting in full:

> Our argument is that unlearning certain existing routines and beliefs may be the necessary first step in tackling wicked problems in complex socio-ecological systems. The purpose of unlearning is not to solve the problem (because wicked problems are unsolvable), but to expand the problem space so a wider range of options for action emerges (p.474).

Team learning

Senge (2006) refers to the notion of 'team learning' which he points out remains poorly understood. He defines this as collaborative skill involving a "process of aligning and developing the capacity of a team to create the results its members truly desire" (p. 236). He proposes that team learning starts with the need for members to suspend assumptions in order to enter in a genuine thinking together mode, thereby allowing discovery of insights that could not be attained individually. He also points out that team learning needs to learn how to recognise and respond to behaviours in teams that undermine learning, which he suggests can in turn accelerate learning.

I was drawn to the notion of 'team learning' and in particular the following statement made by Senge (2006, p. 240):

> It cannot be stressed too much that team learning is a *team skill*. A group of talented individual learners will not necessarily produce a learning team, any more than a group of talented athletes will produce a great sports team. Learning teams learn how to learn together.

My attraction to this resonated with my work as a practitioner seeking to address complex social problems. I have in mind a particular initiative that sought a movement from traditional and familiar ways of working in order to create systemic change. Initial efforts over a two-year period established strong foundations for leadership, governance and decision making. The structure included an overall leadership group and six sub groups, and it was a requirement that each member of the leadership group was actively involved in at least one of the sub groups. After three years, the movement was awarded $1,000,000 over a three year period to progress its work.

There have been some major developments since this funding was awarded.

One is that, with one exception, the leadership group comprises new members unfamiliar with the initial movement and passion that drove this work. In addition, and again with one exception, the new leadership model does not require involvement with the sub-groups. Furthermore, with the advent of the funding, the focus of the leadership group turned to compliance to ensure the funding was being spent appropriately – that is, they no longer pay attention to the complex problem at hand.

The second major change is that when the funding was awarded there were two schools of thought as to how this funding should be allocated. One was to staff a 'central team' to drive the work and cross-pollinate learnings, the other was to provide funding to staff each of the six-sub groups, which was the model that was adopted. With one exception, staff appointed to the new positions had no prior involvement in the work to date.

Two years into this funding, the leadership group expressed concerns about the limited progress of this important work. Their concern primarily related to the progress the sub-groups. The initial sub-groups were based on a model of being aligned in their learnings and efforts. However, the allocation of funding to staff each of the sub-groups has resulted in a new 'dispersed' model with each group mostly focusing on delivering a new intervention program but without evaluation of impact.

Senge's contribution to 'team learning' helped me to understand the driving forces of the concerns about the limited progress of this work. Simply put, there is no mechanism for 'team learning'. The dispersed model does not enable team learning but rather actively propagates traditional ways of thinking and working. The disconnection between the

leadership group and the sub-groups, and the disconnection between the sub-groups does not enable individuals, let alone teams, to learn together.

3.4   SUMMARY

3.4.1   WHY INCREASED COLLABORATIVE EFFORT ALONE WILL NOT RESOLVE COMPLEX PROBLEMS

The literature on wicked, complex problems provides a clear picture of the theoretical characteristics of these types of problems. They are stubborn, intractable, vicious, tricky, and aggressive. Wicked problems are difficult to define, and there is no clear cause and effect. They are in a constant state of flux and unpredictability. These types of problems have no stopping rule, are highly resistant to solutions and fight back. They cannot be solved, but rather have to be resolved over and over.

This thesis challenges assumptions and expectations that increased collaborative effort alone, will solve complex social problems, and this chapter offers two arguments to support this challenge.

This chapter has established that resolving complex problems requires a transformation of practice, by adopting new ways of thinking and working, compared to those that are effective for addressing tame and complicated problems. It has also established the need for relentless attention to be devoted to the complex problem at hand, by way of an ongoing process of resolution. Despite this knowledge, most practitioners seem to ignore the notion of complexity, and instead continue to apply approaches that are appropriate for simple and complicated problems. This study concludes that this will result in solution-oriented interventions that will not work as they neglect many aspects of the complexity of a problem, and will ensure the high failure rates of collaborative efforts continues.

Scholars contributing to the body of research on addressing complex problems mostly pay attention to theoretical methods for responding to complexity, and to wicked problems and policy research. Limited attention has been paid to the practice of how wicked problems are understood and managed. For example, is it stated that conditions need to be place to enable the wickedness of the problem to be observed and analysed. However, there is no direction from this body of research as to how this can be achieved.

3.4.2 TRANSFORMATION OF PRACTICE

This chapter presents the results of this study's interrogation of the literature on addressing complex problems searching for insights to inform practice. Throughout the literature, the notion that resolving complex problems requires different ways of thinking and working to those that are effective for tame and complicated problems is repeated. In some cases, the literature refers to 'new ways' compared to 'traditional ways' of thinking and working. This study proposes that use of the terms 'new' and 'traditional' may not be helpful, as they may create a perception that familiar ways of working are 'old' and therefore not contemporary. Instead, this study adopts the term 'transformation of practice'.

It is essential that practitioners understand that every complex problem is essentially unique, and a one-size-fits-all response will fail. Rather, relentless attention must be paid to the complex problem itself, by way of ongoing resolution, involving a range of coordinated, interrelated and sustained responses. Practitioners must recognise that it is not possible to find a cure for a wicked problem, rather they need to be managed to alleviate their consequences. A more realistic outcome for ongoing resolution might be small steps of continuous change, rather than radical change. This requires focusing on tipping points by way of interventions at appropriate entry points, or critical leverage points, and to pursue them collaboratively and with vigour. As there is no clear relationship between cause and effect with wicked problems, emergent practice options based on good practice as opposed to best practice need to be pursued.

A different leadership paradigm is necessary for complex problems. Here, the leader's role is to guide the democratic, interactive decision-making process in dealing with the problem at hand. It requires an experimental mode of leadership, capable of unlocking the capacity for innovation for shaping alternative futures.

Practitioners need to acquire new learning and knowledge about their particular problem. This requires an environment that fosters a particular type of thinking and decision making, that is creative and novel, and which gets as many perspectives as possible in order to broaden knowledge and open up a range of options. It also requires tapping into knowledge that crosses disciplinary boundaries and taking into account multiple

perspectives. Here, a range of perspectives, values and knowledge base relevant to the issue is required, from stakeholders with divergent interests and values, including those likely to be affected by the resolution, and those with unique local knowledge need to involved. A negotiation of common ground of the stakeholders is necessary in order to gain a shared understanding and meaning about the problem and its resolutions. The governance of complex problems must refrain from immediate actions, opening up for the emergence of possibilities not yet apparent, which means not acting, particularly in previous and predictable ways. Practitioners must be aware of the potential consequences of making wrong decisions, which can have profound adverse consequences that are difficult to reverse. Finally, practitioners must understand that the constant change of the wicked problem may require changing governance systems.

Practitioners require a mindset of opportunity, openness, and curiosity, and this mindset needs to seek innovative resolutions. The notion of unlearning, meaning abandoning or giving up knowledge, ideas or behaviours, offers potential for more agile ways of working, helping them to overcome embedded, familiar practices, beliefs and assumptions, and in doing so facilitate innovation, and the catalyst for dynamic change.

Practitioners need to adopt more advanced ways of measuring progress and success. Here, a relatively new form of evaluation, developmental evaluation, is proving relevant for initiatives seeking to bring about major social change in the face of complex, dynamic environments. This form of evaluation is ongoing, and an integral part of the innovation process.

3.4.3   GAPS AND WEAKNESSES

There is a growing body of literature that considers both collaboration and complexity in the context of policy and public management, which has been described as a 'becoming' field.

Research in this field has a strong focus on theory, with little attention paid to the applied knowledge practitioners need.

There are opposing views in the literature with regard to leadership, governance and decision-making, and the role of experts. Some propose one particular approach, while others propose that a range of evolving approaches are required.

Limited attention has been paid to evaluation approaches that are suitable for the turbulence associated with complex problems.

In addition, limited research attention has been devoted to what is needed in practice to support practitioners to change their mindsets to those required for working in complexity.

Finally, the notion of team learning remains poorly understood.

3.4.4   REFLECTIONS

My motivation for this study is to examine how collaborative practitioners like myself, who work on complex problems with diverse groups of stakeholders, could be better supported by research and theory.

This chapter has assembled data to answer two core questions. The previous section assembled data to answer one of these questions.

> What gaps and weaknesses in the literature on addressing complex problems inhibit practice?

The second question is:

> What contributions on addressing complex problems does the literature make to informing practice?

The key themes in the literature to inform practice are assembled in Section 3.4.2.

While completing this study, I have attempted to embrace these individual skills to my practice. I have endeavored to abandon traditional ways of thinking and working and engage in a process of transformation of practice. I have attempted to adopt the 'metanoia' mantra in order to enable a mind set for new ways for leadership, governance, decision making. I have tried to embrace new ways of learning and unlearn familiar ways of working and thinking.

As a learning practitioner, I have found these 'new ways' relatively intuitive to adopt, and suspect this smooth transition is due to my examination of the literature informing practice.

However, my endeavors to team members suggesting these new ways for working as a team have been met with resistance from some of my collaborative stakeholders. This situation was somewhat demystified when studying Senge's (2006) contribution to team learning. 'I' as an individual have been trying to master the new ways of thinking and working 'on my own', and also as a member of a team. But Senge (2006) helped me to realise I cannot master 'team learning' on my own. I leave the last word to Senge (2006, p. 221):

> Despite its importance, team learning remains poorly understood. Until we can describe the phenomenon better, it will remain mysterious. Until we have some theory of what happens when teams learn (as opposed to individuals in teams learning), we will be unable to distinguish group intelligence from "groupthink", when individuals succumb to group pressures for conformity. Until there are reliable methods for building teams that can learn together, its occurrence will remain a produce of happenstance.

CHAPTER 4: COLLABORATION

4.1 INTRODUCTION

This study aims to explore if a better understanding of theory might reveal where and how improvements in the practical knowledge of addressing complex social problems could be advanced. This chapter presents a discussion of scholarly contributions relevant to the practice of collaboration. It relates to two sub-questions of this study.

What contributions of collaboration theory help to inform the practice of addressing complex problems?

What gaps and weaknesses in collaborative theory inhibit the practice of effective collaboration?

This chapter commences with an outline of the characteristics of literature on collaboration and suggests it demonstrates a number of deficiencies. For example, terms are used to describe the status of this literature include untidy, unwieldy, confusing, disjointed, piece-meal and fragmented. This is followed by a discussion demonstrating the lack of consensus of the definition of 'collaboration', with a suggestion that agreement on the definition is necessary in order to advance the study and practice of collaboration. Not only is there a misunderstanding of what collaboration actually means, there is also a misunderstanding of what it entails, resulting in a high rate of failure. Section 4.4 presents a discussion on when 'not' to collaborate. The information in these first three sections provides a rationale for the approach taken to my review of the literature, working around what I perceive as research deficiencies.

Section 4.5 presents a discussion on the theoretical enablers and barriers to collaboration, with a focus on finding insights to improve practice. The previous chapter highlighted the need for new and different ways of thinking and working in order to respond to complexity. This section discusses the new and different ways of working and thinking that are required for inter-organisational collaborations, compared to those practices that are effective for working within an organisation. Not only does this approach ensure the literature review captures insights into improvements to practice, using the same approach

adopted for addressing complex problems, it also provides a clear pathway for the juxtaposition of the two areas of research.

The final section provides a chapter summary, including four key reasons for refuting the assumption/ expectation that increased collaboration might resolve complex problems. It also summarises the ways of working necessary for inter-organisational collaborations, and outlines gaps and weaknesses in the research, particularly priorities necessary to bridge the theory-practice gap.

4.2   CHARACTERISTICS OF THE LITERATURE ON COLLABORATION

To begin, an overview of the status of collaboration research is provided. This is necessary to justify this study's approach to the review of the literature in this field.

The need for research in the practice of collaboration was first identified 40 years ago by Aldrich and Herker (1977), but his need has not been addressed (Williams 2012). Rather, there is a disconnect between collaborative theory and practice (Bushouse et al. 2011; Williams 2012). There is a general lack of aggregation of collaborative knowledge, what is produced is not widely read by practitioners, and research is not significantly influencing collaborative practice (O'Leary & Vij 2012). Rather, practice is largely driven by practitioners and individuals (Emerson & Nabatchi 2015; Innes & Booher 2010).

The literature on collaboration is described as untidy (Ansell & Gash 2008), unwieldy, confusing, disjointed (O'Leary & Bingham 2009), piece-meal, fragmented (O'Leary & Vij 2012), and it lacks coherence across disciplines (Morris & Miller-Stevens 2016; Thomson, Perry & Miller 2007). Although a considerable investment has been made by academics and policy makers to understand how and why collaboration works, this has generated a largely diverse literature that is characterised by what Oliver and Ebers (1998) call a "cacophony of heterogeneous concepts, theory, and research results" (p.549). This problem stems in part from the multidisciplinary attention that this field of study has attracted at a macro level, particularly by economists, sociologists and political scientists (Grandori 1997).

Research attention has been paid to certain aspects of collaboration. For example, there is a vast and growing body of literature that considers collaboration in the context of high

order policy. Some examples include Bore and Wright (2009), Head and Alford (2015), Innes and Booher (2010) and Williams (2012). Scholars have examined 'collaborative effectiveness', but little is known regarding practices that have successful outcomes (Marek, Brock & Savla 2015).

Morris and Miller-Stevens (2016) highlight that the study of collaboration "is a relatively young enterprise" (p. 6) and it is field of study in constant and rapid development, where "some questions about collaboration have been settled, but many more are left unanswered, and even unasked" (p. 4).

The development of collaboration theory is often thematic, with scholars focusing on particular aspects of collaboration, such as leadership and trust, rather than viewing collaboration as a total system (Williams 2016). Furthermore, this study has noticed a tendency for research to focus on particular areas, but ignore others. For example, according to Hocevar, Jansen and Thomas (2011), the 'need' to collaborate is prevalent in the research, whereas the 'how' of collaboration is not. Meanwhile, O'Leary and Vij (2012) assert that the role of 'organisations' in collaboration is prevalent in the research, whereas the role of 'the individual' is not.

According to Mayer and Kenter (2016), the multidisciplinary and fragmented nature of the literature makes it difficult to make comparisons across disciplines, and contributes to an abundance of disagreements all of which "add to the confusion and ambiguity shrouding the field" (p. 43). On the other hand, they point out that this multidisciplinary approach adds to the richness and variety of approaches to the literature.

Williams (2016) makes an important point that "there is neither a unified or distinct theory of collaboration, but rather a complex set of entangled threads of theory linking back to precursor theory" (p. 14) such as conflict resolution and management.

As mentioned in Chapter 2, I determined there was no way to overcome the various deficiencies in the literature, rather they needed to be worked around. In order to do so, a two-phase approach to the review of the collaborative literature has been adopted. Phase one involved a process of determining the 'key' enablers and barriers for effective collaboration. My selection of 'key' items was mainly based on recurring topics across the literature, and these were relatively easy to identify. Phase two used the key enablers identified in phase one to guide the selection criteria for resources reviewed in this second

phase. This phase refined the list of key items, by way of grouping some of the enablers and barriers identified. For example, governance and decision-making became one item. This phase also found some key items that had been hidden in the first phase. For example, evaluation emerged as a key item, but this was not initially identified. Rather adopting the advice of Mills (1959/200), and knowing that there are gaps in this body of the literature, I trusted my professional experience and added 'evaluation' as a key enabler and barrier.

4.3   DEFINING COLLABORATION

One seemingly simple yet powerfully important challenge for practitioners and researchers alike, then, is to define what they mean by collaboration and to make sure that there is a shared definition (O'Leary & Vij 2012, p.509).

This study has noted that a particular barrier to collaboration is the confusion amongst the research as to the actual meaning of 'collaboration' (Margerum 2011; O'Leary & Vij 2012; Williams 2012). One of the challenges for effective collaboration, comes from misunderstandings about its meaning (Linden 2002, p.6).

According to Huxham (1996), there are two core reasons for this misunderstanding. Firstly, there are a number of terms used to describe inter-organisational ways of working together, and secondly, and there are multiple interpretations of what collaboration actually means.

This section expands on both of these reasons, and makes the point that the confusion with the meaning of collaboration has serious implications for practice, and is one contributing reason why increased collaboration will not address complex problems.

To begin, this section discusses what collaboration is not. Collaboration is not a network, cooperative, coalition or partnership. These are all less advanced ways of working together, which do not capture the distinctive characteristics of collaboration, including the dynamic evolutionary character of collaboration (Innes & Booher 2010; Keast 2016). This is explained by Himmelman (1996, 2002), who asserts that collaboration is a particular strategy for working together, and distinguishes collaboration in relationship to three other

strategies, networking, coordinating and cooperating, that build upon each other along a developmental continuum as depicted in Figure 3.

Figure 3: Himmelman's collaboration continuum

networking	coordinating	cooperating	collaborating

Keast (2016) adds to Himmelman's distinction by maintaining that coordination and cooperation are focused on doing the same things but more efficiently, whereas collaboration is about doing something new or different.

Huxham (1996) refers to the notion of 'collaborative naivety', which he attributes to the confusion in the meaning and understanding of collaborative work, and the frequent failure of collaborations. This may be due to the term 'collaboration' often being confused with other terms used to describe forms of inter-organisational relationships, and that the terms are often used interchangeably but mean different things to different people (Arganoff & McGuire 2003; Himmelman 2002; Williams 2012). Given this confusion, it is conceivable this generates a lack of understanding amongst practitioners that collaboration is difficult and sophisticated work, and many do not understand the considerable effort and time needed to achieve effective outcomes.

Having explained what collaboration is not, this section now considers what it is. Although 'collaboration' is a commonly used term, there is no agreed definition amongst scholars (O'Leary & Vij 2012). In fact, it is stated that the term collaboration has become "hopelessly ambigious" (Donahue 2010, S151).

The following selection of definitions are only a sample of the many offered in the literature over time.

> Collaboration is … a process through which parties who see different aspects of a problem can constructively explore their differences and search for solutions that go beyond their own limited vision of what is possible" (Gray 1989, p.5).

A voluntary, strategic alliance of public, private, and nonprofit organizations to enhance each other's capacity to achieve a common purpose by sharing risks, responsibilities, resources and rewards (Himmelman 1995, p.28).

The following three two definitions highlight that collaborations are vehicles for working across organisations.

Any joint activity by two or more agencies that is intended to increase public value by their working together rather than separately (Bardach 1998, p.8).

The process of facilitating and operating in multiorganizational arrangements to solve problems that cannot be solved or easily solved by single organizations (Agranoff & McGuire 2003, p.4).

Collaborative public management is a concept that describes the process of facilitating and operating in multi-organizational arrangements to solve problems that cannot be solved or easily solved by single organizations. Collaborative means to co-labor, to achieve common goals, often working across boundaries and in multi-sector and multi-actor relationships. Collaboration is based on the value of reciprocity and can include the public (O'Leary & Vij 2012, p.508).

Other definitions highlight the importance of 'negotiation' in collaboration.

Collaboration is a process in which autonomous or semi-autonomous actors interact through formal and informal negotiation, jointly creating rules and structures governing their relationships and ways to act or decide on the issues that brought them together; it is a process involving shared norms and mutually beneficial interactions (Thomson, Perry & Miller 2007, p.25).

More or less stable configuration of rules, resources and relationships generated, negotiated, and reproduced by diverse yet interdependent actors that enable them to act together in the pursuit of public purpose (Sullivan 2010, p.3).

The final three two definitions make reference to collaboration being necessary to address complex social problems.

An approach to solving complex problems in which a diverse group of autonomous stakeholders deliberates to build consensus and develop networks for translating consensus to results (Margerum 2011, p.6).

An intentional, collective approach to address public problems or issues through building and sharing knowledge, designing innovative solutions, and forging consequential change (Norris-Tirrell & Clay 2010, p.2).

The process and structures of public policy decision-making and management that engage people across the boundaries of public agencies, levels of government, and/or the public, private, and civic spheres to carry out a public purpose that could be otherwise accomplished (Emerson & Nabatchi 2015, p.18).

Upon reflecting on these definitions, both individually and collectively, three themes emerge. One is that collaboration is an approach to addressing complex problems where there is uncertainty which cannot be 'solved' by individuals. Two is that it involves a form of organisation that crosses agency boundaries and which draws on their differences constructively to find resolutions. And the third is that it involves a process.

An issue noted by this study, relates to the inter-agency element of collaboration. This chapter demonstrates that there is a distinct difference between what is needed in practice to work on inter-organisational relationships, compared to what is needed within an organisation. Despite this distinction, this study observed a number of instances where scholars use the term 'collaboration', when in fact they are considering less advanced ways of working. Examples include the prevalence of the use of the term collaboration by some management scholars in their studies of team building within organisations. Another is the use of the term collaboration, rather than team work, in studies focusing on improvements in patient care.

Although it may appear a trivial matter, whether or not both academics and practitioners arrive at an agreed definition of 'collaboration', it has been suggested that agreement on the word 'collaboration' is needed to advance the study and practice of collaboration (O'Leary & Vij 2012). Lack of consensus on the definition, "makes it difficult to compare findings across studies and to know whether what is measured is really collaboration" (Thomson, Perry & Miller 2007, p.2). Added to this, for practitioners "different accountability standards across organizations often have the ironic effect of straining already tenuous collaborative efforts" (Thomson, Perry & Miller 2007, p.2).

4.4   WHEN NOT TO COLLABORATE

Collaboration is not easy work (Wanna 2008), with research suggesting that more than 50 per cent of collaborations fail to achieve their purpose (Keast 2016). Donahue (2010) writes of this record of failure:

> Some regrettable examples of collaboration are attributable to the misguided application of the collaborative approach, some to ham-handed implementation, and some to a combination of mis-guidance and malfeasance (pp.151–152).

Therefore, practitioners need to consider selecting collaboration as an approach to addressing complex social problems with caution. Huxham and Vangen (2005) warn against it as it is resource-consuming: "Our message to practitioners and policy makers alike is don't do it unless you have to" (p.13).

While the case for collaboration is strong, so, too, is the case for not collaborating (Thomson & Perry 2005, Williams 2012). There are many situations when collaboration may not be the best approach (O'Leary & Gerard 2012). Collaboration is not needed when cause and effect relationships are well understood, where there is already agreement about the way forward, and where there is relative certainty about how actions will unfold, in other words, when a problem is simple or complicated (Innes & Booher 2010).

Before commencing a collaborative process, there needs to be an undisputable case that a collaborative effort is the most appropriate methodology for addressing the issue at hand (Williams 2012). Potential collaborative partners also need to be clear about what collaboration actually means, and what it involves. This is because, as previously mentioned, collaboration is often confused with other forms of inter-organisational relationships, and there is evidence that many forms of collaboration encounter difficulties that stem from different interpretations of the nature and purpose of collaboration (Williams 2012). Donahue (2010), in particular, identifies regrettable and ham-handed examples of collaboration due to "the misguided application of the collaborative approach" (p.152).

According to the germinal work of Barbara Gray (1989), obstacles to collaboration are related to 'embedded management practice', which she proposes may generate resistance. In the previous chapter, the concept of 'entrained thinking' was introduced. This study considers that these two notions coming from different disciplines, embedded

practice from the collaboration discipline, and entrained thinking from the complex problem discipline, are essentially the same thing.

O'Leary and Gerard (2012) surveyed 305 members of the United States of America's federal Senior Executive Service, with the aim of learning about their collaboration experiences. Their investigation observed that not all problems have significant levels of complexity or a need for innovative, or cross-organisational thinking. Their research identified four situations in which is it best not to collaborate.

The first is when there are not common goals or benefits. If the goals of the collaborating parties are not aligned or if the measures of success are not explicit, this will undermine the foundation for success in collaboration, which is common purpose, common mission, or common desired product. The second is when support structures are weak. The third is when there are people problems that cannot be overcome. And the fourth is when there are process problems. Effective collaborative processes require face-to-face meetings in order to establish trust, understand personal styles, and to deal inevitable conflicts that arise in collaborative work. Effective collaboration requires confidentiality, and the freedom to speak and disagree.

This section concludes with the concept of 'unauthentic collaboration', a term coined by Innes and Booher (2010). They describe this as a process that co-opts, manipulates, does not reflect a genuine agreement, produces little or nothing, is a waste of time and money, and which may be a window dressing for decisions already made.

4.5   COLLABORATION: ENABLERS AND BLOCKERS

Lots of people are blocked from creative collaborations because of their desire to have things "their way" or because of their need for constant recognition and attention. Others are blocked from effective collaborations because they haven't learned basic social skills: listening, supporting, validating, confirming, and taking time to be present. They didn't learn the lessons of kindergarten—how to play well with others. They are bossy, demanding, self-centered, critical, sarcastic, and unkind. They are not good team players. There are many other blocks that interfere with effective collaboration: fear of change, vested interest in the status quo, fear of

loss of self in a group, inability to be a part of a community, lack of vision, and

intolerance (McDermott & Hall 2016, p.10).

4.5.1 INTRODUCTION

Collaboration does not emerge spontaneously (Curseu & Schruijer 2017). It is a complex, dynamic process (Wanna 2008; Zakocs & Edwards 2006;), calling for "analytical and managerial skills of the highest order" (Donahue 2010, p.S152). Added to this, wicked problems test the process of collaboration, even though they are the very reason for the need for alternatives "to traditional forms of top-down managerial or bureaucratic decision making" (Grady & Purdy 2017, p.37).

It can be concluded therefore, that practitioners who understand the variable dimensions of collaboration, the 'enablers' of collaboration, are better prepared to actively engage in collaboration activities (Thomson & Perry 2006). In this regard, practitioners need to understand that many of the enablers of effective collaboration tend to naturally work against it (Huxham 1996).

Herein lies a problem identified by this study. An empirical examination of articles published from 1980 to 2004, undertaken by Zakocs and Edwards (2006), focused on two indictors of collaboration effectiveness. These were 'collaboration functioning', including collaboration enablers, and 'collaboration effectiveness', meaning the extent of communitywide changes. They found that of the articles examined, "none of these studies investigated which aspects of collaboration building explained negative, modest, or strong findings" (p.352). They concluded that missing are evidenced-based enablers of collaboration that are indicators of collaboration effectiveness.

For this reason, the intent of review of the literature for this study was to identify and find insights on the enablers and barriers of collaboration. A key enabler is adopting ways of working and thinking that are required for working across organisations, which is "neither easy or straightforward' (Gray & Purdy 2018, p.113). Conversely, a key barrier is adopting familiar practices that are effective within an organisation.

This section assembles the key enablers of collaborative practice. These include leadership, governance and decision-making, resourcing and time, the human element, evaluation and the collaborative process. Some of these can be outlined in a few

paragraphs, whereas others require greater detail. As there is no consensus in the literature regarding the key drivers, selection was based on my interpretation of the data based on my own perceptions.

4.5.2 LEADERSHIP

Leadership is consistently contended as an essential component for collaborative practice (Bardach 1998; Huxham & Vangen 2008; Innes & Booher 2010; McDermott & Hall 2016; Williams 2012). In fact, research undertaken by O'Leary and Gerard (2012), found that leadership emerged as the most important condition for effective collaboration.

A new type of leadership, but what does it look like?

The literature refers to need for a 'different' and 'special' kind of leadership, which does not adopt traditional command and control ways applied within an organisation (Crosby, t'Hart & Tofing 2016; O'Leary & Vij 2012; Williams 2012). According to Davis and Eisenhardt (2011) 'dominating' and 'consensus' leadership are associated with less innovation.

Rather, collaborative leaders need to adopt approaches that are effective for innovating getting results across organisational boundaries (Archer & Cameron 2013). Innes and Booher (2010) differentiate generative leadership from traditional governance:

> In traditional governance directive leadership may be called for, where the leader has a vision of what needs to be accomplished and marshals his or her team to this end. Collaborative governance instead implies generative leadership. In this approach leaders create conditions to bring teams together and help them build their collective capacity to learn about the problem they face and to create solutions (p.201).

Collaborative leadership requires an expanded set of skills (compared to the skill set required within an organisation). The collaborative leadership role involves bringing together and mobilising stakeholders, facilitating commitment, and new ways of behaving that lead to building a new whole (Keast & Mandell 2014). Innes and Booher (2010), once again, are instructive here:

The leadership that we find in successful collaborative processes…involves getting something started and then encouraging, rather than controlling, building capacity among others, and initiating networks. Most of the leaders in the successful processes we are aware of where instigators and inspirers, rather than people looking for followers. As the process moved forward they stepped back, allowing other leaders to emerge and the process to take its course (p.92).

Collaboration involves bringing together a group of individuals with a diverse range of interests, values, beliefs, motivation and commitment, generating circumstances where conflict may arise (Curseu & Schruijer 2017). In order to deal with conflict, strong and effective leadership is necessary, requiring exceptional interpersonal skills capable of building and sustaining relationship between diverse stakeholders (NLIAH 2009). Collaborative leadership requires enabling a diversity of stakeholders to work together in ways that bring out the best of everyone, and at the same time confronting individuals on unhelpful behaviours (McDermott & Hall 2016). Collaborative work is highly challenging, posing significant demands on leaders, and requiring leadership that embraces, empowers, involves and mobilises stakeholders, in order to bring people from different organisations together to engage horizontally (Huxham & Vangen 2008; O'Leary & Vij 2012).

While the literature is clear on the importance of leadership, and that a 'different' type of leadership is required (compared to working within an organisation), there are inconsistencies as to the actual type of leadership required. For example, Ansell and Gash (2008), refer to the need for 'facilitative leadership' to take on the role of an honest broker, for setting and maintaining clear ground rules, building trust, facilitating dialogue, exploring mutual gains, and empowering and representing weaker stakeholders. Another is 'committed leadership', requiring a demonstrated high degree of involvement and passion, and modelling behavior which demonstrates the significance of the work of the collaborative effort (Leavitt & McKeown 2013). A final example is 'process leadership', which includes "a host of activities related to ensuring that the interactions among team members are constructive and productive" (Gray & Purdy 2018, p. 155). To conclude this section, Williams (2012) offers a broad and fair purview:

The leadership literature plays out as very confusing, with a galaxy of seemingly plausible approaches on offer – 'great man' theories based on individual traits,

contingency models that reflect responses to different situations, transformational approaches that stress 'managing meaning', dispersed and shared models that are intent on turning followers into leaders and collaborative models that reject hierarchical approaches premised on sovereign sources of power in favour of models that are more facilitate and inclusive in tone, and equally applicable to both intra and interorganisational settings (pp.113-114).

Distributed model of leadership

While Gray (2008) points out the need for further research in this area, she introduces the notion of 'transdisciplinary leadership', suggesting that collaborative endeavors striving for innovation, requires multiple leaders with different styles and who share key tasks. Leadership handled in a distributed fashion ensures that overall, the collaboration has the requisite leadership skills required (Gray & Purdy 2018).

The concept of 'shared leadership', also referred to in the literature as 'collective leadership', 'distributed leadership', 'integrative leadership', and 'rotating leadership', involves an arrangement where members of a group "collectively share duties and responsibilities otherwise relegated to a single, central leader" (Kocolowski 2010, p.24). Leadership handled in a distributed fashion ensures that overall, the collaboration has the requisite leadership skills required (Gray & Purdy 2018).

In this regard, Krogh and Torfing (2015) refer to the notion of 'collaboration innovation leadership', which has three distinct roles necessary to engage stakeholders in constructive collaboration that will result in innovation. They label these roles as 'the convener', 'the facilitator', and 'the catalyst'. "The primary task of the convener is to initiate collaboration and set up the collaborative arena" (Krogh & Torfing 2015, p.95). When agreement is reached to collaborate, the facilitation role is enacted, which entails supporting and enhancing the collaboration. Recognising that stakeholders have different interests and perspectives, the primary task of the facilitator is to support the parties to work together. This must recognise the important role that conflict has as an important source of innovation, and it must ensure that conflicts are productive rather than destructive. The catalyst role comes into play, once the collaboration is established and trust built. "The task of the catalyst is to inspire participants to think outside the box by

challenging any basic assumptions, perceptions and understandings that restrict the way in which the problem is perceived" (Krogh & Torfing 2015, p.96). Krogh and Torfing (2015) maintain that since collaborative innovation involves a dynamic, interactive process, the three types of innovation leadership may be applied simultaneously and in varying sequences, and they may be performed by one or more individuals.

A recent study on inter-organisational teams conducted by Hu, Chen, Gu, Huang and Liu (2017), examined the relationship between shared leadership, conflicts, and creativity. It found that relationship conflict has a negative impact on team creativity, whereas task conflict has a positive impact on team creativity. Of note, is that this research found that shared leadership moderates the negative linear relationship between relationship conflict and team creativity, and the positive curvilinear relationship between task conflict and team creativity.

4.5.3 GOVERNANCE AND DECISION-MAKING

The term 'governance' takes on a different meaning in collaborative practice compared to governance within an organisation, sometimes referred to as 'traditional governance'. Traditional governance is characterised by a top down hierarchy, under central control (Innes & Booher 2010). However, overly formal governance structures are unsuitable for collaborations seeking to resolve complex problems, as they are inflexible, slow to respond and often result in missing opportunities (Archer & Cameron 2012). Collaborations that adopt formal governance structures, are likely to result in a diversion of time and effort in the formulation and policing of terms of reference, rules and regulations (Williams 2012).

Collaborative governance requires a structure enabling interdependent organisations to have distributed control and equal power in decision-making, and at the same time to ensure the survival of the collaboration (Emerson, Nabatchi & Balogh 2011). In this regard, Austin and Seitanidi (2014) suggest collaborative alliances require 'thoughtful' governance.

Collaborative governance is about the ways in which the overarching purpose of the collaborative effort is agreed, objectives set, accountabilities defined and how decisions are made (Archer & Cameron 2013). This may involve many different forms and arrangements, depending on the extent of formality or informality intended, but must include transparent decision-making arrangements (NLIAH 2009).

Some scholars refer to the 'type of environment' required for collaborative governance and decision-making. Benson and Dresdow (2003) suggest that the decision-making process is a journey of discovery, prone to mistakes and traps, aiming to resolve a complex problem in an environment involving creativity, inquiry, discernment, and freedom to learn from emergent activity. Bommert (2010) proposes that effective collaboration is likely to strengthen an innovation cycle, leading to an "increase in the quantity and quality of innovation to respond to unmet persistent and emergent challenges" (Bommert 2010, p.23). This requires fostering an environment for openness in sharing information; respect for others' opinions; potentially lengthy negotiations to reach agreement; participative decision-making; experimentation; risk taking and shared power arrangements (Austin & Seitanidi 2014; Bommert 2010; Thomson & Perry 2006).

Some scholars also highlight the need for collaborative governance and decision making to put processes in place to ensure no interest is left out including minority opinions (Innes & Booher (2010). Curseu and Schruijer (2017) assert that decision quality is compromised if the decision-making process does not acknowledge and work with stakeholder diversity:

> Decision comprehensiveness reflects the richness of the knowledge pool scrutinized and integrated during the decision-making process and it is a key antecedent of decision quality (p.114).

Establishing agreed rules is a common concept across the literature. These rules need to govern acceptable and unacceptable behaviour of the members of the group (Ansell & Gash 2008; Thomson & Perry 2006; Williams 2012), and how to ensure consensus (Curseu & Schruijer 2017). They need to be designed to set the tone of meetings and signal how collaborative proceedings differ from traditional processes (O'Leary & Vij 2012). And to hold individuals accountable for their responsibilities (Leavitt & McKeown 2013). Agreed rules need to specify processes for dealing with conflict (Austin & Seitanidi 2014; McDermott & Hall 2016), and decision-making (Austin & Seitanidi 2014).

Collaborative governance needs to ensure that each partner's role and responsibility is clear, and "for those roles and responsibilities that are joint, it is important to set ground rules about how the coordinated efforts will be carried out" (Austin & Seitanidi 2014, p 214). Of note is that roles and responsibilities are not static, rather they change with the

journey of the collaboration. Austin and Seitanidi (2014) emphasise the emergent yet intentional nature of process while stressing that roles and responsibilities:

> require iterative recalibration as the relationship progresses and as internal and external situations change. These adjustments become more significant contributors to the co-creation of value as they progress from reactive to proactive to adaptive to transformative (p.212).

Thomson et al. (2007) also concur that governance in collaboration involves a process that is not static, maintaining there is no one universal approach. Rather collaborative governance arrangements should reflect their operating context (Archer & Cameron 2013; Keast and Mandell 2014), requiring continued monitoring and flexibility to ensure resilience (Gray & Purdy 2018). In this regard, Innes and Booher (2010) refer to the notions of 'adaptive governance', which they contend is necessary in the face of uncertainty, and 'governance for resilience', which they contend is necessary to discover emergent practice.

This study has found that the theory in this area is clear on the need for different approaches to governance and decision-making for collaborations that cross-organisational boundaries. However, limited attention has been paid to the dynamic collaboration governance process.

This section concludes with a final point. According to Williams (2012), collaborative governance needs to put strategies in place to enable innovation to flourish, rather than getting bogged down in governance and rules. This flies in the face of the evidence assembled in this section, which calls for rules about distributed power, structure, accountability, acceptable behavior and dealing with conflict.

4.5.4 RESOURCING AND TIME

In many cases, people employed by an organisation are relatively clear on their roles, responsibilities, hours of work, and remuneration. If circumstances change, processes and policies are often in place to respond. This is not the case with most collaborations, which may operate only on a broad Memorandum of Understanding.

Collaboration requires adequate resourcing to accomplish the operational work needed (Gray 1989). Archer and Cameron (2013) describe operations as the process by which work is done, resources allocated, progress measured and communicated, and information and learning is shared. The importance of adequate resourcing has been highlighted by the study undertaken by O'Leary and Gerard (2012), which found that lack of resources, including the necessary time, resources and support needed for successful implementation, to be the second most significant challenge to collaboration, with difficult relationships being the top challenge.

Resourcing a collaborative process involves dedicated staffing to support, coordinate and service the collaborative work. As opposed to relying on the goodwill of collaborative partners, by attempting to fit collaboration within their existing workloads (Innes & Booher 2010; NLIAH 2009). Here, the notion of 'collaboration management', involving dedicated, paid managers to drive the work, is relevant (Keast & Mandell 2014).

Collaboration is inherently time-consuming work (Huxham 1996; Wanna 2008) and stakeholders must have the energy to engage in the time intensive collaborative process (Ansell & Gash 2008; Thomson & Perry 2006). Despite this knowledge, the time required for collaborative practice is often not prioritised high enough. This leads to progress that appears to be slow, resulting in frustration from those involved (Bardach 1998). The lengthy time frame required for collaboration is partly due to the commitment needed to build trusting relationships. According to Keast (2016), up to three years is required, just to build relationships of sufficient strength for a collaboration to be successful and sustained.

Hocevar, Jansen and Thomas (2011), remind us that a potential challenge for collaborations, is that many organisations are resource-constrained, which may result in a diminishing of the ongoing commitment of an organisation. Added to this, the time and energy given by a person to a collaborative effort, is time and energy that is not given to that person's organisation (Frederickson 2014).

This study found limited attention in the literature paid to this topic.

4.5.5 THE HUMAN ELEMENT

There is a realization that a specific collaboration is only as good as the people at the table – or on the ground – who have vision and drive, and consciously use their collaborative competencies to make it work. The future of the field will depend on the ability of stakeholders to accept the need for superior individual skills and superior collaborative efforts to address society's most pressing problems (O'Leary 2015, p.96).

The individual and diversity

Despite the importance of the necessary talent of collaborative individuals, the role of the individual has largely been overlooked in the literature (O'Leary 2015).

According to research undertaken by O'Leary, Choi and Gerard (2012), the most important individual competencies required are good communication and listening skills, and the ability to work well with others. Added to this, collaborative efforts need to ensure they identify and involve people with appropriate technical experience (Leavitt & McKeown 2013), and the capacity to make and influence decisions (Gray 1989; Leavitt & McKeown 2013). Collaborations require a person or people, capable of empowering previously invisible players, that is those with unique local knowledge and a grass roots understanding of the problem, often giving them a place at the table for the first time (Innes & Booher 2010). However, as Gray and Purdy point out (2018), local knowledge is often misunderstood, and, or, underestimated, which diverts attention to areas most needed. Leavitt and McKeown (2013), highlight the need for involvement from those with reputational substance, which they maintain is reputation earned from their accomplishments and ideas.

The converse to the individual enablers, are negative individual characteristics. These were defined by Huxham and Vangen (2005):

Negative individual characteristics, including incompetence, inflexibility, lack of expertise, ego, lack of motivation, and even dishonesty, are significant challenges to collaboration (pp.22-23).

An effective collaboration is deeply dependent upon the collective skills, and knowledge of its members (Frederickson 2014). For example, Curseu and Schruijer (2017) suggest that for complex problems in the domain of natural resources and environmental sustainability, stakeholders from social, economic and environmental domains are required. More broadly, Booher (2010) writes:

> Theory tells us that challenging knowledge and the status quo is critical to achieving collaborative rationality. Only by uncovering what is hidden under socially constructed understandings can there be any hope of seeing past the disempowering language and expectations of society and getting out of impasses. Diverse stakeholders assure that the difficult questions get addressed (p.93).

People at a collaboration table bring a range of differences, opinions, viewpoints, experiences, values, levels of power, and levels of trust. These differences can be source of immense creative potential, as Gray and Purdy (2018) noted:

> The objective of collaboration is to create a richer more comprehensive appreciation of the issue/problem than any of them could construct along by viewing it from the perspectives of all stakeholders (p.2).

According to Curseu and Schruijer (2017), it is the diversity of perspectives that results in a 'richness of the knowledge pool', which leads to increased 'decision comprehensiveness', and in turn to increased 'decision quality'. Here, the need is to utilise the extent of the diversity meaningfully, and by doing so, build stakeholder commitment, and improve problem-solving and innovation (Bartz & Rice 2017).

While individual differences are fundamental to collaborative efforts (Huxham & Vangen 2005), they also present significant challenges in terms of managing difficult relationships (Sullivan 2010). This includes power struggles, conflict, turf wars, agency agendas and having the wrong people at the table (McDermott & Hall 2016; O'Leary & Gerard 2012).

Collaboration is ambitious work, as it involves an emergent transformation. Members are likely to face challenges as they attempt to share resources, risks, responsibilities, rewards, and resolve differences in viewpoints, values, and trust (Himmelman 2002; O'Leary & Gerard 2012). In this regard, it is suggested there is a need to have someone to shepherd the parties through the collaborative process:

For collaboration to occur, someone must introduce a mindset, a vision, a belief in the creative potential of managing differences, and must couple this mind set with a constructive process for designing creative solutions to complex multiparty problems (Gray 1989, p.25).

To overcome the human challenges of collaboration, it is suggested that 'principled engagement', a concept described best by Emmerson, Nabatchi and Balogh (2011), is required.

Principled engagement involves … fair and civil discourse, open and inclusive communications, balanced by representation of "all relevant and significant different interests", and informed by the perspectives and knowledge of all participants (p.11).

An effectively-managed, collaborative process harnesses and draws on the collective gathering of a diversity of experience, perspectives and interests. This in turn, allows the development of more thoughtful decisions and options, likely to produce innovative solutions. Here, there is general agreement that getting the 'right' people, as opposed to the 'wrong' people, is important (Emerson, Nabatchi & Balogh 2011; Gray 1989; Leavitt & McKeown 2013). The wrong people are those with tunnel vision, and with pre-determined solutions, and who cannot shift to big picture thinking (O'Leary and Gerard (2012), as well as those with ulterior motives. Further, "others may collaborate in order to be free riders and obtain benefits without commensurate effort" (O'Leary 2015, p.91).

Some collaborative efforts have the potential to involve a large number of people, which may be an impractical and unmanageable situation. This study sought to locate research on this, but found only one reference (Leavitt & McKeown 2013). They affirm the need to keep the size of the group manageable, and offering an alternative scenario, involving technical work groups that report back to the core collaborative group.

This study noted a number of contributions in the research on the need for a diversity of stakeholders, with a range of competencies, opinions, viewpoints, experiences, values, levels of power, and levels of trust (Frederickson 2014; Innes & Booher 2010; Leavitt & McKeown 2013; O'Leary & Gerard 2012). Limited attention, however, appears to have been paid to the configurations of these differences.

This study has also noted contributions in the research confirming the need to effectively harness the potential of the differences of diverse stakeholders, including empowering those with unique local knowledge and a grass-roots understanding of the problem (Emmerson, Nabatchi & Balogh 2011; Gray 1989; Himmelman 2002; Innes & Booher 2010; O'Leary & Gerard 2012). By doing so, a doorway for more thoughtful decisions and options is opened, likely to produce innovative solutions and creative potential. Limited attention however appears to have been paid to the practice of effectively harnessing differences.

Mindset

The mindset needed for cross sector collaborations is different to that required within an organisation. However, this study found very little attention paid to this. Moreover, similar to the literature on collaborative leadership, there are inconsistencies as to the actual type of mindset required.

Benson and Dresdow (2003) refer to a 'discovery' mindset, where the decision-making process seeks creativity, discernment and emergent activity. Lahiri, Perez-Nordtvedlt and Renn (2008) refer to an 'innovation' mindset, "meaning a mental framework that fosters development and implementation of new ideas, transforms rapid technological change threats into opportunities by valuing constant generation of new ideas and business models, realising sources of new ideas, and stressing next practices rather than best practices" (p.311). They also refer to a 'collaboration' mindset, "meaning a willingness to engage in business partnerships, converts all three challenges into opportunities by allowing firms to form successful partnerships that can lead to synergy by combining business complementarities" (p.311). There is also a 'collaborative value' mindset, which:

> is not fixated on extraction but rather on how to add value to the partnership. Generating value for your partner will trigger reciprocity and create a continuous virtuous circle of value creation (Austin & Seiranidi 2014, p.202).

There is, moreover, an 'outward mindset', where the focus is on being inclusive of others. Here, Bartz and Rice (2017) suggest, leaders facilitate stakeholders to avoid focusing on their vested interests, "but rather to work for the common good of the group, be productive, and achieve the group's goals" (p.4).

Conflict

Conflict is inevitable in collaboration (Curseu & Schruijer 2014; Krogh & Torfing 2015; Lohr et al. 2017; McDermott & Hall 2016). Johnson, Hourizi, Carrigan and Forbes (2010) maintain that "collaboration and conflict are inseparable, so it is impossible to design collaborations to be free of conflict" (p.624).

This is because collaborations seek to resolve problems that are intractable, complex and uncertain, that will inevitably lead to circumstances where stakeholders will have polarised positions, resulting in an escalation of conflict (Gray 1989). Added to this, a collaboration seeks to achieve significant change. O'Leary and Gerard (2012) note that change is the circumstance most likely to engender conflict. They see successful collaboration as needing individuals to change in how they engage with others, and offer a pertinent warning:

> Expect people to be uncomfortable, and expect that discomfort to be expressed as conflict. The key is to acknowledge and manage the conflict so that it becomes a productive and energizing learning mechanism for the group. This takes time, patience, interaction, skills facilitation, and openness (p.32).

While conflict itself may allude to a perception of something that is negative, with regard to collaboration, this is not the case. Rather, disagreements represent potential opportunities for collaborative learning and advancement (O'Leary & Gerard 2012).

In collaboration, there are basically two categories of conflict. One is 'productive', and the other is 'destructive' or 'unproductive' (Krogh & Torfing 2015). Here, the notions of 'realistic', and 'nonrealistic' conflicts described by Folger, Poole and Stutman (2017) are relevant:

> Realistic conflicts are based on disagreements over the means to an end or over the ends themselves. In realistic conflicts, the interaction focuses on the substantive issues the participants must address to resolve their underlying incompatibilities. Nonrealistic conflicts are expressions of aggression in which the sole end is to defeat or hurt the other. Participants in nonrealistic conflicts serve their own interests by undercutting those of the other party involved (p.45).

Productive conflict interaction is normal and healthy, aiming for decisions that are satisfactory to all, and for generating new and creative ideas which can initiate social change to eliminate inequities and injustice. This contrasts with 'detrimental conflict', involving criticism, arguments and even heated exchanges, resulting in tension, and, ultimately, more conflict (Folger, Poole & Stutman 2017).

Difficult relationships are often a source of unproductive conflict, with the study undertaken by O'Leary and Gerard (2012), finding difficult relationships to be the most significant challenge for collaborations. Unproductive conflict can be attributed to the historical relationships of stakeholders. Long-standing adversarial interactions between parties can create low levels of commitment, suspicion, manipulation and distrust, the combination of which can destroy a collaboration (Ansell & Gash 2008; Purdy & Gray 2018). Other sources of destructive conflict include stakeholders having different professional approaches, and disruptive battles for credit of new ideas (Krogh & Torfing 2015). Wanna (2008) refers to a 'combatant person', only going to meetings to defend their turf and to prevent decisions being taken contrary to their interests. This person considers a successful meeting being one where no decisions are made or potential actions averted. In contrast, Thomson and Perry (2006) maintain that the individual members of a collaboration share a dual identify, meaning they bring their own self-interest, including their organisation's agenda, but are asked to put this aside to work toward the collective-interest of the collaboration. Unproductive conflict is likely if a stakeholder is unable to put their self-interest and organisation's agenda aside. Another source of unproductive conflict is attributed to 'collaborative thuggery', a concept described by Huxham and Vangen (2005):

> the same people are also engaged in activities that, on the face of it, are much less collaborative. Many of them are adept at manipulating agendas and playing the politics. We have characterized these kinds of activities as being towards collaborative thuggery (p.78).

Conflict that is managed constructively can generate robust debate, resulting in creative and resilient resolutions to problems, forcing actors to sharpen their ideas and arguments, and revising their proposed views (Archer & Cameron 2013; Krogh & Torfing 2015). According to Keast (2016), resolving conflict requires bringing together the parties in

conflict to explore their differences, identify shared interests, clarify points of departure, and to arrive at agreement.

Conflict that is avoided, or not managed effectively, can be counter-productive (Austin & Seitanidi 2014; Folger, Poole & Stutman 2017), and it is likely that unresolved conflict will persist or reoccur (Gray & Ren 2014).

In this regard, it is important to note that organisations do not collaborate, rather it is the individuals representing organisations who collaborate (Frederickson 2014; O'Leary, Choi & Gerard 2012). An effective collaboration requires bringing individuals from different organisations, with a diverse range of interests, values and beliefs. The human dimension of collaborative arrangements, however, tends to be the core of why collaborations do or do not function well (Sullivan 2010). O'Leary and Gerard (2012) anatomise the human dimension aptly:

> Individuals defend turf, agency agendas, and power bases that have built up over years. Some individuals are there to gain power or visibility for themselves or their organizations. This can be exacerbated when so-called collaborators are receiving instructions from their bosses that prevent them for "sharing the rice bowl" or moving away from 'turf-centric" views of problems and solutions (p.21).

According to theory, stakeholders at the collaboration table must all be equal, but this is not necessarily the case in practice. Inevitably some people who come to the collaboration table are used to exerting control (Aigner & Skelton 2013). Some stakeholders are so used to controlling they find it difficult to refrain from doing so (Himmelman 1994), with power imbalances likely to result in conflict (O'Leary & Vij 2012).

Aigner and Skelton (2013) assert that unequal levels of commitment from stakeholders can result in conflict. Meanwhile, Wanna (2008) proposes the commitment level for high functioning collaborations is meaningful and substantive, which they compare with meaningless and cosmetic collaboration.

This section concludes by highlighting the notion that collaborators typically have difficulty and are often reluctant to deal with the conflict. Aigner and Skelton (2013) pinpoint this difficulty:

> …it is often not the competition that gets us stuck, but the silence and difficulty we have in acknowledging when, and with whom, we are in competition. This silence is a result of our challenge in acknowledging the different levels of power and resources that we all bring to the table (pp.93-94).

Conflict management requires an undertaking that every effort is made to enable people to share their concerns respectfully in order to avoid unproductive conflict. Himmelman (1994) is emphatic in this regard:

> If those participating in a collaborative "walk the talk" of enhancing each other's capacity, they will make every effort to share their concerns in ways that allow others to respond without defensiveness. It also means that key decisions about the collaborative would not be made between meetings in private sessions among a few members, nor would people simply withdraw or disappear from the collaborative without providing others with information about the reasons for their departure (p.29).

There is, however, a difference between dealing with conflict within an organisation and across organisations (Archer & Cameron 2013). Weiss and Hughes (2013) point out that most organisations have processes in place for dealing with internal disputes, including levels of authority, dispute resolution processes, and internal policies, all of which are designed to ensure resolution of disputes. However, these strategies are unlikely to be in place in collaborations involving multiple organisations. This poses a dilemma for collaborations where all partners are supposed to operate as equal peers.

Power

Theoretical positions for collaborative practice maintain a model of 'shared power' for decision-making (Ansell & Gash 2008). At odds with this is that collaboration convenes a diverse group of stakeholders, who most likely hold positions unequal in power. This requires a shift from the unequal distribution of power model that operates within organisations, to a more participative, equally shared model of power (Gray 1989). This in turn, requires particular care and sensitivity, and a willingness to relate to people at all levels (Williams 2012). In practice, it is alleged that collaboration in action is prone to manipulation by stronger stakeholders (Ansell & Gash 2008). Furthermore, perceptions of

who has power and who is deprived of power can be at odds with reality. Huxham and Vangen (2008) perceptively note, "the common practice, unsurprisingly, is that people act as though their perceptions are real and often display defensiveness and aggression" (p.32).

While Saffer, Yang and Taylor (2018) agree that collaborations are supposed to operate on a distributed model of power, based on their research, they challenge this assertion. Rather they content that power is manifest in collaborations, and that a stakeholder organisation's institutional status and resources, contribute to power disparities.

Huxham and Vangen (2005) propose that there are different 'points' of power, many of which are at the micro-level in the collaboration, and are not particularly obvious to those involved. They provide a number of examples. One is the position of power of the person who chairs a meeting whilst the meeting is in place, and the other is the position of power held by those who decide who is to be invited to join a collaboration. They assert that an important characteristic of points of power is that they are not static, but continually shifting. Examples here include writing funding bids and drawing up contracts in the start-up phase. A further example is the ability of members during a meeting to influence agreements about actions. They go on to provide interesting advice on how to respond to shifting points of power. They state:

> Understanding and exploring the points of power can enable assessment of where and when others are unwittingly or consciously exerting power, and where and when others may view them as exerting power. It also allows for consideration of how and when deliberately to exert power. Responding to these insights, however, requires a willingness to accept that manipulative behaviour is inappropriate, which some would argue is against the spirit of collaborative working (p.66).

This study found limited attention paid to research into the practice of managing power in collaborative practice. However, a suggestion from Saffer, Yang and Taylor (2018) is worthy of further consideration. They state that it is necessary to find ways of offsetting power imbalances, and they provide an example of "regularly reselecting core group members to avoid congregation of power" (p.135).

Trust

> *As we know, it is much easier to lose trust than it is to gain it. What's more, you can't be a successful collaborator without a consistently high level of trust, and the reverse is true too: you need a high level of trust to collaborate. Collaboration and trust go hand-in-hand* (Baker 2015, p.254).

The importance of trust to build relationships, take risks and sustain a collaborative effort, is a recurring theme in collaboration literature (Stern & Coleman 2014; Williams 2012**).**

Agronoff and McGuire (2003) maintain that as collaboration does not have a legal charter; it is trust the enables stakeholders to join, work and remain together. They propose that trust is a fiduciary obligation and argue where there is more trust, there is less need to constantly monitor compliance, a view also supported by Alter and Hage (1993). According to Huxham and Vangen (2008), while trust is a precondition for successful collaboration, in practice, suspicion rather than trust is the starting point, suggesting the imperative of paying attention to trust building in the early stages.

It is stated that trust involves "keeping commitments, negotiating honestly, and not taking undue advantage of individuals or groups*",* and that trust can be developed "through clear communication, reciprocity, goal alignment, transparency, information and knowledge sharing, and by demonstrating competency, good intentions, and follow-through*"* (O'Leary & Vij 2012, p.514)*.*

Collaborative work requires a nurturing process, understanding that trust building is fragile, and previous efforts can be shattered by simple changes such as the job change of a key individual (Huxham and Vangen 2008). In this regard, it is proposed, that when trust is broken, it can be repaired, requiring a lot of work, patience, and time (Gray & Purdy 2018; Williams 2012).

Stern and Coleman (2014) discuss four forms of trust relevant to collaboration. These are dispositional trust, rational trust, affinitive trust, and procedural trust. They describe dispositional trust as "the general tendency or predisposition of an individual to trust or distrust another entity in a particular context" (p.122). Rational trust is "an entity based primarily on a calculation of the perceived utility of the expected outcome of placing one's trust in another entity" (p.122). Affinitive trust is "an entity based primarily on the emotions and associated judgments resulting from either cognitive or subconscious assessments of

the qualities of the potential trustee" (p.122). Finally, procedural trust is defined as "trust in procedures or other systems that decrease vulnerability of the potential trustor, enabling action in the absence of other forms of trust" (p.122).

Trust, too, is an under-researched area according to Stern and Coleman (2014):

> Little is known about the particular processes or structures that may catalyze or constrain the development of each form of trust. Similarly, little is known about which forms lead to which actions under which conditions or about how the different forms of trust interact. How might one form of trust lead to another? Are there patterns in these sequences in different situations? (p.128).

4.5.6 EVALUATION

And we still struggle to delineate, let along measure, their short-term and long-term outcomes, outputs and impacts (Gray & Purdy 2018, p.313).

An examination of the literature in this area for a divergence of views as to what exactly should be evaluated. Should evaluation measure the 'impact' of the collaboration, or its 'outputs', or both? (Gray & Purdy 2018). Evaluation may assess impact at a micro-level, such as the indirect effects of a collaboration within partnering organisations, and at a macro-level, such as a reduction on improvement in the problem, or both (Kolk 2014).

Marek, Brook, and Salva (2015) propose there is a need to evaluate the 'effectiveness' of a collaboration their ultimate ability to achieve success. Meanwhile, Brown, Feinberg and Greenberg (2012) state there is a need to measure the 'functioning' of a collaboration.

Zakocs and Edwards (2006), point out that because collaborations are interested in a wide range of complex problems, geographic areas and target populations, determining what constitutes 'effective' collaboration is complicated. They identified two general indicators to assess effectiveness. One is 'internal collaboration' functioning, which measures "how well coalition building actions have been executed, such as size of membership, amount of resources generated, or quality of strategic plans" (p.352). The other is 'external community changes', which is the ultimate indicator of collaboration effectiveness. These measure the results of actions implemented by a collaboration, for example, reduction in bullying at school and increase in school attendance.

There is a need to evaluate "the ability of a collaborative effort to change systems, develop new relationships, and integrate individual participants into a new whole and long-term, rather than short-term, results" (Mandell & Keast 2007, p.576). Mandell and Keast (2007) propose the aim of collaborative evaluation is to assess the extent to which relationships developed have built the types of processes and capacities needed to work in different ways. They also assert that traditional evaluation measures which generally measure activities and tasks accomplished with a specified time period, are unsuitable for collaborative evaluation.

Despite this knowledge, current practices of measuring the effectiveness of collaborations mostly adopt traditional approaches (Kyllonen, Zhu & von Davier 2017). It is stated that "although researchers might agree on the importance of evaluating collaboration effectiveness, implementing this type of evaluation has proven to be difficult" (Marek, Brock & Salva 2015, p.68).

A very brief search of the literature found some recent efforts to address this situation. These include Collaboration Assessment Tool (Kyllonen et al., 2015), and Social Network Analysis, which according to Pyka and Scharhorst (2009), is particularly effective for collaborations striving for innovation.

A final point to be made here is that Thomson, Perry and Miller (2007), remind us that a lack of consensus on the definition of 'collaboration', causes problems in comparing findings across studies, and to know if what is measured is in fact collaboration.

4.5.7 THE COLLABORATIVE PROCESS

Too often scholars and practitioners think of collaborative processes more or less as black boxes. They seldom inquire into the dynamics of actual deliberations, the structure of the processes, who the participants are, or the methods by which conclusions are reached (Innes & Booher 2010, p.41).

This section assembles the key elements of collaborative practice. The remainder of this section considers 'the interplay' between these, with a view of getting an understanding of the collaboration process. Keast (2016) writes that 'process' "refers to a series of actions

or steps needed to deliver the end result of collaborative actions and outcomes and can include, for example, procedures, activities and events" (p. 161).

Some scholars have developed models to conceptualise the collaborative process. Two distinct approaches have been adopted, a linear sequence over time, and a progressive cyclical, dynamic process (Heikkila & Gerlak 2015).

A linear model developed by Gray (1989), includes a three-phase model of the collaborative process including, problem-setting, direction-setting, and implementation. Gray's model is shown as Figure 4 in Appendix 1. Himmelman (2002) has also developed a linear model (shown as Figure 4 in Appendix 1), that depicts a collaboration continuum involves staged approaches in which stakeholders move through levels of intensity.

These earlier models, however, have become outdated as our knowledge of the collaborative process has grown. This chapter has demonstrated that collaboration is a way of working together to address uncertainty and complexity, where the dynamic process of collaboration leads to emergent solutions over time. A linear model may be appropriate for simple and complicated problems, but not complex problems. To support this view, Keast (2016) maintains that there is increasing consensus that the collaboration process is more likely to be an iterative and cyclical process than a plan following linear steps of action.

With the goal of developing a model of collaboration that identifies the contingent conditions to facilitate or discourage successful collaboration, Ansell and Gash (2008) reviewed 137 cases of collaboration across a range of sectors. Their model, shown as Figure 6 in Appendix 1, depicts the collaborative process as highly iterative and nonlinear.

Thomas and Perry (2006) highlight that collaborations are inherently fragile systems, fraught with challenges, involving a complex construct of key dimensions or elements, with each dimension being a process in itself. Their model, shown as Figure 7 in Appendix 1, depicts key variable dimensions including governance, administration, autonomy, mutuality, and trust and reciprocity. This model demonstrates that there are different dimensions to collaboration and each of these has their own dynamic process. Of significance is their assertion with regard for movement along and between the dimensions. The process of collaboration, Thomas and Perry (2006) assert,

involves movement along the five dimensions as partners renegotiate a new equilibrium that reinforces the learning achieved at a previous equilibrium…each situation demands a different equilibrium among the five key dimensions to achieve an optimal mix for the partners in the process (pp.29–30).

A recent notable contribution from Keast (2016) is based on research undertaken on seven diverse case studies of collaborations to determine the collaborative processes employed for each. This research found that all seven collaborations instituted some form of process, and these varied according to starting circumstances. For example, one of the case studies, which had faced a long history of conflict over water in a region, embraced a process with a strong emphasis on conflict resolution. Meanwhile, another case study, which commenced with agreement on a common vision, focused on advancing their common vision by developing plans for action (Keast 2016). This research determined there are no 'prescriptive recipes' for implementation of collaborations. While collaborations will have similarities, each collaborative effort remains highly individual, with sustainable results more likely with deliberate and strategic attention paid to the selection of implementation processes. Keast's research concluded there is no 'one fits all' approach to a collaborative process. Rather while some collaborations will have similarities, each collaborative effort should be highly individual, requiring processes that match its unique purpose, context, and life-cycle stage. This research concludes that a collaborative process is often messy, that entail a number of macro processes, such as structure, and micro or practice level processes, such as relationships and behaviours.

Correlation and interplay

The elements of collaboration are not mutually exclusive (Mayer & Kenter 2016) with a high level of correlation and interplay between the various collaborative elements (Williams 2012). There is also a level of interplay within an element, for example the interplay of conflict, power, and trust. Interplays are not usually practiced independently, but applied in varying combinations in response to the given circumstances, and according to the life-cycle stage of the collaboration journey (Huxham & Vangen 2005; Keast 2016; Williams 2012). This means that while there will be gains in one or more elements of the process, there may be setbacks in others (Huxham & Vangen 2005). Furthermore, any change in

circumstances demands a reassessment of the equilibrium among the respective elements, in order to achieve an optimal mix for the partners in the process (Thomson & Perry 2006).

This study noted shortcomings in the scholarship testing the validity of the various collaborative process models. This observation is confirmed by Thomson and Perry (2006), who claim that the interactive process of collaboration is not well understood.

Williams (2016) helps us to understand why this is the case. He argues that there is neither a unified or distinct theory of collaboration, rather a set of threads of theory linking back to precursor theory, and as a consequence there is little theoretical work viewing collaboration as a total system, although this is growing.

According to O'Leary and Vij (2012), a deeper understanding of the interplay of the elements of collaborative practice is necessary. However, this study's review of scholarship in this field, finds that attention tends to be paid to the various elements of collaborative practice, such as leadership and governance, but largely ignores theoretical positions on the interplay of the various elements.

4.6   SUMMARY

Skillfully managing, leading, and negotiating in collaboration is difficult. Satisfying mixed, and often conflicting, demands for significant innovation and change makes it just that more complicated and taxing. To be more successful, we must transform our way of thinking–our mindset–about how we collaborate (Norris-Tirrell & Clay 2010, p.2).

4.6.1   WHY INCREASED COLLABORATIVE EFFORT ALONE WILL NOT RESOLVE COMPLEX PROBLEMS

This chapter has established that the collaborative imperative is driven by unprecedented change and the need to address complex problems. This thesis, however, challenges the assumption and expectation that increased collaborative effort alone, will resolve complex social problems, and this chapter offers four arguments to support this challenge.

The first is that collaboration does not emerge spontaneously; rather it is a complicated phenomenon, calling for superior individual skills, and it is susceptible to a high risk of conflict and failure. Collaborative practice has, however, been driven by practitioners and individuals, with scholars following behind, and seemingly not informing or influencing practice. This study suggests that it is unlikely that existing collaborative practice will make progress in resolving complex social problems, as long as it continues to overlook theory to further our understanding of where and how improvements in practice can be advanced.

The second contributing factor relates to misunderstanding as to what 'collaboration' actually is. The multiple interpretations of its meaning, pose a serious challenge for collaborative practice. Here, collaborative naivety is attributed to the confusion. While practitioners, citizens and bureaucrats continue to be unclear as to the meaning of collaboration, and how it compares to other forms of working together, it is unlikely that existing collaborative practice will adopt the sophisticated practices necessary for collaborative work.

The third factor that is inhibiting collaborative practice is fostered by embedded management practice. Practitioners are continuing to apply practices effective for within an organisation, rather than the different ways of working that are necessary for working across organisations. This is further exacerbated by the limited attention paid by scholars to unlearning. Added to this, collaboration practice places ambitious demands on practitioners. Examples included shared power for decision-making, high levels of conflict, and adopting new evaluation approaches.

The fourth contributing factor relates to a neglected aspect in collaborative scholarship. While the literature recognises that collaboration involves a process, and various models have been developed to depict this process, the interactive process of collaboration is not well understood. This study has found that scholars regard the various elements of collaborative practice, such as leadership and governance, but largely ignores theoretical positions on the interplay of the various elements. Collaboration is a complicated phenomenon, and this study suggests that practice which continues to ignore the sophisticated, interactive process of collaboration practice, will not make progress in resolving complex social problems.

4.6.2 TRANSFORMATION OF PRACTICE

This chapter has examined the ways of working and thinking required for inter-organisational collaboration, compared to those practices that are effective for working within an organisation.

Collaborative leadership requires an expanded set of skills, with a focus on empowering, involving, and mobilising stakeholders, facilitating commitment, and new ways of behaving. And this all takes place in a constant strive for innovation. Rather than a single, central leader, collaboration practice requires shared and rotating leadership over time.

Collaborative governance requires flexibility, and agility. It requires an environment of freedom to speak, share information, respect for others' opinions, disagreement, experimentation, taking risks and learning from emergent practice. It also requires distributed control and equal power in decision-making. The decision-making process is a journey of discovery, prone to traps, and which strives to stay focused on the complex problem, and approaching its resolution with creativity, inquiry, and discernment. Stakeholders must be clear on each partner's role and responsibility, and understand that roles and responsibilities are not static, but change over time. The collaborative governance process is not static, rather it must be adaptive and reflect the current operating context, and may involve many different forms and arrangements.

Collaboration operations involve a process by which work is done, resources allocated, progress measured and communicated, and information and learning are shared. This often requires a dedicated staff to support, drive, and service the collaborative work. It is inherently time-consuming, partly due to the commitment needed to build trusting relationships across organisational boundaries, and it is suggested that up to three years is required, to build relationships of sufficient strength for a collaboration to be successful and sustained.

Collaborations are deeply dependent upon a diversity of people each with a range of competencies, opinions, viewpoints, experiences, technical knowledge, values, levels of power, and levels of trust. Harnessing the potential of differences can be the source of immense creative potential and is the key to effective collaboration. Those facilitating this work require a range of skills, capacities and resources necessary to shepherd the parties, through a process that draws on the collective gathering of a diversity of experience,

perspectives and interests, and which in turn allows the development of more thoughtful decisions and options, likely to produce innovative solutions. Added to this, collaborations are prone to power struggles, conflict, turf wars, agency agendas and having the wrong people at the table, that is, those with pre-determined solutions, and who cannot shift to big picture thinking, as well as those with ulterior motives, such as obtaining benefits without commensurate effort.

The mindset needed for working across organisational boundaries, is different to that required for effectively working within an organisation. While limited scholarly attention has been paid to this, the agile mental mindset required for collaboration must be open to discovery, creativity, innovation, turning threats and challenges into opportunities, and on fostering a circle of value creation to the collaboration.

Conflict is inevitable in collaboration, and it is important to distinguish between productive and unproductive conflict. Productive conflict involves negotiating across values, beliefs, interests and differing points of view, necessary for a collaborative to move the status quo. Productive conflict that is managed constructively can generate robust debate, resulting in creative and resilient solutions to problems. Unproductive conflict, including difficult relationships, can create low levels of commitment, suspicion, manipulation and distrust. Added to this, some people are combatant, and set about defending turf, agency agendas, and their power base. Unproductive conflict that is avoided, or not managed effectively, is likely to cause significant disruption. Collaborations, therefore, require an understanding of conflict management. However, in this regard, it is important to understand that there is a difference between dealing with conflict within an organisation and across organisational boundaries.

The theoretical positions for collaborative practice maintain a model of shared power for decision-making, and this model is not static, but continually shifting. As a collaboration does not have a legal charter, it is trust that enables stakeholders to join, work and remain together. It is suggested that collaborative work requires an ongoing nurturing process, understanding that trust building is fragile, and previous efforts can be shattered by simple changes such as the job change of a key individual (Huxham & Vangen 2008).

Evaluation methods that measure activities and tasks accomplished with a specified time period, are unsuitable for collaborative evaluation. Rather, there is a need to assess the

extent to which relationships developed have built the types of processes and capacities needed to work in different ways (Mandell & Keast 2007).

This chapter has established that collaborations are inherently fragile systems, fraught with challenges, involving a complex construct of key dimensions or elements, with each dimension being a process in itself (Thomas & Perry 2006). There are no prescriptive recipes for implementation of collaborations: while collaborations will have similarities, each collaborative effort remains highly individual and requires processes that match its unique purpose, context and feature. More extensive and sustainable results are likely when deliberate and strategic attention is paid to the implementation processes (Keast 2016). There is a high level of correlation between the collaborative elements, and they are not usually practiced independently, but applied in varying combinations in response to the given circumstances, and according to the life-cycle stage of the collaboration journey (Huxham & Vangen 2005; Keast 2016; Williams 2012). The interplay of collaborative dynamics means that while there will be gains in one or more elements of the process, there may be setbacks in others (Huxham & Vangen 2005), with a change in situation demanding a reassessment of the equilibrium among the respective elements, in order to achieve an optimal mix for the partners in the process (Thomson & Perry 2006).

4.6.3   GAPS AND WEAKNESSES

> *In an environment increasingly characterized by complex interorganizational relationships, practitioners could benefit from having a clearer understanding of collaboration rooted in systematic empirical research* (Thomson et al. 2007, p.29).

The need for research in the practice of collaboration was first identified 40 years ago, but this need has largely not been achieved. While this study has found some excellent contributions to the collaborative literature, it has found that much more is needed to bridge the disconnect between collaborative theory and practice, rather than incremental contributions to existing knowledge. Young (2015) describes an attempt to bridge this chasm:

> I wrote this chapter as a result of my repeated encounters with researchers, practitioners and consultants who are completely focused on examining new aspects of well-known and defined knowledge areas, such as risk management.

My observation is that many researchers, practitioners and consultants are exploring how to build a better mousetrap yet none of them have taken a step back and considered whether we collectively have a mouse problem, or whether there is, in fact, a plague of rabbits (p.19).

Given the potential that effective collaborative practice has for dealing with the diversity of social complex problems faced today, and in the future, and that most collaboration efforts fail, there is an undisputable strong case that much investment is needed in this field of research. Williams (2012), specifically, identifies a need for:

a better relationship between academia and practice through a process of 'engaged scholarship' which aims to build bridges between theory and practice using more effective approaches to research design, implementation and communication (p.119).

A summary of the gaps and weaknesses in the literature that are inhibiting practice identified in this chapter follows.

There are opposing views with regard to leadership and governance. Some propose one particular approach, whereas others propose the need for transdisciplinary approaches that change with context. There are also inconsistencies with regard to mindset.

Limited attention has been paid to the practice of resourcing collaborations. Specifically, the question of how to manage collaborative efforts, that can have the potential to involve a large number of people, is under-researched. So, too, is the issue of how to shepherd the differences of stakeholders, evaluation, and the interplay of the respective elements of collaboration.

Collaborations require a diversity of stakeholders, with a range of competencies, opinions, viewpoints, experiences, values, levels of power, and trust. Limited attention, however, appears to have been paid to the configurations of these differences. In this regard, this study observed some studies, where participants were in executive positions. As collaborations require diversity, I wonder if studies that only involve people in executive positions is likely to illuminate data that might emerge, depending on whether the research subjects were from a range of backgrounds. Overall, our understanding of the collaborative process is still under-researched.

This section concludes with a final observation made by this study. The previous chapter noted that a particular strength in the literature on complex problems was that is paid relentless attention to the complex problem itself. This study found that the collaborative literature paid very limited attention to the intricate characteristic of complex social problems. Is it possible to address a complex social problem effectively without being guided by the scholarly literature on collaboration and addressing complex problems? Put another way, can we have one without the other? This is a question that will be pursued in the following chapter.

4.6.4 REFLECTIONS

The overarching aim of this study is to explore how better theoretical understanding might impact on the resolution of complex social problems.

This chapter has assembled data to answer two core questions. One relates to the gaps and weaknesses in the literature, which have been summarised in the previous section. Responses to the other interrogation are assembled in Section 4.6.2. This question is:

> What contributions of collaboration theory help to inform the practice of addressing complex problems?

This question assumed that there is in fact a 'collaboration theory'. This study however has noted recent contributions that assert that there is neither a unified or distinct theory of collaboration.

While this study has identified many individual contributions that help to inform collaborative practice, these have been described as thematic, un-unified and fragmented, resulting in a set of entangled threads of theory that link back to a previous theory.

The literature is multidisciplinary, making it difficult to make comparisons across disciplines, and contributing to an abundance of disagreements between scholars.

I reflected on each and all of these with my practitioner experience, and then took the advice of C Wright Mills (1959/2000) to find my researcher voice.

There is disagreement amongst scholars for each of the enablers of collaboration assembled in this chapter. Take for example 'leadership'. Scholars contributing to this area

are clear that a different type of leadership is required and an abundance of particular styles of leadership are asserted.

More recently, some scholars have suggested that there is an interplay within each element. For leadership, this means a different and distributed style that adapts to the journey of the collaboration.

Based on my practical experience I fully concur with this proposition. The sophisticated work of collaborative practice seeking to address a complex social problem takes place over a number of years, during which time there is an evolution of context and circumstances. The requisite skills for this sophisticated work are highly unlikely to be found in one single person, rather a team is required and a range of distributed models are needed, each of which adapt to changes in context.

CHAPTER 5: A WEAVING OF DISCIPLINES

5.1   INTRODUCTION

This study involves a process of systematic inquiry interrogating two theories from different disciplines. By adopting this vantage point, I aim to investigate whether the outcomes of the practice of addressing complex social problems might be improved, if practice draws on knowledge from the areas of research. This aim entails gaining a better understanding and thus involves interpretation of data based on my own perceptions, with conclusions based on these interpretations.

Six sub-questions have guided this study's systematic inquiry. Two of these sought answers to the following questions:

> What contributions on addressing complex problems does the literature make to informing practice?
> What contributions of collaboration theory help to inform the practice of addressing complex problems?

The data gathered from the process of addressing these two questions, was then used to seek answers to the two questions that relate to this chapter.

> What are links and gaps between the theories of addressing complex problems and collaboration? And what are the strengths and weaknesses?
> Can these strengths and weaknesses, links and gaps reveal insights into the practice of addressing complex social problems?

In order to address these, a juxtaposition exercise was undertaken. This exercise drew on elements from the two theories. This had the aim of cross-fertilising and trading information with a view to finding connections that might improve the practice of addressing complex problems. I took the advice of Mills (1959/2000) to undertaken this exercise. In doing so I released my research imagination, looking for recurring topics, and then themes, and then cross-classifying themes with topics, by asking "What is the meaning of this theme for this topic?". I also took the advice of Habermas (1992/1996) and have tried to communicate my research insights in non-prescriptive ways.

This chapter presents a discussion of the outcomes of the juxtaposition exercise.

This chapter proceeds as follows. The following section presents a discussion on the conditions of an 'enabling environment' necessary to resolve complex problems. It identifies the need for an ongoing understanding of the wickedness of a problem, as they do not stay still. This, in turn, needs an on cycle of innovation and evaluation.

Section 5.3 presents a discussion on the 'transformation of practice' necessary to resolve complex problems. Topics in this section include the interplay of elements, leadership, governance and decision-making, resourcing and time, membership, mindset, conflict, power, trust and unlearning.

The concluding section highlights the strengths and weaknesses, links and gaps in the two theories, along with an outline of how these reveal insights for the practice of addressing complex social problems.

5.2   ENABLING ENVIRONMENT

5.2.1   INTRODUCTION

While this section merges evidence from both disciplines, most is drawn from the research on addressing complex problems.

In order to resolve a complex problem, a particular type of environment is required, one which fosters enabling conditions that allow for a journey of discovery. Such a journey is prone to mistakes and traps while striving for creativity, inquiry, discernment, and freedom to learn from emergent activity (Benson & Dresdow 2003). It requires an ongoing nurturing process, that opens up discussion, encourages dissent and diversity, and fosters creative and novel thinking to achieve innovation (Head & Alford 2015; Huxham & Vangen 2008; Snowden & Boone 2007). This particular environment fosters openness in sharing information, respect for others' opinions, participative decision-making, experimentation, and risk-taking (Austin & Seitanidi 2014; Bommert 2010; Thomson & Perry 2006).

This study suggests that at the centre of the enabling environment is the complex social problem itself, which is immediately surrounded by an ongoing innovation cycle, comprising responses and evaluation, and which is further surrounded by transformation of practice.

5.2.2 WICKEDNESS OF THE COMPLEX PROBLEM

Complex problems are tricky, stubborn, intractable, malignant, vicious, and aggressive. They are difficult to define, and there is no clear cause and effect. They are in a constant state of flux and unpredictability (Rittel & Webber 1973).

This study found the need for attention to wicked problems is noted by literature on addressing complex problems but not that on collaboration. For example, Gray's model of the collaborative process, (Section 4.5.7 and Figure 4) begins by defining the problem in the first instance, and then sets off on a linear course to reach agreement to 'close the deal'. This is in direct contrast to the approach stressed by the Cynefin theory. Similarly, Himmelman's model, the model of Ansell and Gash, and Thomas and Perry's model (refer Section 4.5.7 and Figures 5, 6 and 7), each focus on the evolving dynamics of the collaborative effort. But none of these pay any attention to the wickedness of the complex problem at hand.

The results of the juxtaposition exercise suggest that, in practice, relentless and attention must be paid to the complex problem itself. This means, as Benson and Dresdow (2003) emphasised, "*s*taying focused on the issue and approaching its resolution with increased creativity, inquiry, and discernment" (p.1004).

On this basis, the complex problem must be kept front and centre, acting as a bulls-eye, and in doing so, acts as an incentive for collaborative stakeholders to embrace the wickedness of their particular problem continually. At all times, stakeholders need to remember that complex problems fight back and resist solutions (Batty 2016); that each problem has a large number of nonlinear interacting elements, which are constantly changing and can never be pinned down (Kurtz & Snowden 2003; Snowden 2003; Snowden 2005), and that minor changes in one area, can cause disproportionately major consequences elsewhere (Snowden & Boone 2007).

5.2.3 THE INNOVATION CYCLE: NEW KNOWLEDGE AND ONGOING RESOLUTION

The attention paid by the two bodies of research to addressing the particular wicked problem being dealt with differs dramatically. Studies of collaboration pay limited attention

to this matter, with some collaboration scholars implying that solutions are possible (Emerson, Nabatchi & Balogh 2011; Gray 1989; Norris-Tirrell & Clay 2010). In stark contrast, this aspect is a dominant feature in the research on addressing complex problems, where scholars agree that complex, wicked problems cannot be solved; rather their harms can only be alleviated (Camillus 2008; Grint 2008; McCall & Burge 2015; Rittel & Webber 1973; Zivkovic 2012). A precis of the juxtaposition of the areas of research related to resolution of problems follows.

Wicked problems cannot be solved, rather they require ongoing resolution, involving a range of coordinated, interrelated and sustained responses to alleviate their consequences (McCall & Burge 2015). Resolutions for complex problems strive for innovation, and David and Eisenhardt (2011) suggest there are three mechanisms necessary to achieve this. One is activating and learning from the many capabilities within the collaboration, and then integrating these, and which is made possible by way of alternating decision control and rotating leadership. The second mechanism is a deep and broad 'innovation search trajectory'. "Deep search enables efficient cumulative improvements along specific technical trajectories, while broad search, such as combining partners' complementary capabilities, creates novelty" (p. 181). The third is involves the mobilisation of diverse stakeholders over time, ensuring that appropriate knowledge and capabilities are drawn on as context changes.

An effective innovation cycle increasing the quantity and quality of innovation (Bommert 2010). The ongoing resolution cycle might involve small steps of continuous change rather than radical change (Termeer et al., 2015). This requires focusing on tipping points by way of interventions at appropriate entry points, or critical leverage points, and to pursue them collaboratively and with vigour (Batty 2016; Fullan 2009; Snyder 2013). As there is no clear relationship between cause and effect with wicked problems, emergent practice options based on good practice as opposed to best practice need to be pursued (Snowden & Boone 2007).

I was intrigued by a contribution in the literature by Bommert (2010), who argued an effective innovation cycle will increase the quantity and quality of innovation to respond to unmet persistent and complex challenges. This caused a diversion to find theoretical insights into innovation cycles, where the terms 'sustaining', 'disruptive', and 'transformational' innovation proposed by Leicester (2016) were noted. Sustaining

innovation provides the efficiency and prolongs the life of existing systems; disruptive innovation distorts or subverts existing systems, and transformative innovation intentionally shifts existing systems towards a new pattern of activity suited to the change environment. This study suggests that further interrogation of the literature regarding different types of innovation, but particularly transformative innovation, would help the practice knowledge of addressing complex problems.

A further view of the 'innovation cycle' suggests the cycle is "often depicted as a cycle of problem definition, idea generation, testing, selection, implementation, and diffusion" (Crosby, t'Hart and Torfing 2016, p. 657).

5.2.4 EVALUATION

There is confusion in the literature on collaboration as to what should be measured in collaborative evaluation. Added to this, current practices measuring the effectiveness of collaborations mostly adopt traditional approaches, which are, in fact, unsuitable for collaborative evaluation (Kyllonen, Zhu & von Davier 2017; Mandell & Keast 2007). For these reasons, the juxtaposition exercise described below drew only on the literature from Chapter 3.

Practitioners need to adopt more advanced ways of measuring progress and success, and this needs to be done over time as the full consequences of resolutions can only be determined with time. Here, a relatively new form of evaluation, developmental evaluation, is proving relevant for initiatives seeking to bring about major social change in the face of complex, dynamic environments. This form of evaluation is ongoing, and an integral part of the innovation process, which aligns with the ongoing change process for dealing with wicked problems, where small steps and marginal adjustments of continuous change are more likely than accelerated radical change (McKegg & Wehipeihana, 2015; Patton, McKegg, & Wehipeihana, 2016; Rittel & Webber, 1973; Termeer et al. 2015).

5.3   TRANSFORMATION OF PRACTICE

5.3.1 INTRODUCTION

This study's juxtaposition exercise, arrived at the term 'transformation of practice', after consideration of the common theme from both disciplines for the need for new ways of thinking and working in order to strive for innovation. In some cases, the literature refers to new ways compared to traditional ways of thinking and working. As previously stated, this study proposes that use of the terms 'new' and 'traditional' may not be helpful, as they may create a perception that familiar ways of working are 'old' and therefore not contemporary. Instead, this study has adopted the term 'transformation of practice'.

The use of this term was inspired and influenced by Himmelman (2002). In his contribution to building the knowledge practices of collaboration for change at a community level (2002), he argues using specific organisational or management techniques is insufficient:

> It is a transformation that must encourage and respect a diversity of values and perspectives, strongly promote shared power and mutual learning, as well as accept mutual accountability for results in addressing common purposes. Indeed, when moving from betterment to empowerment, both large institutions and community organizations often find themselves challenged to change their beliefs and practices (p.8).

5.3.2 INTERPLAY OF ELEMENTS

Section 5.3 brings together the key elements necessary for resolving complex social problems. The collaboration literature indicates there is a high level of correlation between these elements, and they are not usually practiced independently, but applied in varying combinations in response to the given circumstances and changing context (Huxham & Vangen 2005; Keast 2016; Williams 2012). Each of the individual elements are also dynamic, and need to be tailored according the journey of the collaboration, requiring iterative recalibration as internal and external contexts change (Archer & Cameron 2013; Austin & Seitanidi 2014; Keast and Mandell 2014; Thomson et al. 2007).

It is the interplay within each individual element, and across all of the elements, that collectively contributes to a transformation of practice.

At this point, it is appropriate to revisit some of the rationale behind this study. Its aim is to gain a better understanding, not to offer proof. Thus, it involves interpretation of data based on my perceptions, with the conclusions based on these interpretations. In order to get to this point, a substantive, thorough and systematic investigation of two bodies of literature has been undertaken. I used the knowledge produced from these two investigations, to venture on a journey of discovery by way of juxtaposition, once again subjectively interpreting the data.

This section focuses on the 'interplay' of the 'key' elements that make up the practice of addressing complex problems. As there is no consensus in the literature on the key elements, selection has been based on my interpretation of the data and my own perception. The key elements that I have identified are leadership, governance and decision-making, resourcing and time, membership, mindset and unlearning.

The rationale of this section is also based on the understanding that. while attention has been paid to the 'need' for interplay within an element and also across elements, limited attention has been paid to how this plays out in practice. For example, Stern and Coleman (2014) studied four different forms of trust they felt were relevant to collaborative practice. They proposed the need for a greater understanding of the dynamics of these different forms of trust. Another example comes from the work of Krogh and Torfing (2015) in collaborative innovation leadership. They asserted this type of leadership had three distinct phases, which might be applied simultaneously and in varying sequences, and they may be performed by one or more individuals. The lack of attention to the interplay of elements may, however, be turning. For example, recent research on inter-organisational teams conducted by Hu et al. (2017) examined the relationship between shared leadership, conflict and creativity.

A further dimension contributing to my approach relates to a particular observation made by this study. There is a tendency for scholars to offer 'a preferred approach' to practice, without comparing and contrasting their preferred approach with others. For example, the literature focusing on leadership and governance showcases a diversity of approaches and provides evidence-based reasons why a particular approach is appropriate, but the research does not go on to compare these elements. Added to this, these approaches mostly advocate for one style of practice, ignoring the more recent wave of research that asserts the need for a range of flexible responses that adapt to context.

In response, the approach for this section adopts the advice of Habermas (1992; 1993) where I make 'suggestions' rather than 'claims' and then attempt to offer sound reasons for my suggestions. I also adopt the advice of Mills (1959/2000), using my practitioner experience to put together what may appear to be isolated items, with the aim of discovering unsuspected connections, and using 'my voice' to convey this.

5.3.3 LEADERSHIP

The two areas of research interrogated by this study are in agreement that a 'new' type of leadership is required. These require leadership for addressing complex problems (as opposed to simple and complicated problems) and for working across organisational boundaries (as opposed to within an organisation). Here, scholars promote a wide range of labels. Examples from the literature on addressing complex problems include adaptive leadership, agile leadership, complexity leadership, complex adaptive leadership, emergent leadership, enterprise leadership, and innovation leadership. Examples from the collaborative literature include facilitative leadership, committed leadership and process leadership.

In preference to offering one type of leadership over the others, some scholars from both disciplines advocate for the need for transdisciplinary, shared leadership (Banerjee, Ceri & Leondardi 2016; Fawkes 2012; Gray & Purdy 2018; Hu et al. 2017; Kocolowski 2010; Krogh & Torfing 2015; Tal & Gordon 2016). Adopting the advice of Mills (1959/2000), I trusted my professional experience and instincts to include only evidence gathered for shared leadership for the juxtaposition exercise.

It is unlikely that the requisite leadership skills for collaborative endeavors striving to resolve a complex problem will be found in one single leader (Fawkes 2012; Fray 2008; Tal & Gordon 2016). Rather, a distributed model of leadership is necessary, also referred to as 'collective', 'enabling', 'integrative', 'rotating', 'shared', and 'transdisciplinary' leadership (Davis & Eisenhardt 2011, Gray & Purdy 2018; Kocolowski 2010; Murphy et al. 2017; Tal & Gordon 2016).

Distributed leadership requires multiple leaders with different styles, who share key tasks and who draw on the diversity of stakeholders to unlock the capacity for innovation (Banerjee, Ceri & Leondardi 2016; Gray 2008). Here, the notion of 'collaboration

innovation leadership', which is promoted by Krogh and Torfing (2015), is relevant. Collaborative innovation leadership has three distinct phases, which may be applied simultaneously and in varying sequences, and they may be performed by one or more individuals. The first is 'the convener', whose role is to establish agreement to collaborate. This is followed by 'the facilitator', whose role is support the diversity of stakeholders, with different interests and perspectives, to work together, and ensure that inevitable conflicts are productive (leading to innovation), rather than destructive. The third, is 'the catalyst', whose role is to inspire participants to think outside the box by challenging assumptions that restrict the way in which the problem is perceived.

5.3.4 GOVERNANCE AND DECISION-MAKING

The two areas of research are in agreement that a 'new' type of governance and decision-making is required. In general terms, the approach to governance and decision-making taken in the complex problem literature focuses on the intricacies of decision-making in complexity, whereas collaboration theory is concerned about higher level models and rules. These two approaches are vastly different. Therefore, this section includes a precis of the two.

Resolving complex problem theory

The role of governance is to guide the decision-making process to ensure parties understand the wickedness of the problem and to respond accordingly (Head & Alford 2015; Termeer et al. 2015). Essentially this means that the decision-making process becomes one of problem governance (Daviter 2017).

According to Termeer et al. (2015), in order to broaden knowledge on the wickedness of the problem, three conditions must be in place. These are conditions to enable the wickedness of the problem to be observed and analysed. The second consists of conditions to enable stakeholders to act by way of developing action strategies to handle the problem's wickedness. The third involves conditions by way of the governance systems that allow stakeholders to observe and act in meaningful ways.

Acting on the advice of Snowden and Boone (2007), to permit these conditions, a particular type of thinking that is creative and novel is required. Getting as many perspectives as possible, in order to broaden knowledge and open up a range of options, is also necessary. This includes suggestions from technical experts, as well as encouraging novel thoughts. All of this involves a process over time that involves the negotiation of the common ground of the stakeholders. The aim of the process is to gain a shared understanding of the problem and to consider resulting actions to achieve resolution (Beers and et al. 2006; Grint 2008; Head & Alford 2015).

Once again stressing the need for an investment in time, governance of complex problems must refrain from immediate actions (Brook et al. 2016; Grint 2008). Given the turmoil and constant change of wicked problems, changing governance and decision-making systems are most likely required (Termeer at al. 2015).

Collaboration theory

Collaborative governance requires a thoughtful structure allowing interdependent organisations to have distributed control and equal power in decision-making, at the same time ensuring the survival of the collaboration (Austin & Seitanidi 2014; Emerson, Nabatchi & Balogh 2011).

Collaborative governance determines the overarching purpose and objectives of the collaboration, accountabilities, and how transparent decisions are made (Archer & Cameron 2013; NLIAH 2009). It also determines rules about acceptable and unacceptable behavior, how to ensure consensus, and what processes are put in place to ensure no interest is left out including minority opinions (Ansell & Gash 2008; Curseu & Schruijer 2017; Innes & Booher 2010; Thomson & Perry 2006; Williams 2012). These rules also need to determine how to hold individuals accountable for their responsibilities, and processes for dealing with conflict (Austin & Seitanidi 2014; Leavitt & McKeown 2013; McDermott & Hall 2016).

Collaborative governance is a process that is not static (Austin & Seitanidi 2014; Thomson et al. 2007), and there is no one universal approach to governance. Rather 'adaptive governance' is necessary (Innes & Booher 2010), requiring governance arrangements that

reflect their operating context (Archer & Cameron 2013; Keast & Mandell 2014). To achieve this, continued monitoring is required (Gray & Purdy 2018).

A point made in the previous chapter related to a scholar's suggestion that collaborative governance needs to put strategies in place to enable innovation to flourish rather than getting bogged down in governance and rules. Based on the knowledge amassed by this study, this is a very sensible contention. However, it is not supported by the body of research that is dominated by rules about distributed power, structure, accountability, acceptable behaviour and dealing with conflict.

5.3.5 RESOURCING AND TIME

This is a neglected area of literature examining the practice of addressing complex problems, with some attention paid in the collaboration research. A very short precis of the data from collaborative research follows.

Collaborative efforts are intensive resource-consuming activities. They must have adequate resourcing to accomplish the operational work including dedicated staff to support, coordinate and resourcing service collaborative processes. There must be a high prioritisation of the necessary time and energy required for collaborative effort to be established and sustained.

In many cases, the people employed by an organisation are relatively clear on their roles, responsibilities, hours of work, and remuneration. If circumstances change, processes and policies are often in place to allow response. This is not the case with most collaborations, which may operate only on a broad Memorandum of Understanding.

Collaboration requires adequate resourcing to accomplish the operational work needed (Gray 1989). Resourcing includes staffing to support, coordinate, service and drive the collaborative work (Innes & Booher 2010; Keast & Mandell 2014; NLIAH 2009).

Collaboration is inherently time-consuming work, and the time required must be a high priority (Bardach 1998; Huxham 1996; Wanna 2008). Further, stakeholders must have the energy to engage in the time intensive collaborative process (Ansell & Gash 2008; Thomson & Perry 2006). Stakeholders need to be prepared to allow up to three years, just

to build relationships of sufficient strength for a collaboration to be successful and sustained (Keast 2016).

5.3.6 MEMBERSHIP

The approach to membership by the two bodies of research differs but complements each other. One tends to focus on the sources of knowledge required, whereas collaboration theory calls for a broader range of skills and competencies.

Collaborations designed to address wicked problems are deeply dependent upon the collective skills and knowledge of a multidisciplinary, multi-stakeholder team with a diverse range of perspectives, values and relevant knowledge bases (Beers et al. 2006; Frederickson 2014). This includes those affected by the problem and people with unique local knowledge (Innes & Booher 2010; Rittel 1972). This knowledge must not be misunderstood, or underestimated (Leavitt & McKeown 2013). This process, in turn, needs a person or persons capable of empowering those with unique local knowledge and a grass-roots understanding of the problem, often giving them a place at the table for the first time (Innes & Booher 2010).

It is the range of differences, opinions, viewpoints, experiences, values, levels of power, and levels of trust, that results in a richness of the knowledge pool, and which are the source of immense creative potential, creating a more comprehensive appreciation of the problem than any of them could construct alone (Curseu & Schruijer 2017; Emerson, Nabatchi & Balogh 2011; Gray & Purdy 2018). This, in turn, can improve problem-solving and innovation, 'decision comprehensiveness', and lead to increased 'decision quality' (Bartz & Rice 2017; Curseu & Schruijer 2017).

Scholars' views on the role of experts differ. At one extreme, there is a view that those with appropriate technical experience are included (Brown et al. 2010; Head & Alford 2015; Innes & Booher 2010; Leavitt & McKeown 2010). At another extreme is a view that experts must not be involved, as expert approaches do not work for complex (Brook et al. 2016). Then, there are views in between (Dettmer 2011).

Collaborations must ensure they involve stakeholders with superior individual skills, including those with good communication and listening skills, and the ability to work well with others (O'Leary 2015; O'Leary, Choi & Gerard 2012).

While individual differences are fundamental to collaborative efforts (Huxham & Vangen 2005), they also present significant challenges in terms of managing power struggles, conflict, turf wars, agency agendas, mistrust, and having the wrong people at the table (McDermott & Hall 2016; O'Leary & Gerard 2012; Sullivan 2010). It is, therefore, necessary to have a person (or people) to shepherd the parties through the collaborative process (Gray 1989; Gray & Purdy 2018; Williams 2012), including those people seen as having tunnel vision, supporting pre-determined solutions, or who cannot shift to big picture thinking (O'Leary & Gerard 2012).

5.3.7 MINDSET

The two areas of research are in agreement that a 'new' type of mindset is required. The mindset required for complex problems is a fundamentally different mindset to that required for tame and complicated problems. Meanwhile, the mindset needed for cross-sector collaborations is different to that required within an organisation.

Seeking innovative solutions to complex problems requires a mindset of opportunity, openness, and curiosity. It adopts a mantra of 'creating a better future', where questions such as 'what are other ways of looking at this?', and 'what if we thought about it in a new way?' are needed (Garvey, Berger & Johnson 2015).

There are inconsistencies in the literature as to the type of mindset required for collaborative work across organisational boundaries. These include collaborative value mindset, discovery mindset, innovation mindset, and outward mindset.

As in leadership and governance, this study suggests that there is no 'one' type of mindset necessary for resolving complex problems. Rather, a range of mindsets are needed according to context and stage of the collaborative journey. Therefore, the following is a compilation of the singular types of mindsets discussed in Section 4.5.5.

The mindset needed for resolving a complex problem by way of collaboration needs to support an ongoing decision-making process seeking creativity, discernment, emergent

activity, changing threats into opportunities, and striving for 'next practices' as opposed to best practices. Individuals' mindset must not focus on themselves and their vested interests. Rather the focus need to be on the common good of the group, recognising that actively contributing the group, is likely to generate a continuous cycle of value creation (Austin & Seiranidi 2014; Bartz & Rice 2017; Benson & Dresdow 2003; Lahiri, Perez-Nordtvedlt & Renn 2008).

5.3.8 CONFLICT, POWER AND TRUST

Conflict

Conflict, change and collaboration go hand in hand. This is because collaborations seek to resolve problems that are stubborn, intractable, vicious, tricky, and aggressive, difficult to define, and there is no clear cause and effect. They are in a constant state of flux, have no stopping rule, are highly resistant to solutions and fight back. They cannot be solved, but rather have to be resolved over and over.

There are essentially two categories of conflict in collaboration.

One is productive, or realistic conflict, which is based on disagreements over the means to an end. Productive conflict involves decision-making that strives for generating new and creative ideas which can initiate social change, and which aims for outcomes that are satisfactory to all, and for to eliminate inequities and injustice. Robust productive disagreements represent potential opportunities for collaborative learning and advancement (Folger, Poole & Stutman 2017; Krogh & Torfing 2015; O'Leary & Gerard 2012).

The second is unproductive conflict, also referred to as nonrealistic conflict and detrimental conflict. This involves aggression, criticism, heated exchanges, suspicion, manipulation, playing politics, distrust, and, ultimately, more conflict. Difficult relationships are one cause of unproductive conflict and are a significant challenge for collaborations. Difficult relationships are attributed to long-standing adversarial interactions between parties, different professional approaches, and battles for credit of ideas. Then there is the combatant person, whose modus operandi is to defend their turf, and to prevent decisions being taken contrary to their interests. Another source of unproductive conflict is likely if a

stakeholder is unable to put their self-interest and organisation's agenda aside (Ansell & Gash 2008; Folger, Poole & Stutman 2017; Gray & Purdy 2018; Huxham & Vangen 2005; Krogh & Torfing 2015; O'Leary & Gerard 2012; Thomson & Perry 2006; Wanna 2008).

The key is to acknowledge and manage the conflict constructively, and, by doing so, generate robust debate leading to creative and resilient resolutions to problems (Archer & Cameron 2013; Krogh & Torfing 2015; O'Leary and Gerard 2012).

Resolving conflict requires bringing together the parties in conflict to explore their differences, identify shared interests, clarify points of departure, and to arrive at agreement (Keast 2016). It also requires that efforts are made to share stakeholders' concerns respectfully in order to avoid unproductive conflict (Himmelman 1994). Meanwhile, conflict that is ignored, or not managed well, opens the door for the conflict to persist and reoccur (Austin & Seitanidi 2014; Folger, Poole & Stutman 2017; Gray & Ren 2014). In practice, collaborators typically have difficulty and are often reluctant to deal with the conflict (Aigner & Skelton 2013).

Power

Collaborative practice operates on a model of shared power for decision-making, whereby stakeholders at the table most likely hold positions unequal in power. This requires a transformation from the power model that operates within organisations to a more participative, equally-shared model of power (Ansell & Gash 2008; Gray 1989; O'Leary & Vij 2012). In practice, it is alleged power is manifest in collaborations, and they are prone to manipulation of stronger stakeholders (Ansell & Gash 2008; Himmelman 1994; Saffer, Yang & Taylor 2018). Power imbalances are another source of unproductive conflict.

Trust

Trust and collaboration go hand in hand. As collaboration is unlikely to have a legal charter, trust is a fiduciary obligation that provides the glue to support members of a collaboration to join, work and remain together. In practice, most collaborations begin with suspicion rather than trust, requiring an ongoing nurturing process (Agronoff & McGuire 2003; Huxham & Vangen 2008; Stern & Coleman 2014; Williams 2012).

Trust and mistrust are not static, and there are different forms of trust and mistrust that vary according to context. This requires an understanding that trust is fragile, and, although it can be repaired, this requires a deal of effort, patience, and time (Gray & Purdy 2018; Williams 2012).

5.3.9 LEARNING AND UNLEARNING

The practice of addressing complex problems requires a type of learning that involves continual learning. Practitioners need to understand practices that are effective for simple and complicated problems, are not suited to complex problems. New styles of leadership are required, as are new approaches to decision-making and evaluation. A different type of mindset is required, one which is a fundamentally different mindset to that required for tame and complicated problems.

Furthermore, practitioners need to understand practices that are effective for working within an organisation are not suited to practices for working across organisational boundaries. New types of leadership, governance and decision-making - and fresh mindsets - are required. This is why practitioners need to adopt different ways of thinking and working, which in practice can be difficult (Snowden 2003). This is attributed to entrained thinking and an entrenched culture of traditional management perspectives and practices (Dettner 2011; Snowden & Boone 2007).

In order to overcome this 'stuckness', practitioners need to unlearn existing responses, and 'transform' to new ways of thinking and working, which, according to Nygren, Jokinen and Nijula (2017), may be the first step needed in resolving wicked problems. This requires putting aside dominant beliefs and assumptions to make space for a more strategic, comprehensive and proactive approach to collaborative, and open the problem space so a wider range of innovative options for action emerge (Brook et al. 2016; Hislop et al. 2014; Nygren, Jokinen & Nijula 2017). It is stated that the new learning required to resolve complex problems, is relatively straightforward, whereas unlearning is difficult (Brook et al. 2016).

The practice of addressing complex problems requires the collaborative skill of team learning where members to enter in a genuine thinking together mode, thereby allowing

discovery of insights that could not be attained individually. Team learning involves learning how to recognise and respond to behaviours in teams that undermine learning.

5.4 SUMMARY

5.4.1 THEORY IS THE KEY

This study is interested in the dilemma that collaborative research largely ignores the extensive research that has been undertaken in addressing wicked problems. At the same time, the research on addressing complex problems, implies the need for collaboration, but pays little attention to the intricacies and sophistication of collaborative practice. This study has sought to gain an understanding of how this dilemma impacts practice. Is it possible to resolve a complex social problem without being guided by the scholarly literature on collaboration and complex problems? This chapter has presented data that suggests that the answer to this question is more than likely no.

The juxtaposition exercise undertaken by this study has drawn on two areas. It makes connections and trades information between the two, with the aim of finding links and gaps. This was followed by an exercise to determine if the links and gaps identified might uncover insights to further our understanding of the practice of addressing wicked social complex problems.

5.4.2 WHAT ARE THE STRENGTHS AND WEAKNESSES, LINKS AND GAPS?

This study has found the dynamic process of resolving complex problems by way of collaboration involves a range of individual elements, and there is a high level of correlation between these. They are applied in varying combinations in response to given circumstances and changing contexts. Clearly, recalibration is needed as contexts change. Of importance, is that it is the interplay within each individual element, and across all of the elements, that collectively contributes to a transformation of practice.

A merger of evidence from both bodies of research finds it is unlikely that the requisite skills for the sophisticated work of collaboration striving to resolve a complex problem will be found in one single person. Rather distributed models are needed, and the

configuration of models needs to adapt to changes in context. In contrast to the need for distributed models, this study noted a volume of attention paid by scholars for 'one' particular approach only. For example, one particular style of leadership. This study finds this to be an inherent weakness in the literature. This study also found limited attention paid to further our understanding of the interplay within and across elements, although some excellent recent contributions are emerging.

Section 5.2 merges data from the two areas of research related to this study, around the 'enabling environment' required for the practice of resolving complex problems. The juxtaposition exercise found this theme was somewhat hidden and scattered throughout the literature. As expected, the literature on addressing complex problems provided rich knowledge to guide the practice of paying close attention to the wickedness of the problem. In order to resolve a complex problem, the wickedness of the problem must first be understood, and because they do not sit still, ongoing observation and inquiry is required. Stakeholders need to be vigilant, as complex problems fight back. They have a number of nonlinear interacting elements, which are constantly changing, and can never be pinned down. Added to this, small disruptions in one area can cause disproportionately significant consequences somewhere else. This is virtually ignored in the literature. This gap needs to be addressed by way of linking to the complex problem theory.

Much of the collaboration literature implies that complex problems can be solved. This is in direct contradiction to the complex problem literature, where is clear that there is no solution to a complex problem, rather they have to be resolved over and over again. The ongoing process of resolving complex problems requires a sustainable innovation cycle seeking to transform practice. This weakness in the collaborative literature needs to be addressed by linking to the literature on addressing complex problems.

A gap in both bodies of literature relates to evaluation, resourcing and time. Research needs to address the interplay between these elements.

With regard to membership, one discipline focuses on 'sources of knowledge', and the other on 'collective skills and knowledge'. A merger of these provides useful insight to further our understanding of who needs to be at the collaborative table. Further attention, however, needs to be paid to role of experts.

While there are inconsistencies in the two areas of research with regard to 'mindset', a merger of the two provides insights into the mindset required for resolving complex problems by way of collaboration. Research needs to focus on the dynamics of mindset according to the journey of the collaboration.

A particular strength of the collaboration literature is the attention paid to the relationship between conflict, change and collaboration, particularly with regard to the distinction between productive and unproductive conflict. A shared model of power is advocated by the collaborative literature, but it appears that in practice, this is not the case. Research needs to provide further understanding of power imbalances and how these can be resolved. The collaboration literature is helpful in informing the important role that trust and mistrust, and power play with resolving complex problems. In particular, these are not static and vary according to context. There is a fine line between trust and shattering trust.

The evidence from both disciplines informs practitioners that they need to adopt two 'new' ways of thinking and working. One involves practices required for resolving complex problems as opposed to evidence-based approaches for solving simple and complicated problems. The other concerns the practices required for working across organisational boundaries as opposed to approaches for working within an organisation. While this need is made evident, a major gap in both disciplines is how to support practitioners to 'unlearn'.

5.4.3 WHAT INSIGHTS HAVE BEEN REVEALED?

The results of the juxtaposition exercise undertaken by this study present a potentially promising way of looking at the practice of addressing complex problems.

This way includes the need for an enabling environment, which pays relentless and ongoing attention to the complex problem at hand. There is also a need for practice to adopt an innovation cycle of ongoing, innovating responses and evaluation. Further to this, there is a need for a cycle of transformative practice, that constantly changes according to the context. This requires distributed and evolving models of leadership, governance, and power in an environment that is adequately resourced.

The merger of evidence of the two areas of research reveals that the process of resolving complex problems by way of collaboration is anything but linear. Rather, it is the interplay

within each individual element, and across all of the elements, that collectively contributes to a transformation of practice. Limited attention, however, has been paid to this important topic.

In the process of undertaking the juxtaposition exercise, I noticed a theme in both disciplines for 'new' ways of thinking and working. This requires practitioners to unlearn existing responses, and transform to new ways of thinking and working. The practice of unlearning however, is largely ignored by both disciplines, although some excellent contributions to this area are emerging. In fact, it has been suggested that unlearning may be the first step needed in the journey of resolving complex problems (Nygren, Jokinen & Nijula 2017).

CHAPTER 6: CONCLUSIONS

6.1   INTRODUCTION

This chapter is organised in three sections. The following section presents a summary of the evidence-based arguments developed throughout this dissertation that challenge the assumption and expectation that increased collaboration alone has the capacity to solve complex social problems. Six key contributing factors have been assembled as the basis for this argument and these are summarised in this section.

This is followed by a discussion relating to the primary research question guiding this study: How can theory inform the practice knowledge of addressing complex social problems?

The final section collates the gaps and weaknesses in the two bodies of research identified by this study, finishing with an autobiographical reflection of the researcher.

A summary of the information in this chapter is provided in Figure

6.2   WHY INCREASED COLLABORATION ALONE WILL NOT SOLVE COMPLEX PROBLEMS

This study is underpinned by a paradox. Can the sophisticated and superior work of collaborative practice be effective if it is not driven by theory, or guided by the evidence on resolving complex problems? Can the advanced practice of addressing complex problems be effective if it is not guided by the theory of collaboration? This study's findings suggest that the answer to both these two questions is 'no'.

On one hand, the practice of addressing complex problems must consider collaboration theory. Frederickson (2014) imparts:

> It seems that wicked problems pay little attention to the boundaries of jurisdictions. Collaboration is the only way jurisdiction can make collective progress dealing with their wicked problems (p.9).

On the other hand, collaboration theory alone is not enough, as Head and Alford (2015) indicate:

There is more to tackling wicked problems than engaging in a process of collaboration, which has tended to be the most characteristic response of governments and policy makers. We argue for a more pragmatic approach, in which the type of response is tailored to the types of wickedness the problems seem to exhibit (p.718).

This thesis challenged the assumption and expectation of those who argue that increased collaboration will resolve complex problems. Six key contributing factors were explored, which collectively built a platform to support the main argument. Each of these factors related to the overall dilemma that the collaborative imperative is somewhat driven by a need to address complex problems, but collaborative research largely ignores the extensive research that has been undertaken in addressing wicked problems. Meanwhile, the research on addressing complex problems implies the need for collaboration, but pays little attention to the intricacies and sophistication of collaborative practice. A summary of these six factors follows.

The first relates to theoretical characteristics of complex problems. They are stubborn, intractable, vicious, tricky, and aggressive, difficult to define, and there is no clear cause and effect. They are in a constant state of flux and unpredictability. They have no stopping rule, are highly resistant to solutions and fight back. They cannot be solved, but rather have to be resolved over and over. There is a need for relentless attention to be devoted to the complex problem at hand by way of an ongoing process of resolution. Despite this knowledge, most practitioners, and bureaucrats seem to ignore the notion of complexity, and instead continue to apply approaches that are appropriate for simple and complicated problems. This study has found that this will result in solution-oriented interventions that will not work as they neglect many aspects of the complexity.

The second relates to a theory-practice gap related to addressing complex problems. Scholars contributing to this body of research mostly pay attention to theoretical methods for responding to complexity, and to wicked problems and policy research. Limited attention has been paid to the practice of how wicked problems are understood and managed. For example, is it stated that conditions need to be in place to enable the wickedness of the problem to be observed and analysed. However, there is limited direction from this body of research as to how this can be achieved.

The third relates to a theory-practice gap related to collaboration. The sophisticated and complicated work of collaborative practice is not well supported by theory. The body of collaborative literature that has been produced, is described as untidy, unwieldy, confusing, disjointed, piece-meal, fragmented, with many gaps. This study found many gaps and weaknesses in this research, with regard to where and how improvements in the practice can be advanced.

The fourth relates to multiple interpretations of the actual meaning of collaboration. This poses a serious challenge for effective collaboration. While practitioners, citizens and bureaucrats continue to be unclear as to the meaning of collaboration, and how it compares to other forms of working together, it is unlikely that existing collaborative practice will adopt the sophisticated and advanced practices necessary for collaborative work.

The fifth relates to the dynamic process of resolving complex problems by way of collaboration. This is a complicated interactive process, that is not well understood. Individual elements, such as governance and resourcing are dynamic in themselves. Much of the research on individual elements, however, implies these are static. Added to this, there is a high level of correlation between each of the individual elements. They are applied in varying combinations in response to given circumstances and changing context. In addition, recalibration is needed as contexts change. Of importance is that it is the interplay within each individual element, and across all of the elements, that collectively contributes to a transformation of practice. Limited research, however, has considered the interplay within an element and between elements.

The sixth relates to both bodies of research. Evidence from both disciplines informs practitioners that they need to adopt 'new' ways of thinking and working. Practices required for resolving complex problems are different to those approaches for solving simple and complicated problems. Meanwhile, practices required for working across organisational boundaries, as opposed to approaches for working within an organisation are different. This study has found that practitioners are finding the transition to these 'new' ways difficult, due to entrenched management practices and entrained thinking. This is because it requires practitioners to 'unlearn' existing and familiar responses and transition to new ways of thinking and working. The practice of 'unlearning' however, is largely ignored by research.

This study suggests this the combination of these six factors contributes to the high failure rates of collaborative efforts.

6.3 HOW THEORY CAN INFORM THE PRACTICE OF ADDRESSING COMPLEX PROBLEMS

6.3.1 OVERVIEW

This study has undertaken a process of systematic inquiry interrogating two theories from two different disciplines of research. By adopting this perspective, my study aimed to investigate whether the outcomes of the practice of addressing complex social problems might be improved when practice draws on knowledge from the two areas of research. This aim entailed gaining a better understanding, not proving a hypothesis. In order to do so, the study involved interpretation of data based on my perceptions, with the study's research conclusions based on these interpretations.

Six sub-questions guided this study's systematic inquiry. Two of these sought answers to the following questions.

> What contributions on addressing complex problems does the literature make to informing practice?
>
> What contributions of collaboration theory help to inform the practice of addressing complex problems?

The data gathered from this process was then used to seek answers to the following questions:

> What are links and gaps between the theories of addressing complex problems and collaboration? And what are the strengths and weaknesses?
>
> Can these strengths and weaknesses, links and gaps reveal insights into the practice of addressing complex social problems?

Here, the juxtaposition exercise undertaken by this study assembled the links and gaps between the two theories interrogated, looking for insights to get a better understanding of what is needed to transform the practice of addressing complex social problems.

This exercise recognised that the multidisciplinary nature of the complex problem literature makes it difficult to make comparisons across disciplines, and contributes to an abundance of disagreements between scholars. It also recognised that the collaborative as untidy, unwieldy, confusing, disjointed, piece-meal, fragmented, with many gaps.

This study makes an important contribution to mitigate some of those deficiencies and disagreements.

6.3.2 TRANSFORMATION OF PRACTICE

Figure 4: The practice of complex problems and collaboration: Key points of connection and resulting gaps

new ways of thinking and working compared to familiar ways that work for simple and complex problems and within an organisation

need to look to theory on learning, unlearning and team learning

points of connection

practice of resolving complex problems involves a dynamic interactive process **within each practice element** (leadership, governance & decision making, resourcing & time, evaluation and individual attributes including mindset, conflict, power and trust

A confusing abundance of options asserted for each element where many scholars offer 'a preferred approach' to practice, without comparing and contrasting their preference with other approaches.

recent contributions highlight that each element requires iterative recalibration as internal and external contexts change and that there is a high level of correlation between the elements

practice of resolving complex problems involves a dynamic interactive process **across and between each practice element**

Need a deeper understanding of the dynamic interplay within and across each element
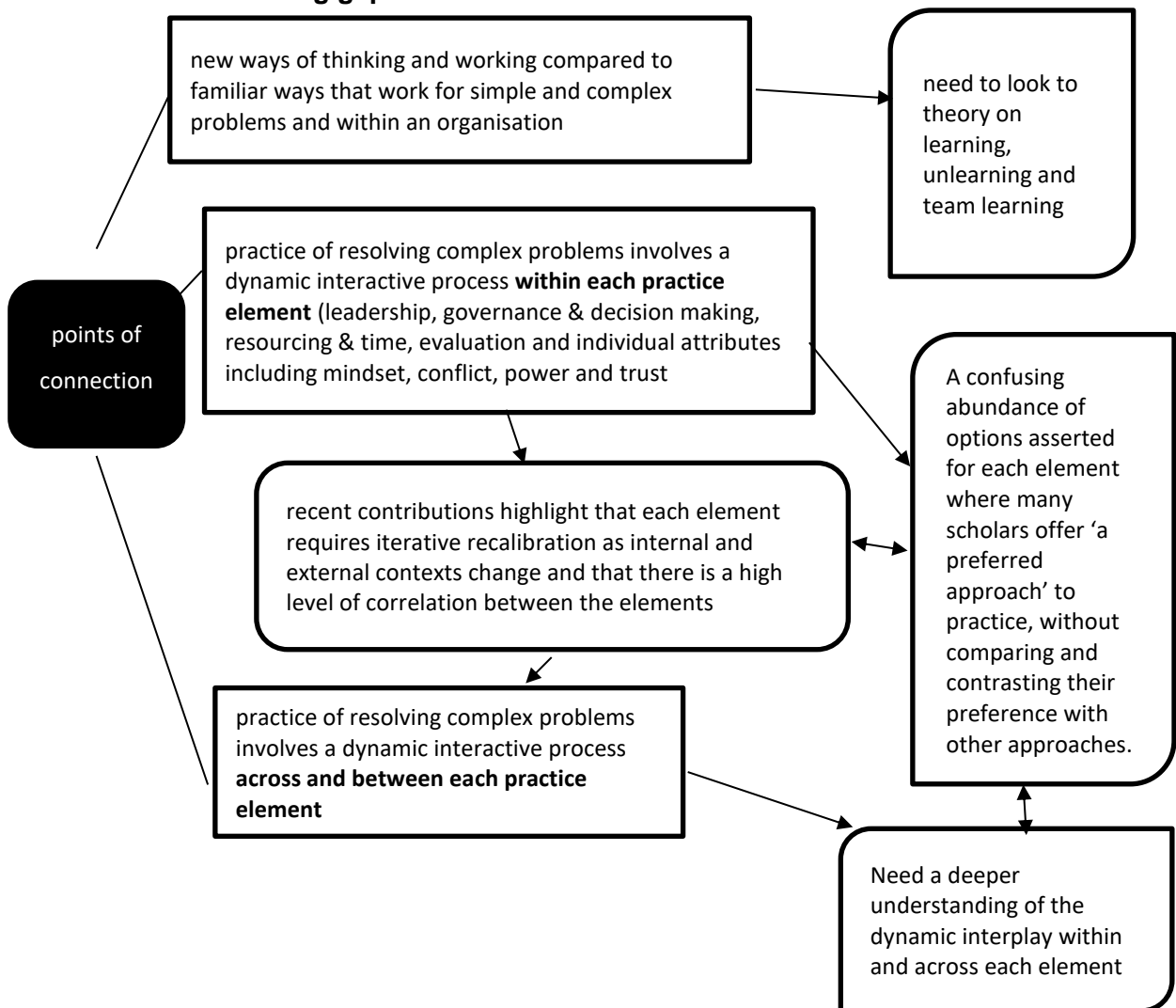
124

Figure 4 provides a summary of the key points of connection that have the potential to transform practice.

The literature on addressing complex problems, the notion that resolving complex problems requires different ways of thinking and working to those that are effective for tame and complicated problems is repeated. In the case of evaluation for example, it is said that practitioners need to adopt more advanced ways of measuring progress and success.

Meanwhile the collaboration literature also refers to the need for practitioners to adopt ways of working and thinking required for inter-organisational collaboration, which are different compared to those practices that are effective for working within an organisation. In the case of evaluation, the literature proposes that evaluation methods that measure activities and tasks accomplished with a specified time period, are unsuitable for collaborative evaluation. Rather, there is a need to assess the extent to which relationships developed have built the types of processes and capacities needed to work in different ways.

This study's juxtaposition exercise drew on elements from the literature on addressing complex problems and collaboration. The purpose of this exercise was to trade information with a view to finding connections that might improve the practice of addressing complex problems. This exercise noted a recurring theme across the two theories – a call for new ways of thinking and working compared to familiar ways that work for simple and complex problems and within an organisation.

This finding makes evident the need for transformation of practice across each of the core elements of collaboration and addressing complex problems including governance and decision making.

This finding is valuable for both scholars and practitioners. By understanding how theory can inform the transformation of practice within each of the individual elements, we would be better placed to understand the dynamic interplay within and between the core elements and by doing so better understand the process of addressing complex social problems.

Taking this stance could reduce the confusion and abundance of disagreements across the disciplines, some of which may be due to a tendency for scholars to offer 'a preferred

approach' to practice, without comparing and contrasting their preference with other approaches. This stance proposes there is not 'one right' type of leadership, governance, evaluation and so on, rather each element exists in various arrangements that change over time and by doing so takes the spot light off 'my approach is best' to 'how can theory inform the practice of addressing complex social problems'.

This study also found that an important core element of the practice of addressing complex problems relates to learning. For individual practitioners this requires continual learning such as new approaches to decision-making and evaluation. It also requires unlearning familiar and often entrenched responses that are appropriate for simple and complicated problems and working within an organisation. The practice of addressing complex problems also requires the collaborative skill of team learning. However, while some excellent contributions to this area are emerging, the literature largely ignore these critical components.

This finding is of valuable for both scholars and practitioners. By understanding how theory related to learning, unlearning and team learning can inform the transformation of practice, we would be better placed to understand the dynamic interplay within and between the core elements –and by doing so better understand the process of addressing complex social problems, both from a practitioner's point of view and also for teams of practitioners.

Taking this stance could reduce the gaps in the literature by once again taking the spot light off 'my approach is best' to 'how can theory inform the practice of addressing complex social problems'.

6.3.2 ENABLING ENVIRONMENT: BASED ON COMPLEX PROBLEM THEORY

Another important finding of this study is that in order to resolve a complex problem, an enabling environment is required.

Drawing on the literature on addressing complex problems, this study concludes the need for relentless and ongoing attention to be devoted to the wicked problem at hand. Wicked problems are malignant, vicious and tricky. They have a large number of nonlinear interacting elements, which are constantly changing, and can never be pinned down. Minor changes in one area can cause disproportionately major consequences elsewhere.

An appropriate environment enables adoption of an innovation cycle of ongoing responses and evaluation. Complex problems cannot be solved, rather they fight back and resist solutions. Responses to wicked problems can only alleviate the consequences of the problem by way of a range of ongoing, coordinated, interrelated and sustained responses. In order to alleviate the consequences of a complex problem, stakeholders need to acquire new knowledge by way of probing first, then sensing, and then responding. This requires particular conditions. These include allowing for assumptions and judgement, and whereby evidence is gathered and arguments built for and against different positions by way of negotiation of common ground and involving attentiveness and reflection. The joint aim is to improve the situation and this includes trying new ideas and experiments that lead to solutions arising from circumstances. This is emergent practice. Resolutions needs to focus on as many key nodes, or critical leverage points. And they should involve as many stakeholders across as many levels as possible. These factors are necessary to create significant change by way of cascading effects. Further, responses to a particular complex problem need to be tailored to the wickedness of the particular problem.

In addition, the enabling environment needs to affect a cycle of transformative practice that constantly changes according to the context. This requires distributed and evolving models of leadership, governance, and power in an environment that is adequately resourced.

This finding is beneficial for both scholars and practitioners as this this study only managed to find a relatively small amount of contributions to guide the practice of scrutinising the wickedness of the problem at hand, although it has noted more recent advances in the scholarship. For example, Alford and Head (2017) propose there are dimensions of wicked problems, and by recognising types of complexity, more targeted interventions are made possible. Taking this stance could remedy this gap in the literature.

6.3.3 THE INTERACTIVE PROCESS OF COLLABORATION TO RESOLVE COMPLEX PROBLEMS

The merger of evidence of the two areas of research confirms that the process of resolving complex problems by way of collaboration is anything but linear. Collaboration theory demonstrates that collaborative work entails a range of individual elements. These include leadership, governance, power, trust and resourcing. Much research implies there is 'one' best approach to these, and they are static. However, this study found there is a high level

of correlation between these elements, and they are not usually practiced independently. Rather, they need to be applied in varying combinations in response to the given circumstances and changing context. Each individual element is also dynamic, requiring iterative recalibration as internal and external contexts change. It is the interplay within each individual element, and across all of the elements, that collectively contributes to a transformation of practice. Moreover, it is this 'transformation' that makes resolving complex problems more likely. This is one of the most important findings of this study.

This finding is beneficial for both scholars and practitioners. By understanding how theory can inform the transformation of practice across each of the individual core elements, we would be better placed to understand the dynamic interplay between the core elements and the collaborative skill of team learning and by doing so better understand the process of addressing complex social problems. Taking this stance could remedy this gap in the literature.

6.4   NEW LEARNINGS AND RESEARCH

6.4.1 RESPONDING TO COMPLEX PROBLEMS

Research in this field has a strong focus on theory, with little focus paid to the applied knowledge practitioners need. In order to bridge the theory-practice divide in this discipline, this study suggests that future research needs to address the key issues facing practitioners, rather than narrowly focused topics with findings making only slight progress on previous knowledge. This study has adopted the notion of 'transformation of practice' as a suggested way forward for further research.

While scholars are overall in agreement that a new type of leadership is necessary, many propose a wide range of 'labels', making it unclear for practitioners to determine the exact type of leadership required. This study suggests that given every complex problem is essentially unique, a one-size-fits-all response will fail. The same applies to leadership. Resolving a complex problem involves ongoing resolution over time, implying the need for a range of transforming leadership approaches throughout the journey. This challenges traditional notions of leadership shifting attention away from the individual to a dynamic and distributed process. Despite this most leadership development is currently *leader*

development, focused on the styles, actions, and competencies of individual leaders. Further research on this should be a priority.

Approaches to decision-making and governance for resolving complex problems are different to those that are effective for simple and complicated problems. In particular, a constantly changing complex problem requires an evolving and adaptive governance system. This study concludes that further research on this should be a priority.

Evaluation methods for measuring the impact of applied resolutions to mitigate the impact of a wicked problem cannot involve traditional evaluation approaches that are suitable for tame and complicated problems. That is because these are unsuitable for the turbulence associated with complex problems. In the first instance, this study suggests that further research on developmental evaluation should be a priority. In particular, research should study a range of collaborative endeavors, each seeking to resolve a complex social problem, and which are using developmental evaluation to measure the impact of their innovations.

There are alternative views on the roles of experts in collaborative endeavors seeking to resolve complex problems. This study suggests that further research is required for this. In particular, research should study a range of collaborative endeavors, each seeking to resolve a complex social problem, with the focus on determining the role of experts, and the impact of these roles, both individually and collectively.

The mindset required by practitioners seeking to resolve a complex problem is different to that required for simple and complicated problems. Limited research attention has been devoted to what is needed in practice to support practitioners to transform their mindsets, and this study suggests that further research is required here. In particular, research should study practical techniques uses to overcome entrained thinking, and an entrenched culture of traditional management perspectives and practices.

6.4.2 COLLABORATION

The collaboration literature is clear on the importance of leadership for effective collaboration, and that a 'new' type of leadership is required. Significant attention has been devoted to determining the theoretical style of leadership necessary for collaboration, with

some scholars advocating for a particular 'brand' of leadership, including facilitative leadership, committed leadership, enterprise leadership, and collaborative innovation leadership. A dilemma here is that these appear to ignore the need for transdisciplinary, shared leadership. This study concludes that the needs of practitioners are not being met by research that tinkers around the edges, and is merely incremental to existing contributions. Rather, collaborative practice would benefit from research that is innovative, more speculative and boundary pushing, and which studies the interactive process of collaborative leadership.

As with leadership, the theory in the area of collaborative governance is clear on the need for different approaches to governance and decision-making for collaborations that cross organisational boundaries. However, limited attention has been paid to the dynamic collaboration governance process.

A largely neglected area of the research is the practice of resourcing an effective collaborative effort, particularly for studies determining staffing configurations over time, and the time investments of a range of collaborative efforts.

While some collaborative efforts have the potential to involve a large number of people, research suggests there is a need to keep the size of the group manageable. This study concludes further research is needed in this area, particularly research based on a range of collaborative endeavors.

Collaborations require a diversity of stakeholders, with a range of competencies, opinions, viewpoints, experiences, values, levels of power, and levels of trust. Limited attention, however, appears to have been paid to the configurations of these differences, and how this needs to change as context changes. This study concludes the need for further research, by way of case studies, to shed light on the configurations of these differences. For example, is the need for different technical experiences more, less or of equal importance to different levels of local experience?

Another neglected aspect of the research relates to the practice of effectively harnessing and shepherding the differences of stakeholders. This study concludes the need for further research to shed light on this matter. In particular, there is a need for more empirical evidence on the role of different types of partnership brokers and their accompanying competencies.

The limited literature on collaborative mindsets advocates that more agile mindsets are required for working across organisational boundaries, but there are inconsistencies as to the actual type required.

Evidence highlights that, when it comes to evaluation of collaborations, there is a need to assess the extent to which relationships have built the types of processes and capacities needed to work in different ways. This study found some recent attention paid to this, and concludes that more is necessary.

The collaborative process is not well understood. It is suggested that there is a need for longitudinal studies of collaboration processes, including those that have failed or are marginal.

This study observed a particular tendency in studies where participants in the study were in executive positions. While the data emerging from this research is valuable, and has been drawn on in this study, there is a concern. A collaboration requires a diversity of opinions, power bases, and experiences, including those closely associated to the problem at hand. This study suggests that research investigating a collaboration that only comprises people in executive positions is unlikely to illuminate data that might emerge, if the research subjects were from varying backgrounds. Therefore, studies need to investigate a range of collaborations with a distinct diversity of participants.

6.5   AUTOBIOGRAPHICAL REFLECTION

Undertaking this study has been an experience of highs, lows, and in-betweens.

One of the highs was the juxtaposition process. This was an incredibly stimulating and rewarding process, as I drew on over three years of reading, reflecting, discovery, questioning, assessing, reassessing, procrastinating, cursing, and often being way out of my comfort zone.

One of the lows was transitioning from practitioner to scholar. This was extremely difficult and, at times, distressing. Initially, I was somewhat intimidated by some of the literature. I lacked confidence in the notion of appearing to be scholarly, and, more importantly, that I should be taken seriously as a scholar. Embedded work practices automatically dominated my approach and constantly diverted me from applying good scholarship. At the beginning

of my research journey, I naively thought that scholarship would have the answers, and point me in directions for my quest. However, as my study progressed, I found this was not the case, and increasingly became disillusioned.

On the whole, undertaking this study has been invaluable both personally and professionally. I battled with the messiness of the social research process, overcoming my embedded work practices, and dealing with unplanned events in my life that conspired to hinder and prohibit my progress. Sheer determination and persistence helped me to overcome these, and in doing so has further developed my resilience. This study has transformed my professional practice. Throughout this study I have reflected on my new learnings, and how these could be applied to my work. I have adopted changes to improve the outcomes of my professional practice and have made some progress in influencing some of my professional partners.

However, there have been instances, where undertaking this study has isolated me from some professionals undertaking partnership brokerage roles. There have been examples where I have met with resistance, when I attempted to suggest ways of thinking and working that they are unfamiliar with. In particular, suggestions of investigating options that are not evidence-based practice have often been condemned.

After undertaking this study, I firmly believe that collaborative practice that is guided by the theory of addressing complex problems may open the door for systemic change. I leave the last word to Keast (2016):

> If only we could collaborate better we could overcome budget deficits, solve protracted and emergent complex social problems, overcome economic and environmental problems, deliver seamless and integrated services, reduce duplication and inefficiencies, develop coherent policies and programs and, finally, be more innovative and productive (p. 16).

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Figure 5: Gray's linear collaborative process

PHASE 1: PROBLEM SETTING	PHASE 2: DIRECTION SETTING	PHASE 3: IMPLEMENTATION
Common definition of problem	Establishing ground rules	Dealing with constituencies
Commitment to collaborate	Agenda setting	Building external support
Identification of stakeholders	Organising subgroups	Structuring
Legitimacy of stakeholders	Joint information search	Monitoring the agreement and ensuring compliance
Convener characteristics	Exploring options	
Identification of resources	Reaching agreement and closing the deal	

Source: Gray (1989), p. 57

Figure 6: Himmelman's developmental continuum for working together

	Networking	Coordinating	Cooperating	Collaborating
Definition includes:				
exchanging information for mutual benefit	X	X	X	X
altering activities to achieve a common purpose		X	X	X
sharing resources to achieve a common purpose			X	X
enhancing the capacity of others to achieve a common purpose				X
Relationship:				
Informal	X			
Formal		X	X	X
Time commitment				
Minimal	X			
Moderate		X		
Substantial			X	
Extensive				X
Levels of trust				
Limited	X			
Moderate		X		
High			X	
very high				X
Turf				
no necessity to share turf	X	X		
significant access to each other's turf			X	
extensive areas of common turf				X
Primary focus				
information exchange	X			
making access to services or resources more user friendly		X		
sharing of resources to achieve a common purpose			X	
enhancing each other's capacity to achieve a common purpose				X
Sharing of resources				
None	X			
none or minimal		X		
moderate to extensive			X	
full sharing of resources				X
Sharing of risks, responsibilities and rewards				
None	X	X		
Some			X	
Full				X

Adapted from Himmelman (2002, pp. 2-5)

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Figure 7: Ansell and Gash's dynamic model of collaboration

With the goal of developing a model of collaboration which identifies the contingent conditions that facilitate or discourage successful collaboration, **Ansell and Gash (2008)** reviewed 137 cases of collaboration across a range of sectors. An adapted version of their model is below.


```
                    ┌─────────────────────────────────────┐
                    │         Institutional design        │
                    │  clear ground rules, process        │
                    │          transparency               │
                    └─────────────────────────────────────┘
                                      │
                                      ↓
┌──────────────────┐      ┌─────────────────────────────────────┐      ┌──────────┐
│    Starting      │      │                                     │      │          │
│   conditions     │      │       Collaborative process         │      │          │
│     power        │      │         trust building              │      │ Outcomes │
│    resources     │ ───→ │       commitment to process         │ ───→ │          │
│    knowledge     │      │ shared understanding of problem     │      │          │
│                  │      │          and mission                │      └──────────┘
│ Incentives for   │      │                                     │
│ and constraints  │      └─────────────────────────────────────┘
│ on participation │                      ↑
│                  │      ┌─────────────────────────────────────┐
│ Prehistory of    │      │      Facilitative leadership        │
│ cooperation or   │      │       including empowerment         │
│ conflict (initial│      └─────────────────────────────────────┘
│ trust level)     │
└──────────────────┘
        ──────────  influences
```

Source: Adapted from Ansell & Gash 2008, p. 550.

According to Ansell and Gash, their model provides a simplified representation of the collaborative cycle, and they maintain the collaborative process is highly iterative and nonlinear.

Figure 8: Thomas and Perry's dynamic five dimensions of collaboration

The process of collaborative governing: the governance dimension	Shared responsibility of actions.
	Make joint decisions about the rules that govern behaviours and relationships.
	Create structures for reaching agreement on activities and goals through shared power arrangements.
The process of collaborative administration: the administration dimension	Creation of a central administration structure to enable movement from governance to action.
	Administration structure responsible for coordinating communication, organising and disseminating information, keeping partners alert to the jointly determined rules that govern their relationships.
The process of reconciling individual and collective interests: the autonomy dimension	Shared control involving partners' willingness to share information and reconcile individual interests with collective interests.
The process of forging mutually beneficial relationships: the mutuality dimension	Shared mutual benefits such as resources, skills, expertise and funding.
The process of building social capital norms: the trust and reciprocity dimension	Willingness to interact collaboratively, even if other partners don't demonstrate the same willingness ("I will if you will'.)
	Demonstrate repeated trustworthy behaviour over time.

Adapted from Thomson & Perry (2006, pp. 24-28)