THE UNIVERSITY OF HULL

STORYTELLING, STORY FRAGMENTS, AND SOLVING ILL-STRUCTURED ORGANISATIONAL PROBLEMS

Being a Thesis submitted for the Degree of Doctor of Management in the University of Hull.

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Abstract

This thesis explores how storytelling, and in particular story fragments, are involved in our everyday practice of solving ill-structured organisational problems. Data was collected from one primary research site, with a degree of triangulation afforded by analysis of data from additional organisations. Deploying elements of an ethnographic research tradition, the data was assembled from observations, interviews and discussions with a range of problem solvers from the different establishments.

The research suggested that traditional storytelling can play an important role at different stages in the problem-solving process, helping to set the tone of problem-solving meetings, and more significantly, in planning and shaping solution narratives. Story fragments however, were more apparent when problem solvers were attempting to understand the problems they were facing, and provided a vehicle through which the fundamental nature of the problems being faced could be recognised. Of particular interest was the capacity of fragments to facilitate the identification of the existence of ill-structured problems and some of the key components that contributed to these situations. When fragments emerged, they were perceived to represent impactful stories and narratives, and as such, influenced the direction and content of problem-solving activities. While typically they materialised within a discourse without drawing attention, the research argues that noticing story fragments can enable a listener to benefit from the insight they provide, presenting opportunities to expose and explore alternative perspectives and solutions. This is not without its risks, and while story fragments can illuminate faint signs that an

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organisation needs to change, caution must be exercised before acting on the information they supply.

Finally, a model explaining the potential existence of three core stories within organisations is proposed, with the prospects of operationalizing the emerging theories being considered.

Acknowledgements

The production of a PhD thesis, particularly as a part-time endeavour, is never easy; this one was no exception to that rule. I have, however, found the experience hugely rewarding, and this is in no small part due to the patience, support and expert guidance from Professor Kevin Orr, who took on a floundering, embryonic concept, and facilitated the development of a document that captures an idea that I remain passionate about.

My sincere gratitude goes to all those who allowed me to observe their working lives, with Senior Fire Officer Keith Evans and Chief Fire Officer Richard Hannigan being instrumental in the success of this research. Also, to my good friend Kate Hunt for her invaluable help in proofreading the thesis.

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Abbreviations and Acronyms

BBC   - British Broadcasting Corporation

BME   - Beginning, Middle, and End (a traditional narrative form)

CEO   - Chief Executive Officer

CIPD   - Chartered Institute of Personnel and Development

COMAH   - Control of Major Accident Hazards

CPS   - Creative Problem Solving

EA   - Environment Agency

FBU   - Fire Brigades Union

FSECT   - Fire Service Emergency Cover Toolkit

HR   - Human Resources

HFRS   - Humberside Fire and Rescue Service

ICT   - Incident Command Training

IRMP   - Integrated Risk Management Plan (HFRS operational plan)

ISP   - Ill-structured problem

NVQ   - National Vocational Qualification

RCC   - Regional Control Centre

SOP   - Standard Operating Procedure

SSC   - Systemic Story Creation

WSP   - Well-structured problem

Definitions

This research uses a number of specialist terms throughout the thesis. As there are areas of dispute over the precise meaning of some of the terminology, Table 1 below provides a 'quick-reference guide' for the reader, to explain the terms and to clarify how they are used within this thesis. Note that words in [square brackets] are mine, added for clarity.

Table 1 – Definitions that are Relevant to this Thesis

Term	Definition, as used in this document
Antenarrative	Non-linear, incoherent, collective, unplotted, and pre-narrative speculation. A bet that a proper narrative can be constituted (Boje, 2008, p. 254). Antenarratives change and evolve as they are shared, continually picking up and dropping meaning. The 'ante' of antenarrative has a double meaning, a 'bet' and a 'before'. Antenarrative fragments or 'antes' are bets (potentially predictive) and speculative, (a guess that events were truly as the teller has interpreted them) 'before' a retrospective narrative sets in. It is the raw material from which living stories, and ultimately narratives, are built. "*It is prospective sensemaking, ….. antenarrative is a swarm, more of a morphing (rhizomatic) assemblage that shapes the future. It is about complexity processes, and sorting something non-linear. Most strategy & futuristic models are about linear modelling of the future*" (Boje, 2009)
Anti-narrative	A refusal of stories to coagulate into a narrative – a plotless narrative. Boje (2009) adds that "*… in the Native American tradition there is critique that Western narrative has been an appropriation of indigenous ways of telling, imprisoning otherwise living story in a narrative coherence frame*"
Corporate story	The story that the organisation wants to have believed about itself. How the org wants to be known in the world - crafted through strategic planning & corporate communication. Typically a monologue.
Dominant Narrative	An overriding narrative that supresses all other interpretations of events.
Group (or team) story	The story that a group wants to have believed about itself. It encapsulates who the group is, and tells the listener about their character, their values and principles, their professionalism and concerns. It is the identity that a group or team prefers to present, and may be negotiated with the members stories of self, with its' context set by a wider, corporate story.
Ill-structured, or wicked problems	Problems that are: recurring; difficult-to-solve; paradoxical; lack clarity of cause and effect; continually change; deceptive; are difficult to identify, formulate, and isolate from other, morphing problems. (See Appendix 1, p. 361, and Figure 7, p. 85)

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Living Story	Antenarratives with a common theme; they are en route to becoming narratives - collected, but not fully structured. *"Living stories are in webs of relationships. We tell one before we can tell others. We are implicated and answerable to our compellent relationship stories, both in answering when we hear other's stories, and telling them and noticing them"*. (Boje, 2009). Living stories are stories told in the here-and-now, being changed, revised, embellished by the teller(s) and listener(s) as it is told.
Narrative	Storytelling, with an added plot that makes sense of the teller's perception of events, and provides some closure/conclusion. It is most often a retrospective sensemaking, and typically has a (linear) beginning, middle, and end. Narratives instruct the listener on what sense to make of events. Compared with stories, narratives allow the listener far less latitude to make their own decisions.
Predictive Narration	Guessing that one particular outcome will come to be and evolving it through narrative storytelling. It is the process of forming a prospective narrative.
Prospective narrative	A single interpretation of events that are predicted to occur, such that a narrative is formed that 'promises' that if we do 'x', then 'y' will happen. It justifies and rationalises actions that are taken in the 'here-and-now' by increasing the perceived certainly of their outcome.
Prospective Storying	Proposing and exploring the possibilities of multiple story endings – Tamara style
Retrospective sensemaking narrative	A fixed version of historic events, told in a way that makes sense of the facts as perceived from a single, dominant, monological perspective. Narratives emerge from stories and fragments when a sensemaking plot is added, that links stories and fragments together into a coherent, petrified, linear tale.
Solution narrative	My definition - A solution to a problem that has evolved out of a traditional storytelling approach to problem solving and sensemaking. It is comfortable for the tellers, and convincing to the listeners. However, it lacks the flexibility and adaptability that a story / antenarrative approach could bring, and arguable does not represent a credible solution to any problem that is ill-structured.
Story	"[A story is] *an oral or written performance involving two or more people interpreting past or anticipated experience*" (Boje, 1991, p. 111); a story evolves and changes as time passes, and as other events, tellers and stories interact. It privileges feeling and emotion over 'fact'. In this thesis, I use "story" both as a noun (a story) and as a verb (to story; storying), with the latter meaning the process of creating a story. Stories become narratives when a sensemaking plot is added, that links stories and fragments together into a coherent, petrified, monological, linear tale. Storying forwards is an act of prediction, having multiple guesses as what the future may hold. Storying backwards is part of sensemaking – trying out different story lines, different combinations of story fragments, giving a range of different understandings and interpretations of past events.

Story Fragment	A specific form of antenarrative; a story fragment is typically a small piece of a story, a short phrase, or even a single word, that encapsulate the core idea, concept, emotion or meaning of a story (or key part of a tale) for the listener, without the need for further explanation of the fragment. Boje may call these 'terse tellings', in that "...*the terser the telling, the more shared the understanding of the social context since insiders know what to leave to the imagination"* (Boje, 1991, pp. 115-116). I use the Term 'story fragment' as I believe it better represents the usage in this thesis – for me, a 'telling' implies a deliberate act of sharing a story fragment, and I wish to include unintentional use of this aspect of storytelling.
Story of self	The story (i.e. still evolving) that an individual wants to have believed about themselves. It encapsulates 'who they are' and tells the listener about their character, their values and principles, their achievements and concerns.
Storytelling	The arena in which the act/art of sharing stories and narratives takes place, where the complex interplays of narrative, living story, and antenarrative happens. Storytelling unfolds as the teller dictates, and goes where the teller directs it. Boje sees all organisations as Storytelling Organisations with "... *some unique special balance of narratives of the past, living stories of the present, and antenarrative shaping the future and reshaping the present and past*". (Boje, 2009) This is the overarching term for the process of creating and sharing all types of narrative inputs, covering stories, fragments of stories and narratives.
Storytelling organisation	"*a collective storytelling system in which the performance of stories is a key part of members' sense-making and a means to allow them to supplement individual memories with institutional memory.*" (Boje, et al., 1996)
Tamara	A play by John Krizanc (1981), used by Boje to illustrate the randomised nature of real storytelling. In the play, actors take the audience in a multitude of different directions, both mentally and physically, within a large mansion, with the audience choosing which story line and actor they wish to pursue, knowing that they will only experience part of the total narrative.
Tame, or (well) Structured problems	A problem that exhibits clear relationships between causes and effects, where complete lists of potential solutions can be drafted and rationally compared, tested, and applied. (See Appendix 1, p. 361)

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Introduction to the Thesis

While the work presented in this document is the culmination of almost seven years of part-time study, I do not consider the work to be complete. The research process has provided answers to the research questions, but has raised more questions that I hope to be able to explore in my future endeavours.

The thesis is presented in two parts: First, in Chapters 1, 2, and 3, I explore the *process* of the production of the research by introducing the core topics, exploring the literature that underpins them, and rationalising the approach that was adopted to carrying it out. In the second part, I elucidate the *content* the resulted from the process, and so in Chapters 4, 5, 6, and 7, I provide answers to the specific research questions. Finally in Chapter 8, I draw these answers together to reach conclusions relating to the title of the thesis.

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PART ONE

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Chapter 1.   Introduction

…. the art of asking the "right" question is more important than framing the "right" answer.

(Weisman, 2012, p. 117)

The introduction to any academic piece of work should ensure that the reader is able to understand that the author is asking the "right" questions, and is seeking the "right" answers. Therefore, this chapter sets out the case for my research, and gives a flavour of the context in which it took place.

1.0. Introduction to Chapter 1

In this chapter, I explain why I believe 'Storytelling, Story Fragments and Solving Ill-structured Organisational Problems' is an important and worthy topic for research. To do this, I provide an overview of the research and its context, explain the rationale behind the research and its associated research questions, and explain how I have presented this problem of solving problems to the reader. I begin by providing a description of the background to the research, and introducing the context in which it took place. I then explain why the topic is important, and provide the rationale for connecting the topic of ill-structured problem solving to the topic of storytelling and story fragments. Finally, I describe the structure of the thesis in a way that allows the reader to appreciate how the research makes its contribution to knowledge.

1.1. The Context and Background to the Research

The research presented in this thesis centres around the role of storytelling and fragments of stories in solving difficult, recurring, complex organisational problems. The topic came to light after a discussion that took place early in 2006 between myself and Professor Russ Vince, on what my PhD topic should be. It went something like this:

> ***Russ*** *– what topic would you like to look at Nick?*
>
> ***Nick*** *– I was thinking about looking at ways to improve knowledge-sharing networks.*
>
> ***Russ*** *– Hmmm….. you'll have to come up with something more interesting than that!*
>
> ***Nick*** *– well, what I'm really interested in is storytelling. And for my MBA, I looked at solving ill-structured problems…*
>
> ***Russ*** *–… That's more like it! ….And what other types of problems are there?!*

And so the long (part-time) journey to a PhD began.

Part of my role around the time of this conversation was as a management trainer, working with the Humberside Fire and Rescue Service (HFRS), and involved observing and assessing their middle and senior managers. This presented an excellent, serendipitous opportunity to engage with an organisation in such a way as to enable a research study to be carried out in an ethnographic style, albeit not in the purest sense of the research method. While 16 of the 22 data collection episodes occurred within HFRS, this was not a study of that organisation; the central unit of analysis was the process of solving ill-structured problems, and particularly the role of storytelling in

this process. Therefore, openings to gather data from individual managers and their teams who were recruited from my classes on Strategic Management and Leadership, were viewed as being consistent with the research strategy. Indeed, I would argue that these facilitated a degree of triangulation to the work. It is important for a study of this nature to be clear on where the boundaries of the investigation lie. There is no intention to explore the arguments on narrative construction – while this may provide some guidance in terms of data analysis, the focus of the research is on the introduction and use of storytelling in practice, rather than on how they are, or perhaps should be, structured and assembled. The work does not attempt to develop an intervention that could be used in practical problem solving, but investigates the potential for such a tool, specifically in an organisational context. Finally, as this is not intended to be a comparative study, I do not critique or evaluate traditional problem solving approaches, other than to note that they exist, and have limited success with solving ill-structured organisational problems.

Having said what the work will not include, I will now outline why the issues that are included are important.

1.2. The Importance of the Topic

Evidence of the importance of finding better ways to solve difficult problems appears

regularly in the popular press, in academia, and in everyday life. For example, in a

recent article for the British Broadcasting Corporation (BBC), the political philosopher

and author, John Gray wrote:

> *In everyday life, systems that were designed to be infallible - from the*
> *security software we install on our home computers to the mathematical*
> *formulae used by hedge funds to trade vast sums of money - have proved*
> *to be dangerously unreliable.*
>
> *From the health service to care homes and prisons, institutions and services*
> *have been remodelled to obey principles of rational efficiency, with the*
> *result often turning out to be lacking in human sensitivity and at worst a*
> *mere shambles.*

> *(Gray, 2012)*

From an academic perspective, Cowan (1990, p. 366) states that substantial empirical

evidence can be found that shows "*executives spend much time identifying and*

attempting to solve problems".

In my everyday role as a management trainer, working to develop the leadership skills

of prospective senior managers, students are regularly disturbed by the findings of

numerous studies that reveal a feeble success rate for most organisational change

efforts (Anonymous, 2008; Beer & Nohria, 2000; Kee & Newcomer, 2008). The irony is

that many management development courses, including some of those that I teach,

prescribe a syllabus that privileges the same potentially flawed tools and techniques

that would appear to have failed to provide solutions to the problems of the

organisations in these depressing studies. The research on which the studies are based

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imply that we should be concerned that, in the chaotic world they describe, the influences on our problems are increasingly numerous, ambiguous, vague and dispersed, i.e. they are ill-structured problems. Therefore, decisions on how to move forward in our organisations, and also perhaps in our personal lives, are rarely clear-cut, their outcomes are rarely certain, and yet, so much hangs on them.

All this indicates that our organisational problems are becoming increasingly complex, ill-structured, and resistant to existing problem solving techniques (Gleick, 1987; Grossman, 2004; Handy, 1994). It would seem we need to challenge our 'rational' business processes, yet be pragmatic so as to connect and engage with people in organisations that, in attempting to act in their stakeholders interests, move only cautiously towards adopting largely untried approaches to solution-finding. This thesis will argue that storytelling and story fragments could have an important role to play in this change of approach. By 'story fragments', I mean a crucial, small piece of a story that captures the essence of the tale, and to those that know it, substitutes for the retelling of the complete version.

The idea of the involvement of stories and narratives in problem solving is not new. Barge (2004) identified a host of organisational problems which storytelling had been used to help to resolve, including making sense of corporate life, playing a key role in forming and sustaining corporate cultures, building teams, developing strategic plans, and so on. Cunliffe & Coupland (2011) comment on a wide range of different contexts in which storytelling has been used, noting that:

"Regardless of these differences, the common theme is that narratives are the means by which we organize and make sense of our experience and evaluate our actions and intentions."

(Cunliffe & Coupland, 2011, p. 66)

Colville, et al., in explaining their term 'Simplexity', state:

Simplexity is advanced as an umbrella term reflecting sensemaking, organizing and storytelling for our time. People in and out of organizations increasingly find themselves facing novel circumstances that are suffused with dynamic complexity. To make sense through processes of organizing, and to find a plausible answer to the question 'what is the story?'

(Colville, et al., 2011, p. 5)

So a range of studies have examined how storytelling has been deployed in different problematic circumstances. All these instances are 'problems' of one type or another, and my interest is in the particular category of problems described above, namely wicked, or ill-structured problems. While these terms are not universally seen as synonymous, they are sufficiently similar for this research to treat them as such, particularly given that the contribution of my research is intended to be to help in understanding and solving them, not differentiating one from the other.

I take the position that there is a need to develop more sensitive and responsive processes that could help in these problematic situations. While this view is supported by other researchers, not all take a qualitative route to exploring the contribution of storytelling. For example, Goranson & Cardier (2006) investigated the role of narrative in determining the value of artificial intelligence; Bonabeau (2003), in reporting a study that suggests 45% of managers prefer to trust their instincts rather than facts and

figures when making business decisions, made the point that various technological tools are being developed to assist in the generation of, and selection between, a vast number of options for managerial action. The development of technological aids to problem solving hold a great deal of promise, particularly given that thanks to rapidly growing computational power, vast numbers of combinations of past events can potentially be processed through these systems to simulate the potential outcomes of different solutions.

However, such modelling of events and decisions is inevitably based predominantly on retrospective, historical, linear thinking, as their decision data is based on inputted experience, i.e. traditional narrative forms. Hayashi (2001) also takes the view that retrospection is dominant in our decision making processes, reminding us that a reflexive approach is crucial to successful 'intuitive' decision taking. More recently, Stephen Fry supported the view very succinctly when referring to the resignation of the visionary of the computing world, Steve Jobs (former CEO of Apple, who died on 6/10/11), saying in an interview that *"… Steve Jobs has always understood that, as human beings, our first relationship with anything is an emotional one"* (Fry, 2011). Artificial intelligence and super-computers do not capture this emotion well – stories do.

So while traditional, rational, logical approaches to problem solving have their place, it would seem there is scope for storytelling and story fragments to contribute to the debate on how to improve our organisational responses to the problems of a complex, ever-changing business environment.

1.3. The Rationale for Linking Storytelling and Story Fragments to Problem Solving

Humans naturally gravitate to stories and narratives: Denning (2005) gives many reasons for the pervasiveness of storytelling within organisations, such as the speed of communication, ease of remembering, ability to evade the corporate radar, economic value of the information imparted, and so on. Boje (2008, p. 4) notes how "*narratives shape our past events into experience using coherence to achieve believability*", and sees all organisations as 'Storytelling Organisations'; Goranson & Cardier (2006, p. 2) imply that to create narrative is a "*driving imperative*" in our lives, as we seek to organise and position ourselves in relation to events and contexts.

While stories have long been noted for their ability to capture, and indeed, create knowledge, the goal of this investigation is to explore the involvement, both actual and potential, of storytelling in providing solutions to problems that have been identified as recurring, difficult-to-solve, and paradoxical.

Seminal work by Morgan (1986) suggested that superimposing patterns of thinking onto organisations by the use of metaphors helped to inform our understanding of those organisations, and could potentially provide solutions to the problems uncovered. This study will provide an exploration of the potential to provide a similar 'scaffold' that supports the construction of unique and infinitely variable stories that lead the creator towards solutions to an ill-structured problem.

The popular works by Denning (2001; 2006; 2007), Guber (2011) along with many others, suggest that leaders can design, edit and deliver narratives in such a way as to

communicate a message that elicits a particular and desired response from the listener. If this is true, and the act of following a 'recipe' or set of rules that permits a teller to construct stories that have a selectable impact, then in principle at least, it may be possible to identify a similar type of pattern that leads to the exposure of potential solutions to difficult-to-solve problems.

These different perspectives on storytelling are identified as representing the schism between theory and practice in the topic, and are "*holding back development of story praxis*" (Boje, 2006, p. 223). This thesis will contribute to bridging this gap, and explore the topic from the generic perspective of complex problem solving.

So given the way that humans are drawn to narrative such that the phenomenon is embedded in everyday social interaction, there is justification for its inclusion in a new problem solving approach – storytelling is a natural part of life, and therefore may well evade the resistance that other problem-solving techniques suffer from. But 'real-life' narratives are not as Aristotle would have them, i.e. they are not ordered and complete with a beginning, middle and end (BME); they are fragmented, interwoven and complex (Boje, 2008). Gabriel (2000, p. 42) agrees, and defines "*proto-stories*" as fragments of a narrative before it is fully formed; Boje would perhaps use his term "*terse tellings*" (1991, pp. 115-116) for these fragments – throughout this thesis I favour the term 'story fragments' to describe these meaningful, compressed representations of more complete versions of a story.

Gabriel goes on to examine how a single additional fragment of a story, be it fact or fiction, can then seed the crystallization of a full-blown version of a narrative, a version

that could have been very different had a different fragment been added. This is at the heart of the problem-solving approach that this thesis will explore.

The work of Shotter offers further insights into the linkage between narratives and managerial work: He argued that management is similar to authoring a conversation, and the managers' task is:

> *… not one of choosing, but of generating, of generating a clear and adequate formulation of what the problem situation "is", of creating from incoherent and disorderly events a coherent structure within which both current activities and further possibilities can be given an intelligible place.*

He goes on:-

> *… and of doing this, not alone, but in continual conversation with all the others who are involved …. . To be justified in their authoring, the good manager must have a sharable linguistic formulation to already shared feelings, arising out of shared circumstances – and perhaps that this is best done through the use of metaphors rather than by reference to any already existing theories.*

> (Shotter, 1993, pp. 150-152)

He captures the idea of managing as a dialogical and narrative-based task, and the significance of stories in organisational spaces. So just as Shotter talks of "*metaphors*", for this study, the "*sharable linguistic formulation"* that connects with *"already shared feelings"*, that arise "*out of shared circumstances*" are stories, fragments of stories, and narratives.

So a precedent exists for using a story-based approach to problem solving; in fact we do it constantly. With this in mind, the research questions, evolved and refined by the literature review, emerged as follows:-

- How does storytelling feature as part of people's approaches to ill-structured problem solving in specific organisations?

- What can a focus on story fragments uncover about these everyday problem-solving practices?

- How do storytelling and story fragments affect the dynamic of ill-structured problem solving?

- What challenges and opportunities does working with story fragments present to managers in dealing with ill-structured problems?

These questions are explained and rationalised more fully at the conclusion to Chapter 2, on page 103.

1.4. Guide to Chapters

This thesis follows the traditional pattern for a qualitative study: Here in Chapter 1, I have set out the purpose and significance of the study, and clarified the central issue that is addressed in the chapters that follow. In Chapter 2, I review the literature that relates to the research title, and use this literature to inform my research questions. Chapter 3 outlines the research procedure, and provides a justification of the approach adopted to the gathering and analysis of data, with Chapters 4, 5, 6, and 7 describing the major findings of the thesis, and providing detailed analysis of the key emergent themes. Finally, Chapter 8 discusses the key learning from the research, clarifies its contribution to knowledge, and makes recommendations for further investigation and development of the key findings.

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1.5. Chapter Summary

This chapter has set out the rationale that underpins the research topic of Storytelling, Story Fragments, and Solving Ill-Structured Organisational Problems. It has provided a brief explanation as to how the two disparate subjects of storytelling and problem solving were brought together, and why I believe they are worthy of the detailed research that is incumbent on a doctoral thesis. The limitations of the work have been outlined, and a guide to the ensuing Chapters has been supplied.

I now move on to explore the literature the illuminates the research questions.

Chapter 2.   Literature Review

The only books that influence us are those for which we are ready, and which have gone a little farther down our particular path than we have yet got ourselves.

(Forster, 1951, p. 227)

Taken from the essay "*A Book That Influenced Me*", in *"Two Cheers for Democracy"* by E.M Forster (1951), this quote summarises the rationale behind a literature review; before embarking on the research and analysis of a thesis, it is vital to explore the existing ideas and to interrogate lines of debate on the chosen topic. Furthermore, for an academic study to be both efficient and credible, it must be anchored in the existing literature on the topic (Easterby-Smith, et al., 1991). Most importantly, this process should result in the generation of the thesis research questions.

2.0.   Introduction to Chapter 2

This chapter reviews the work of key authors in topic areas that are related to stories, storytelling, and solving ill-structured problems. The literature is critically assessed, relationships between the topic areas are explored, and links to the research site are identified. My review will present a synopsis of existing work in four areas relating to the core issues of this thesis. First, the literature on the nature and use of story in organisations is explored, and specifically links to the topic of solving problems within them. As traditional problem-solvers recognise, to deliberately attempt to solve a problem, we must understand it. This leads inevitably to the discussion of the second

key area, namely sensemaking and decision making as integral parts of a problem-solving process. The interplay between story and organisational culture, power and politics provides the third area for this review. These topics have an important impact on the way in which problems are addressed, and in turn are reciprocally affected by the solving process. As such, they are important to this study. Finally for this chapter, I examine the fundamental nature of problems and problem solving. As the difficulties facing our organisations become more complicated, complex, and ill-structured, the need for more original, ingenious, and imaginative solutions arises, and so an investigation of the nature of creative problem solving (CPS) can add value to this study, and as such, provides the final area of literature for review.

Therefore, this chapter examines some of the key work in each of these areas, and explains the current thinking on the relationships between them. Reflecting on this body of research allows the research site for the study to be located within the literature, and the research questions to be crafted. Finally, the contribution that the thesis will make to understanding the way in which storytelling and story fragments play a role in solving ill-structured organisational problems will be identified.

2.1. Storytelling in Organisations

In this section, I seek to explore the existing literature on the practice of storytelling in organisations. Much has been written on the topic, with a myriad of different perspectives offered by a wide range of authors. This is in itself a challenge for this thesis, as there is the risk that the reader is bombarded with different, sometimes contrasting views of what it means to tell stories in organisations, making it difficult to appreciate exactly where the author stands on the topic. In the following sub-sections, I attempt to clarify the issues in organisational storytelling that are key to understanding its role in solving problems. In doing so, I recognise that if a different topic were selected, for example, improving staff engagement, inspiring followers, communicating change, or stories as a research tool, a different set of authors may well have been selected, with different themes identified.

For this study, the central issue relating to storytelling is demarked at one pole by authors who see storytelling as dealing with the complex minutia of polyphonic discourse, where stories are constantly being evolved and changed by the inputs and interactions of listeners and tellers. On the other extreme sit a different cohort, who seem to see storytelling as a 'macro' exercise in facilitating change, where a gifted storyteller crafts a powerful and compelling story (or more specifically, a narrative), that becomes the catalyst for major change in an organisation. The power of stories and storytelling in this role is well documented, and is discussed within this review in Section 2.1.2., Traditional Organisational Storytelling Praxis.

It is perhaps useful at this stage to clarify exactly how the terms story fragment, story, and narrative are used and related to each other in the context of this thesis – please see Figure 1 below:

Figure 1 - A Representation of the Relationship between Story Fragments, Stories, and Narratives

	The Format of the Storytelling		
Feature of the term:-	**Fragment (of a Story)**	**Story**	**Narrative**
Size when told	Small		Large
Teller's Meaning	Hinted		Defined
Structure to the Tale	Low		High
Listener's interpretation	High		Low

These terms are used and explored extensively throughout this work, and link to David

Boje's concept of "*Antenarrative*" (2001, p. 1) that is discussed in the next section.

2.1.1. The Concept of Antenarrative

A key author for this thesis is David Boje, who argues that all organisations are storytelling organisations, arguing that it is "*the preferred sense-making currency of human relationships among internal and external stakeholders*." (Boje, 1991, p. 106). His major contribution to the field of storytelling is the notion of 'antenarrative', which is central to this study. He first introduced the concept in his book, '*Narrative Methods of Organizational and Communication Research*' (Boje, 2001), exploring how the tales people tell have a propensity to change each time they are told, being under almost constant revision, altered by the interaction of a range of factors, including the tellers' delivery, the audiences' previous experiences, the context, and so on. The concept of 'antenarrative' is interpreted in this thesis as a term that circumscribes (and describes) the way in which storytelling evolves and stories materialise and are made known in the world. It includes the way in which we creatively weave together different fragments of stories (i.e. 'snippets' of a story that represent a more complete version of the tale) to construct our preferred sensemaking narrative from them. It relates to how we then go on to re-weave them as new 'antes' (i.e. potential components of a story or narrative, and particularly here, story fragments) join the storying 'soup'. The term represents a story-making, metaphysical place where an assemblage of antes swirl together, waiting for the storyteller to give them their place in a story or a narrative. The entrance of new fragments of stories into this storying process requires us to adjust the sense we make of the whole. Alternatively, if we choose, we give the fragments a new pattern, with a different meaning being implied. Antenarrative explores the way in which different patterns can be 'storied' from the fragments that are available to us, and indeed, encourages us to 'fill-in-the-blanks' when the appropriate fragments are absent. This storying can be retrospective (making sense of

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events that have happened in the past), in the here-and-now (making sense of events

as they happen, allowing and determining how we respond), or prospective (imagining

what events might happen in the future, and giving them a structure that allows us to

make sense of what we are doing now). In a written personal communication by email

on 29/4/09, Boje described antenarrative as follows:

> *It is prospective sensemaking, but not in the way Dennis Gioia and*
> *colleagues imagine it as a future-perfect (retrospective) version of*
> *prospective [see Gioia, et al., 2002]. Rather, antenarrative is a swarm, more*
> *of a morphing (rhizomatic) assemblage that shapes the future. It is about*
> *complexity processes, and sorting something non-linear. Most strategy and*
> *futuristic models are about linear modelling of the future. A more*
> *networked or rhizomatic approach gets to the non-linear.*

Personal Communication (Boje, 2009)

He sees 'stories' as jumbled precursors to a 'narrative', and a narrative is a fully

formed, coherent, sanitised, rationalised set of stories. These stories are formed by

individuals from story fragments, in an attempt to make sense of the events that have

been, are being, or are expected to be experienced.

Antenarrative as a concept is extremely important for this study, as it goes some way

to providing an explanation of how storytelling in organisations happens in reality. This

is perhaps in contrast to its presentation by much of the storytelling 'industry' that is

popular with management authors and consultants currently. In the latter, the focus

seems to be on how stories can be consciously and deliberately selected, crafted, and

sometimes contrived to provide managers with a powerful tool that helps them to

achieve their goals. The implication is that stories can be cultivated and harvested in a

systematic and transferrable manner. This has obvious attractions to the consulting world, given that one can teach a 'system' of storytelling to fee-paying customers.

However, Boje's argument implies that the power and practise of storytelling must be fully understood before it can be useful in organisations. Boje rightly sees storytelling as a complex and complicated activity, and his concerns begin to surface in his early work: He and his co-authors are troubled by the flaws in western economic systems, (specifically capitalism) and by the methods used to investigate them (Boje, et al., 1996). They examine the value of a postmodern perspective on management, organisational theory, and organisational analysis, and challenge the typical view of society which sees 'Scientific Analysis' as the only truly valid method of investigation. While recognising the value of science, the authors pointed out the importance of considering alternative views of the 'facts' of an event, views that may be equally valid, and as such, favour a more reflexive approach, suggesting that reality is a personal construct. This seems to be a pivotal point in Boje's thinking, as he subsequently explores the issue of multiple potential interpretations of events and the different 'truths' that are created by an individual's attempts to make sense of the world around them, with these views subsequently encapsulated in has concept of antenarrative.

Boje explains his concept further when he describes how he disagrees with other authors (particularly Czarniawska) on the definition of story and narrative, in essence, the difference being one of degree of structure being imposed onto the retelling of events (Boje, 2001). In the personal communication of 29/4/09, he states that:

> *The disagreement is done to open a space in storytelling dynamics for living story and antenarrative. It is also more a disagreement with the legacy of Aristotle.*

Personal Communication. (Boje, 2009)

He argues that stories are converted into narratives by adding "*'plot' and 'coherence'*" (Boje, 2001, p. 1) and goes on:

> *To translate story into narrative is to impose counterfeit coherence and order on otherwise fragmented and multi-layered experiences of desire.*

(Boje, 2001, p. 2)

The issue here appears to be that Boje believes many attempts to use narrative in organisations and in organisational research are too positivistic in nature; he states that "*the speculative gets lost in narrative*" (Boje, 2001, p. 3), noting that in most organisations, actors and analysts alike are guessing at meaning, but often presenting it as 'fact'. He believes it is important to recognise that people often invent parts of stories, stating *"… people are only tracing story fragments, inventing bits and pieces to glue it all together."* (Boje, 2001, p. 5).

In later work, he expresses some specific concerns relating to the exploitation of storytelling by those who present the practise as a 'quick-fix' for various organisational problems (Boje, 2006); there is tacit recognition by Boje and many other authors that the use of narrative in business is, in essence, as a problem-solving tool. For example, it is used as a tool to solve the problems of poor qualitative data, poor communication, inappropriate leadership, or ineffective knowledge sharing (Gabriel, 2000; Barge, 2004; Brown, et al., 2005). Yet Boje's view of these traditional storytelling deployments is as

being overly normative and deterministic, and casts doubt on the wisdom of such approaches. In my thesis, however, I explore how these positivistic traits are potentially useful when considered as part of an evolved problem-solving process: The unpredictable, speculative dimension of storytelling that Boje focuses on is a promising ingredient in the generation of workable solutions to ill-structured problems. His approach implies that organisational problem solvers should ask, *"If in the past, we've built solutions around all the obvious explanations of 'facts' only to have the problem reoccur, why don't we now invent some new interpretations to help create new potential solutions?"*

One issue is that Boje's work is difficult to access and difficult to apply in real organisations, and creates considerable challenges for practitioners in terms of generating a clear direction for managers to follow. An option that this thesis will explore is to combine the two schools of thought, with an antenarrative-based intervention providing new interpretations of story fragments, with traditional storytelling processes supplying an effective implementation route for any solutions that are found. This will be discussed in the recommendations of this thesis.

It could be argued that Boje explores this approach to some extent with his repeated reference to the play '*Tamara'*, by John Krizanc (1981). In these performances, actors take the play (and audience) in a multitude of different directions, both mentally and physically, within a large mansion, with the audience choosing which story line and actor they wish to pursue, knowing that they will only experience a fragment of the total narrative (Boje, 2008). This storytelling allows a new tale to be woven from antenarrative fragments on each performance. When we recognise that this

construction happens naturally in storytellers, the possibility of inducing and exploiting

the process emerges. More specifically, the process can be credibly applied to problem

solving. Boje explains:

> *[It is] Tamara that I think comes closest to capturing the networking
> complexity dynamics of storytelling organisations. ….   What I think
> Tamara does is show the ways storytelling is fragmented, simultaneous in
> different rooms of an organisation, and how we spend our time trying to
> chase story lines, trying to make sense of past, present, and future.*

> Personal Communication. (Boje, 2009)

Indeed, Boje has developed a number of antenarrative-based interventions that are

explained in a recent publication (Boje, 2008). There is resonance with these and the

nature of ill-structured, wicked problems (Hancock, 2004; Horn & Weber, 2007; Horn,

2008; Alpaslan & Mitroff, 2011). This will be discussed in Section 2.4. Problems,

Problem solving and Decision Making.

So while Boje's approach to storytelling can be applied in the field, it perhaps lacks the

pragmatism of the perspectives offered by other authors who are discussed below.

2.1.2. Traditional Organisational Storytelling Praxis

The work of Stephen Denning is particularly interesting for this research, as it offers a

contrasting perspective on storytelling praxis when compared to Boje's approach.

Rather than exploring the nature and mechanisms of its workings at a psychological

level (although this aspect is discussed to some extent), Denning approaches

storytelling very much from a practitioner's view point, offering relatively prescriptive

advice to those wishing to use stories 'in-the-field'. He views 'story' to be synonymous with 'narrative', and to mean "*an account of a set of events that are causally related*" (Denning, 2007, p. 229). This is somewhat at odds with the definitions used within this thesis (listed in Table 1, page 13). While it might be anticipated that Boje would fundamentally disagree with Denning regarding the precise meaning of story and narrative, there is agreement in that it is the activity of constructing and telling narratives that is important in organisational life. A key purpose of this thesis will be to explore what can be learned by identifying fragments of story as they emerge in a problem-solving scenario. Indeed, as we shall see in Chapter 6, story fragments will be argued to provide a valuable source of learning to the organisation. This role for storytelling is well established, for example see Denning (2006), Gold (1997), and Boal & Schultz (2007), and while some authors have typically focused on the impact on organisational learning of storytelling as a generic activity (Greco, 1996; Jacobides, 2010; Carr & Ann (formerly Lapp), 2011), Liu, et al (2011) explore the disjointed nature of organisational narrative building, and particularly on collaborative storytelling in social media environments. They note the difficulty of creating a coherent linear story from which learning can take place, and recommend a non-linear approach which, from empirical research, appears to improve learning in students. This resonates with the stance of this thesis, i.e. that non-linear, fragment stories offer a significant opportunity for learning, both about an organisation, and about the context in which it operates. This thesis will discuss whether the conditions could be simulated under which an action-orientated narrative would evolve from such an antenarrative 'soup'. Furthermore, the potential to do this in a way that facilitates ill-structured problem solving will be explored. These issues are captured in the thesis questions in Section 2.7.

2.1.2. Traditional Organisational Storytelling Praxis

As Boje (2006) noted, Denning explores a significantly more functional dimension to narrative than do 'academic' writers on the topic, and arguably contributes to a 'field-trialled' method for garnering action from antenarrative musings that have been structured, refined, and crafted into tightly choreographed performances (Denning, 2001). He proposes the existence of the "*springboard story*" (Denning, 2001, p. xviii), that works by energising people towards taking action in such a way that they are already thinking about and planning how to act on the information they've received in a narrative, even before they have finished listening to it. I would argue that the listeners are 'antenarrating', i.e. finding fragments of stories from their own experiences and using them to 'fill-in-the-blanks' that Denning's springboard stories (i.e. narratives), deliberately leave. This allows the listeners' thought-processes to create ways in which they can play a part in the **future** content of the narrative, i.e. prospectively, and in some way 'buy-in' and take ownership of it. Denning suggests that the mechanism for this is through the way in which people naturally place themselves in the position of the key protagonist in the story, and begin to think about how they would feel, and what they would do in the situation described. The result of this is that individuals begin to plan actions in response to their empathy with the characters, and in line with their mimicked feelings, which it is claimed generates a much more positive and proactive attitude to change (Denning, 2001, pp. 59-70), and promotes commitment to implementation.

Denning continues to explain the method of impact of storytelling, with reference to "*The Little voice in the head"* (Denning, in Brown, et al., 2005, p. 114-115): He talks of people being two listeners at one time – the physical listener, and the 'little voice', which is in effect, the voice we speak to ourselves with. This could arguably be the

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communication channel between our subconscious thoughts (Gabriel, 1999) and our conscious rehearsal of words we plan to speak, and is an important issue for this thesis. It is this channel with which any communicator must engage if their message is to have a significant impact on the receiver. A potential mechanism for this can be inferred from the work of Alpaslan & Mitroff, where they imply that problem-solvers collect antes (i.e. in Boje's terms, 'bets' on the future) and story fragments and begin to use them creatively "*to construct plausible stories or scenarios*" (Alpaslan & Mitroff, 2011, p. 11) in an attempt to find solutions to ill-structured problems. The point of origin for these fragments could be argued to be the subconscious mind, verbalised through the conduit of the 'little voice'. To follow this line of reasoning, the 'little voice' can be seen to give coherence and 'sense' to our subconscious thoughts, which ultimately results in the words that we speak and shapes the stories we tell.

Further insight into the presumed mechanism for the process of storytelling comes from discussion of neurological research on the basic instincts we all have when threatened by change, as opposed to being enticed by it, described by Denning (in Brown, et al., 2005). His key point revolves around the suggestion that stories must have a 'happy ending' if they are to promote action. This is due to the very basic 'fight-or-flight', adrenalin-based response induced by fear; the fear is that an unhappy outcome described in a story will be repeated in the listeners' own context. In an organisation, this could mean inducing an exodus of staff, or employees fighting a proposed change. Conversely, Denning reports that a story told with a happy ending has been shown to cause the release of dopamine, inducing a "*mildly euphoric feeling*", which, he states, is the ideal state of mind to think about one's own future, or that of an organisation (Denning, in Brown, et al., 2005, p. 122).

2.1.2. Traditional Organisational Storytelling Praxis

Denning's work has a great deal to offer in terms of clarifying the potential for storytelling as a tool for resolving ill-structured problems. His fundamental recognition of the need to construct stories in a specific way to achieve identified outcomes is of particular relevance, and creates an interesting juxtapose to the work of Boje, where such rigid story structures are considered counterproductive. Indeed, Denning implies a role for storytelling in a problem-solving process when he discusses the potential pitfalls of inappropriate storytelling, pointing out that, *"If that idea is bad, storytelling may well reveal its inadequacy"* (Denning, 2001, p. xxi).

Such a filtering mechanism could improve a problem-solving process by identifying story lines that should not be pursued as potential solutions to a particular problem, thus saving time and effort.

As already mentioned, Denning's approach to story development can be said to obstruct antenarrative processes in that listeners are subconsciously attempting to make sense of the story fragments that have been presented to them in the form of a 'springboard story'. By importing the fragments given to them into the context of an event that the listener or problem-solver already has experience of, as Denning suggests is typical (2001, pp. 60-62) they create a new version of the story they were being told, one that relates to their own circumstances and experiences. As such, this approach is reliant on inventing and adding a logical pattern to events and reactions *after* the real events have taken place. This is creating a somewhat contrived, neat and clinical traditional narrative with a beginning, middle, and end (BME), in fact a "*retrospective narrative*" (Boje, 2008, p. 9). It would seem that there is a danger here in that, in the process of creating a coherent story-based solution, various aspects of

the problem may well have been smoothed over, changed, or even ignored, making it unlikely that the resultant solution will 'fit' the true problem effectively.

Denning (2001; 2004; 2006) repeatedly comments on the need to marry narrative with analysis, and not attempt to replace it. This assertion is consistent with the dichotomous approach of many writers on creative approaches to problem solving, for example De Bono (1992), Alder (1993), Goodman (1995), Treffinger, et al. (2006), and Isaksen, et al. (2011). Broadly, these authors recommend a 'soft', emotive, right-brain approach to generate ideas, as may be afforded by antenarrative story dispersion (Boje, 2008, p. 16). This is then married with the 'hard', rational, dispassionate, left-brain approach, typically associated with creating a traditional, BME narrative, that imposes coherence on the story fragments in an attempt to fashion a plan for concrete action. The interplay between creativity and storytelling will be discussed in
 Section 2.4.3. The Role of Creative Problem-Solving.

Denning's work is important to this thesis as it deploys narratives in a specific problem-solving role. Problem solving is fundamentally about changing an undesirable situation into a more desirable one, albeit that as we will see in section 2.4., "*solving*" a problem is not always possible (Alpaslan & Mitroff, 2011, p. 21). Denning's approach to storytelling centres on bringing about change; it examines narrative as a tool for action, rather than a tool for research, and as such, contributes to the goals of this study. More significantly for this thesis, his work opens space for a wider discussion of the role that storytelling can play in a) identifying the need to change, b) identifying a new strategic direction to cope with that need, and c) in its more traditional role, implementing the desired changes.

Denning's views are supported by a range of authors. Boal & Schultz notes that in an increasingly dynamic world, where organisations are described as "*complex adaptive systems*" (Boal & Schultz, 2007), the role of strategic leadership has moved from providing direction, to aiding the learning of, and influencing the perceptions of, the individuals and groups within the organisation. It is these specialised, self-organising agents and systems who now complete the role of strategy formulation and implementation. Johnson sees a key role of stories in the development of the "c*ultural web*" (Johnson, 1992, p. 31) that constrains and shapes an organisation's strategic paradigm. By implication, stories become levers with which to influence this strategy-making context, a view shared by Jacobides (2010) and Tsoukas & Hatch (2001).

It would seem that storytelling is embedded in a range of traditional strategic problem-solving activities, and therefore I will move on to explore some of the theories on the human psychological processes that underpin the concept.

2.1.3. Psychological Processes in Storytelling

Gabriel seems to share Boje's concerns relating to the value of 'traditional' management, relating this in part to our ability to control our own thought processes: In the introduction to '*Organisations in Depth*' (Gabriel, 1999), he claims not to be attempting to disparage established management concepts. However, he challenges the preoccupation that traditional management thinking seems to have with 'control'. The argument is expanded in Chapter 12 of the book, where he makes the point that, if we cannot control our own unconscious wishes and desires, how can we hope to

control organisations full of people with their own unrecognised, undiscovered and

supressed needs? He states:

> *How can we manage organizations when we can hardly manage our own*
>
> *unconscious desires? How can we remain organized in the face of crises,*
>
> *turmoil and unpredictability?*

(Gabriel, 1999, p. 280)

I argue that these "*unconscious desires*" surface through storytelling, a point implicitly

supported by Fryer (2003). It follows then that an approach in which storytelling plays

a part would be of value in investigating the unconscious minds of those in

organisations, by facilitating the revelation of issues and problems that can then be

addressed. This is encompassed in the antenarrative perspective adopted within this

study, where I explore the role and impact of stories, fragments, and storytelling in

exposing and addressing deep, often hidden organisational problems.

The disenchantment with modern management is underpinned by what many authors

observe as business and life becoming increasingly unpredictable, chaotic, and

complex (Gleick, 1987; Gabriel, 1998; Aplaslan & Mitroff, 2011), suggesting that ill-

structured problems are becoming more prevalent, even the norm. That is not to say

that the traditional organisational problem-solving 'toolkit' has no role to play in this

modern environment; complexity theory mentions recurring patterns, albeit they are

difficult to identify (Gleick, 1987). This could present an opportunity to combine

traditional approaches with more contemporary ideas on management. Alpaslan &

Mitroff (2011) present a four-quadrant matrix (see Figure 5, on page 83) describing the

nature of modern problems, and this recognises that more structured, predictable, rational problems do exist and are solved effectively by direct, systematic, traditional approaches.

Gabriel also contributes to understanding the potential mechanisms at work in the generation of antenarrative and story fragments: He appears to be intrigued by the human unconscious mind, the impact this has on behaviours, and ultimately presumably, on how organisations perform (Gabriel, 1999). He discusses the work of Freud at length and in particular "*The Interpretation of Dreams*" (Freud, 1900). In basic terms, Freud saw the mind as having three tiers. First, the conscious mind that processes all those things that we are currently aware of, then the unconscious mind that contains all our memories that we no longer have direct access to (i.e. we need reminding to be able to remember and use them). Finally, the subconscious (or preconscious) mind. This links the conscious and unconscious minds together by facilitating recall of past events and experiences by the conscious mind.

While this concept of three minds is not universally accepted, it seems to influence Gabriel's interest in stories. In '*Storytelling in Organisations'* (Gabriel, 2000, p. 3), he sees stories as akin to dreams in terms of their route to the unconscious, providing a conduit for our deeply held feelings and beliefs to surface in the conscious mind. So in the same way that Freud saw dreams as forms of manifestation of unconscious wishes and desires in people, Gabriel sees organisational stories as the route to the part of the unconscious mind that deals with organisational life. He explains that a well-practiced psychoanalyst interprets the meaning of a person's dream, and can access emotions and feelings that relate to a situation that was in some way very painful. The

subconscious mind forces these emotions out of the conscious mind into the unconscious mind as a form of self-defence, i.e. the feelings are repressed, with consequences for that individuals' behaviour (Upton, 2009). Similarly, Gabriel (2000) claims stories are the manifestation of the tellers' deeply held beliefs and emotions relating to an organisation. A well-practiced researcher will have the capacity to analyse and interpret these stories in a way that accesses the emotions that truly drive the storyteller's actions at work.

The rationale for Gabriel's suggestion that stories are similar to dreams appears to be exhibited by his comments and observations of the psychological process in which a patient not only retells the story of an experience to the psychoanalyst, but relives it, transferring the original emotions onto the analyst (Gabriel, 1998, p. 299). For example, if the story the patient tells is of loathing for a character in the story, then they would actually begin to loathe the psychoanalyst. This is discussed in an organisational context later in this review. Gabriel (1998) goes on to cite other studies, specifically Klein (1975/1946) and in Ferenczi's work in the 1910's, where it is suggested an ego will first project negative parts of itself onto an external object and then discard it, or introject (i.e. claim) desirable parts from the external world. An example from an organisational view point might be attaching unwarranted blame for organisational failure to an employee who is already leaving or has left the business, or claiming responsibility for an upturn in company fortunes that were not truly the result of the individual's or company's actions. Again, these stories may well become 'the truth' to tellers and listeners, and originate in the unconscious mind in the same way that dreams do.

2.1.3. Psychological Processes in Storytelling

There is a concern over the validity of equating people in organisations to patients suffering from mental health problems. This concern is perhaps addressed when Gabriel (1998, p. 303), citing Menzies Lyth, discusses '*Social Defences Against Anxiety*', and notes that the emotions generated through the course of the interaction of nurses with patients and their families are extremely powerful. Such emotions might be expected to generate mental health issues within nurses, and Menzies Lyth is noted as observing three common defence mechanisms by which the nurses appear to cope with such an "*emotional cauldron*" (Gabriel, 1998, p. 303). Specifically, Gabriel mentions **splitting**, where a subject perceives someone (possibly themselves) as 'all-or-nothing' with regard to a particular trait, for example, someone is perceived as being completely good as an individual and can do no wrong. Second, Gabriel identifies the defence of **projection**, i.e. "*gets rid of one's own undesirable characteristics by attributing them to others*" (Upton, 2009, p. 36), and thirdly **denial**, where a subject fails to acknowledge the reality of facts that are unpleasant to them. When the nurses use these processes they are, in effect, 'storying' the facts of an emotional situation so that they are less damaging to their mental health, at least in the short term (although there may well be longer term mental health consequences), and these stories become 'the truth' to those that are telling them.

Related to projection, Gabriel also discusses "*Transference*" (1998. p. 299), where unwanted 'mental' parts of an organisation can be transferred onto other objects through projection and introjection, allowing an individuals' ego (and potentially an organisational ego) to divest itself of its troublesome memories, histories, etc. This creates a further possibility of considering stories as of potential value to problem-solvers, in that it is possible that a story could be created that fulfilled the role of

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scapegoat, via projection, transference, splitting, and possibly denial.

More investigation of stories as a management tool would help evolve this argument, and this thesis will contribute in this respect.

This type of storying is a feature of all humans, not just those with mental health issues. Therefore, it is reasonable to extrapolate the behaviour patterns onto organisations, which are after all, collections of people. Such issues will affect antenarrative processes, for example, through influencing which stories are told and how, which fragments of stories have resonance and are therefore included in the construction of a narrative, and so on, and as such influencing organisational storytelling in one way or another. This thesis will explore if and how these various "truths" can be accommodated into a problem solution, and potentially engineering a smoother path for implementation.

Various examples used by Gabriel and others imply that organisations have egos, as distinct from the egos of those who collectively make up the organisation – perhaps a more appropriate term for this would be 'culture', and warrants further investigation into the link between storytelling, problems, and organisational culture (see Section 2.3.1. Organisational Culture and Stories, on page 67 below). The implication that can be drawn from these studies is that in certain situations, stories in organisations have two roles: They are told in organisations to help it to cope with powerful emotions by facilitating transference, splitting, denial and projection, but also by providing a type of 'host' for the negative attributes and attitudes that are causing a problem. However, Gabriel cites many authors who have noted that, if the root causes of these emotions are not addressed, then more symptoms causing "*crippling effects*" will occur (Gabriel,

1998, p. 304). He identifies how Menzies Lyth suggests that this shifting of

responsibility for a problem onto other objects gives the illusion of successful

resolution, while in fact, this allows the true problems of the organisation to be

ignored. There is, therefore, a recognised need for an intervention that facilitates

improvement in revelation and understanding of organisational problems. This study

will investigate these two roles of storytelling, and contribute a third dimension, in that

through understanding how stories are used in the problem-solving process, the

problems themselves may be better understood, and therefore may become easier to

solve, resolve or dissolve (these terms will be explained fully in section 2.4.1. Defining

Problem solving and Decision Making)

2.1.4. Wider Issues for Storytelling Praxis

Few authors on storytelling would disagree with Boje's belief that, in line with the title

of his 2008 book, all organisations are '*Storytelling Organizations*'. As already

mentioned, Barge implies a problem-solving function in the practice of storytelling, by

recognising a host of organisational situations in which storytelling and narrative have

been involved in working towards solutions. He notes various studies that have

examined how stories have been used to make sense of corporate life, being deployed

to assist in sustaining corporate cultures, construct shared meaning, socialise new

members into an organisation, engage in strategic planning, and manage organisation

and leadership change Barge (2004, p. 106). However, he goes on to state:

> *The problem with traditional narrative analysis is that it focuses on*
> *identifying a single story to characterize an organisation and event, thus*
> *creating in Van Maanen's terminology a "realist's tale".*

(Barge, 2004. p.108)

Here, Barge is referring to the observation by Van Maanen (1988, pp. 7-8) that the impact of the ethnographic researcher on the collection of stories is largely overlooked. Geiger & Antonacopoulou highlight a further concern, stating that organisational narratives can create inertia, and can be responsible for "…*creating self-reinforcing mechanisms and blind spots*" (2009, p. 411), thus preventing problems from being recognised until, presumably, more severe symptoms begin to impact. This is consistent with Boje's concerns (as already discussed on page 44 of this thesis) over the use of retrospective narratives to explain our past behaviour (Boje, 2008, p. 9). However, his more detailed storytelling research is often extremely difficult to apply in real organisations, where the more pragmatic, accessible, and fashionable approaches of other authors are typically favoured.

And given that storytelling is exposed as being such a powerful force, it brings with it not only benefits, but risks. 'Rational' problem solving systems such as the Black-Scholes formula (Harford, 2012) that attempted to value financial futures and options, are evidence of humans attempts to provide structure to ill-structured problems, to 'tame' the 'wicked'. These attempts are based on the presumption that somewhere, somehow, there is a rational, logical answer to any problem that can be found, and that given sufficient analytical power, a solution can be identified. Such systems are also evidence of the potential catastrophic failures caused by ill-founded presumptions, and as Harford's article points out, Professor Myron Scholes' Hedge Fund collapsed in 1998, ironically just a year after he (and a colleague) had been awarded the Nobel prize for their work on the formula on which the Fund was based (Stewart, 2012).

McDonald (2010) raises a further interesting issue relating to the deliberate use of storytelling in organisations: In Chapter 6 of his book '*The Golden Theme*', he agrees with Denning (2001), in maintaining the importance of a story being true if it is to have an effect, but notes that fictional stories that are told to teach a lesson also have value. Using the example of one of Aesop's Fables, '*The Boy who Cried Wolf*', McDonald explains that the story represents a scenario that listeners can identify with and can recognise as 'a' truth, if not 'the' truth, in that if one repeatedly tells lies, eventually the teller will not be believed, even when he is telling the truth. The significance for this thesis is that it suggests that a story does not need to be true in the literal, factual sense to have an impact on behaviour, and hence on how problems are solved. There is an underlying concern for any storytelling organisation however, that if a storyteller produces a credible, but fictional story, they are able to induce inappropriate, even despotic actions, just as failed leaders, con artists and dictators through the ages have demonstrated. This issue would appear to be important in problem solving, as for example, the ability to identify what constitutes a problem and if and how it should be solved, could depend on an individual's storytelling skills.

McDonald's work (2010) contributes a valuable additional perspective on storytelling; he argues that stories offer a method by which the benefit of an individuals' experience can be shared and learned from, without having to have the experience oneself – we don't have to actually experience other people's problems to be able to help to solve them. McDonald maintains that the core function of all stories is to pass on messages that help human survival; they give insights into the consequences of both good and bad behaviour. While this view can be challenged (for example, stories can be purely for entertainment), it has some merit, and reinforces the point that story

plays an important role in organisational teaching and learning, and therefore also problem solving (Abma, 2003).

Tom Peters (2012, p. 2) makes an interesting contribution, when he notes research that suggested typical medical doctors listen for 18 seconds before interrupting a patient, and believes managers are equally abrupt in their interactions. He implies that this happens because doctors and managers alike, think they have heard and dealt with the problem being raised before, and therefore that they know what to do. In adopting this approach, they may well miss important small fragments of the problem that would help lead to a better solution. It may be that an understanding of storytelling has a role to play here, as the power of stories and their constituent fragments have the potential to raise the visibility of key points during the apparently small window of opportunity to exert influence over a leader or a decision maker.

From this section of the literature, it can be seen that storytelling in general can have a significant impact on organisations in many ways. Narrative undoubtedly fits with our learned (and also possibly innate) way of thinking – for example, this document is constructed in a traditional narrative style, with a beginning, middle and end, with the goal of facilitating understanding in the reader. However, the core idea of this thesis embraces Boje's view, that antenarrative is a more accurate reflection of the way that we truly experience the world, and as such the concept provides vital leverage for the investigation into story-based approaches to improving our ability to create solutions to ill-structured problems.

2.2. Stories in Sensemaking

We cannot fully explore the impact of storytelling on problem solving without addressing how stories contribute to making sense of solutions. As Cunliffe & Coupland state, "*narratives are the means by which we organise and make sense of our experience and evaluate our actions and intentions*" (2011, p. 66).

2.2.1. Making Sense of Problems Through Stories

'Sensemaking' is usefully defined in a paper by Klein, et al., (2006, p. 70) as "*how people make sense of their experience in the world.*" They go on to elaborate on this definition, and suggest the following as a more satisfactory form of words:

> *Sensemaking is a motivated, continuous effort to understand connections (which can be among people, places, and events) in order to anticipate their trajectories and act effectively.*
>
> (Klein, et al., 2006, p. 71)

In his book '*Sensemaking in Organizations*', Weick states that "*Sensemaking, however, is less about discovery than it is about invention*" (1995, p. 13), and Gioia & Mehra in their review of the book argue that *"… prospective sensemaking is aimed at creating meaningful opportunities in the future*" (Gioia & Mehra, 1996, p. 1229). A number of authors such as Boje (1991), Weick (1995), and Abolafia (2010) have noted the importance of storytelling and narrative in this process, and agree that sensemaking involves taking data and information, and cognitively (sometimes creatively) structuring it into a form that is consistent with the individuals', groups', or organisations' perspective. These authors do not imply that the sensemaking process in humans is linear or structured. Indeed, Klein, et al., (2006) support this perspective,

and compile a list of common 'mistakes', i.e. myths, relating to the way we make

sense: They argue against the belief that making sense can be the structured, rational,

logical process that we are taught it should be, in spite of our self-deluding attempts to

make it so. To support this view, they review empirical data on sensemaking, and use

this to refute various traditional beliefs about how we should or should not 'make

sense'. Their key observations are presented in Table 2 below:

Table 2 – Sensemaking Myths

(Adapted from Klein, et al., 2006, p. 72)

Traditional beliefs about making sense, i.e. the Myths :-	What empirical data suggests about the flaws in the traditional approach to sensemaking :-
Data that has been filtered by an automated process helps sensemaking	When human decision makers passively receive interpretations, they are less likely to notice emergent problems or opportunities. These fragments of information, arguably termed "*Culurematics*" (McCracken, 2012, p. 3), or antes (Boje, 2001), are important signals that machines are designed to filter out, but may be vitally important to human sensemaking.
Sensemaking is simply connecting the dots	This view assumes the sensemaker is capable of identifying what is a 'dot' and what isn't, and when it is active within a scenario – this state may be transient.
More information leads to better sensemaking	This is true to a point, but after that point additional information is not helpful and may degrade problem-solving performance, leading to over-confidence in an early solution, rather than improved accuracy.
It's important to keep an open mind	Evidence from an unpublished PhD thesis, involving a problem-solving exercise, suggests that people who jump to an early conclusion about the solution and fixate on it show the worst performance. However, the performance of those who kept an open mind and refused to speculate was little better. The best problem-solvers were those who jumped to an early speculation but then deliberately tested it. Their initial hypothesis gave them a basis for seeking data that would be diagnostic, actively thinking about the problem, rather than passively receiving data as the 'open minded' group did.
Biases are inescapable and prevent reliable sensemaking	In spite of laboratory-based evidence to the contrary, in real-world decision making by experts, biases can disappear or be greatly reduced.
Sensemaking follows the "waterfall model" (Ackoff, 1989) of how data lead to understanding and wisdom	Typically, problem-solvers assume that primitive data or isolated cues are successively massaged by logical reasoning processes until they emerge from the other end as knowledge or wisdom. Evidence suggests that this is not how experts make decisions (Hayashi, 2001), and that the data itself has to be "constructed". This could lead to the "*Garbage in, garbage out*" situation. (George Fuechsel, an early IBM programmer and instructor, is the person generally credited with coining the phrase).

The key point to take from this table is that, in problem solving and decision making situations, there are a great number of influences on the sense that we make of the data and information we receive on a problem. Therefore, imagining that we can devise linear, rational, logical systems that account for these influences is at best pushing the boundaries of credibility, and at worst, delusional.

2.2.2. Imagining Forwards, Looking Back

However, we cannot escape the fact that to find solutions that work in practice, we must envision how our intervention will impact on the problem, and how that intervention will take place. In other words, we must make sense of the solution. Practically, the crop of envisioned routes and futures must be restricted to facilitate action.

Kotter & Schlesinger point out that:

> *No matter how good a job one does in selecting a change strategy and tactics, something unexpected will eventually occur during implementation. Only by carefully monitoring the process can one identify the unexpected in a timely fashion and react to it intelligently.*
>
> (Kotter & Schlesinger, 1979, p. 113)

This implies that even as we make sense *forward* (i.e. as we think through how a solution might be implemented), we must also make sense in the *here-and-now* (i.e. what actually happens when the planned changes are actually made), and we must be able to adapt and 'pivot' as the implementation environment dictates. We must be

cognisant of moulding a solution to fit the problem as we go. Yet in his description of key properties of sensemaking methods, Weick (1995) argues that sensemaking is largely *retrospective* in nature, and highlights the importance of envisioning the future in a way that is sufficiently focused to provide a guiding, motivating symbol, yet is still flexible and malleable enough to morph into a format that fits the emerging environment. It would seem that in problem solving, there is a need to balance production of a narrative that guides and motivates people to implement a change, and story that explores and investigates the grounds on which the proposed solution was based.

There is more work to be done on how stories help to make sense in problem solving, yet much has been written that can be applied to the topic: Bakhtin states that "*the fantastic in folklore is a realistic fantastic.*" (1982, pp. 150-151), implying that solutions provided by storying must be believable to be effective. Indeed, Goranson & Cardier (2006) observed that the more resonant the narrative is with an audiences' own situation, the more powerful the impact of the narrative. Denning agrees, noting that when he used an identical story in different contexts, the impact was hugely different (Denning, 2001, pp. 99-100). This has implications for any solution-selection mechanism, whether it is used deliberately or instinctively with story-based problem solving: any predictive narrative produced must "fit" the organisational paradigm, i.e. it must be believable if it is to provide motivation to act. This need not exclude a flexible, evolving solution that would perhaps fit with an antenarrative approach.

2.2.3. Lessons from the Arts

Sensemaking in the arts can be argued to similar to constructing a story. For example, Ryle (1979, pp. 121-130) implies that in jazz improvisation, 'sense' is made via "*paying heed*" to the influences on the music being played, i.e. looking partly in the present, partly in the past, and partly at an anticipated future to 'feel' how the improvisation will fit, i.e. how well it will interact with the context it has come from, the context it is in now, and the context that it is involved with co-creating. The analogy between story and music can be extended, as a tune (story plot) could arguably be formed by making an acceptable pattern from the groups of notes (story fragments) available to the composer.

Weick (1998) noted that improvisation artists do not necessarily know where they are going with their music more than a few seconds ahead, but good improvisers are skilful in recognising an opportunity to return to the original melody or theme. He goes on to argue that a jazz improvisation has to start from a recognizable base; for the improvisation to have perceived value, we need to know where we have improvised from, and have an understanding of the genre and context that the improvising is drawing on and is melding with, to justify where it finishes (although the end point may not even be clear until after it actually happens). The value of improvisations come from "*the pattern they make relative to a continuing set of constraints formed by melody*" (Weick, 1998, p. 547), i.e. good, entertaining, valuable improvisation is not simply a set of rambling, jumbled notes.

So the resonance with storytelling is evident. This seemingly innate desire to structure story around a theme (hence creating a narrative) equates to giving a pattern to

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musical notes, i.e. forming a tune that fits with our beliefs about how a 'good tune' should sound. Work by Goranson & Cardier (2006) in a very different field supports this view; they noted that the value of any Artificial Intelligence (AI) system was judged by how closely the narrative it created integrated with the humans that used it – i.e. how well the AI narrative made sense in the context in which it was used. While perhaps beyond the scope of the discussion at this point, it is interesting to note that with music, people from different generations, with different cultures, histories and backgrounds, and in different contexts will judge the aesthetic value of a tune differently. If this is true for stories and narratives, then it has implications for how well a story-based solution might be accepted in practice.

In applying these views to the task of making sense of story fragments, it would seem that many authors argue we need a theme as a reference point for our solution-finding attempts. While this is not entirely consistent with antenarrative thinking, pragmatism and our innate need to make sense of our circumstances suggests that generating story from fragments or antes, and narrative from story should not be a random activity. Gioia & Chittipeddi recognise the importance and power of a Chief Executive Officer (CEO) who provides an inspiring 'picture' of the potential future, a picture that is "*visionary and evocative*" (1991, p. 442), but deliberately ambiguous: They point out that humans' understanding and subsequent actions are based on interpretation of information and events, but that uncertainty helps to create the conditions in which they will engage effectively with change programs. Denning (2001) agrees, arguing that without the 'space' to fully engage with a story, without being able to see their own situation reflected in the actors and events within it, it is unlikely that the story will have the impact that was intended.

A further contribution is made in the work by Gioia, et al., (2002): They agree that we make sense of experience only through retrospection, i.e. through the development of a narrative that fits the 'facts' after they have occurred. This creates an interesting contrast with a central theme of this work that seeks to identify the role of story fragments and storytelling (rather than purely narrative) in problem-solving activity.

The implication is that we cannot make sense of experience unless traditional storytelling cognitive processes that construct a BME narrative are used, be it purposefully or intuitively. It suggests that forward sensemaking (i.e. planning) is only possible through imagining ourselves at our goal at a future point in time, and then looking back from that point to identify what fragments of the narrative need to be in what place and when, thus creating a plan to achieve that goal. As Gioia, et al., (2002, p. 622) describe, we deploy the "*future perfect tense*" to explain and understand how to act *now* so as to create the future we desire. We imagine ourselves in the future desired or anticipated state, and from that future position, look back at the decisions we should and could have made in the 'here-and-now' that would influence the achievement of the envisioned future. This is, in effect, using retrospective sensemaking as an enabler for the testing of the credibility of our vision, and of our strategies to influence its' chances of becoming reality. There is resonance with the work of Rudolph, cited in Klein (2006, p. 72) perhaps suggesting that the 'best' problem solvers propose a prospective narrative and then *seek evidence* to see if the story they have crafted 'fits' with the symptoms of the problem. However, it should be noted that Rudolph's work seems to have been based on a complicated, but ultimately tame problem. Given that ill-structured problems are rarely found to have any one

ideal 'solution', it would not be safe to simply assume that the approach would be viable with ill-structured or wicked problems.

2.2.4. Application to Organisational Life

From an organisational perspective, if the envisioned solution is too far removed from the current perceptions of the organisational history, culture and image, attempts to move towards that vision will not be taken seriously by stakeholders. However, we can, and do, reinterpret history within the limits that the organisation will tolerate, to provide a narrative that acquiesces with the future we want to create (Gioia, et al., 2002). The same authors make the point however, that there is danger in this revisionist approach; first, the image of change may become more important than the substance of change, and second:

> *Tampering with cherished and institutionalized stories is a recipe for failure.*
>
> (Gioia, et al., 2002, p. 631).

The implication is that changing the interpretation of past events and situations, and indeed, reinterpretation of current actions as if they were in the past (i.e. in the future perfect tense) can be a credible approach to providing organisational direction, i.e. forward sensemaking. However, antenarrative theory implies this method is potentially flawed, as imagining forward and then looking back cannot fully account for the vast array of chaotic changes and interactions both in and between the forces that will influence the realisation of the imagined future. However, the approach as explained by Gioia, et al. (2002), does bring the prospect of a sifting, sorting and

selection mechanism that would permit a large number of storied routes towards a 'vision', as might be expected from a "*Tamara sensemaking*" (Boje, 2008, p. 87), to be reduced to a manageable range of options. It could also provide a vehicle for checking the plausibility of the reinterpretations of the past.

Heath, et al., (2006) and Boje (2008) would argue that this process must involve meaningful, effectively moderated dialogue, due to its' potential to "*inspire the unique and the creative*" (Heath, et al., 2006, p. 354). This moderation may simply involve 'taking turns', a technique effectively deployed by Hansen, et al., (2007). It is important that this is 'true' dialogue, allowing multiple voices and stakeholders to be heard and taken note of, not a version often used in organisations, where management dominates and controls the interaction. Boje recognises this, stating "*In managerialism, what passes for dialogue, is more accurately monologue.*" (2008, p. 190).

More recent work specifically links sensemaking and narrative. For example, in their development of the concept of "*embodied narrative sensemaking*", Cunliffe & Coupland look at how life experiences are processed, understood and embodied in narrative and through the process of generating narratives (individually and collectively), and argue that "*we make our lives, ourselves and our experience 'sensible' in embodied interpretations and interactions with others*" (Cunliffe & Coupland, 2011, p. 66). The same authors discuss Fisher's concept of *narrative rationality*, and how this encourages "*critical self-awareness*" (Fisher, 1985, p.349). Fisher implies that storytelling encourages a reflexive approach to making sense of experience, and is a mechanism that provides "*principles – probability and fidelity – and considerations for*

judging the merit of stories, whether one's own or another's" (1985, p. 349). The field work presented in this thesis will explore this concept further.

It appears that a case can be made for linking storytelling and story fragments to problem solving based on existing theory and fieldwork, and that there is scope for further research to contribute to the discussion.

Stories undoubtedly feature in the ways that we make sense of experiences and make plans. For this study, it is important that the context in which these activities take place is considered, i.e. the organisational culture, and the use of power and politics.

2.3. Stories in Organisational Culture, Power and Politics

In exploring the role of stories on solving problems in organisations, it is important to pay heed to other key influences on the problem-solving process. While it is not straight forward to isolate these influences from each other, after preliminary examination of the research data, the topics of organisational culture, and power and politics in organisations, were identified as particularly important, and therefore this section examines these in more detail.

2.3.1. Organisational Culture and Stories

Gareth Morgan describes organisational culture as:

> *Shared meaning, shared understanding, and shared sensemaking…..In talking about culture we are really talking about a process of reality construction that allows people to see and understand particular events, actions, objects, utterances, or situations in distinctive ways. These patterns of understanding also provide a basis for making one's own behaviour sensible and meaningful.*

(Morgan, 1986, p. 128)

Weber & Dacin (2011) identify how recent developments in cultural approaches to organisations have focused on looking at the social processes both within institutions and with external audiences that construct and shape organisational culture. Storytelling is, first and foremost, a social process and as such, a significant interplay with organisational culture can be rationalised.

Van Maanen (1988, p. ix) explains and discusses the ethnographic practice of 'reading' organisational culture through the stories that researchers collect. Given the

ubiquitous nature of narratives and stories in organisations that has been described in section 2.1 (on page 33, above), it comes as no surprise that many authors refer to stories as indicators of organisational culture, for example, Armstrong (1996), Morgan (1986), Peters & Waterman (2004), Schein (2010) and Stanford (2010) to name but a few. Johnson notes that as organisations attempt to change their strategy, they need to understand the "*taken for granted assumptions*" that may be "*…. manifested in the stories or symbols of tradition and history that exist,*" (Johnson, 1992, p. 35) .

There are also those who recognise the ability of stories to change culture, for example, it has been claimed that, "*Stories are the most powerful way to change a culture.*" (Wortmann, 2008, p. 135); Johnson includes stories specifically as one of the key factors involved in the "Cultural web" that is critical to managing strategic change, and states that the stories told in an organisation "*embed the present in organizational history*" (1992, p. 30).

In a longitudinal ethnographic study of culture in General Motors, Briody, at al., (2012) identified a single story (the "*Hoist Story*") as representing various pivotal aspects of the change that was required within the organisation. In the study, the story was embellished and co-constructed by the researchers with the employees who experienced the story first hand, and this became the focal point for a company-wide and successful culture change programme (Briody, et al., 2012).

Insightful and creative work developed by Professor Malcolm Armstrong (1996) contributes to our understanding of the role of stories in cultural change; he advances metaphors relating to the physical state of materials (i.e. solid, liquid or gas) that can

be used to depict the culture of an organisation (Armstrong, 1996). This, in essence, uses similar sensory routes to understanding as do stories and narratives, and helps users of his concept of '*Nine Material States*' to envision and 'feel' what the culture of the organisation is like. This has resonance with authors on storytelling, for example Denning (2001), and Gabriel (2000), who remark on the ability of stories to take the listener on a journey that would not be possible through more rational, logical, formal communication methods, albeit their comments are based on observation, rather than biological, psychological, or 'scientific' experimental data.

However, Carr & Ann (formerly Lapp) (2011) recognise the power of storytelling in organisations, and discuss the misuse of the approach. They note the capacity of stories to shape culture and behaviour in organisations, and urge the use of storytelling to be subject to careful examination, with practitioners encouraged to view the impact of their storytelling interventions through a reflexive lens. They imply that as stories are such powerful tools for change, they become dangerous weapons in the hands of those who may not fully understand the ramifications of their impact, or the changes in culture that the prescriptive narratives they deploy may cause in the organisation. This view is supported by the work of Jones, who encourages us to consider the dangers to the organisation that emerge when stories, used by ill-informed narrators, do not "*tally with the culture*" (Jones, 1991, p. 27).

Hatch & Schultz (1997) explore the relationship between organisational culture and the concepts of organisational identity (i.e. how the organisation sees itself internally) and organisational image (i.e. how the organisation is seen by external parties). They posit that:

Organizational culture involves all organizational members, originates and develops at all hierarchical levels, and is founded on a broad-based history that is realized in the material aspects (or artefacts) of the organization (e.g. its name, products, buildings, logos and other symbols, including its top managers).

(Hatch & Schultz, 1997, p. 359)

While they do not mention stories specifically, I would argue that they are inherent in this description of the components of organisational culture, and as such, are fundamental to its formation and development. Of particular importance within the work of Hatch & Schultz is that they recognise the interplay between organisational image and identity – i.e. the interaction between the view of the organisation from outside of it (i.e. image), compared to the view of the organisation from inside that same organisation (i.e. identity). They argue that, given the increasingly blurred boundaries between organisations, culture becomes a product of external cultural determinants as well as internal ones. When we recognise that identity and image are transmitted in, and constructed from, various forms of narrative (in Boje's broadest sense of the term) it is reasonable to suggest that the stories that are told by an organisation are a reflection of its culture. Figure 2 below attempts to identify the sites of influence where story and narrative may act:

Figure 2 – The potential sites of influence of storytelling on organisational culture, identity and image

(Arrows indicate sites of impact and influence)
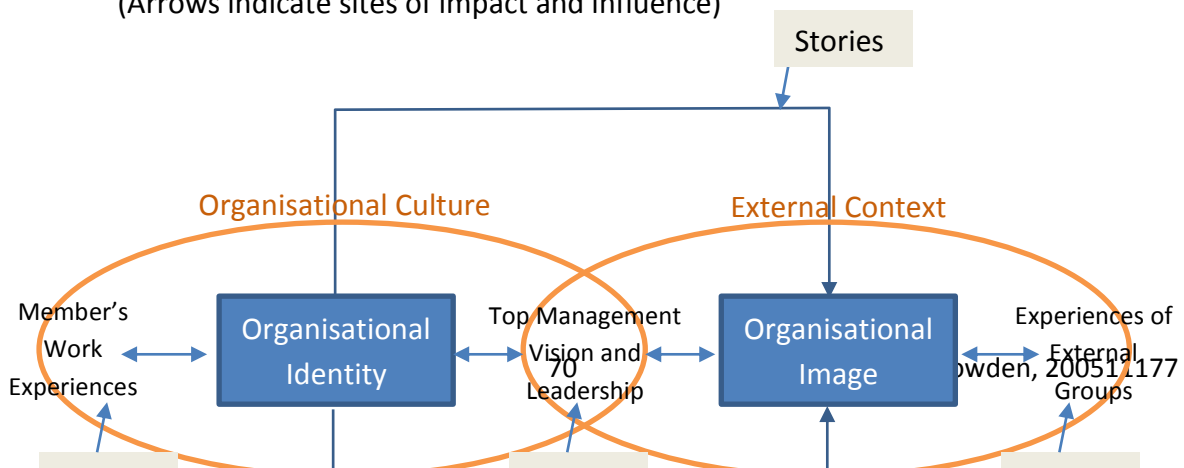
The implication for this thesis is that stories that are generated and told externally about an organisation can affect the internal culture in a similar way to internal stories. This in turn affects the problem-solving context, the solutions considered and how they are implemented, the perception of the problem, and so on. It also adds weight to the argument that externally generated stories have a valuable role to play in any narrative-based problem solving intervention. It implies that solutions that have been developed independently of a target organisation have the capacity to influence ill-structured and wicked problems within that organisation in ways that may not have been predicted. It suggests that story, or perhaps more specifically, *antenarrative story fragment* problem solving may be important in any proposed new approach.

2.3.2. Stories in Organisational Power and Politics

In their 1997 paper, Boje, et al. use storytelling to deconstruct the management technique known as Business Process Reengineering (BPR), as they believe "*Deconstruction reveals processes to be enmeshed in a network of political, economic, and social texts (forces and events).*" (Boje, et al., 1997, p. 639). There is recognition of how stories have been used in organisational rhetoric to promote de-humanising management fads, describing Michael Hammer (BPR's principal creator) as "*using*

stories and metaphors of medicine, warfare, and revolution that script the fate of

disposable workers" (Boje, et al., 1997, p. 631). They also explore the power that

comes from the ability to select which stories and narratives are told, and which are

withheld. This raises the issue of the impact that the level of power held by the

storyteller has on any process involving stories – those with power in an organisation

use it to promulgate stories that support their own purposes. This may well have

significance for any organisational problem-solving process.

Boje, et al., (1999) show significant interest in the issue of hegemony in storytelling,

exploring who in a particular organisation has (and uses) the power to shape the

stories told, and thus control their impact. This links with the implicit rules of who can

tell a story, to whom, and where it takes place, which also can significantly change the

impact that the story has on an audience and how widely the story will be repeated

(Boje et al, 1996; Boje, 2001, p.6).

These works lead to a key tenant of Boje's position, i.e. that most organisational

storytelling studies and analysis of narrative focus on the single-voiced approach,

rather than the polyphonic (many voiced) approach which he implies is more

appropriate for many narratives, and particularly when used as a management

consultant's tool (Boje, 2006; 2008). In organisations, the same events will be recalled

and storied differently by different narrators who bring different paradigms,

prejudices, and purposes to the process.

Cunliffe & Coupland (2011) refer to work that recognises the use of power to contest

the process of making sense of, and understanding a problem, and see power playing a

role in privileging one version of a story over another, in making one version of a story more acceptable than another. The implication of this is that power in an organisation can be gained through developing storytelling abilities. From a more Machiavellian perspective, this is learning to be manipulative, potentially lying, to get the message that you want over to your audience. Boje agrees, noting that stories and storytelling within organisations is always "*a struggle between those with power and those marginal to power*" (Boje, 2006, p. 219).

In work by Näslund & Pemer (2011) it was found that stories that fitted semantically with the dominant corporate story were considered to be convincing, while those that were at odds with the dominant story were less so. The implication is that for a story to have the power to bring about change it must resonate with the existing paradigm sufficiently to gain traction. To be effective, a narrative must accommodate the power sources that it must work amongst, or those with power must deliberately and consciously use it wisely to promote a polyphonic process. This is consistent with McFadzean's view (1998a) of the CPS spectrum, and how such techniques that aim to enhance levels of creativity had to be chosen carefully to avoid excluding the voices of those who were not at ease with the methods used. It also resonates with Denning's (2008) exposition of how stories bring about change, explaining that stakeholders must be provided with the 'space' and flexibility to imagine themselves in the position of the key protagonist in a story.

2.4. Problems, Problem solving and Decision Making

Many of the more difficult organisational (and societal) problems of today can be categorised as ill-structured or wicked problems (Gabriel, 1999; Camillus, 2008; Alpaslan & Mitroff, 2011). Therefore to clarify the precise nature of the research site (i.e. ill-structured problems), it is important to identify exactly what is meant by the terms involved, and where such problems are situated in the broad field of problem solving and decision making. In this section, I address the issue of differentiation between these terms, and in doing so, enable the reader to appreciate the position adopted by the research. I then continue to explore the fundamental nature of the types of problem that are the focus of this study, and then complete the section with a discussion of the similarity between creative problem-solving techniques and the storytelling dimension that the research centres upon.

2.4.1. Defining Problem solving and Decision Making

In describing decision making and problem solving, Hitt, et al. comment that:

> *Decision making is the process of specifying the nature of a particular problem or opportunity and selecting among the available alternatives to solve the problem or capitalise on the opportunity.*

> (Hitt, et al., 2009, p. 105)

Work by the Economic Science Nobel Prize winner of 1978, Herbert Simon and his associates (1986) provides a similar description, first clarifying the distinction between the two terms, and then identifying the centrality of the field to human society:

*It is work of **choosing issues that require attention, setting goals, finding or designing suitable courses of action**, and **evaluating and choosing** among alternative actions. The first three of these activities--fixing agendas, setting goals, and designing actions--are usually called **problem solving**; the last, evaluating and choosing, is usually called **decision making**. Nothing is more important for the well-being of society than that this work be performed effectively, …*

(Simon, 1986, p. 1)

Smith (1988) notes that many authors use the terms interchangeably, but defines 'Decision making' as the process of selecting a preferred option from alternatives that already exist, or will be identified. Continuing, he states "… *problem solving is directed at the resolution of a problem*," (Smith, 1988, p. 1490), and presumably involves all the activities that are carried out to generate the options on which the decision-making process then acts. This can be defined as a linear, logical, or traditional problem-solving process, similar to that outlined by Newman, albeit that he inserts a link from Stage 8 to Stage 1 to become a cycle of problem solving:

Figure 3 – The 8 Stages of the Problem-Solving Process

Stage 1: Identify the problem

Stage 2: Gather data

Stage 3: Analyse data

Continue to observe impact

Stage 4: Generate solutions

Stage 5: Select the solution

Stage 6: Plan the implementation

Stage 7: Test / rehearse

Stage 8: Action

(Newman, 1997, pp. 7-8)

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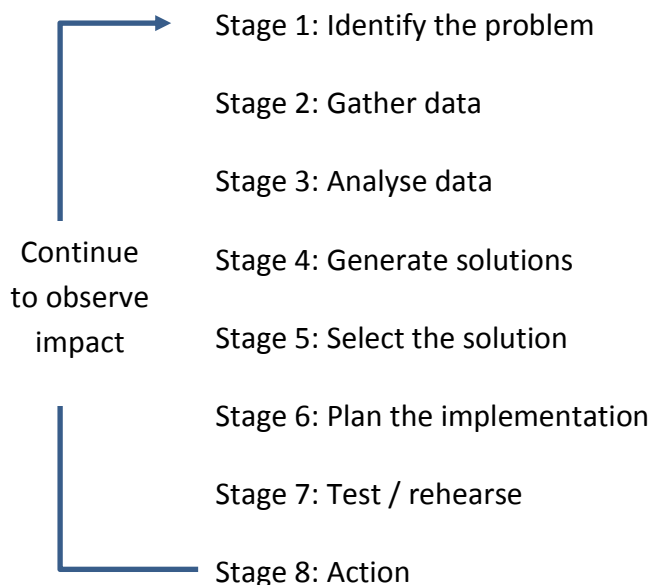
A similar linear model depicting a decision making process is represented by the Rational or Classical Model of Decision Making, as shown by Hitt, et al., (2009. p.105-109), based on the early work of Miller & Starr (1967). This involves breaking the process of making decisions into 7 component parts as shown in Figure 4 below :

Figure 4 – The Classical Decision Making Model

(Adapted from Miller & Starr, 1967)

Stage					
Stage 1	Identify Decision Situations	Problems	Opportunities		
Stage 2	Develop Objectives and Criteria	Specific criteria	Relative weightings		
Stage 3	Generate Alternatives	Past solutions	Creative new solutions		
Stage 4	Analyze Alternatives	Minamally acceptable results	Feasibility	Best Results	
Stage 5	Select Alternatives				
Stage 6	Implement Decision Actions	Sources and reasons for resistance	chronology and sequence of actions	Required resources	Delegation of tasks
Stage 7	Monitor and Evaluate Results				

This approach could be described as being at one extreme of a problem-solving continuum, and appears to assume that all decisions are taken rationally, following the application of logic and reasoned argument. However, even here, in this most structured of methods, the problem solvers and decision takers are humans, and human nature is to debate, discuss, and dialogise (Boje, 2008, pp. 2-3), and to take part in influencing behaviour and to be influenced by others. The 'Bounded Rationality Model', proposed by Simon (1957), recognises this, and does not assume that people

are completely rational when they make decisions. Instead, it assumes that although people seek the best solutions, they usually settle for less, mainly due to the practicalities of decision-making, with decisions typically demanding greater time and information to process than they possess. As a result, people tend to seek a "bounded" or "limited" rationality.

Arguably, decision-making is involved at each of the stages in the problem-solving process described, for example in both models above, at Stage 1, we must decide what the problem or opportunity really is, and at Stage 2, we must decide which data to collect, and so on. Therefore, for the purposes of this thesis, I will take 'problem solving' to be the key process that is being explored in the research, and 'decision-making' to be part of that process.

It is important to be clear on what is meant by a 'problem', and indeed, whom or what dictates that we have one. Normative management theories, and particularly some of the literature on problem solving (Margerison & Lewis, 1981; Day & Schoemaker, 2006; Marques, 2009) often encourages us to see our '*problems*' as '*opportunities*', and while this is perhaps somewhat simplistic, it reinforces an important point: Semantics make no material change to a situation, but our perception of that situation affects our ability to deal with it. Indeed the capacity of storytelling to transform our perception is one aspect that attracts us to the potential for a role in problem solving. Typically in organisations, it is a leaders' role to define when action must be taken, and they exercise formal or informal power and influence to privilege one issue over another. Such matters are beyond the scope of this study, but could provide an interesting site for future research.

2.4.1. Defining Problem solving and Decision Making

For my work, it is suffice to say that the issues that are discussed within the data for this thesis are viewed as problems by the leadership of the primary research organisation, and by the subjects who were observed, interviewed and interacted with in the course of this research. A problem can be said to exist when *"…. you are required to act, but you don't know what to do*." (Robertson, 2001, p. 4). This is a useful definition, as it makes no specific reference to a 'goal', which as we will see when ill-structured problems are discussed, may not always be clear or agreed by those involved. However, Robertson does recognise that problems have an "*initial state*" and a "*goal state*"(2001, p.5), and that problem solving is about moving from the former to the latter. Ackoff states :

> *By a problem, we mean a situation that satisfies three conditions: First, a decision-making individual or group has alternative courses of action available; second, the choice made can have a significant effect; and third, the decision maker has some doubt as to which alternative should be selected.*

(Ackoff, 1981, p. 4)

Different terminology is used within the literature when discussing the achievement of this 'goal state'. Ackoff (1981, p.5) explains how problems may be dealt with by being "*resolved"* (by satisficing, i.e. finding a solution that meets the minimum standards deemed to be satisfactory), "*solved*" (by achieving an optimal solution) or "*dissolved"* (by engineering the situation so that the problem disappears).

Bartee (1973) provides a further definition of problem solving that resonates with the core topic of storytelling, in that it refers specifically to 'perception':

A problem is defined here as an unsatisfied need to change a perceived present situation to a perceived desired situation. A solution to a problem is realized when the perceived present and desired situations are perceived to be the same. Problem solving is the activity associated with the change of a problem state to a solution state.

A problem solution can be achieved in three ways. First, the perceived present situation can be transformed into the perceived desired situation. Second, the perceived desired situation can be transformed into the perceived present situation. Third (and more common case), a solution is derived by some combination of the first two ways.

(Bartee, 1973, p. 439)

The particular significance here is the recognition of the impact of perception on the problem and on any potential solution: It is easily recognised that in a rational, logical, Cartesian sense, it would be possible to check to see whether the symptoms of the problem have disappeared once the proposed solution had been applied. However, from the perspective of the problem solver whose challenge is to *propose* a solution, not necessarily to apply it, *his* problem has been solved, i.e. a course of action has been determined that is *believed* would address the blocks to achieving the desired goal. Indeed, when proposed solutions are implemented on problems that can be easily identified, rationalised, and dissected, i.e. "tame" or well-structured problems (see section 2.4.2.), they tend not to remain problems for long. Solutions can be found through classical, rational problem-solving techniques such as those described above and by Hitt, et al. (2009, pp. 104-129); past experience and logic can be brought to bear, and 'known' solutions to 'known' problems can be applied.

Yet even these solutions depend to some degree on the interpretations and perceptions of the people involved. For example, if 'one plus one' is perceived as a mathematical problem, the solution is simple. However, if the same sum is perceived

as a human resources problem, we might be expected to predict a sum greater or less than two, depending on how well or badly those human resources work together.

With this in mind, it is important to reiterate that this research explores ill-structured problems, which some authors may define as wicked problems, and others would call social messes. This study focuses on the nature of these difficult problems rather than on their precise label, that is to say, I focus on problems that are difficult to define, are ambiguous, confusing, unstable, resistant to traditional problem-solving techniques, and lack a clearly definable desired outcome. It may be argued, logically, that these are the problems that persist in organisations, and hence are those in most need of attention and resolution. Indeed, as Professor Russ Vince implied in the quotation at the beginning of this thesis, *".... What other types of problem are there?!"*

My research focuses on these difficult, wicked problems, not least because their lack of structure may well leave them exposed (rightly or wrongly) to the organising forces of stories and storytelling that traditionally seek to provide a path to a solution. So for this thesis, the following statement by Alpaslan & Mitroff is particularly significant:

> *Ill-structured and wicked problems do not have [definitive] solutions [as such]… . They are "coped with" and "managed", but never fully solved.*

(Alpaslan & Mitroff, 2011, p. 24)

(Note: Words in [square brackets] are mine, added to assist in understanding of the quotations in this thesis.)

This is not to suggest that identifying the difference between well-structured and ill-structured problems is straight forward, as Berruyer (2011) notes. He suggests the difficulty is in spotting which problems require which type of solution. Some help is provided in this regard by considering the explanation provided in the 'Concept Diagram' produced by Storer (2006), shown in Appendix 2 on page 364.

Robertson summarises the work of a number of authors in describing problem solving as :

> *…finding your way towards a goal. Sometimes the goal is easy to see [you know it in advance] and sometimes you will recognize it only when you see it.*

> (Robertson, 2001, p. 17)

He sees the psychological study of problem solving as involving three key issues: First, how to mentally represent a given problem and what processes then come into play to solve it, an issue usefully explored by Lissack (2011). Second, the extent to which we apply what we learn in one context to a different context. Third, understanding how we learn from the experience of solving problems. Consideration of these three issues helps us to identify when we are dealing with well-structured, tame problems, and when the problems are ill-structured or wicked (These terms are discussed in more detail in section 2.4.2, below).

However, the Problem-Solving Process depicted in Figure 3 (p. 75) is typical of the traditional problem solving literature, and relates primarily to problems that are indeed identifiable as problems, their desired goal states are known and agreed, and

the range of means by which that goal state can be achieved are also known and agreed. In other words, the models explored so far address only tame, well-structured, or well-defined problems.

2.4.2. From Tame Problems to Wicked Messes

To facilitate exploration of the role of stories in solving *ill-structured* problems in the context of this thesis, it is important to provide an appropriate explanation of the nature of this type of problem in relation to other types and descriptions. This will enable the precise site of the research to be clarified, and the fieldwork to be usefully analysed, without spilling over into other spheres of related interest.

While the range of definitions and explanations that are available are potentially confusing, they are also helpful, as they provide different lenses through which to identify types of problem as they occur in organisations, and in life. This leads to clarification of an issue that may not otherwise have surfaced, i.e. that of the varied definitions of 'ill-structured problems' (Simon, 1973), 'wicked problems' (Rittel & Webber, 1973) , and 'messes' (Ackoff, 1974). As such, this provides a vehicle through which the focal point of this work can be discussed.

Alpaslan & Mitroff (2011) provide an explicit explanation of exactly what is an ill-structured problem and what is a 'wicked' problem, focusing on the degree of agreement on a) the *means* by which a problem should be solved, and b) the *ends* that the problem solving process should bring about. They produce a matrix of the interaction of these two variables, as shown below:

Figure 5 – A Typology of Problems

		Means	
		Agreement	Disagreement
Ends	Agreement	Well-defined problems	Ill-structured problems (efficient means problems)
	Disagreement	Ill-structured problems (Existential problems)	Wicked problems

(Alpaslan & Mitroff, 2011, p. 21)

Storer (2006) suggests a series of linear scales (See Appendix 2 on page 364), in essence, plotting the degree of complexity of a problem against problem-solving methods, and suggesting that 'tame' (i.e. well-structured, or well-defined) and 'wicked' problems occupy opposite ends of a one-dimensional spectrum.

Hancock's model (2004), shown below in Figure 6 , offers further insights into what are the characteristics of wicked problems. He suggests that they are unfamiliar to problem solvers, that their future impact is difficult to predict, that different stakeholders have many different views on the nature and importance of the problem, and that there is a significant distance in space and time between the problems' cause and its effect.

Figure 6 – Matrix showing Hancock's Four Types of Problem

Behavioural Complexity			
High	**Wicked**	**Wicked Mess**
Low	**Tame**	**Mess**
	Low	High

Dynamic Systems Complexity

Note: In this diagram, "Behavioural Complexity" is taken as the extent to which the behaviours of the actors in the problem are complex, and "Dynamic Systems Complexity" is the extent to which the various systems at work within the problem change, interact, and are unstable.

(Hancock, 2004, p.40)

The nature of "tame" and ill-structured problems is usefully described by Mitroff, et al., (1983), and shown in Appendix 1 on page 361, reproduced and adapted by Horn. This gives pictorial and written comparisons of the two extremes of problem types when viewed from the perspective of nine separate problem characteristics. In addition, the table below shows Alpaslan & Mitroff's (2011) comparison of well-structured and ill-structured problems:

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**Figure 7 – The Differences between well-structured problems
and ill-structured problems**

Well-structured problems	Ill-structured problems
The problem is preformulated.	The problem is not preformulated.
Boundaries of problems are clear.	Boundaries of problems are fuzzy and part of the problem.
There is a single formulation and a single solution.	There are multiple formulations and multiple solutions, resolutions, dissolutions, and absolutions.
The definition of a problem does not vary as one works on the problem; the definition of a problem precedes its solution.	The definition(s) of the problem(s) change throughout the enquiry process.
The solution to a problem is the sum of the solution of the separate parts.	The solution(s) to a problem is (are) a function of the mess [i.e. interrelated web of problems] as a whole, not any one of its parts.
The means and the ends are both well known.	The means and the ends are unknown.
Stakeholders agree on the definition of the problem and that the means will achieve the ends.	Stakeholders disagree on the definition of the problem and that the means will achieve the ends.
Once solved, problems remain solved.	Problems are dynamic; they change in response to our working on them.
Problems are usually the province of a single discipline or profession.	Problems are not the exclusive province of any single discipline or profession.

(Alpaslan & Mitroff, 2011, p. 26)

This is not to say that tame problems are necessarily easy to solve, but given sufficient

application of resources such as human intellect, computer processing power, and

time, a 'system' or algorithm can be found and a solution can be generated. It is

recognised that much of our educational system and planned learning experiences are based on the traditional model (Newman, 1997; Robinson, 2006), and that we have privileged scientific and logical thinking over other forms of problem solving for at least the last two centuries. Indeed, this approach has been extremely successful in delivering solutions to both simple and complicated problems that are well-structured, or tame. As computing power continues (for now) to grow exponentially (Hutcheson, 2005), we can perhaps assume that this structured, controlled, and logical approach will be increasingly applied to contribute to solving complex (i.e. less-structured) problems. However, such rational, traditional problem solving approaches are not renowned for delivering solutions to the complexity of the ill-structured problems on which this study focuses.

So while there would seem to be some debate over the precise definition of ill-structured and wicked problems, there is general agreement that, in terms of their fundamental characteristics and our ability to solve them, they are similar. Therefore, for this thesis, I will take wicked problems to be a form of ill-structured problem that exhibit particularly high levels of complexity.

Bartee (1973) suggested a more radical approach, aimed at expanding the limited view of problem solving of the scientific community at the time. He proposed an extension to the view of "*the problem solving space*" (Bartee, 1973, p. 439). He initially describes this space as comprising three dimensions, namely problem-solving *mode*, problem-solving *process* and problem *taxonomy*. Then, making his own contribution, he adds a fourth dimension, that of problem-solving *chronology*, which in turn is broken down into four phases. The significance for this thesis is that Bartee recognises at this early

stage in the literature on problem solving, that traditional processes are inadequate for many problematic situations, and as such, he paves the way for more sophisticated approaches to be explored. For Bartee, this involves looking at the role of time and timing in solving problems. It is possible to see resonance with Boje's (2001) concept of 'antenarrative' here, where it is recognised that in real life, problem solving (as with storytelling) is not *naturally* a process that occurs in a linear, structured sequence.

Bartee's work encourages us to begin to consider problems as being resistant to traditional problem solving techniques, and even becoming unresponsive to creative problem-solving methods. This is in essence due to incongruities between the fundamental nature of the problem and the principles on which these traditional, primitive, and somewhat naïve approaches are based (See Figure 7, p. 85, and Appendix 1, p. 361). For example, an ill-structured problem is very difficult to identify and isolate from other factors (Stage 1 in Newman's model, see Figure 3, p. 75 above), and knowing which data to gather, and gathering it without inadvertently degrading it, is also typically very challenging. Even creative problem solving processes are predicated on the assumption that, if the appropriate analysis is applied, even the most difficult of problems can be resolved, thus suggesting that these approaches are also likely to be flawed when considering wicked problems.

This reduction in effectiveness of problem-solving approaches would seem to be for a variety of reasons: with an ill-structured or wicked problem, its causes cannot be identified accurately, making data gathering and analysis very difficult. These causes are interwoven in ways that are not, and possibly cannot be known. Selecting solutions using rationality is futile under these circumstances, as data and information on the

problem is too unreliable. Finally, testing solutions may render actual implementation

useless, as humans predict and adapt their future behaviour in anticipation of a known

intervention. An excellent current example of this is the on-going European financial

crisis, that continues to grip the region, and so far, has proved resistant to attempts to

resolve the problem (Whittle & Mueller, 2012). Other authors would describe this

situation as a "*wicked mess*" (Hancock, 2004, p. 38) or "*mega-mess*" (Alpaslan &

Mitroff, 2011, p. 15-36), where these ill-structured problems have grown larger, more

complex, and more interwoven, such that they have the potential to become huge

international crises.

Simon (1973) argues that, as far as artificial intelligence systems are concerned, ill-

structured problems are no different to well-structured problems, implying that it is

simply a case of lacking the computational power to process the information available

that prevents a 'structure' being provided for ill-structured problems. However, he

comments:

> *In general, the problems presented to problem solvers by the world are best*
> *regarded as ISPs [ill-structured problems]. They become WSPs [well-*
> *structured problems] only in the process of being prepared for problem*
> *solvers. It is not exaggerating much to say that there are no WSPs, only ISPs*
> *that have been formalized for problem solvers.*

> (Simon, 1973, p. 186)

This statement is central to my study. The implication is that, rightly or wrongly, in

order to solve problems, we impose a structure, i.e. we create boundaries and rules by

which options are constrained, allowing decisions to be made. Alpaslan & Mitroff

(2011) explore this topic further, explaining the important problems of the world today

are extremely complex, interrelated, co-dependant problems that cannot be reduced

to a straightforward cause and effect relationship. This can be seen as an extension of

the work presented by Ackoff who in his paper '*The Future of Operational Research is*

Past' (Ackoff, 1979) bemoans the tradition of the time that treated all problems as

being solvable through systems, and explains his concept of "*messes*", saying:

> *Managers are not confronted with problems that are independent of each*
> *other, but with dynamic situations that consist of complex systems of*
> *changing problems that interact with each other. I call such situations*
> ***messes***. *Problems are abstractions extracted from messes by analysis; they*
> *are to messes as atoms are to tables and chairs. We experience messes,*
> *tables, and chairs; not problems and atoms.*

(Ackoff, 1979, p. 99)

There is a clear issue here in that, as Ackoff explains and as expanded by Alpaslan &

Mitroff (2011), the most significant problems faced by decision-makers today are ill-

structured, wicked problems and messes.

This study examines the interplay between the natural tendency for narrative

processes to create structure for problems, and the ability of story fragments to

challenge and change these structures. It will consider the appropriateness of allowing

such narrative processes to exert their influence, and whether there is a role for

artificially introducing story fragments to improve problem solving and decision

making processes in organisations.

While there is a natural spill-over into decision making as discussed earlier, this is not

intended to become a central aspect of the research, which will recognise the role of

story in evaluating and choosing, but will focus on how storytelling and story fragments influence agenda and goal setting, and impact on plans for action.

It is important for this study to consider existing methods that have been evolved to address problems that are less structured, and in particular, some key CPS approaches.

2.4.3. The Role of Creative Problem-Solving

In response to the need to address problems that have resisted traditional, linear models described above, organisational researchers and practitioners have sought to improve our problem-solving capability by elaborating and evolving existing systems. As a result, many creative problem-solving techniques have been developed. Potentially, radical CPS techniques such as "*Wildest Ideas*" and "*Picture Stimulation*" where seemingly random concepts are 'forced' to fit together to stimulate new ideas, could have a role to play in generating story fragments that could then be used in story-based approaches to problem solving. This is similar to the approach described by Isaksen, et al. (1988; 2011), and this possibility will be discussed within this thesis.

Boje would perhaps argue that, in storytelling, this approach occurs naturally, and the CPS approach described by Treffinger, et al. (2006), shown in Figure 8 below, imitates real-life story-based problem solving, and uses the divergent thinking in antenarrative, followed by the convergent thinking that narrative encourages (Boje, 2008).

Figure 8 – Divergent Thinking as Antenarrative, Convergent Thinking as Narrative

Adapted by permission from Treffinger, Isaksen and Stead-Dorval
(2006). Creative Problem Solving: An Introduction (4th edition).

Divergent thinking	⟶	Convergent thinking
Story dispersion	⟶	Narrative coherence
Improvisation start	⟶	Improvisation end
Antenarrative	⟶	Narrative

Generating many, varied and unusual options

Focusing your thinking constructively
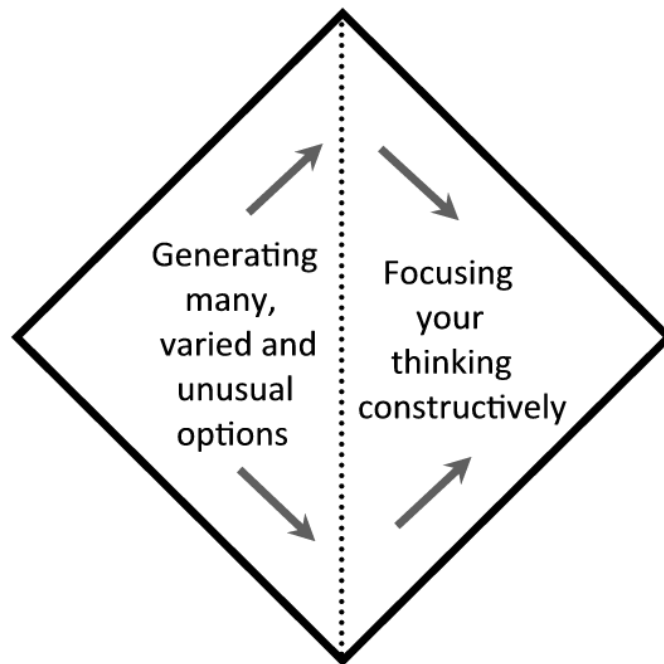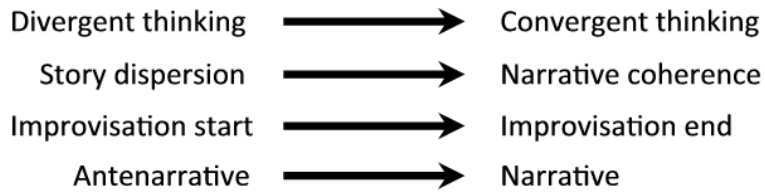
This model provides the building blocks for the 'Creative Problem Solving Model'

(Isaksen, 1988; Isaksen, et al., 2011) as shown in Figure 9 and Figure 10 below, and

informs a potential format for deploying CPS techniques to stimulate creation of antes,

or story fragments, followed by techniques to allow these to coagulate into a range of

potential future stories and narratives.

Figure 9 – Creative Problem Solving Model

Adapted, with permission, from Isaksen (1988)

Divergent thinking

Convergent thinking

Mess Finding

Data Finding

Basic Principles
Various creative problem-solving techniques are used at each of the six stages of the model. At each stage, first a divergent thinking exercise is used to broaden the thinking, followed by a convergent thinking exercise that aims to find a consensus to take forward to the next stage.

Problem Finding

Understanding the Problem

Idea Finding

Generating Ideas

Solution Finding

Acceptance Finding

Planning for Action

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Some of the potential short-comings of deploying this linear approach with ill-structured problems (i.e. mainly that the *problem* is treated as being identifiable, independent of other problems, and solvable) are addressed by the same authors in a revised version of the model shown in Figure 10 below (Isaksen, et al., 2011). This implies a more interwoven set of problem-solving activities that are more likely to reflect the nature of ill-structured problems, and is supported by Kahane's exploration of the antithesis to the "*There is only one right answer*" approach to problems (2004, pp. 7-12).

Figure 10 - A Creative Problem-Solving Framework
Reproduced with Permission from Isaksen, Dorval, and Treffinger (2011)
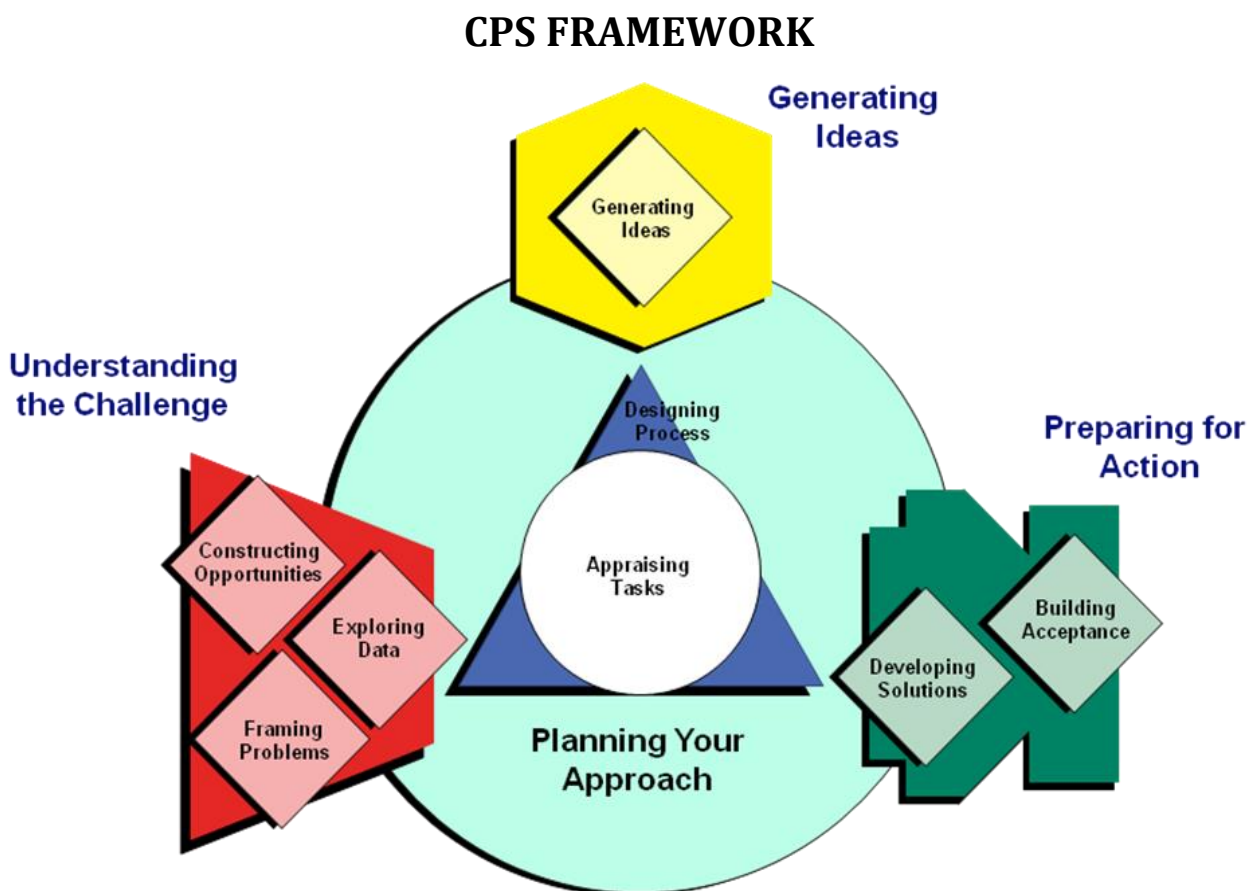
2.4.3. The Role of Creative Problem-Solving

The significance of this work for my thesis is that the creative thinking techniques that are used to create randomised ideas to become inputs into the CPS process, mirror the creation of antes or story fragments in real life. And just as working through a CPS process filters and selects outcomes as dictated by the participants, so storytelling (and more specifically, narrative construction) filters and selects fragments that 'fit' with the preferred plot of the storyteller (Boje, 2008). Indeed, this is a process of sensemaking (discussed in detail in section 2.2.), and typically, we make sense of fragments of experiences and other 'antes' through creating narrative: Czarniawska recognises this sensemaking and problem-solving power, claiming that:

> *…a story [i.e. narrative] consists of a plot comprising causally related episodes that culminate in a solution to a problem.*
>
> (Czarniawska, 1997, p. 78)

This thesis will argue that antenarrative theory provides a further framework to enrich our understanding of the forces at work as we attempt to make sense of story fragments (albeit that making sense of a problem is not synonymous with solving it). It is hoped that this will help problem-solvers to address the issues that Robertson (2001) sees as central to problem solving, specifically, representing a problem and choosing appropriate problem-solving tools, knowing how we learn from problem solving, and to what extent that learning can be re-used (described on page 81 of this thesis). Given the potential role for creativity in ill-structured problem solving, the stage of CPS at which fragments and stories occurred would seem to be an interesting aspect to explore within the research data.

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Brown, et al., (2005) describe how Xerox field engineers successfully and naturally use story to generate solutions to seemingly ill-structured problems in photocopiers; he explains how the engineers start from the known, i.e. the data of the situation, and use this to stimulate memory of story fragments of previous incidents:

> *All the time they walk around the machine, weaving this complex story [narrative], until finally they have a story [narrative] that can explain every piece of data about this complex machine.*

(Brown, et al., 2005, p. 71)

It is implied rather than stated that the story they develop leads to an acceptable solution being found. However, I would argue that a problem with a "*machine*" is unlikely to be "*complex*" as I use the term in this thesis, and is more likely to be complicated, at worst creating a problem that is a "*mess*", and more realistically one that is "*Tame*" (see Hancock, 2004, p.40, and Figure 6, p. 84 above).

Particularly significant for my study is a paper authored by Hansen, et al. (2007), that explored " *… group-based narrative improvisation to explore improvisation*" ; in this work, the writers deliberately set out to create a fictitious story, with the intention of exploring and understanding the approach they were experimenting with, rather than working on the content of the narrative itself. That said, the authors comprehension of the content did appear to evolve significantly over the duration of the narrative construction exercise.

The approach is in part justified by the comment, "*Stories are theories, so the construction of stories amounts to theory building*" (Hansen, et al., 2007). Assuming

this is true, it would seem a logical extrapolation to construct a story about a problem in an attempt to build a theory about how the problem was caused, what its' consequences might be, and how to solve it.

This has implications for solutions to ill-structured problems produced by either CPS or narrative construction: From a positive perspective (as we have seen in section 2.2), the processes generate an actionable solution to a problem that has a credible plan for implementation. However (as we have seen in section 2.3), the solution will typically have been selected based on a delusional belief that the problem was correctly identified and understood in the first place, which as we have seen with ill-structured problems, is highly unlikely.

There would seem to be a rich research site to be explored here in that, we have a significant organisational challenge to address (i.e. the need to find solutions to difficult, persistent, complex problems), and a potential tool (i.e. storytelling) to deploy to facilitate this. However, if we are to understand how the how this tool may work, it is important to understand how sense is made by people and organisations.

One further important contribution to be found in the literature on CPS is that of the impact of the environment and context in which the process of problem solving is carried out. This was usefully identified by Rhodes (see Figure 11, below) as the 'press' of CPS, i.e. the aspects that are both internal and external to the organisation that affect creativity.

Figure 11 - The 4P Model of Creativity

Adapted from Rhodes (1961)

KEY – Aspects of Creativity

Press – Environmental Factors inside and outside the workplace

Person – Creative aspects intrinsic to the individual

Process – the methods used in the organisation

Product – the degree of originality and usefulness required in the ideas produced
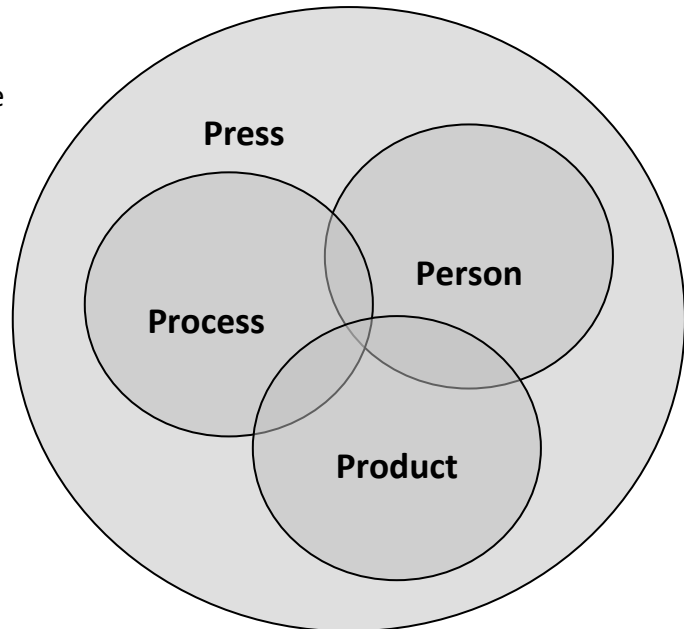
The model is useful in that it shows how in attempting to be creative, the type of person, the processes used, the requisite level of creativity demanded in the output, and the general environment (i.e. what Rhodes terms the "*Press*") are all interdependent, working together to influence the level of creativity involved in the task. Of particular interest to this study is the 'press' component. Given that storytelling is a creative act, it is reasonable to assume that the same four factors are important in the inclination to tell stories. Of particular significance for this thesis is the 'press' component, as stories and narratives are major contributors to this dimension, and as I will argue, are also impacted by it. Goodman (1995) sees the most important aspect of this creative dynamic as the level of trust felt by members of the organisation, a view supported and explored by Basadur (1995), while other authors

suggest a degree of conflict and tension in the work environment may stimulate

creativity (Kaufmann, 2001). The key point for my research is that there is an

interaction between the storytelling 'press' or environmental context, and the

storytelling that takes place within it. This dynamic will be explored through analysis

of the research data.

2.5. Summary of Literature Review

This review of the literature suggests that ill-structured problems are becoming more common, with traditional problem solving techniques proving inadequate for the complex, interwoven, mutating problems that we face in organisational life. These techniques often deploy similar operational patterns to those found in traditional, BME storytelling, and narrative-based solutions are becoming popular, particularly in the field of leadership. However, I suggest that this approach leads to convincing, motivational, apparently rational solutions, but solutions that are ultimately based on flawed assumptions about the nature of the problems they are designed to solve, and unrealistic about the way in which solutions are implemented by real, emotional human beings, as opposed to impassive machines. It could be argued that there is a degree of complacency, even arrogance, in the typical human mind-set that assumes we are capable of solving any problem using rational thought and logical systems. The reality is that, as Hancock suggests (see Figure 6, page 84), the greater the degree of human behavioural complexity involved in a problem situation, the less likely it is that a rational "solution" can be found to that problem. As such, being able to understand storytelling and sensemaking, and their role in solving, satisfice and dissolving problems is essential if we are to be able to plot a route forward through the messes we face (Horn & Weber, 2007).

The literature suggests that antenarrative, and specifically story fragments, may offer an alternative route for exploration of problems and any potential solutions. Boje's concept pays heed to the way in which powerful stories and narratives naturally evolve, and recognises how the myriad of potential solutions that could be proffered by problem-solving activities, are constrained by traditional narrative-based

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sensemaking. The literature also uncovers some of the actors in this problem solving and sensemaking process, with power and organisational culture exerting their considerable influence as prospective answers are evaluated and selected for implementation. This thesis seeks to explore this process, and will attempt to add to our understanding of the way in which storytelling and story fragments play a role in solving ill-structured problems.

2.6. Research Aim and Objectives

The research questions listed below (see 2.7) have been informed by a review of some of the key literature in the field of storytelling and problem solving, as summarised above. The aim of this thesis is to contribute to an improved understanding of the part played by storytelling and story fragments in solving ill-structured organisational problems. Following on from this understanding and contingent on it, I will seek to explore how it might assist us as we seek to make plans for the future of our organisations, although it is recognised that this lies on the extremities of the potential of the study. The research questions are constructed to reflect these aims, and objectives are identified for each question.

While there is little doubt that storytelling and story fragments are involved in the broad area of 'organisational problem solving', the extent of this involvement is not clear. This thesis will examine their influence on the identification of ill-structured problems, the understanding of them, and finding potential solutions for them, rather than reinforcing the use of storytelling as part of solution implementation, which seems to dominate current praxis.

In exploring the evolving theories relating to narrative, storytelling, antenarrative, and sensemaking in organisations, and discussing how they might contribute to our understanding of ill-structured organisational problems, this work will examine how we can make use of the concepts outlined in this chapter to improve our ability to generate and select pragmatic, credible, and engaging solutions.

This study will examine the interplay between the tendency for narrative processes to create structure for problems, and the ability of story fragments to challenge, disrupt, and change these narrative structures. It will consider the implications of allowing such storying processes to exert their influence, and whether there is a place for overtly and deliberately intervening in the way in which stories and narratives evolve, with the goal of improving problem solving and decision-making processes in organisations.

With these issues in mind, the research questions are set out below.

2.7. The Research Questions

The specific questions to be addressed by this thesis are as follows :-

1. **How does storytelling feature as part of people's approaches to ill-structured problem solving in specific organisations?**

This question guides the investigation of the occurrence of storytelling as an ordinary part of organisational life. It will help to identify the contribution that this thesis makes to the literature on the topic, and highlight the natural occurrence of storytelling in everyday problem solving. The research objectives here are to consider the role that the phenomenon plays in the research organisation in affecting the problem-solving context, developing change options, and creating the conditions in which implementation of desired change can take place.

2. **What can a focus on story fragments uncover about these everyday problem-solving practices?**

With this question, the thesis investigates the roles of fragments of stories, rather than that of more complete stories and narratives. It facilitates a discussion on how the problems themselves may be better identified and understood, and whether this could lead to improved abilities to solve, resolve or dissolve ill-structured problems.

3. **How do storytelling and story fragments affect the dynamic of ill-structured problem solving?**

This question explores the impact of storytelling, and specifically story fragments, on the context and conditions under which action-orientated solution-narratives could

evolve from stories and story fragments. Arguing that story fragments operate in a more covert and surreptitious manner than stories, the objective of this research question is to explore the role they play in shaping and directing the 'problem-solving-through-storytelling' arena. The credibility of using story fragments to stimulate the creation of various story options, and the practicalities of accommodating and absorbing these into a problem solution will be considered.

4. **What challenges and opportunities does working with story fragments present to managers in dealing with ill-structured problems?**

In providing space to consider problem-solving praxis, this question examines the practicalities of using a story-fragment based approach to ill-structured problem solving in organisations. The existing role and impact of narratives, stories and storytelling provides context for this discussion.

Chapter 3 – Plan of Enquiry

While traditionally, this Chapter might be called 'Methodology', the title 'Plan of Enquiry' has been chosen to reflect the reality of this study, i.e. that the way in which the research questions evolved and developed through the study guided the methods and approaches used, rather than a being dictated by a fully pre-determined, rational procedure (Josselson & Lieblich, 2003).

So while much of the data used within this thesis was obtained according to the plan set out at an early stage in the research process, data was also collected opportunistically. Unanticipated openings that fitted with the research design were exploited as they arose, with data being gathered from outside of the sample that had been identified within the initial research plan, using whatever qualitative methods fitted the occasion, including the use of semi-structured interviews and participant observations as well as features of a more systematic 'emersion' approach, as favoured by classical ethnographers such as Malinowski (1922) and Mead (1928). The resultant data was subsequently organised, analysed and structured to create a coherent investigation that complements and extends the existing research on organisational storytelling and its role in solving problems. While the study followed elements of an ethnographic strategy, it deployed features of grounded theory in that data was collected and analysed and used to inform the collection and analysis of further data, albeit through different methods, i.e. interview tended to follow observation.

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Some researchers would perhaps question my claim to ethnography, and this is discussed in the Criticisms and Limitations of this thesis, on page 338. Indeed, this study did not set out specifically to represent a particular culture, as Van Maanan (1988, p. 1) suggests is the purpose of ethnography. However, my approach is not at odds with the principles set out such classical ethnographic authors: Van Maanan argues that ethnography embraces "*How social reality is conveyed through writing…*" (1988, p. ix) - my thesis is consistent with this view, as it relies on interpreting the written and transcribed words of research subjects. Furthermore, Fetterman suggests that the ethnographic research tradition relates to "*… the routine, daily lives of people*" (Fetterman, 1998, p. 1) – my work seeks to explore the role of storytelling in every problem-solving activity, and so is again consistent with an ethnographic tradition. However, in studying storytelling, I argue that the 'unusual' is important, and while Whitehead points out that ethnography can include *"…both qualitative and quantitative methods*" (Whitehead, 2005, p. 2), quantitative analysis is not part of this work. Indeed, Geertz would perhaps recognise my work as relying on "*Thick Description*" (Geertz, 1973, p. 5), a term he borrows from Ryle (2009), describing how comments, actions, and behaviours of research subjects may be analysed and interpreted in many different ways, and that in so doing, a fuller and more rounded understanding of the observation is obtained.

So my approach cannot be described as classical ethnography, yet I take the view that the research topic suited a qualitative research design, being essentially related to the values and beliefs that are exposed by subjects through their storytelling and how these impact on the solving of difficult problems. And as we will see in this research, the approach exposes something of the culture of the primary research organisation,

echoing the goals of an ethnographic study. As such, this is consistent with an interpretivist research paradigm, and in this context, a claim to an ethnographic research tradition is appropriate.

The Plan of Enquiry has been structured in line with the approach recommended by Bloomberg & Volpe (2008), in that the introduction to the Chapter (i.e. Section 3.0), explains the rationale for using an inductive research approach, and in particular, methods, strategies, and techniques that fit with an interpretivist genre. I then go on to give an overview of the research design (Section 3.1), followed by a description of the research sample used for the study (Section 3.2). A picture of the information required from that sample and the data collection methods used is presented in Section 3.3, and the approaches to data analysis and information synthesis are explained in Section 3.4. This is followed by discussion of ethical considerations relating to the research (section 3.5), and issues relating to trustworthiness and the limitations of the work are explored in Section 3.6. A summary of the chapter is provided in Section 3.7.

3.0. Introduction to Chapter 3

This chapter explains and justifies the selection of the research processes and procedures that were followed to facilitate an investigation into the role of storytelling and story fragments in the solving of ill-structured problems. It explores in detail the methods that were deployed to investigate the research questions, i.e. :

- how storytelling feature as part of people's approaches to ill-structured problem solving

- what can be learned about everyday problem-solving practices by focusing on story fragments

- how story fragments affect the dynamic of ill-structured problem solving, and

- what challenges and opportunities for dealing with ill-structured problems are presented by story fragments.

A selected literature review preceded both the identification of the research questions and the collection data. Such a review informed the study, but did not provide the data for the research itself. Broadly, this was gathered through observations (both participant and non-participant), unstructured interviews, and analysis of organisational literature.

However, the approach was also inductive, in that observations were made first to collect empirical data, and then theories were built and explanations generated about what had been observed. Gill & Johnson help to justify the approach, suggesting that induction from empirical research is "… *more likely to fit the data and thus is more likely to be useful, plausible and accessible, especially to practising managers.*" (Gill & Johnson, 2010, p. 56)

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3.1. Overview of Research Design

It is important for any doctoral research work to address the issue of ontological and epistemological stances that have been taken. This allows the reader to appreciate the rationale behind the adoption of the particular research tradition for the study, and ultimately, why the data that was produced by the research methods should be considered 'valid evidence' when used to answer the research questions. For this thesis, describing the ontology means providing an explanation of the assumptions that have been made about how storytelling is involved in problem solving. Defining the epistemological stance means explaining what I believe constitutes valid knowledge about the role of storytelling in the research, i.e. why the data that was collected should be considered capable of providing evidence of the role of storytelling and story fragments in solving problems.

Ontologically, the study is founded on the belief that the ideas, deeply held feelings, emotions and values of individuals are experienced subjectively and uniquely by that individual, and that these impact on the way ill-structured problems are approached. These subjective phenomena exist, but are normally hidden in the deeper levels of our minds (i.e. unconscious and subconscious levels), and are typically suppressed by traditional, objective problem solving approaches and routines. As such, any potential value to solution finding that they hold is not normally realised. The act of storytelling, with its inherent scope and tendency to embellish, amend and evolve narrative content, provides a portal through which the these ideas, feelings, values and emotions relating to a problem can surface, thus making them 'knowable' to the storyteller and listeners alike. This approach supports an interpretivist perspective, as by their very nature, stories are the individual tellers' interpretation of reality, and any

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attempt by a researcher (or other listener) to decode and imply meaning into these stories and fragments inevitably involves reference to the researchers own values and beliefs. My position is that meaning is imparted through the telling of these stories and their fragments, but that this meaning is not always clear to the teller, and is also negotiated through collective, shared storytelling.

Epistemologically, I contend that the process of problem solving can be identified both 'in the field' and by textual analysis by a suitably attuned and skilled observer. Similarly, it is possible to identify and record stories and fragments that contribute to the problem solving process. This research is founded on the belief that stories and story fragments are both involved in problem solving behaviour and are deployed by participants in solution-finding processes, be it deliberately or unintentionally. Therefore, identification of their existence in problem solving activity is sufficient to implicate their involvement. I suggest that sensitisation of observers and participant problem-solvers to the presence of stories and story fragments can reveal embryonic solutions that are embedded in acts of storytelling, and as such, the collection, analysis and evaluation of these forms of narrative plays a role in solution-finding.

This position is consistent with a qualitative, inductive methodology, in that the data was collected before the development of insights that attempt to explain the role of storytelling in problem solving – these ideas and patterns emerged from the analysis of that data (Saunders, et al., 2009).

My approach can be described as relying on an interpretivist paradigm, where naturalistic, qualitative methods of data collection are used, focusing on the social

phenomena of storytelling as it occurs in realistic organisational settings. Described

below (in Section 3.3.) are the specific methods that were deployed in this study,

particularly both participant and non-participant observation, combined with

conversational analysis, unstructured interviews, and textual analysis. While not a

'traditional' ethnography, the work suits the ethnographic research tradition, where

the researcher attempts to embed in a single organisation being studied in order to

understand phenomena in that specific context. However, in an attempt to confirm

and enrich the initial theoretical findings from this case study research, a degree of

triangulation was achieved by the use of unstructured interviews and collection of data

from individuals and groups from other storytelling organisations.

The approach was slightly at odds with a classical definition of ethnography, in that,

while it is true that the research sought to understand how stories were used in

everyday problem solving, this 'everyday' use of story has an important element of the

unusual, one off, exceptional occurrence within it. I argue that a single reference to a

story or story fragment can cause a significant change in an entire problem solving

process, without being repeated or highlighted in any way – I maintain that people

potentially respond to one-off, 'throwaway' fragments of stories much as they do to

repeated or lengthy tellings of full-blown narratives. Indeed, while the transcripts

were analysed to identify repetitions and recurrences of particular themes and

fragments, the research also sought to identify and explore the power of the

'phenomenon' of stories and fragments. In such cases, the single mention of a critical,

shared story (or fragment of it) could have ramifications for, and impacts on the

problem solving process from the initial point of entrance into a communication

onwards, even though the story may not be expressly mentioned again in that problem-solving episode.

So the process of analysis of the transcripts involved identification of 'themes' based on the frequency of a particular storyline appearing in the data, but also sought to identify 'pivotal moments', when the mood, tone, content or direction of the discourse changed significantly as a result of storied input.

My conclusion draws on the research findings and analysis to explore answers to the research questions. It considers whether action could and should be taken to stimulate the formation or recollection of story fragments, and whether such an approach could contribute to an improved ill-structured problem solving method.

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3.2. Research Sample

The study focused primarily on a specific public sector organisation, namely, Humberside Fire and Rescue Service (HFRS), based in Hessle, East Yorkshire, UK. In 2010/11, the organisation received funding of approximately £50m from the public purse, employed approximately 1,300 people in both uniformed and non-uniformed roles, and broadly, was responsible for preventing loss of life and injuries from emergency incidents across an area of approximately 2,261 square miles surrounding the Humber Estuary.

There were a number of reasons for selecting this particular organisation: It took advantage of an existing, long-standing relationship between myself and key personnel within the organisation, having worked as an instructor and assessor on a management development programme with a number of their senior fire-fighters, officers, and managers over a period of 18 months. This relationship was critical in obtaining access to appropriate meetings and staff from which the research data was drawn. It also facilitated the adoption of the preferred ethnographic-like research tradition for the study, as my presence in both meetings and training events, and my requests for interviews were not viewed as unusual, allowing non-participant observer and participant observer roles to be played. That is not to say that my presence as a researcher went unnoticed, and on a number of occasions when my role switched from non-participant to participant observer, a change in the behaviour of the subjects was noted, with implications for the recognition of innate bias in the study. The issue of bias is discussed further in 3.6. Limitations of the Study and Issues of Trustworthiness, on p. 127, and in Section 8.4. Criticisms and Limitations of the Study, on p. 338. Almost without exception, staff at HFRS were extremely helpful and willing

to accommodate the research process, and this facilitated negotiated purposive sampling within the organisation, i.e. in discussion with a key contact (Senior Fire Officer Keith Evans), opportunities to observe problem solving meetings, and meet with key decision-takers were engineered.

The data that was collected through un-structured interviews came primarily from actors at different levels within the organisation, and the core topics (i.e. storytelling and problem solving) and emerging themes (from early observations) were discussed in the context of the issues facing interviewees at work.

As suggested in 3.1, in an attempt to enrich and corroborate findings, additional observations were conducted in other public sector organisations, and other interviews were carried out with willing, self-selecting participants who had an interest in sharing their problems and stories. The data from these others sources was collected and analysed in the same way at the data from HFRS.

Finally, key HFRS strategic documents were analysed with a view to providing the study with a view of the context in which the organisational problems were set, and explored how the organisations problems were represented in the public domain. This further enriched and informed the data analysis.

The precise data collection methods are described below, in section 3.3.

3.3. Overview of Data Requirements and Collection

The goal of any thesis is to answer the research questions. As such, it is important to convert the ontological and epistemological stance (outlined in Section 3.0) into a plan to collect 'real' data that can then be converted into the information needed to provide those answers.

A unified approach was adopted for the collection of all field data, be it from HFRS or other sources, with the same data used for each of the four research questions; subsequent analysis and interpretation of the data facilitated the differentiation required to provide the information needed for specific questions.

The data was identified in two main narrative forms. First, as complete stories, often with a beginning, middle, and end (BME), told in detail by subjects to other participants or to myself as researcher. Occasionally, these stories emerged in the more definitive, non-negotiable form of narratives. The importance of the distinction between the two forms varied according to the context of the telling (see Figure 1, page 34 for a clarification of when a 'story' may become a 'narrative'); second and more typically, data appeared as fragments of stories, where 'snippets' of a story would be mentioned within a dialogue. With these fragments, the implicit assumption by the teller is that the listeners would understand the significance of that story fragment within the context in which it was used, without having to fully reiterate or explain the content.

The research needed to monitor the direction and tone of the discussion after such narrative input to be able to determine the impact any given fragment had caused.

It was essential to identify and record when and why stories and story fragments emerged in problem solving episodes. To achieve this, the observations and interviews were recorded and transcribed, with subsequent analysis allowing the phenomena to be identified and distinguished from other types of verbal discourse, such as facts or procedural comments, opinions or ideas. This analysis also allowed any changes in the direction, tone, and content of the problem solving activity to be noted by comparing the dialogue from both before and after the occurrence of a story or fragment. Hand written notes were taken while the audio data was being collected on a digital recorder, with these notes being used to guide, support, and corroborate the themes that were subsequently identified, so providing the information needed to respond to the research questions. Importantly, further validation of key findings was obtained through a second wave of data gathering; this took the form of telephone and email exchanges, plus informal interviews with the two key informants in the case study organisation, where the various issues that had emerged from analysis of the first wave of data were explored. This data was not to be analysed for storied content, and so was recorded with hand-written notes, and not digitally recorded or transcribed.

In the main data collection exercise, 7 meetings were observed involving groups of between 3 and 25 people, 4 officers (2 pairs) were observed completing a total of 5 training scenarios, 4 individuals were interviewed (2 of these on more than one occasion) with 2 more people interviewed as a pair. The officers and instructors involved in the scenario training events were also collectively interviewed. The context, group composition, and purpose of the observations and interviews were recorded and used to consider the existence of influencing factors and other potential patterns in the data.

Table 3 – Site of Data Collection, (on page 118-118 below) provides this information in summary, and furnishes an outline of the context in which the data was recorded.

Before the research began, I spent over 250 hours in both one-to-one and group operational meetings with 22 senior officers who were completing their National Vocational Qualification (NVQ) in Management. A similar amount of time was spent reading and assessing material that described their professional roles and practices, and that these managers had prepared for their personal development portfolios. While this was not intended to result in the collection of data for this thesis, the regular visits to various fire stations and the service headquarters allowed a better understanding of the organisation to be built than could have been expected during the research period alone.

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Table 3 – Site of Data Collection

Transcript Identifier	Organisation & participants	Location	Evidence Source, Researcher Role, & Context of Data Gathering
T1	HFRS. 7 middle- & 4 senior officers	Barton-upon-Humber Fire Station	**Meeting; participant observer**. Goal was to agree recommendations to be made to senior management team for the purchase, storage, and use of fire-fighting foam in the region. Duration – the meeting lasted in excess of 1hr 30min., although the observer and key contact left after 1hr 5min. to attend a fire. Follow up one-to-one conversation with Keith Evans en-route to the fire incident.
T2	HFRS. 2 non-uniformed risk managers, & 1 senior officer	HFRS Headquarters, Hessle.	**Meeting; participant observer**. Discussion of risk management scenarios produced by the team, and the implications for decisions on the location and operational practices of various fire stations. Duration – 26min. Follow up conversation with Keith Evans.
T14	HFRS. 1 non-uniformed manager, 15 junior & middle ranking officers	HFRS Headquarters, Hessle.	**Meeting; participant observer**. Discussion of equipment needs for operational practices. The AUEPC (Accessories, Uniform and Equipment Policy Committee) attempts to resolve operational equipment problems, and make recommendations for operational expenditure. Duration – 1hr 28mins. Conversations were held pre- and post-meeting with the chairman and his assistant.
T5; T11; T12	Hull City Council. 6 middle managers.	Public Protection Offices, Hull	**Meeting; non-participant observer**. Discussion and decisions on steps required to obtain information for a "Customer Service Excellent" award. Durations : T5 – 1hr 18min; T11 – 1hr 16min; T12 – 1hr 16min. Pre-meeting conversations were held with the Chair, Emma Goodman.

Transcript Identifier	Organisation & participants	Location	Evidence Source, Researcher Role, & Context of Data Gathering
T13	HFRS. Fire Authority Meeting. @25 council members & senior officers, including the Assistant Chief Fire Officer.	Board room, HFRS Headquarters, Hessle.	**Meeting; non-participant observer**. Here, senior and chief officers report on the performance and plans of HFRS to the Fire Authority, i.e. the organisations' governing body. Decisions are taken to resolve the longer-term problems of the service. Duration – 1hr 52min. I was asked to leave when the agenda progressed to "restricted items". Individual pre-meeting discussions were held with two senior fire officers. The Fire Authority meeting was reflected upon by the Assistant Chief Fire Officer prior to the interviews T19 and T20.
T6; T7; T8	HFRS. 2 junior officer trainees; 2 Officer Instructors	Incident Command Training (ICT) Centre, Hull.	**Scenario; non-participant observer**. Junior officers were taking part in training exercises, using simulation software and role-play. The objective is for officers to practice decision-taking in life-threatening rescue situations. T6 - Garage fire scenario. Duration – 47min. T7 - Barn fire scenario. Duration – 1hr 7min. T8 - House fire scenario. Duration – 22min. Discussions were held with lead instructors over lunch and after the event.
T9; T10	HFRS. 2 Experienced officers; 2 Officer Instructors	ICT Centre, Hull.	**Scenario; non-participant observer**. Mid-ranking officers were taking part in training exercises, using simulation software and role-play. The objective is for officers to practice fire-fighting decision taking in life-threatening situations. T9 - High rise scenario. Duration – 30min T10 - Garage fire scenario. Duration – 42min. Further discussions were held with individual trainees after the event.

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Transcript Identifier	Organisation & participants	Location	Evidence Source, Researcher Role, & Context of Data Gathering
T3; T4; T21	Private sector organisations. Consultants & Instructor	Interview room, Doncaster Business School	**Unstructured Interview; purposive sampling**. The interviewees responded to a request from the researcher for "stories relating to ill-structured problems at work". T3 – 1 Private sector change consultant. Problems of change in Public sector. Duration – 45min. (Approx.) T4 – 2 Private sector HR Professionals. Equality and diversity issues. Duration – 30min. (Approx.) T21 – 1 Public sector instructor. Problems inherited from ineffective predecessor. Duration – 20min. (Approx.)
T15; T16; T17; T18; T19; T20: T22	HFRS. Various Officers	Interview Rooms, HFRS Headquarters, Hessle, & ICT Centre.	**Unstructured Interview; purposive sampling**. The interviewees responded to a request from the researcher's for a discussion of key organisational problems. T15; T18; T22 – 1 Senior HFRS Officer, discussing problems, progress, and the impact of stories. Total Duration – 1hr 30min. T16 – 4 HFRS Officers, discussing practical problems and the value of training through use of scenarios. Duration - 32min. T17 – 1 HFRS Junior Officer, discussing influences on decisions. Duration – 38min. T19; T20 – Assistant Chief Officer, discussing strategic level problems of HFRS. Total Duration – 1hr 5min.

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3.4. Data Analysis and Information Synthesis

Once data had been collected, the laborious task of transcription began. After a degree of trial and error, the most effective method was found to be the use of a digital audio recording of any given observation or interview, coupled with the use of speech recognition software. The recording was played back phrase by phrase, and repeated verbatim by myself, the researcher, into Nuance Dragon Naturally Speaking 11.0 software. This allowed the program to provide a very accurate written record of the data, as it had been paired with my voice, and therefore had only one tone and accent to translate. An example of one of the transcripts produced can be found at Appendix 3, page 365.

An additional benefit of this method was that, given that I personally spoke (and checked) every word of the data, the process allowed me to develop a thorough knowledge of the content of each transcription, and to some extent, facilitated preliminary analysis of the data as it was processed, allowing certain superficial themes to be recognised and explored very rapidly. A hand-written record of this 'live' analysis was taken and used to provide preliminary categories and themes for more formal and structured analyses of the transcripts, using Microsoft Excel. An example of this is shown in Table 4 below.

Table 4 – Example of Data Analysis

Data ID (Trans, pg, line)	Narrative involved? (Story/frag/ Ante/no)	Problem solving involved? (yes/no/indir)	Ill-structured problem solving? (yes/no/indirectly)	Fragment / Ante type	Operational Theme	Implied purpose of frag. / Story	Stage of CPS	Notes / Impact? Quantification of impact?
T1,0 -M	Foam meeting							Meeting with @12-15 middle ranking fire officers to discuss the future of firefighting with foam in HFRS
T1,1,1-18	Fragment	no	-	Spiral	KE vs. Chair	Power games/ team at ease context	Pre-stage / setting context	Joke could be seen as an attempt to establish the chairman's authority within the meeting, and particularly to weaken the position of KE. This initiates a spiral antenarrative that places KE as 'student', and all others as 'competent adults'. This is 'banter', but is it 'banter' with a purpose? Attempting to encourage attention to detail, particularly re. time-keeping? Impacts on the problem solving context
T1,1,15-19	Fragment	no	-	Spiral	KE vs. Chair	Power setting context	Pre-stage / setting context	highlighting the importance of Terry could again be part of an antenarrative that undermines the role of KE – Chairman's message is "you're not as important as Terry". This could indicate an internal power struggle between KE & Chairman. It could also be a symptom of a competitive, male-orientated organisational culture such as HFRS. Impacts on the problem solving context
T1,1,24-26	No	yes	no	Structure the problem	Team at ease	Designing Process - Planning your Approach	chairman setting out a linear process for decision taking, but doesn't eliminate the potential for story, fragments and antenarrative impacting within debates of the "bit" (1.25) that others bring.

The process of analysis can be described as 'operationalizing' the data. This facilitated the population of the spreadsheet shown in Table 4 above, and involved careful inspection of the transcripts and of any accompanying field notes that were taken as the data was gathered.

My practical approach to the analysis was as follows: Initially, the text was examined to identify where key moments occurred; these were points where the flow of discussion noticeably changed in direction, mood, tone, context, focus, or content or indeed, failed to change when new information was introduced. As the researcher, I was particularly interested in stories and story fragments and their involvement at these pivotal moments, be that their presence or absence, or their occurrence at non-pivotal moments. These narrative formats appeared as anecdotes, recollections of similar experiences, jokes, throwaway comments, and so on. I looked for story lines that privileged certain prospective solutions, some that were argued through, while other options were ignored. I attempted to notice quiet voices that were either heard or overlooked, small issues that became large ones, and solutions that were tried or dismissed.

In essence, this method allowed two sets of information to be developed: First, the occurrence of pivotal moments that were captured by the data; Second, the appearance of stories and fragments within the same discourse. These occurrences were then compared to allow potential patterns and relationships between the two to emerge.

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Once the transcript data had been analysed in this way and the results recorded on the

spreadsheet, the information could be rapidly arranged and rearranged around

different ideas, different stages of the problem solving process, different operational

themes, and so on. The capacity of the software to manipulate and search for potential

associations permitted a thorough exploration of the data, and allowed the key issues

to be developed that provided answers to the research questions.

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3.5. Ethical Considerations

As Van Maanen states:

> *An ethnography ……. carries quite serious intellectual and moral responsibilities, for the images of others inscribed in writing are most assuredly not neutral.*

(Van Maanen, 1988, p. 1)

From an ethical perspective, helping people to solve difficult problems creates little concern. However, intruding into the working lives of the subjects and their organisations, uncovering feeling and emotions (accurately or inaccurately) through the stories they tell and the meaning they imply is less straightforward. Stories and storytelling can be particularly useful in research situations where power and politics are playing a significant role, and where various parties have vested interests in concealing the truth about their feelings, attitudes and deeply held beliefs. The work of Randels (1998), for example, specifically explored the role of narrative in Business Ethics, and Brown, et al. state that *"storytelling flies under the corporate radar"* (Brown, et al., 2005, p. 169).

For this research, I felt it necessary to ask myself, "*Is it 'morally correct' to expose issues within the organisation, based on the evidence I gather from storytelling*?" My concern was twofold: First, that if the organisation were to discover the originator of certain stories and fragments, it may have the potential to affect their working life in a negative way. Given the core topics of this thesis, and that internal power and politics may be expected to play a part in making problems 'ill-structured' and to contribute to increasing the resistant of such problems to being solved, it was likely that such

Machiavellian issues would arise. The literature review suggested that the use of a story-based approach to investigate these ill-structured problems was appropriate, yet subjects taking part in the study had the potential to be exposed to the risk that their inner thoughts and feelings might be revealed to a reader of my thesis, and thus impact on the political landscape within the organisation. So steps had to be taken to protect the interests of the individuals taking part in the research. To this end, where potentially negative inferences were drawn by the researcher from the data, care was taken to conceal the identity of subjects. All participants were promised access to the thesis before its publication, and the purpose of my research, i.e. to explore the role of storytelling in problem solving, was stated at the outset of any data-gathering episode. Verbal consent was obtained from all participants to record their contribution.

My second ethical concern related to the impact that my presence might have on the vital lifesaving services provided by the primary research organisation. This could have occurred as a result of my influence on decisions, or simply due to my physical presence, i.e. being in the way. To address this, care was taken not to impact on operational firefighting activities, as this could have increased the health and safety risk to all those involved in fire and rescue incidents, and therefore, albeit regretfully, opportunities to observe real firefighting and rescue situations were rejected. This was not considered significantly detrimental to the research, as there was no particular intention to examine problem solving in real emergencies, but simply to focus on ill-structured organisational problems. With regard to my potential influence on decisions, HFRS has protocols in place that prevent public access to 'sensitive' information and meetings. These were strictly adhered to, and where any doubt arose, details were erased from audio and written records.

3.6. Limitations of the Study and Issues of Trustworthiness

As with any interpretive study, no claim is made that the research represents any universal truths, rules that can be applied in other organisations, or principles that can be transferred to other situations. The findings are my interpretation of the data, and other researchers may well reach different conclusions after analysis of the same evidence. However, the steps outlined below steps were taken to enhance the credibility, dependability, and transferability of the work as far as practicable.

The research design and sampling procedure sought to limit the potential impact of my presence as an observer, by selecting an organisation in which I was already known, and where my role was recognised to be of an academic nature. As such, my activity was considered 'normal' to some extent. The credibility of attempting to conduct 'fly-on-the-wall', ethnographic-like, non-participant observations to record and study naturally occurring behaviours was brought into question at an early stage in the data collection phase of the research: While attempting to record and make notes in a small (three person) meeting at HFRS, I chose to attempt to be 'invisible' at the back of the room. The meeting progressed very formally, which I felt was not representative of the normal culture of the group (having seen the participants interact on earlier occasions). I took the decision to switch roles to from non-participant, to participant observer, and offered some brief comments on the topics being discussed. This resulted in a significant change to the atmosphere of the meeting, with interactions become much less staged, and more consistent with the behaviours I had previously observed. While I felt I could not use the data generating in this particular meeting, I believe it was a pivotal moment in the data collection process. From that point onwards, I used a 'participant observer' approach wherever possible, and selected a

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pure non-participant observer approach only when my presence was disguised either by the intense nature of the task being completed (for example, in a 'live' simulation), or by the large number of participants present.

I suggest that this is evidence of a reflexive approach to my research, which is particularly important in methodologies that follow ethnographic traditions, as Best, et al., note:

> *Sociologists who practice reflexivity examine their own values in relation to their research to establish the extent to which the findings reflect their beliefs. It is argued that the critical awareness of reflexivity brings more validity to social research, by creating a more honest picture of social reality.*
>
> (Best, et al., 2000, p. 109)

Evidence gathered from individuals and groups from organisations outside of the primary research site (i.e. HFRS), provided a further opportunity to practice reflexivity and to gain a degree of triangulation of the results, as if the same phenomena occurred in these different context with different participants, the findings could be considered to be more dependable.

The potential damage to dependability caused by the steps taken to ensure an ethical research process were limited by my mimicking of behaviours that I had become associated with in the past, i.e. for interviewing individuals, and attending and recording meetings, both for NVQ assessment purposes.

As is typical of an interpretivist study, the goal was to interpret and understand the behaviours that were observed – claiming to be able to transfer the learning to other situations was not an objective. However, given the ubiquitous nature of both storytelling and ill-structured problems, I consider it likely that elements of the conclusions of this study will have value in other organisations within the sector, and potentially more widely. However, more research would be needed to explore this possibility.

The key limitations of the study are typical of those found in many qualitative studies. The research is 'rich and deep', but there is limited confidence in the precision of the interpretations and inferences that have been made; for example, the judgement as to whether a story or fragment had an impact, and how large that impact was, was likely to be subjective. Furthermore, while this was an ethnographic-like study, the nuances, ambiguities and complexities within everyday speech within the research organisation could not be fully understood by an outsider, particularly as in my researchers role, I was a welcome and familiar visitor, not an insider. Indeed, the nature of the life or death situations that the fire and rescue services have to deal with on a daily basis creates extremely strong bonds and emotional relationships between fellow firefighters. An occasional visitor from an entirely different vocation could not hope to fully embed in such a powerful culture. In fact, was this to have been possible, it would create another potential source of bias in the study, with the possibility that I could lose sight of my research objectives and become too close to the organisation to maintain an independent perspective. The 'nods-and-winks' that are important to storytelling and that could potentially be identified and understood by a competent ethnographer, could have easily been misinterpreted in my research. However, the use

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of careful observation and field notes, coupled with my long-term involvement with the organisation, helped to minimise the impact of this limitation.

Overall, given that the research was focused on the process of solving problems through storytelling, and not on the organisational context in which problem solving took place, I believe these limitations did not fundamentally devalue the research.

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3.7. Chapter Summary

So in summary, this was a qualitative study that adopted an interpretivist perspective, and as such, recognised that the data could be interpreted in other ways by other researchers, thus restricting its generalizability. The data was gathered via a loosely ethnographic approach, with existing contacts and organisational relationships being exploited. Observations and interviews were recorded, transcribed, and analysed to facilitate the identification of themes and patterns in the data that could be interpreted as answers to the research questions.

Ethical issues were noted and addressed, and the limitations on the validity of the research in different contexts were noted.

I will now go on to Part Two of this thesis, where I begin with a brief explanation of the broader context in which the primary research organisation found itself as the data was gathered. I then present the research findings and discuss them in relation to the research questions, and close with my conclusions and reflections on the research and the research process.

PART TWO

Introduction to Part Two

In Part One of this thesis, I developed and explored the process of producing this research: In Chapter 1, I introduced the topic and the background to this study. In Chapter 2, my review of the literature on storytelling and problem solving allowed the research questions for this thesis to emerge and evolve. The Plan of Enquiry in Chapter 3 set out how data was to be gathered in the field in a way that allowed a credible analysis of these research questions.

It is here in Part Two of the thesis that I begin to show the results of the processes that have been discussed in Part One, and provide answers to the research questions that emerged from the Literature Review and were explored by deploying the methods that were explained in the Plan of Enquiry.

In Chapters 4, 5, 6, and 7, the findings from the fieldwork are presented to the reader, with these findings being analysed and discussed in a structured and purposeful manner, facilitating the development of answers to the research questions. As with any study of this nature, the findings and analysis represent my personal interpretation of events, and my interpretation of the causes of the subjects' reactions to the environments and events that were observed. Other researchers may well dispute, approve, or indeed develop my findings after applying their own analysis to the data from their own, unique, and equally valid perspectives.

In this Introduction to Part Two, I begin with an overall introduction to the findings, and provide a brief summary of the context in which the primary research organisation

(i.e. HFRS) operates. It includes an outline of the way in which the organisation represents its problems in the public domain, and opens the discussion on the role of story in a complex organisational problem-solving environment. In Chapters 4 to 7, I go on to deliver an analysis of the findings to each of the four research questions individually, and in Chapter 8, draw conclusions from the analyses, identify the contribution that the work has made to theory and practice, critically appraise the process that has been followed, and identify areas for future research.

So in this part of the thesis, I present the key findings that have emerged from the observation of storytelling, story fragments, and ill-structured problem solving in organisational contexts. These findings are analysed and discussed with direct reference to a range of extracts from the verbatim transcripts of meetings, observations and interviews that comprise the primary data for this thesis. As explained in Section 3.2. Research Sample on page 113, most, but not all of these come from the primary research organisation, with evidence from other individuals and organisations included where appropriate, and used predominantly for corroboration and triangulation of the findings.

Before embarking on the analysis relating to the specific research questions, it is useful to contextualise the discussion by considering the narrative told by the primary research organisation in its public communications, specifically its Strategic Plan for the period 2010 to 2013, and the associated operational document, the Integrated Risk Management Plan (IRMP). These present what can be termed a 'corporate story' to the general public (and to organisational members) in that they explain the organisation's preferred version of the issues it is facing to all stakeholders. Indeed, on

page 1 of the Strategic Plan, it states that "*the purpose of the Plan is to communicate to our communities, partners and staff…*". As such, the documents contribute to a representation of the context in which the primary research data is situated. It also provides a backdrop for the more detailed analysis and discussion of the findings relating to each of the four Research Questions that make up the following four chapters.

The HFRS Strategic Plan and its operational counterpart, the IRMP have 4 year and 1 year horizons respectively, are updated and published annually, and are freely available for the public to view via the internet.

The backdrop to the 2010 – 2013 Strategic Plan was a severe recession, with the expectation of extensive cuts in public funding for the service, while the expectations placed on the Service continued to grow. The document draws the attention of the reader to this challenging scenario, stating that:

> *The challenges and demands upon the Service will continue to grow over the coming years coupled with a backdrop of reduced public spending and greater citizen expectation of public services. In meeting these challenges we will ensure that the Service is well structured, well governed and delivers value for money services.*
>
> *(Humberside Fire & Rescue Service, 2009, p. 1)*

Arguably, this in an attempt to modify stakeholder expectations of future expenditure, and to begin to lay the foundations on which major change initiatives can be built. In these circumstances, the emphasis of the documents was on improving performance of HFRS (largely judged by increasing safety) using reduced budgets. The suggestion is

that this would be facilitated, in essence, by improved management, increased

innovation, and creating more flexibility in the way resource were used.

Page 2 of the Strategic Plan presents a summary of 12 key "*challenges and drivers*"

that had underpinned it. Diverse ranges of issues were covered and significantly, while

stories were not presented in this short section, antenarrative was used in a form that

I describe as 'story fragments': Key elements of the text included words and phrases

such as '*Working Time Regulations*', '*sustainability agenda*', and '*terrorism*', and with

'*flooding*' used as an example of extreme weather conditions that the organisation is

required to deal with (Humberside Fire & Rescue Service, 2009, p. 2). These can all be

considered forms of antenarrative, or antes, which are being used in the document to

garner support for the changes being proposed. It is worth reflecting here on the use

of the term "*flooding*": This has a powerful resonance with emotional memories for

both internal and external stakeholders, as the region was severely affected by floods

in June 2007 and the Service was stretched to its absolute limits in coping with the

situation, and surfaces as an issue in Extract 35 – "Spate conditions, 2007, and the

floods" and Extract 36 – "The impact of 2007" on p. 212, and in Extract 55 – "The

floods death" on p. 271.

It is interesting to note that the 2010-2013 Plan was a visually stimulating document,

and as such, presented a second form of fragment contained within the plan. A high

proportion of the page space is taken up with photographs, depicting different aspects

of the work of HFRS. Significantly, both the Strategic Plan and the IRMP included

pictures showing the Service at work 'in-the-field'. For example, firefighters were

shown working with children, consulting with residents, and collaborating with the RAF

air-sea rescue. These fragments of stories draw attention to the wider range of

activities performed, rather than perhaps the perceived core functions of the service. This potentially influences the stance of the reader on key problems and potential solutions being discussed within the document, and correspondingly, throughout the organisation.

The type of antes presented can therefore be seen as potential levers that could be used by authors and managers to create and steer the evolution of the corporate story that the organisation wishes to have transmitted to its stakeholders. These will then influence the way in which this story is perceived and understood, and therefore how the problems that it raises are discussed and addressed.

At the heart of the HFRS Strategic Plan is the vision – "*Safer Communities; Safer Firefighters*" (Humberside Fire & Rescue Service, 2009, p. 3) evidently privileging 'safety' above other competing goals. Given the prominence given to recession and drastic cuts in government spending both within the Drivers for this 2010-13 Plan and also the draft 2011-14 Plan, it is noticeable that the reference to the need for efficiency savings is somewhat understated. This suggests that the 'Strategic Context' section of the document maybe tailored for the consumption of certain key stakeholders who are particularly sensitive to reductions in spending, for example, members of the HFRS governing body, the Fire Authority. It is also interesting to note in this section that the plan is intended to "*… reflect the strategic direction of the service and remains flexible to consider new issues*" (Humberside Fire & Rescue Service, 2009, p. 3). By implication, this suggests that the strategic direction is not irrevocably defined by the plan, and that the authors recognise the need to retain a

degree of flexibility, in spite of the innate desire exhibited in many organisations to develop a plan that is stable and can be followed faithfully, i.e. a strategic narrative.

On page 5, an outline of the performance of the Service is provided, telling a predominantly positive story of success. However, it should be noted that some performance figures are quoted in relation to the 2004/07 baseline figures, and do not represent year-on-year improvement. While this is still indicative of excellent performance, the question could be raised as to why more a up-to-date baseline could not be used in the comparison. The story being presented is perhaps that there is significant margin for savings without allowing service standards to fall below a reasonable level.

The document continued by presenting case studies celebrating stories of outstanding performance from the service, and outlined some startling figures for key performance measures. For example, detailing how "…*the work of various teams and individuals within the service has been recognised locally and nationally*" (Humberside Fire & Rescue Service, 2009, p. 6). This included providing brief narratives relating to named individuals achieving recognition of their contribution to their community, perhaps in an attempt to signify to the reader what HFRS considers to be excellent behaviour.

On page 7, the document begins to talk about the priorities of the service, with two of the three priorities relating to prevention rather than response. In talking about vulnerable groups in relation to this goal, the reader's attention is drawn to the human conditions that place one at risk of "*… loss of life and injuries from emergency incidents*" (Humberside Fire & Rescue Service, 2009, p. 7). The effect of this could be to

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stimulate the reader into imagining the scenarios in which the risk of loss of life is increased in these susceptible groups. In doing so, the document shifts more towards narrative (rather than story), i.e. a more tightly dictated outcome is predicted in terms of the consequences of preventative action that it had taken to reduce risk. This perceived shift from 'story' towards 'narrative' coincides with a shift in the approach of the document from 'draw your own conclusions' (i.e. story), to 'draw *this* conclusion' (i.e. narrative), and is illustrative of a central idea of this study, i.e. that narrative is more deterministic than story (see Figure 1 on page 34 for further explanation of the relationship between these terms). This is a central theme of this thesis, and is discussed within the literature review (Chapter 2), and identified within the data, for example in Extract 46 – "We don't need foam!", on p. 241.

The shift in storytelling format within the strategic document may have been accidental or subconscious, but the move towards a more directive style of communication was supported by evidence from discussions with senior managers in HFRS. They confirmed the shift in operational emphasis (i.e. away from firefighting towards fire prevention), and noted the problems this had caused with the self-perception (or as I will explain later in this thesis, their 'story of self') of many traditional firefighters, who saw their role as heroic life-savers, rather than individuals with more cautious, restrained personalities who were required to avoid danger rather than fight real fires. The documents seemed to be addressing a need to direct the public and officers towards new priorities within the service, and narrative played a part in this. I would argue that stories, rather than narrative, could have a more powerful effect on shaping perceptions, and this is explored in more detail within the

research questions for this thesis, and particularly in Chapter 5 – Findings and Analysis of Research Question 2.

On page 12 of the Strategic Plan, resources began to be discussed, and this reinforced the message that the key priorities of HFRS, i.e. prevention, protection and response, were to be achieved in a difficult financial environment, and in a context where the service is required to respond to a wide range of demands from partner organisations. There is perhaps an allusion to the difficulties involved with Local Strategic Partnerships, although this is not expanded within the document, nor was it mentioned within the discussions with organisational members.

An interesting opportunity to raise concerns regarding key aspects of the service occurred on page 14. Here, Regional Control Centres (RCC) were mentioned: in the interests of efficiency, local control centres were to be replaced with larger centralised services that would deploy and direct emergency services to live incidents and emergencies. In carrying out my research, I had witnessed various conversations within the fire service that had suggested considerable unrest regarding this arrangement, and the Strategic Plan presented a relatively neutral position on the development, choosing to emphasise the required enablers to make the system work. However, in more recent discussions, it emerged that RCC's were no longer a priority for HFRS, and local (rather than regional) deployment control systems had been upgraded to provide the required level of communication to carry out fire and rescue operations effectively and efficiently. The lack of representation within the document of the inherent problems with a RCC was perhaps significant (for example, the lack of local knowledge of operators, commuting for staff, etc.) and the storying that took place within the

organisation and in the press coverage of the topic, both before and after the decision to scrap RCC's was taken, seemed to play down the importance of this change in strategy.

Also on page 14, and continuing in the vein of understatement of problems, there was a fleeting reference to a very serious issue for the service, namely that of a male-orientated, homogenous culture known internally as the 'Watch Culture', and the need for that to change. This was highlighted within one-to-one discussions with senior managers, and significantly, the most senior officer interviewed, but received little mention here. However, throughout the document women are presented in proactive firefighting roles, perhaps showing stories being used to remove the inertia that the culture was arguably sustaining. Page 15 also discussed staffing issues, possibly continuing to indirectly address the cultural problem.

A number of legislative issues were raised, for example The Equal Pay Act, recruitment and selection, equality and diversity, etc. Given the stated organisational goal of "… *committed, flexible, safe and skilled staff*" (Humberside Fire & Rescue Service, 2009, p. 4), there would seem to be an ill-structured problem of an ingrained culture within the service that was preventing the achievement of this goal. Of particular concern here are the 'watch culture' (see Extract 25 – "Watch culture", p.198), and the triangular relationship between the firefighters, the Fire Brigades Unions (FBU), and the management tiers of the service: Unspoken, unwritten traditions, particularly within the frontline operational crews, create significant barriers to change, and indeed create barriers to compliance with national legislation on issues such as sexism and discrimination at work – this is discussed in more detail later in this thesis. Not

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surprisingly, these problems are presented in the Strategic Plan by way of statements of intent, rather than potentially inflammatory statements that would further polarise the three-way relationship.

The Strategic Plan concluded with a summary of financial issues, and made it clear that the Fire Authority had ultimate control over funding. Earlier in the plan, HFRS committed itself to reducing annual operating costs by £1 million per year by 2012. There is little to suggest either from the document, or from discussions with HFRS personnel, that this target is unrealistic, and follow up conversations with key senior managers confirmed that this had been achieved. Indeed, the impression is that efficiencies are there to be made, if only the Fire Authority would allow HFRS management to make the decisions it wishes to make. There is little evidence of the political (small and large P) influences that may be at work within the governing body, with Party Politics potentially playing a significant part in their decision-making.

As this section of the introduction suggests, storytelling in a broad sense, is a feature of the official corporate communication of the primary research organisation. In the following Chapters, I will now go on to consider the role of storytelling, stories and story fragments in more specific problem-solving contexts, and in doing so, address the research questions directly.

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Chapter 4 – Findings and Analysis of Research Question 1

4.0 – How does storytelling feature as part of people's approaches to ill-structured problem solving in specific organisations?

Stories (as defined in Table 1 on page 13 of this thesis) occurred naturally in some specific circumstances within the research, namely when setting the context for problem solving activity, when there was no clear or acceptable answer being proposed, and when participants were trying to build support for an idea. From a researchers' perspective, they were also conspicuously absent in other contexts, particularly when generating ideas and planning the approach to solving a problem.

4.1. Setting the context for problem solving

When any problem-solving activity takes place, the mind-set, attitude, and general approach adopted by participants has a major impact of the ensuing process. As such, it was interesting to note the occurrence of storytelling at an early juncture, before the 'official' problem-solving attempt had begun. While numerically the incidence of stories at pre-meeting stages was not as high as might have been anticipated in this relatively social context, I argue in this section that their impact was nevertheless, significant. Popular authors on storytelling, for example Denning (2001; 2005), Brown, et al., (2005) and Guber (2011), argue that organisations use stories to create a link between a strategy that has been developed, and the actions the leaders want people to take to implement that strategy; they create the landscape in which subsequent actions take place. Stories told at the beginning of a problem-solving meeting can therefore be argued to have a similar impact on the problem-solving process – they remain in the conscious or subconscious minds of those involved, and affect the way in

which subsequent topics are discussed. As such, storytelling in its various guises, has
the capacity to 'set the scene' in which problems are solved and decisions are taken.

This impact of storytelling on the context of the problem solving process can be seen in
Extract 1 – "Foam meeting gets underway" (below). Here, a meeting was trying to
make recommendations as to which of two fire-fighting chemical foams ('Solberg' and
'Niagara') to purchase for use by HFRS. This choice had long-term implications that
linked to the Strategic Plan for the organisation with regard to its commitment to
reducing environmental impact, as the service is committed to *"…protect the*
environment by reducing our carbon footprint and implementing appropriate
sustainability strategies" (Humberside Fire & Rescue Service, 2009, p. 12).

The meeting took place in a large, sparsely furnished room in Barton Fire Station,
Barton upon Humber, North Lincolnshire, UK (see Table 3 – Site of Data Collection,
page 118.) The chairman used story fragments as he endeavoured to put an open
agenda forward in which all options could be considered, but various other fragments
and antes were introduced that derailed this attempt. These are identified in the
following extract by a bold number in square brackets (e.g. *[1]*) after the relevant
comment:

Extract 1 – "Foam meeting gets underway"

> ***Chairman*** *– erm, I know we're under a little bit of, erm, 'pressure' shall we*
> *say, to at least get some interim proposals out **[1]**. So I think if we start*
> *from the top [of Terms of Reference] and work our way down.*
>
> *Obviously, item 12 on the Terms of Reference is SD's report. We could*
> *maybe say, we've all read it (I presume), we know the bits that are in it …*
> *quite an in-depth report really **[2]**. Are we happy to accept that now as a*

way forward regarding the type of foam that the brigade is going to go to? I.e. the Niagara? Or do we feel that we need to do more research, more consultation….

[Story fragment **[1]** contributes to creating a sense of urgency within the meeting, and fragment **[2]** attempts to position the work done by 'SD' as being authoritative and therefore influential in the discussion.]

***Continuing …. FF2** –… I personally recommend that you look at the Solberg alternative. Erm, since you guys met last time we've had a couple of the guys ring us up. Solberg's the only one, at this moment in time that has got RH's backing. He is the head sherang for the environment agency **[3]**. It may be that if we jump in with Niagara…*

[With the two word fragment "*head sherang*" at **[3]**, FF2 is able to create an impression of a potentially authoritarian, bureaucratic, power-hungry individual.]

***Continuing …. Chairman** –… Yeah, that they pull it.*

***FF2** – they could still end up pulling it, but 'T' and I are at this thing on the 20th aren't we? Are you going to address that with me?*

***Chairman** – is that your 'regional' kind of thing?*

***FF2** – [yes] that's the 'regional', and they're just getting up a database of what they've got. Now if most of the region have gone with Niagara, then we, we have to go with Niagara.*

***FF3** – my only thing that I would mention on that, is that as long as Solberg has got the same characteristics, in that we can… If we look to stable 36,000 L, and we agree as a team that's what we want, and, you know, Niagara is 3 to 1, so we only need 12,000 L of Niagara, if Solberg is the same type of principle,…*

***FF2** – it's 3 - 6, 3 - 6*

***Chairman** – we need to keep the same amount as what we've got now.*

***FF2** –… If that's the stuff you decide you want to keep…*

***FF3** – and the only reason I'm mentioning that is because of the potential environmental issues and impact of managing 12,000 L of foam instead of*

three times that amount of foam. That's all. ***[4].***

[The fragment at **[4]** forces the meeting to consider a core HFRS strategic objective in relation environmental protection, but is also able to say, in effect, *"it's the 'higher-ups' that are saying this, not me"*, and as such, FF3 preserves his status as one of 'the team', which as we will see, links into the powerful 'Watch culture' within the organisation.]

Continuing …. FF2 *– Solberg are saying, when I questioned Solberg about that, they said that theirs has less impact at tender[i.e. fire engine], I don't know that you gain anything, but don't worry about the 3 - 6, because it's less damaging, so you could use it at 9 - 12, but I don't know how much of that is just sales blurb, and I think research would have to be done.*

FF3 *– and that goes from lessons we learned from CAFS [Compressed Air Foams] …*

Chairman *– yes, CAFS …*

FF3 *– CAFs was an environmentally friendly foam, that was accepted by all environment agencies…*

 FF2 *–… Until you tried to put it out [use it in a fire]…*

FF3 *– until you tried using it, and then they'll try and charge you for polluting!* ***[5]***

Chairman *– [laughs] right, so we agree that further research is needed?* ***[6].***

[Fragment **[5]** reinforces fragment **[3]**, and fragment **[6]** provides the group a potential safety net (allowing them to avoid criticism) should they find themselves unable to reach a firm recommendation.]

The story, comprising multiple fragments and influenced by other antenarrative, provides a sense of the complexity and uncertainty of the problem, and perhaps hints at an unwillingness to take a decision. The stories of previous errors contribute to this

decision-avoidance (See Extract 1, *[5]*), and the cumulative impact on the context could be to make non-decisions acceptable for this and other agenda items. From a creative problem-solving perspective, this resistance to selecting a solution too early is a positive outcome resulting from the introduction of the fragments, as it facilitates further discussion and encourages innovation to take place, leading to a wider range of possibilities being considered. This is supported by work reported by Leonardi (2011) and Rudolph (2003), where research suggested that early prototyping equated to the cementing of a decision, and tended to stop any further innovation. It is also consistent with other work on encouraging creativity (Adams, 1986; Alder, 1993; Amabile, 1998). However, it is questionable whether the act of suspending the decision taking was a deliberate attempt to increase creativity in Extract 1. In this context, story fragments appeared to be used to shift responsibility (rightly or wrongly) onto others, and also onto those who do not seem to be held in particularly high esteem; an undercurrent of competition between different agencies was sensed, with a reluctance to recognise the legitimacy of the power of others over individuals within the HFRS group. As the context for the ensuing problem-solving meeting was laid out by the chairman, there appeared to be a grudging deference by HFRS to the Environment Agency (EA), and as the story evolved, the tone of the meeting changed. The EA was increasingly presented as a source of inertia, preventing decisions being taken, which in turn prevented HFRS fulfilling their protection role. Extract 2 (below), taken from the same meeting, evidences a degree of bravado in the group, with a description of former disposal practices by other Services that unwittingly damaged the environment. There seemed to be resignation to, rather than support for, the fact that the environmental issues must be considered and accommodated:

Extract 2 – "Foam and the environment"

> *And they're [other agencies and FRS] all of the same opinion, that it's a hazardous substance that we have to manage: if not we're going to get hammered for it, because we have to pay for its disposal; it's not as easy as it was in the olden days when, you know,… (arrh, How's best to say this when we know it's been recorded?) …… [people] used to flush it down the drain, used to put it straight down the sewerage system and not give a monkeys where it went.*
>
> *Nowadays, it's a case of, we are aware it's a pollutant, and we're aware it's a hazard.*

Again, these preliminary exchanges in the meeting set the 'tone' or mood in which the subsequent problem-solving activity takes place; the use of stories and fragments reinforces a stance that grudgingly respects authority and quantitative data, but retains an almost chauvinistic nostalgia for past eras and more simplistic, unfettered practices. I argue that under such conditions, decisions could be expected to reflect the sentiments and characteristics that are consistent with the mood that has been created. For an individual to be 'heard' in this group (i.e. for their ideas and comments to be considered valuable and worthy of discussion), I suggest that he or she would feel under peer pressure to openly support similar sentiments, and would typically contribute their own stories that were consistent with the group story. New members to the group (for example, myself as the researcher) may also feel obliged to adopt similar views in order to become accepted and socialised into the group.

Addressing this tendency towards 'groupthink' (Janis, 1982) has important problem solving and operational implications. When performing the visible, traditional, and stereotypical core function of the service (specifically, saving lives), firefighters put

their own lives at risk, and must have complete trust in their colleagues if they are to operate at their best. This may well promote the creation of a culture that restricts the acceptance of (and willingness to propose) ideas that are not aligned with that culture, or have their origins from outside of it. This is discussed further in Section 7.2. Creating prototype solutions, on p. 283.

The broader significance of this observation is that it raises the prospect that story can be consciously used as a vehicle to develop a tone to a meeting that facilitates (or hinders) progress being made on a core topic.

This resistance to ideas from outside the group can be observed again in Extract 1 – "Foam meeting gets underway" (on page 144, above), when a degree of dissonance arises, when a sensemaking-narrative was presented that was consistent with the preferred corporate story (i.e. that environmental protection is important), while group members 'shaped' the antes to privilege a different narrative, one that reflects the groups' preferred more cavalier, almost 'swashbuckling' image of themselves, and perhaps a longing for 'the old days'. The exchange exposed an interesting sub-text to the storying process in the 'foam' meeting, with some members offering the corporate story as the justification for decisions that have been taken and are being discussed. This seemed to be perceived by the group as an attempt to impose false *"coherence"* on events, as Boje (2001, p. 1) might say, i.e. an attempt to force the group story to align with the corporate story. The result was that those who prefer the embedded stories of themselves, the group, and the organisation were drawn into using counter-story fragments and other antenarrative devices to disrupt the coagulation and consolidation of the corporate version of events: They used storytelling to prevent the

formation of a narrative that they felt did not represent the organisation as they believe it should be.

There is also a reflexive dimension to the discourse in Extract 2 – "Foam and the environment"(p.148) as the context for solving the 'foam' problem was still being set: The participants were aware of my presence as an observer, as can be seen by the comments relating to being recorded, and may therefore have been tempering and modifying their comments accordingly. However, there is also a case for arguing that this was simply a demonstration of managerial activity. Managers were empathising with the stance of the resistant members of the group to create a platform from which they can then push their ideas and proposals forward. I suggest that the more senior managers in the foam meeting were using the stories and fragments that were shared to create 'traction' for the new initiatives; through their storytelling, they were saying '*yes, I'm one of you*', while at the same time, saying '*we need to change*' (See Section 4.3.   Building support for a proposal or a decision, p. 170). In this way, the context of the problem solving activity is impacted by these stories and fragments, potentially providing a tool for managers to use to mould and manipulate the general mood and approach of the meeting so that it facilitates the achievement of the stated goals of the group. It raises the Machiavellian possibility of these levers being used by any member of the group to serve their own ends that are not necessarily consistent with the wishes of the organisation.

This impact of storytelling on a problem-solving context can be seen again through some early evidence that was collected opportunistically, from a group of Chartered Institute of Personnel and Development (CIPD) students, all of whom were practicing

Human Resource (HR) professionals. The students were gathered in a tiered lecture theatre, chatting casually after a scheduled lecture at Doncaster Business School, High Melton, Doncaster, UK. I was given the opportunity by their tutor to talk to the group about my research, with a view to identifying a potential research site. When a participant showed an interest in the topic, I explained my subject area, and then asked them if they would discuss stories relating to their most difficult work-related problems. From that initial contact, a number of unstructured interviews were conducted that yielded some interesting data. For example, in the extract below, taken from the beginning of an interview with a private sector 'change consultant' working for the public sector, the subject states:

Extract 3 – "Change managers' problems"

> *[Re. difficulties of working with Council A] …. I suppose because I'm used to a faster pace, and I am very much into the people and the people element, and the systems implementations that I do and we train, that's what I bring.*

Here, she is setting the context of the meeting with the interviewer, and presenting herself as a dynamic, 'people-and-systems' focused instructor, who has been shackled by the conservative, restrictive, even obstructive approach adopted by a traditional local authority.

A further example from the same research site occurs in Extract 4 (below), where two human resource specialists discussed issues surrounding the recruitment of a transgender worker. In setting the context for the problem-solving discussion, the introductory story told tends to focus on the unusual. The primary subject presented a

very positive image of herself and her profession, but less so of other staff, thus colouring the context in which the problems of the organisation are explored:

Extract 4 – "HR Professionals and gender issues"

> *…. it's quite difficult: the higher up level, like senior managers and directors, weren't too happy about even taking N on, as "N" [i.e. the female name]; we almost didn't take her on, but we, from an HR point of view, we're more concerned about, we can't __not__ take her on, we can't discriminate, because technically she's capable, and we've interviewed her, and we're happy for her to do the job. So it's just that we want to be seen to be managing properly – we want to protect her ….*

It is interesting to note then, that these solicited acts of storytelling yielded data from unusual events that put the teller in a positive light, and drew attention to differences between the tellers preferred 'story of self' and the organisational, or 'corporate story'. I introduce here (and discuss at length on page 341) the possibility that there are in fact three 'core stories' in organisations: the individuals' story of self, the group or team story, and the corporate story. By 'story of self', I mean the assemblage of stories and fragments that are presented by a storyteller as a representation of themselves. In the same way, groups or teams and corporate bodies present themselves to the world through storytelling, as discussed earlier in this chapter. This is done in such a way as to promote a preferred, typically positive, picture of the individual, group or organisation.

In a problem-solving context, these stories, told in fragments or as a whole, would provide a powerful 'framing' device for problem solving activities, potentially closing down some avenues of thought while potentially opening up new ones. In terms of the

expansive thinking required for idea generation (a vital step in ill-structured problem solving) the stories that have been developed in these monologues i.e. in Extract 3 – "Change managers' problems", p. 151 and Extract 4 – "HR Professionals and gender issues", p. 152) and these have set the context for the problem-solving activity are potentially obstructive. However, in terms of narrowing down options in the decision-making stages of a problem-solving process to facilitate action (see Figure 8, p. 91, and Figure 9, p. 92), they would appear to have potential to guide participants towards more extreme alternatives, with the subjects presenting selected highlights and lowlights of themselves and their protagonists respectively.

So, there would seem to be the capacity for a skilful storyteller to use fragments, stories, and full narratives very early in a problem-solving process to influence the prevailing mood, tone, and outlook of a group. This view was corroborated further by observations of a different group in a different organisation; In Extract 5 (below), a meeting of local government Public Protection Officers was attempting to gather evidence in support of a corporate story that aimed to show the organisation as a very customer focused organisation. The meeting took place in a designated conference room, and included representatives from the various departments within the Public Protection function. In the opening stages of the meeting, where the problem-solving context was being set, a member of the group commented:

Extract 5 – "Service Excellence – unreasonable customers"

> *… some customers have unreasonable expectations, even though from the start you say "we are not here to get you compensation, were not here to get them thrown out next door",[they think] why don't you close them down, because I've made a complaint, close them down because they sold me some out of date biscuits!".*

The individuals' story of self (and potentially the group story) that this comment presented would seem to be at odds with the desired outcome of the meeting, which was presumably consistent with the desired corporate story, specifically, to become more customer focused. In addressing this incongruence, the leader of the meeting empathised with the comment, thus gaining traction with the group, and then used this position to move forward into the part of the meeting that addressed the needs of the corporate story:

Extract 6 – "Service Excellence – we follow the procedure"

> *Emma G - BD brought that point up as well, at the Corporate Complaints Procedures [meeting]. About those sorts of issues. What they [Corporate Complaints team] are keen to do is say, we've investigated it, and we can't take it any further, but at least the information is given to the customer, if **they** wanted to take it further [they can do so].*

This would seem to demonstrate an innate desire to align the three core stories (i.e. self, group and corporate), and an impulsion to modify and edit the stories until they are congruent. The issue of whether it was appropriate to do this was not raised, and points towards a tendency to gravitate towards narrative certainty (i.e. a collected of stories that have been edited so that they 'fit' together), rather than risk exposing a potentially contentious issue that could disrupt the course of the meeting and raise new problems. I will return to this point in Section 8.2. The Implications for Practitioners, on p. 328 of this thesis.

4.2. Searching for acceptable solutions

While section 4.1 discussed how stories and story fragments featured as the problem-solving context was set, this section explores how they were involved as the participants sought potential solutions to the complex problems they faced. As a broad reflection on the data I suggest that when **stories** were used, they began to add structure to the discourse, and encouraged the creation of "*petrified*" **narratives** (Boje, 2008, p. 11) that attempt to provide a degree of certainty to the parameters in which the problems were to be solved, and for potential solutions to be evaluated. The telling of stories involved in these instances can be seen as attempts to reduce complexity, in effect, converting ill-structured problems into well-structured ones, so that rational solutions can be more easily found and evaluated. Indeed, it could be argued that, for many organisations, these fixed, approved, official narratives are embodied in the type of strategic documents discussed in the introduction to Part Two, on page 134.

However, where **fragments** occurred in the dialogue, the impact seemed to be that of encouraging divergence from an existing decision making route, as will be demonstrated below, and within Section 5.3. Encouraging broader perspectives on problems., on p. 216.

Given that ill-structured problems are typically complex, conflicting, and confusing, when they were explored within the research observations and potential solutions were posited, the use of stories as simplifying and organising scaffolds was noticeable. Periods occurred when problem-solvers were floundering in their attempts to find a route forward, often mired in conflicting, or at least incongruent and disjointed data, sometimes presented as story fragments, and sometime as pure data. These episodes

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were frequently punctuated by a bout of storytelling, perhaps signifying a search for

the comfort of the 'known' (i.e. participants' lived experiences, their memories) rather

than a serious attempt to resolve the problem in a new, innovative way. When

subjects were attempting to rationalise and make sense of a confusing situation that

they needed to understand in order to proceed with the problem solving, stories were

often recalled and retold. For example, in Extract 7 (below), firefighters were indirectly

attempting to address the problem of under-utilised resources at major incidents:

Extract 7 – "Chair Fire 1"

> ***Incident Commander 2*** *- they had this on XYZ Street didn't they, I had a chair [a piece of furniture] on the first floor in the stairwell. The fire was out in 5 minutes, but what it did, it smoke logged [filled with smoke from ceiling to floor] on floors 2 to 14. Half of XYZ Street [flats] was smoke logged. Five hours we were at that job, and the worry for me was we had no method of communicating to everybody that it was smoke. How do we do that? …..*

(*Note: See* Extract 17 – "The 'stay in' policy"*, p.178, and* Extract 61 – "Chair Fire 2"*,*

p.281, for further contextual information on this data)

The use of storytelling in this extract would seem to militate against perceiving

problems as being ill-structured, and could potentially promote attempts to reach

early solutions. For example, the narrative that is shared dictates that the problem

here is one of communication, and therefore could presumably be solved by changing

the current ways in which they communicate. However, as Leonardi (2011) and

Rudolph (2003) suggest, this can reduce the effectiveness of problem-solving efforts,

as narratives tend to create a fixed (BME) version of events that is resistant to change

and adjustment – a point reiterated in a recent Harvard Business Review interview

with Andy O'Connell and Scott Berinato (HBR IdeaCast, 2012). By contrast, story

fragments seemed to have the opposite impact, typically showing problems to be complex and difficult, often leading to a sense of frustration and dissatisfaction amongst listeners, but somewhat ironically, encouraging participants to pause their attempts to solve the problem, inadvertently giving their subconscious minds the opportunity to search for solutions. (This would perhaps be more effective if it were deliberately planned and followed up on as part of a problem solving process).

Extract 8 (below) is a further example of the organising, structuring powers of the process of storying as solutions are sought. Here, operational issues were discussed, particularly in relation to a poignant story, namely the Buncefield disaster of 11th December, 2005 (see the report by the Buncefield Major Incident Investigation Board, 2008). The incident was a major fire at an oil storage facility in Hertfordshire, England, and required a number of Fire and Rescue Services to coordinate their responses, with mixed results.

Storytelling appeared to be involved, and had its impact as the group put forward fragments and stories as they began to form their ideas into a 'solution narrative'. As explained in the definitions for this thesis on page 13, this term means a narrative that makes sense of the information that is available and points the problem-solvers towards a particular course of action to solve the problem. In the following Extract (taken again from the 'Foam' meeting), this is happening as the storying is taking place:

Extract 8 – "Foam meeting introduces Buncefield"

> ***Chairman – erm***…. *You can start on number 4 [on the agenda], but I just want to make a point, because Andy [FF 5] did a little bit of research on the*

Buncefield thing, which also brings in to, the fact that the equipment wasn't compatible, was it? So…

FF3 *– you talked about that in 3, where you said compatibility with the local organisations, didn't you… You did mention that under 3 [General agreement]*

Chairman *– but I don't know currently, sat here, where we're at with local industry and compatibility with their equipment.*

[This successful intervention by the chairman could be seen as an innate recognition of the need to prevent early formation a petrified narrative that was not consistent with his own beliefs. He effectively uses the Buncefield fragment to inform, delay and divert what seemed to be a decision that was about to be made on the type and quantity of foam needed.]

Continuing …. FF5 *– but it's not just local industry, 'cos the thing about Buncefield was that they were shipping foam in from everywhere, and when the tankers were arriving the problem was how we get it from there… to the bits we used[i.e. from the tankers to the foam applicators].*

FF 2 *– it wasn't the application equipment, was it. It was the couplings and stuff like that [general agreement]. We were sending IBC's [Intermediate bulk containers] and people were rolling up with [different types of containers and couplings]… and they didn't know what they were going to do. We didn't send the ESU [Equipment Support Unit] with all the adapters on, because **we** might have had a foam incident, so we didn't send them. We said, "it's just an IBC", and "make a dam". Whereas other people were rolling up with bowsers with instantaneous connections. But once it was in, then the equipment was the equipment.*

FF3 *- there was a mention of about an hour to decant ….. I think was it the IBC into 25…. [Litre drums]*

Chairman *– so do we need to discuss that at this present moment in time?*

[The chairman recognises the disruption to the course of the meeting that, ironically, his own fragment had caused. Other participants had taken up his fragment, and were narrating towards a solution.]

Continuing …. O1 *– I think it's, if we were to look at compatibility of*

equipment, we haven't got to forget it's not for us to ensure compatibility, it's for them to ensure compatibility. They are to,… We're the fire authority, if they want to use our foam, they have to have a means of utilising it if they want to call upon it.

Chairman *– what about reversing it? What about if we want to use their foam in an incident?*

O1 *– but then that would be our requirement to actually deal with that, and the lessons learned from Buncefield, if we're actually going to go and utilise anyone else's foam, we know this is going to be an extremely long and protracted incident that, we're going to have to have an environmental plan up and running before we commence firefighting operations. I think that the resources for that could be that we set up a staging area that is, you know, before it goes forward to the firefighting zone, even in the rendezvous area, [we say] "okay, let's check compatibility". If it's not compatible we put it into something that is compatible. Be it one of our IBC's or any other type of container that we decide we're going to use. Because there would have been nothing preventing them pumping that foam out of the containers using some of the pumps that we utilise…*

[The group continue to narrate (i.e. telling it 'as it was') and story (i.e. imagining themselves in the same situation as the Buncefield firefighters) towards a solution, recasting and relocating the events in their minds in a way that sees themselves as the central characters, and allows them to plan for what they would have done in a similar situation.]

Continuing ….FF5 *–… Well a lot of the problems [at Buncefield] was the pumping and the shifting, because they were like, using featherweight pumps to pump out some of the containers, which were obviously water-cooled [i.e. cooled by the water they normally pump] – a different consistency when you're pumping foam. So they were overheating and burning out, and various other things…*

O1 *–… Yeah we could have used the pumps we carry on the salvage pods...*

FF2 *– I can't ever see where we would be stuck with that, because we have the adapters. We tried to, when we put this ESU foam unit together, we tried to sit down in front of every conceivable variation. So there's an adapter, male to male, female to female, there is every instantaneous variation, there's every screw thread, and there's every stalk, and all the*

> *rest of it. So, if it arrived on … [brief chat r.e. Electronic version of a document]. So whatever it came in, we could deploy it.*

In this extract from the 'foam' meeting, Fire Officer O1 used a prospective narrative to make sense of the solution he was proposing to the group. Firefighter FF2 also used a story to support his argument that a new solution was not needed: In both cases, this indicates that storying and storytelling aligned thinking around a particular theme, and was used to embrace fragments that conflicted and diverged from that theme, cajoling them back in line with the sensemaking solution narrative.

The problems of Buncefield were examined more widely, and were structured into a retrospective narrative, predominantly by the independent investigation into the disaster, conducted by the Right Honourable Lord Newton of Braintree. The key conclusions (made with the benefit of hindsight), were that the incident should have been planned for and could have been prevented. The HFRS 'foam' group that was observed seem to have interpreted the failings that caused the disaster in the same way, and reported a series of lessons learned from Buncefield within the foam meeting, most of which seem to have been acted upon within the wider Service. The implication drawn from this is that the HFRS 'foam' group and the independent investigation agreed that the Buncefield disaster was a complicated, but well-structured problem, and that traditional, rational problem-solving techniques should have successfully provided appropriate solutions. In other words, the Braintree investigation followed a storytelling process that resulted in a retrospective sensemaking 'solution narrative' being created.

The typical rationale for doing this would be to facilitate understanding and learning from the events. As the stories gathered from the investigation were evolved into a

narrative, any antenarrative content entering into this narrative creation process would be interpreted and reinterpreted by the incident analysts (i.e. the 'foam' group and Braintree) to make them 'fit' with the dominant theme. In their storying process, the analysts and storytellers have produced a retrospective sensemaking narrative, that explains and structures the problem, and lead them to the solutions that the investigation was set up to provide. This storying behaviour is consistent with the observations within this study. However, in exploring the solution finding process, and in defence of those directly involved on 11th December, 2005, I suggest that in the live Buncefield event, when in response to the emergency, equipment and materials arrived from across the country to fight the fire, there would be significant confusion and a demand for rapid, reactive responses. Given that those involved were without the benefit of a case-history to study and to learn from, it is not surprising that mistakes were made.

This suggests that there is a need to look at the efficacy of storying in this manner: While retrospective sensemaking is of value in facilitating 'learning from mistakes', it is arguably only valuable for well-structured problems, where conditions and behaviours are predictable. I suggest that such retrospective rationalisation needs to be treated with caution, as it does not necessarily accurately reflect the situation on the ground in real crises, where conditions and behaviours are fluid and constantly evolving, i.e. such scenarios are ill-structured. In such situations, any new procedure that has evolved from a retrospective sensemaking narrative may be of little value, and could in fact be dangerous, giving operational firefighters and planners false confidence in their approach. Correctly identifying the level of structure in the problem being faced would

therefore become vitally important, and it is possible that noticing story fragments could help with this function.

Yet in the fire incident simulations described in various transcripts, as firefighters are searching for solutions to the emergencies, story fragments are 'fed' in to the decision-making officer, providing information to him to help him take the 'correct' course of action that will resolve the problems being faced. For example, in Extract 9 below, a scenario was presented to a trainee officer where a 'virtual' motor garage was on fire. All the observations of training scenarios took place in a room in part of Clough Road Fire Station, Hull, UK. The room was blacked out, and an image of the incident being simulated was projected onto a large screen in front of the incident commander being trained and his second in command. The fire officers had the use of communications equipment that was identical to that found in most fire engines, and were expected to use this equipment as they would in a real fire. This involved talking through various radios to operators in the 'control room' and to 'firefighters' who responded to the trainee's commands, both of which were simulated by trainers in an adjacent room. These trainers were very experienced firefighters themselves, and endeavoured to respond 'in character' and to provide information on the outcomes from the trainees' actions that were an accurate representation of a real incident.

In this example, the instructor supplied contextual information about the incident in a similar format to that which would occur in a real emergency:

Extract 9 – "Garage Fire – Persons reported"

> *Instructor 1 –... So, your tip sheet is to premises called HDL motors, 100 Sculcoates Lane, and you've got a report of a car fire, in a workshop, **persons reported**.*

The phrase "*persons reported*" is a story fragment, a deliberate use of antenarrative, and arguably has evolved to conjure up an image of the problem being faced. It also illustrates the power and value of communicating is this way: Here, the fragment is used as 'shorthand' for a vitally important message, specifically, that people have been reported as being inside the building, their lives are in danger, and different, presumably more dangerous, actions will be initiated by the firefighters to try to save those lives. In storytelling terms, the fragment could be seen to have impacted in a similar way to a narrative, i.e. narrowing down options and pre-determining solutions, and contrast with my suggestion (on page 156, above) that antenarratives broaden the range of potential solutions. While to some extent this is true, I argue that the fragment is used to inform and enrich the firefighters' image of what they are about to face, not dictate to them what their solutions should be.

Up to the point where this fragment was used, there had been little or no use of story or fragments in the exercise. The training programme is designed to treat the problem as well-structured, with officers being tested, in essence, on their ability to apply correct procedures at appropriate points in time within the scenario. I suggest that this is appropriate to the organisation (HFRS) as there is a clear guiding principle, that provides structure to the actions within the fire service, i.e. to "save saveable lives", but without putting the lives of firefighters (or others) at risk. This principle was confirmed in conversation with key staff in the second wave of data gathering. It is useful for a moment to use Hancock's typology (Figure 6, p.84) to consider to what extent real fire incidents behave as well-structured problems: My experiences with,

and observations of, HFRS suggest that all personnel involved are well-trained, well

drilled firefighters. As such, the 'Behavioural Complexity' of the problem is likely to be

low. Similarly, the 'Dynamic Systems Complexity' of the problem could be expected to

be low, as experience within the rescue services suggests that fires behave in largely

predictable ways if left undisturbed. This would categorise **typical** fires as 'tame'

problems (notwithstanding that some fires behave atypically). As such, historic

procedures and protocols based on retrospective narrative sensemaking would

provide appropriate solutions, as long as the incidents are 'typical'.

The Garage Fire scenario provided further examples of storytelling playing a part in the

search for solutions in a problem solving exercise, as can be seen in Extract 10, below.

After the instructor (playing the role of a firefighter) had been asked by the trainee to

attempt to search for people inside the building, the following conversation took

place:

Extract 10 – "Garage Fire – there are cylinders here"

> ***Instructor 1*** *[acting as firefighter, answering a question from the trainee
> relating to the presence of people in the fire] - …. No, no sign of anybody
> here…. We can confirm the presence of cylinders [story fragment]*

> ***Trainee*** *– can I speak to the garage guy again please? …. [Instructor 2
> enters the scenario to perform the role] my guys have gone in there and
> they can't find anybody. Are you sure there isn't any other way out?*

The exchange suggests that the Trainee is focused on the search for people trapped

inside the garage, rather than the contents of the workshop area. The instructor

referred again to the "*cylinders*" (i.e. highly dangerous cylinders of oxygen and

acetylene) without being asked by the trainee. I argue that this was the use of antenarrative (in the form of a story fragment) intended to lead the trainee towards considering the cylinders as a crucial part of the scenario, and the ramifications of their presence. It is reasonable to assume that the trainee is working through the scenario in his conscious mind, testing the idea that the garage workers have escaped, and considering that this particular training scenario may be attempting to lead him into putting his men in danger unnecessarily. I would suggest that in this instance, the trainee does not internally 'story' the "*cylinder*" fragment into his solution narrative – he doesn't see where it fits. The instructor seems to recognise this, prompting him to make a further comment :

Extract 11 – "Garage Fire – cylinder concerns"

> *Instructor 1 – We're getting this fire knocked down now, erm, can confirm that there's a lot of heat here – I'm concerned about these cylinders.*

The instructor seemed to be trying to introduce a fragment of information to lead the trainee towards taking action to cool the gas cylinders – this is the solution narrative expected for the scenario. The trainee began to look for additional heat sources (other than the car in the workshop that was already on fire), presumably looking to attack the source of the heat, suggesting that the fragments that were provided were misinterpreted by the trainee. This demonstrates the importance of fragments of information, and the expectation by the trainee that the problem may not be well-structured. He could have been interpreting the fragments correctly, but judging them to be deliberately misleading, or he could simply have failed to recognise the

significance of the fragment when it emerged. In a plenary discussion of my

observations, the trainee suggested that he had chosen to discount the fragment, but

this claim should be treated with caution, given our natural human tendency for

retrospective sensemaking (see Section 2.2.2. Imagining Forwards, Looking Back, p.

59).

I suggest that the fragments used by the instructors were intended as hints in this

training exercise, intended to lead trainees towards a solution. On the fire-ground,

officers would probably need to solicit the information, rather than having it fed to

them. As such, there is a need for problem-solvers to be alert and 'in-tune' with the

possibility that story fragments may emerge from dialogue that are valuable to their

task. Similarly, it is equally important to consider that a misinterpreted fragment can

have potentially lethal consequences. This is demonstrated in another simulation with

a different trainee and instructor, where the scenario depicted a fire in a barn:

Extract 12 – "Barn Fire and the farmers' tractor"

> ***Instructor 1** – Hi! My Barn's on fire!*
>
> ***Trainee** – your barn's on fire is it. What's in your barn?*
>
> ***Instructor 1** – well I was filling my tractor up with diesel, and I spilt some of the diesel, and it bloody caught fire didn't it!*
>
> ***Trainee** – how was you filling your tractor? Is a big bowser in there, or…?*
>
> *Instructor 1 – well yeah, my bowser's in there, and I was filling it up from that, and I dropped the hose and everything, and spilt it all over the place and that's caught fire, and my tractor still in their…*
>
> ***Trainee** –… So it's free-flowing is it?*
>
> ***Instructor 1** – no it's got a valve.*

> ***Trainee –*** *what else have you got in your barn?*
>
> ***Instructor 1 –*** *well I'm bothered about my tractor, I want that taking out. But I've got fertiliser in there as well.*
>
> ***Trainee –*** *what sort of fertiliser is it?*
>
> ***Instructor 1 –*** *it's DDT, and just between you and me, I've got some paraquat in there as well. I shouldn't have it in there, but I have.*

The simulation continued with Instructor 1 giving prompts and fragments of information (rather than fragments of stories), with these seemingly intended to lead the trainee to particular conclusions about the context of the problem being faced - conclusions that presumably would be consistent with the official 'solution narrative'. The use of fragments of information was fundamental to the simulation, but lacked the emotional impact that a 'story' format might be expected to generate. The result was a less convincing scenario, and arguably, a less valuable training exercise.

That said, the instructors' comments seem to be intended to provide the opportunity for trainees to demonstrate that they would process the information coming to them rationally and that they would resist being misled. This may well encourage a reflexive approach to their role within an operational situation, helping trainers to understand the wider impacts that their presence and actions have on the way in which events unfold. Given the action-orientated approach of the exercise, and indeed of the organisation, whether the encouragement to be reflexive and reflective was a deliberate goal of the training was unclear. While it could be argued that such traits would improve the accuracy of decision making, but could easily be interpreted as indecision, particularly in an organisation where one of the primary metrics used to

assess performance is speed of response, and is measured in seconds. In adding information fragments in Extract 12 – "Barn Fire and the farmers' tractor" (above), the instructor appeared to be expecting trainees to distinguish between useful information and that which is intended (in the case of the simulation) to mislead. This is in contrast to the use of antes in Extract 10 – "Garage Fire – there are cylinders here" (p.164), and Extract 11 – "Garage Fire – cylinder concerns" (p.165) above, where the antenarrative input was intended to assist the trainee in achieving the 'correct' result. This ability to distinguish between 'good' and 'bad' information is highlighted as being of critical importance by a senior officer in Extract 48 – "Which fragments should we react to?", p.250, and could be considered a vital skill for those involved in any search for solutions to problems. This will be discussed later in the thesis, in Section 7.3. Identifying and interpreting story fragments, on p. 293.

The simulation in Extract 13 (below) i.e. a House Fire Scenario, is based on a computer simulation that involves significantly less input from the instructor, but has many of the same storytelling characteristics of the scenarios discussed earlier. The system is known as "Vector", and while it offers a much more stimulating visual experience to the trainee than other simulations, by virtue of its fundamental design, the computer dictates that the incident is still essentially a narrative, providing pre-determined outcomes in response to any given sequence of decisions by the trainee. If trainees are not progressing along the 'correct' path in the simulation, the instructors typically offered 'leading' fragments, which may or may not be interpreted as significant by the trainee. This again highlights the importance of being able to quickly judge the relative value of small amounts of conflicting information. Again, within the simulation there is

little storying, although the program does attempt to introduce story fragments to

enrich the context in which the scenario takes place:

Extract 13 – "Virtual resident and the house fire"

> ***Computer-generated 'resident' –*** *What's going on? My family's still in there!*
>
> ***FF1** – What room are they in please?*

At that point, the instructor immediately took over the role of responding to trainees'

questions, as the computer program was not capable of responding to such specific

questions. The interaction in the simulation was very calm and measured, with the

trainee attempting to follow an incident protocol. This lack of emotional content may

well be intended on the part of the instructors, as presumably it represents the

preferred conditions under which decisions would be taken, although it must be

questioned whether this recreates the conditions on a fire-ground effectively. The

somewhat staid interaction when using the Vector system lacked the passionate

dimension that storytelling is renowned for, and perhaps provides food for thought in

terms of how the training could be improved.

So story fragments and stories would seem to have an important impact on the

context in which acceptable solutions to ill-structured problems are sought. Fragments

would seem to be deployed when problems-solvers are attempting to put forward a

new or different perspective, whereas stories tended to be used when trying to

construct and evolve a petrified narrative that defines the problem-solving context

more precisely. This role of storytelling in colouring the backdrop against which

decisions are made is broadly consistent with its impact once a decision has been

made and a consensus is being sought, as can be seen in the Section 4.3. below.

4.3. Building support for a proposal or a decision

In this study, when groups or individual interviewees were attempting to reach a decision on a difficult problem, the involvement of storytelling (including narratives, stories and story fragments) became more apparent. To provide clarity in this discussion, it is useful to reiterate the distinction I draw between these terms: For this study, I take narratives to be historic, retrospective recollections and retellings of events as the teller perceives them, or wishes them to be. Stories on the other hand, are living, evolving, morphing entities; they are 'narratives-in-the-making', although they may or may not solidify or petrify into permanent narratives. Story fragments are short phrases, or even single words, that encapsulate the core idea, concept, emotion or meaning of a story (or even of a narrative) for the listener, without the need for further explanation of the fragment.

On a number of occasions, when attractive solutions were tentatively proposed within a problem-solving context, stories emerged that supported that solution. This had the potential impact of narrowing down options, and encouraging participants to ignore doubts and misgivings relating to the proposed route forward. Used in this way, stories refined solutions in a subtle, covert way to privilege some aspects of a problem solving discussion, while avoiding openly rejecting other aspects of the data that might contradict the favoured solution. This has potentially both positive and negative implications for the decision making process: While it could mean that some concerns are overshadowed by a positive story input, it may also mean that speculative solutions can be quickly moved on to implementable decisions without lengthy

discussion and protracted investigation into the efficacy of the solution; while research

and discussion may be valuable for well-structured problems where cause and effect

are to some extent knowable, the benefit for ill-structured problem solving is not clear.

Indeed, there may be a place for deliberately created fragments to be introduced as

decisions are being made in an attempt to prevent an overly-deterministic use of

stories leading to a premature selection of a solution. Stories and fragments that did

not support the proposed solution could be valuable here in playing a 'devil's

advocate' role to quickly 'test' solutions rather than implement or abandon them on a

'whim'. The prospects for this style of intervention are considered in Section 8.2.   The

Implications for Practitioners, on p. 328 of this thesis.

Further evidence of the involvement of storytelling in decision-making occurred in the

Extract shown below: During the debrief after a training scenario had been run, a BME

narrative was introduced to explore the case for actions taken within the scenario that

were possibly outside normal operating procedures. In the exchange, a trainee was

being debriefed by Instructor 2. The trainee had imposed a 200m safety cordon around

a simulated incident where gas cylinders had been involved (i.e. the Garage Fire), in

line with HFRS policy. However, the instructor felt that the full ramifications of the

decision had not been fully considered and that the trainee's solution was not ideal.

The instructor uses a narrative to justify decision to break with the organisational

story:

Extract 14 – "Garage Fire debrief"

> *Instructor 2 – …. We talked about this yesterday didn't we, a 200m cordon*
> *on that bank is a massive, massive area ……. . We had a course here the*
> *other week, and we used this exercise with them, and when we were*

running the course, they cited an incident that we use as one of our case studies. A couple of years ago, the Queen came to the city, so every copper was on duty, and all the rest of it. That same day, about the time she was due to leave, they had a similar sort of incident to this. A small workshop, cylinders involved, some sort of testing and all sorts. It was a decent job, but nothing out of the ordinary. But because the Monarch was in the city as well, there was an awful lot of other knee-jerk reactions going on and putting two and two together and adding up to something else. They had a massive issue there, because it was adjoining Morrison Supermarket, there was Holderness Road out the front with an awful lot of traffic, which was part of the route she was taking to get out of the city, so the was a whole lot going on, and they had to tinker with the maths really……. So the 200 m was really a corridor down the street, they couldn't get any evacuation or anything, so they just decided to manage it as best they could. Closed part of Morrison's off, but the rest of Morrison's carried on functioning as normal……

The narrative makes the point that incident commanders in real fire-fighting circumstances needed the ability and authority to treat guidelines flexibly. Storytelling, and specifically here, a narrative, is used to make sense of actions taken within the exercise that may have appeared outside the remit of the trainee (i.e. imposing a smaller cordon). By using the narrative, the risk of criticism of the instructor for recommending actions that did not conform to the organisational story, is shared with an unnamed incident commander who had acted in a similar, non-standard way in real incident. What is not discussed is the level of similarity between the two scenarios: It could be argued that both are gas cylinder incidents in a workplace, so are equally likely to occur. However, the probability of both incidents occurring on a day that the Queen was visiting the area, and that she would be driven past the location is extremely low – i.e., the fire incidents were similar, but the contexts were very different. Yet the narrative was still told, and it would have its impact on the trainee,

providing him with a mental model that justified a decision to challenge HFRS

guidelines. This use of storytelling as a defence for non-conformance is demonstrated

again by the first comment by IC1 in Extract 15, below. This was another debriefing

session, where the officers had been working on a scenario involving a fire in a flat on

the 8th floor of a tower block:

Extract 15 – "Tower Block debrief, ships, and professionalism 1"

> *IC1 - well that's why I said I would do it [i.e. work with IC2, who was viewed as an expert in high-rise rescue], because I know this is not my strongest. Whilst I'm aware of the SOP [Standard Operating Procedure], I'm aware of the protocols behind it, to actually do it is different from reading it and knowing it.*
>
> *IC2 - …. Turn it on its head [the training concept – IC2 is now talking about fires and ferries]. Because what you want one of you stood outside as your formal commander. Where is your formal commander going to be? Because what you've got is two distinct types. Unless your fire's in the bridge, your ship's captain and first officer always stand on the bridge. They won't go anywhere else, because it's their responsibility……*

[IC2 continues to describe how operational issues/problems are resolved for tackling fires in "ships alongside". He makes the point that they have developed a non-standard system to track firefighters and other key personnel on board ships (for safety purposes). He describes scenarios rather than stories, and observes that following the SOP's would not work in this situation…]

> *IC2 - continuing…. Now it [the SOP] says, that you're not supposed to use the ships firefighting equipment. [But] It's a big ferry, well maintained, you know those firefighting mains are going to be fine so you use them. How on earth do you connect into them? [as earlier explained that on Dutch ferries, HFRS equipment does not match the fittings] because we ain't going to be hauling aloft, because it's like we don't haul aloft in high-rise any more, because the pressure on the couplings means we could lose the water if it's like 15 floors. Well if you look at the size of the ships, it's equivalent to a 15 story bloody thingy, and where do you haul it aloft to? You have to smash the glass to get it [the hose] in! You cannot drag hose…, Imagine how stupid and unprofessional it is to drag hose 400 yards through a ship, bypassing points on the ships main [i.e. water supply]!*

The 'Ships' narrative is a retrospective sensemaking of events, justifying why the approach that is now followed (in high-rise buildings and ships) has been adopted. This sensemaking approach is typical of reflective learning, and I argue is a useful, productive approach, provided that the problems that listeners are being prepared for are likely to be well structured and would behave predictably (therefore being compatible with narratives), and not ill-structured. Officers confirmed in the second wave of data gathering that, for HFRS operationally, problems are often well structured as they tend to follow scientific principles. As such, learning from the vast experience in the Service of how incidents unfold i.e. how materials behave when on fire, is a rational and credible approach to solving the problem of putting out fires. In other organisations, and in fires where there are "*persons reported*" (See Extract 9 – "Garage Fire – Persons reported", p. 162), operational problems may well be more dependent on how humans behave, and given human nature, may well behave far less predictably. As Graves (2010, p. 20) points out, "*Social psychologists are continually exploring the ways in which we are unaware of what really shapes our behaviour*". Indeed, when any organisation is faced with strategic decision-making, the associated problems are likely to be ill-structured. As such, those organisations who have a predisposition for well-structured problem solving approaches may well have a preference for solution narratives based on retrospective sensemaking, rather than for processes and techniques designed to cope with the uncertainty and unpredictability that is inherent with strategic decision making.

This also highlights the importance of the 'story of self' (see p.152) for the fire-fighters and officers involved: In the closing line of Extract 15 – "Tower Block debrief, ships,

and professionalism 1" (above), IC2 states "…*Imagine how stupid and unprofessional it is to drag hose 400 yards through a ship, bypassing points on the ships main!*". Yet this is in contrast to the recommended organisational procedure. The comment illuminates an interesting contrast here, with the officer (IC2) apparently concerned over his (and his colleagues') professional identity and image, but with organisational policies and procedures favouring actions that damage them. The officer's evolving narrative and comments seem to be aimed at influencing the group story of the firefighters who hear it. The story is also potentially illustrative of the corporate story, in that it presents a picture of an organisation pre-programmed to obey orders, yet at the same time, struggling to provide an 'official' narrative that presents the organisation as being one that is populated with intelligence and professional individuals. It should not be overlooked that the exchange also highlights the potential for impact of individual agendas on the solution-finding stage of problem solving: IC2 had commented earlier that the organisation had recently withdrawn funding for his personal development, and might well be expected to hold a less favourable view of the organisation as a consequence. The story he told built support for his own version of events, rather than a version that the organisation might have preferred.

The data supports the view that the individual (IC2) used storytelling to attempt to evolve a narrative that supported his own perspective on a problem, and endorsed his own actions, proposals and decisions. Those individuals who are pre-disposed to tell stories more so than others (for example IC2, FF2 and O1), might be described as 'natural storytellers'. As such, if as I propose, storying is important in presenting and promoting one's own perspective, natural storytellers will be better placed to build support for their preferred idea, solution or decision. This has implications for the

selection of team members for particular roles and different stages within a problem

solving process. Arguably, good narrative storytellers would be valuable in solution

implementation stages, where the natural human preference for certainty and clear

guidance would gravitate towards a prescriptive narrative. Yet in a problem

identification phase, these individuals would need to have their input 'moderated' to

ensure that any early conclusions reached were recognised as 'straw man' proposals,

i.e. to be tested and explored, rather than as the definitive, final position on a problem

that had to be defended.

The use of storytelling appeared again in an operational meeting (see Extract 16

below), where the group discuss the purchase of jacks (i.e. devices for lifting and

stabilising heavy items) to assist in rescues from vehicles. Officers and firefighters

project their storytelling into the future, imagining the fragments they might use to

gain support for this purchase. This is an example of a predictive narrative being

formed in an attempt to prepare for opposition to their proposed solution:

Extract 16 – "The case for jacks or ladders"

> *FF 3 - if we were to use ladders in those situations [to stabilise a crashed vehicle to facilitate a rescue]…. , And I went up to BDB not so long ago, with Ian, and I thought it was absolutely fabulous, and we mentioned destabilisation there, and I said to Alan "can I have an old shortex [Ladder] that's failed its test, that we can spray a different colour", and we'll say to the guys, "if you need to do it, this is how you do it". And that brings in that ballgame that says, "Well if we're training, if we're shown the technique and we're training on that technique, and that technique ruins the equipment,……" then we're in that chicken-and-egg situation.*

> *FF2 - …. But if you should have an accident while doing this, then there's going to be the question, "why are you doing this when there is [specialised] equipment available?"*

> *SO1 - …. You see, the ladders aren't really designed for it are they?*
>
> *FF3 - this is what I'm coming to, in a roundabout way… If we look at them stats there, we've got 95 vehicles 'on-the-way' [available for firefighting operations], we've got 21 on the side [not in use]. If we use 21 ladders there, [i.e. damaged in rescues] what's it going to cost? They're not cheap are they? It's not like going down to B&Q! ……*

[The conversation continues to develop a case for buying jacks rather than replacing damaged ladders].

The group 'story' the problem here, adding fragments of stories along the way to develop a coherent narrative that can be put to those who ultimately will make the decision on whether to purchase the equipment in question. Indirectly, this recognises the power of a narrative in decision-making, while using story fragments and storying as the process by which the narrative is created. It can be argued that if the solidifying and petrifying dimension of narrative formation could remain fluid (i.e. the narrative could remain as a "*living story*" (Boje, 2008, p. 54) for a longer period), it is possible that a better, deliberately story-based solution, would emerge.

Further data suggests that certain very powerful story fragments were used in plenary sessions, to close down debates, bring discussions to an end, and therefore finalising a decision. For example, in the following Extract, fragments of stories were used to explain and understand actions taken by participants within the simulation. Here, middle-ranking officers were discussing their experiences after taking part in a training session that used the 'Vector' computer system to simulate a fire in a high-rise block of flats:

Extract 17 – "The 'stay in' policy"

> *IC2 – most of the flats now have 'stay in' policies, so most people stay in. But, they always come out and have a look, but most people will stay in, and won't necessarily know what's going on*
>
> *IC1 – erm, I'm not sure with that, because it's human nature isn't it, if you got something like that, and you can get out, you're going to get out. [General agreement]*
>
> *IC2 - it's just the difficulty from a command point of view: for you, stood down there, just waiting, it's not really in command.*
>
> *Instructor 1 – that's why I was saying to you, "we're doing this", "we are doing that…."*
>
> *IC2 – saying that, if you were the logistics officer, if you were up at the bridgehead, you wouldn't have a clue what was going on downstairs, upstairs, around. At least when you're outside, you know the resources you've got, you've got your [information] from upstairs. Stuck in that lobby centre, you've got no idea, have you? So you have to be outside, you have to rely on your Ops man [general comments of agreement]*

The extract demonstrates how officers used story fragments in an attempt to explain their feelings and actions within the scenario, to predict how they might react, and to speculate on what problems they might face in a similar real-life scenario. The conversation continues in Extract 18 below: after discussion of operational matters (specifically relating to using a telescopic ladder or rescue platform in a tower block incident), a key story fragment is contributed by one of the officers, that points to the power that such antenarrative inputs can have:

Extract 18 – "Tower Block debriefing introduces 9/11"

> *well the thing is, what you've got now is, post 9/11, you've got the mentality that says in a high-rise building [that's on fire], start running and*

> *get away. That's the mentality there. We're trying to change people, but it's instinctive, this scene on the telly, an aeroplane hits a building, the building collapses, there's fire in the building…*

The fragment "*9/11*" is extremely powerful and evocative, and interestingly drew no further directly related comment, with the conversation moving on to other issues. The similarities and differences between the simulation and the terrorist attack on the World Trade Centre on 11th September, 2001 were not explored or criticised. It is likely that the fragment drew its strength from the multiple stories and narratives that have been told, from both factual and emotional perspectives, about the '9/11' incident, storytelling that would resonate particularly with firefighting professionals. The impact of the fragment was to make a definitive, final statement about the issue of the likely behaviour of the public in the face of a high-rise fire. The line of discussion was voluntarily and immediately ended, with the implication that the "*instinctive*" behaviour mentioned in the Extract could not be effectively changed and would have to be managed. In spite of the fact the predicted behaviour (i.e. attempting to leave the building) is in contrast to the corporate story (i.e. that residents should and would stay in their flats), the fragment was sufficiently aligned with the firefighters' 'stories of self' to allow the them to understand and accept the publics' reactions. I suggest that the emotions generated by the '9/11' fragment were responsible for preventing any further exploration or challenge to the validity of the comparison. So again, we can argue that a story fragment successfully supported a decision that had been proposed.

An additional example of a story fragment being responsible for building support for a decision emerged when the 'foam' meeting was drawing towards a close:

Extract 19 – "Foam, Buncefield, and planning"

> *It would be crazy for us to consider even that amount, for such a strategic [issue] because, if you're looking at – and **Buncefield** is a fantastic one – [a] worst-case scenario, it was one tank they'd always planned for: They had multiple tanks [in the incident] and it took out the ring main [i.e. water supply], which is why they suddenly had to find 3,000,000 L of water. You know, there's no way on this earth that, fine, okay, we can get all that foam concentrate here, but we ain't going to get the water there to fight it.*

The conversation quickly moved on to discussing the practical issues of moving and using the foam. Interestingly, only then, after approximately an hour of a planned two hour problem solving meeting, did the group seem to begin to fully dissect which parts of the problem regarding foam stock needed to be resolved by HFRS in operational terms. The group then treated the problem as being well-structured, despite its ill-structured characteristics. As an observer, the relief within the room seemed palpable as the decision to reduce foam stock became (apparently) obvious. The 'Buncefield' fragment reinforced the narrative that had been constructed in support of the decision that reducing stocks of foam was obviously the correct one.

It could be argued that the "*Buncefield*" fragment crowded-out any further debate on the topic, with the incident seeming to have become a petrified narrative (not least as a result of the Buncefield Incident Report (Buncefield Major Incident Investigation Board, 2008), and as such, had become a version of events that could not be challenged or debated.

Within Extract 19 (above) an additional story fragment was contributed in support of the decision, suggesting that the Fire Service covering the Buncefield site had planning extensively for a major fire, noting that "…. *it was one tank they'd planned for*". This could be taken as support for the view that longer-term planning should be viewed as

an ill-structured problem-solving activity, rather than a well-structured one as, in the event, the plans had proved to be of little value.

In the simulations, stories did not appear to feature when generating ideas or when planning the approach to the problems that were presented to trainees. This may lead to the assumption that storytelling does not contribute to the creative elements of the problem solving process. Indeed to some extent, storytelling, or more specifically, narration, could be argued to militate against creative thinking, as it gives a monological, fixed version of events and discourages different interpretations of 'the facts'. This view is somewhat counter-intuitive and inconsistent with the traditional view that storytelling is a creative art, encouraging and stimulating listeners to 'story' for themselves, along different paths, but importantly, within pre-defined boundaries that delineate the problem. Denning agrees with this perspective, arguing that people create their own story from a prototypical, or "*springboard*" story (Denning, 2001, p. xix). This argument is explored further within Chapter 6 – Findings and Analysis of Research Question 3, on p. 230.

4.4. Summary of Research Question 1

This question explored how storytelling featured in the research organisation as part of the approach that was adopted to solving ill-structured problems. Three key themes emerged:

First, storytelling features in setting the context of a problem-solving process, and had the power to impact or the general mind-set and outlook of the individuals involved. I

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suggest that stories and narratives told in this very early, 'pre-stage' of the process subconsciously and covertly helped to define the boundaries of the activity, and in doing so, guided participants in terms of what expectations, limitations, and consequences were likely to face them as they sought solutions. The prospect of being able to manipulate these more deliberately was considered, and the concept of the need to align the stories of self, group story and corporate story was introduced.

Second, stories, story fragments and narratives were identified as playing a role when problem-solvers attempted to find solutions to problems that were acceptable to all stakeholders. The telling of stories and narratives tended to narrow down the range of options being considered, whereas story fragments seemed capable of opening participants' minds to new possibilities. I suggest it is important to recognise both the degree of complexity in a problem and the need for either expansive or converging thinking at any the particular stage of problem solving, before judging whether stories, fragments, or full narratives are appropriate at that stage.

Third, storytelling was a feature of discussions when people were attempting to reach conclusions within a problem-solving process. Narratives seem to have a tendency to override some of the concerns about a decision, bypassing legitimate challenges to it, and leading swiftly to a 'planning implementation' phase. This has advantages in that decisions can be made more quickly and a degree of certainty provided for those involved, but disadvantages in that it can 'crowd out' and mask important danger signals that story fragments have the capacity to highlight. The implication is that narratives make for clear solutions, but not necessarily the correct ones.

While storytelling may not appear to be used in generating ideas in some of the extracts, much of the data used originated in scenarios where there was considerable time pressure on potential storytellers. Where speed is a vital part of an exercise (such as in these fire and rescue simulations), it is perhaps not surprising that those involved do not recount tales of previous rescues. However, it is reasonable to suggest that as the 'live' events are continuing, officers and firefighters are drawing on their bank of experience to help them decide what action they should take, a suggestion that was confirmed in the second phase of data gathering from key participants in the study, specifically Senior Fire Officer Keith Evans and Chief Fire Officer Richard Hannigan.

In the primary research organisation, for normal operational firefighting, story fragments have limited value in terms of improving problem solving. However, in strategic and persistent problems, antes seem to be capable of helping to detect and identify problems that had previously been unrecognised, and can help with positing potential solutions. As such, it is reasonable to expect that stories and fragments would be important at different stages in problem-solving process, and would be perceived as constructive or obstructive depending on the stage being addressed.

That said, stories in a typical problem-solving context are often used to provide the seed of an idea that the listener takes and evolves and makes their own. In the practitioner literature, Denning (2001, p. 13) and Guber (2011, p. 6) in particular describe how, in a well-crafted story, the teller facilitates a mental process by which listeners envisage themselves at the heart of the story. They imagine how they might apply the principles shared within the story to their own problem. Note here that this involves 'story', not 'narrative', as the flexibility of a story is essential for the approach

to be successful in generating ideas and action from the listener. When compared to

stories and story fragments, narratives are more directive, and I suggest, have their

problem solving value in implementation, rather than in idea generation.

Chapter 5 – Findings and Analysis of Research Question 2

5.0 – What can a focus on story fragments uncover about these everyday problem-solving practices?

Whereas Research Question 1 explored how storytelling in general featured in ill-structured organisational problem solving, here in Research Question 2, I focus specifically on story fragments, and how 'noticing' these can inform our daily problem-solving practices, paying particular attention to ill-structured, wicked problems.

The data collected for this thesis suggests that story fragments, seen as a key facet of antenarrative (Boje, 2008, p. 11), are frequently found in problem-solving situations throughout the spectrum of approaches observed. They appear to play a part in facilitating the identification of the existence of ill-structured problems, and in the expression of deep-seated, possibly subconscious concerns that problem solvers have about the problem itself that could be responsible for adding further to complexity and creating barriers to successful resolution. Finally, fragments seem to play a role in encouraging participants to adopt a broader, more liberal stance in their approach to finding new solutions to difficult, wicked problems. These dimensions to story fragments are discussed within this Chapter.

5.1. Exposing ill-structured organisational problems

In one of the early interviews for this research, a story (transcribed in Extract 20 below) was collected from two Human Resource (HR) professionals from an organisation that was unrelated to HFRS. The interviewees were studying part-time for a CIPD

qualification, and their story related to a transgender employee who had left their organisation as a male some years previously, but had recently been selected for re-employment by the firm, and was re-joining as a woman. The storytellers described various events and feelings related to this scenario, evolving and editing the story as they went (in a 'living story'), and seemed to be attempting to present a more fixed group story (i.e. of themselves and their CIPD profession), that showed them to be legally and ethically correct, and as a valuable organisational asset. In this storying process, fragments within the story emerged that suggested that the storytellers were far from comfortable with the unusual situation facing them. I argue that they unintentionally exposed a deeper ill-structured problem within both the organisation and the interviewees themselves in terms of attitude towards equality and diversity, particularly given that the storytellers were authors and custodians of the firm's relevant policies. In the extract, the HR professionals were discussing some of the issues and incidents that had occurred as a result of re-employing the transgender individual in question:

Extract 20 – "Transgender and the 'toilet' issue"

> *Interviewer –* *What sort of incidents are you talking about?*
>
> *Interviewee 1 –* *Er, well we had the **issues of the toilets**, because we brought her - she's now called N – we brought her in before she started on Monday, myself and another of my colleagues, just to have a chat with her. We wanted to raise the **toilet issues** and we wanted to try to suggest that she might want to use the disabled, which she was quite offended by, and said she wanted to use the womens'. So, we gathered all the women together and told them that the situation was that she would be using the women's. Everyone seems fine about it, **but to be honest it seems to be the men that have more of a problem** – because she's in a team, and people talking to other members of that team, going "**gooha, what's it like**?!" and "how are you coping? What's it like sitting across from her?" and a lot of*

that going on; and these are <u>managers</u> doing this.

[There is an implication of overt prejudice in these comments, and the story fragments (in bold) suggest that there are far more complex behavioural and cultural problems within the organisation that extend beyond the well-structured problem of how to accommodate an individual who is perceived to be 'different'.]

Continuing…. Interviewer *– So what's that doing to the organisation then?*

Interviewee 1 *– it's quite difficult: the higher up level, like senior managers and directors, weren't too happy about even taking N on, as N; we almost didn't take her on, but we, from an HR point of view, we're more concerned about, [the legal fact that] we can't not take her on, we can't discriminate, because technically she's capable, and we've interviewed her, and we're happy for her to do the job. So it's just that **we want to be seen to be managing properly** – we want to protect her …..*

Interviewee 1 and 2 together *– ….. but we want to protect the company at the same time [from accusations of discrimination].*

[The interviewees seem to be as concerned about the appearance of managing well, as much as the reality of doing so.]

Continuing…. Interviewee 1 *– But one of the directors was saying "I think we should tell clients, because if she turns up to a meeting, clients aren't going to be very happy", and one of the directors said "I think we should inform the clients" and our HR director's said "No way! You wouldn't tell somebody if a black person were coming, or a gay person were coming, so no – **we can't protect her outside this organisation."***
So it's just that there's a lot of people seem to be just talking about it, and we want it just to 'be' [i.e. stop being an issue] now.

[The comment "*we can't protect her outside this organisation*" belies a conflict between the organisational story (i.e. a belief that customers won't like it) and the CIPD group story (i.e. we are protecting workers).]

Continuing ….. Interviewer *– Is it a theme that runs through the business over the years? Sort of, the issues over equal opps', and…?*

> *Interviewee 1 – No, not at all, it's very kind of like, engineers, kinda old school traditional engineers – like 90% of the workforce are guys, like 50 year old plus guys, very old school. So to them, this is weird, very weird for them.*

[The comment recognises that overt prejudice is a 'natural' part of the organisation, and implies that it is related to age, education and gender. Sharing this fragment suggests that this prejudice is entrenched even in those professionals who are likely to be charged with eliminating it.]

> *Continuing…. Interviewer – so how do you two feel about it? What's your gut reaction to it all?*
>
> *Interviewee 1 and 2 together –   Fine! Really!*
>
> *Interviewee 2 – It's strange, 'cos I've never come across it.*
>
> *Interviewee 1 – It's strange, 'cos she looks like a man dressed up in woman's clothes. You can see how she's a man really. Some people look and are thinking "Oh my God!!" and are really quite shocked by it. But personally, I've got no issues with it, it's absolutely fine.*
>
> *Interviewee 2 – No, I've got no issues with it*
>
> *Interviewee 1 – I've got to admit, I'm not completely comfortable if, like, say she walked in the toilet, I'd probably feel a bit uncomfortable, **I think that's kind of natural** : I'd never say or do anything; I'd always look to be nice and polite.* [This demonstrates covert personal prejudice].

In this extract, paying attention to the story fragments (shown in in bold text) highlights an underlying complex web of problems within the organisation, including not just the obvious issue of prejudice, but also problems relating to customer relations, HR legal issues, organisational and regional culture, and a concern with personal image. The key point here is that all of these complicating factors are potentially ill-structured problems in themselves, and were identified thanks to the researcher's sensitisation to story fragments. I suggest that the natural problem-solving behaviour of the two interviewees is to *narrate* the problem and impose

structure onto it, and in effect, attempt to simplify it, to transform the problem into

one that can be more easily (but not necessarily effectively) solved. I argue that

noticing the fragments in the extract helps us to recognise that in reality, the problem

that manifests in the responses of existing staff to the new staff member (referred to

as 'N'), *including* the responses of the CIPD interviewees, is far from structured, and is

archetypically 'wicked'.

It is understandable that the interviewees would want to see the problem as more

straight-forward: Individuals displaying overt prejudice can be managed through the

systems, policies and procedures that HR professionals are renowned for developing.

However, in the organisation in Extract 20 – "Transgender and the 'toilet' issue", the

fragments of stories that emerged revealed a significant degree of both overt and

covert prejudice. Given that the comments are made by individuals who know that

such bias should not be present in the organisation, noticing the story fragments

would seem to have facilitated the exposure of deep-rooted cultural and traditional

barriers to the creation of a non-discriminatory workplace, barriers that in fact create

an ill-structured problem.

A different example of exposure of a complex, complicated problem through noticing

story fragments can be found in Extract 21 below, where there is a suggestion that

'political games' may be being played by the chairman of this HFRS meeting (the

'Foam' meeting). The chairman is of the same rank as the individuals he talks about

(i.e. O1), yet he comments:

Extract 21 – "The foam meeting – banter or power?"

> **Chairman** – *right, we'll make a start, being as O1's half an hour late…[Laughter] does that go against him? [joke, directed at myself – the group believed that as an observer, I was assessing a O1's performance]. Everyone else was here at two!*

[The comment arguably attempts to present O1 as disorganised and forgetful, and could be seen as political activity. O1's defensive response (below) confirms that a potential alternative agenda exists…]

> **Continuing…. O1** – *it was 2:30!*
>
> **Researcher** – *he did tell me half past.*
>
> **Chairman** – *no, it was my mistake O1: apparently I sent out 'half past'.*
>
> **O1** – *I apologise for that mate…. Right, can I have [give] apologies for T. T has apologised but he's briefed me on everything.*
>
> **Chairman** – *oh T, he said he was coming! West Yorkshire he's at, and he was coming straight from there he said.*
>
> **O1** – *He's still there.*
>
> Chairman – *right, apologies then. T, S… T1? What about T1? Anyone heard from T1?*
>
> **O1** – *no, I haven't heard anything off him.*

[Here, the chairman and O1 exchange fragments of stories relating to themselves and their relationship with the most senior group member, referred to as "T", again having the potential to convey a 'power' message.]

> **Continuing…. FF2** – *erm, I'll apologise for T1, seeing he's a bit slack!*
>
> **Chairman** – *right, is that it, is that everybody?*

5.1. Exposing ill-structured organisational problems

When viewed through a 'lens' of storytelling in ill-structured problem solving, the exchange in Extract 21 (above) might be called 'banter' between the Chairman and O1. However, it could also be argued to reveal political tensions and power games being played between the protagonists. It may suggest that there are alternative agendas being acted out in meetings of this type. For example, the emergence within the dialogue of a fragment relating to the absence of a key and senior member of the team (identified as 'T'), potentially shows a 'down-grading' of the importance of the meeting, with this reflecting on the power base of the chairman. These interpretations may or may not be accurate, but paying attention to story fragments allows these 'off-agenda' issues to be contemplated.

The potential problems identified would arguably be subconscious, wicked and ill-structured, and would not normally be addressed by a meeting which was called to explore more visible and operational problems, such as firefighting with foam. However, these internal power battles are part of everyday problem-solving practices that this thesis intends to address.

Just as noticing fragments identifies the possibility of a deeper problem of power struggles within the organisation, the data also seemed to reveal that fragments of stories could be responsible for exposing unspoken views and obstructive attitudes that could present ill-structured problems to the service: In Extract 22 below, a fire officer was questioned by the researcher on the rationale behind using fire engines in all emergency situations:

Nicholas Snowden, 200511177

Extract 22 – "People like us better"

> ***Researcher*** *– [in an attempt to become less visible as an observer] when you say you need the resources [at an incident], it's bodies[i.e. firefighters], isn't it really? Is there not the possibility to send them there quicker in a car, rather than in a fire engine?*
>
> ***IC1*** *– not really, no. Probably a fire engine would move through town quicker, because people see it, it's a bit more visible, it's brighter. If we try to weave through in a car, people think it's a police car… They think "I'm not letting this through"…. **No disrespect to the Police***. *They see a big red engine, they think…*
>
> ***IC2*** *- people do tend to be more sympathetic towards fire engines.*

In addition to this extract, later in the same discussion, IC1 remarked, "*People like us*

better than they like the police or the ambulance service", and argued that "a *big red*

fire engine" had more chance of moving swiftly through traffic than a car with flashing

lights and sirens. Examining this data from the perspective of this research allows two

ill-structured problems to be identified: First, there appears to be an automatic

rejection of new ideas. While there could be perfectly credible reasons for this

objection to the idea of sending firefighters to incidents in cars, (for example, cars may

be unable to carry the equipment needed on arrival at a fire ground) one might have

expected that rapid response teams in cars might have at least been considered as

possibilities by the senior HFRS officers IC1 and IC2, particularly given the importance

of reducing response time to the service. Indeed, the practise had been recently

adopted in some fire service areas, and in fact, since the original interview, has been

adapted for use in HFRS. This resistance to new ideas is an ill-structured problem.

The second complex problem that is exposed is that of a potentially inappropriate self-

image that some members of the service may have: The story fragments used by IC1

and IC2 (above) suggest that they believe the public have a significantly more favourable view of firefighters in comparison to other emergency services, a view that reinforces the groups' preferred view of themselves (i.e. their group story). This could result in a degree of over-confidence, even arrogance in the way in which HFRS interacts with the public, Police, and Ambulance Service. The comment "*No disrespect to the Police*" (hinting that the opposite is true), coupled with IC2's irreverent comments to the trainer (see on page 234, below, with the use of the 'F' word) supports the existence of this problem. Indeed, the evidence from the second wave of data gathering, confirmed the existence of the issue. Interestingly, an additional dimension was added, with the belief expressed that the story of self was also influenced by the perceived expectations of the public, who were described as thinking, *"The fireman is here, he'll __do__ something heroic to save us"*, whereas the Police and Ambulance Services may not be as proactive. This adds further complexity to any debate on how the 'core stories' in an organisation are developed, and how they influence problem solving. This will be explored in more detail in Section 8.5.

This 'story of self' was developed further in Extract 23, where an officer makes the comment:

Extract 23 – "Save saveable life"

> *…we have a saying in the service "I will risk my life to save saveable life. I will not risk my life to save non-saveable life". And it's about having [making] that call about whether it's saveable or not saveable.*

This is a powerful fragment, making a clear and justifiable statement about the critical importance of the role, and highlights a central and grave ill-structured problem that the service must address daily.

So story fragments appear to have the potential to reveal existing and potential ill-structured problems. The importance of the interpretation of fragments, and of recognising the many different ways in which they could be 'read' cannot be overstated. And while it is recognised that this storytelling approach is unusual and far from fool-proof, it was instrumental in identifying a particularly powerful theme that emerged from staff at all but the most senior positions, specifically, a strong preference for operational roles. I would argue that this is an ill-structured problem, and could be a product of a traditionally male-orientated occupation (fire and rescue), where managerial roles and support activities are perceived as carrying less kudos, being less masculine and less valuable than frontline operations. This observation was supported by the second phase of data collection, where the chief fire officer agreed that in the past, strategic thinking had not been sufficiently encouraged in the service, and this the issue had now been addressed. However, at the time of the initial data collection, the ill-structured problem of operational, rather than strategic thinking was exposed by noticing fragments that occurred in Extract 24 below. Here, the group were discussing foam stocks and foam usage, in an attempt to plan strategic changes to the use of such chemicals within the service:

Extract 24 – "A home for the foam"

> *FF2 -….we're looking at that as part of the services' environmental plan, and MB is looking at that as well with me. Where we can store it, whether we then go to Leconfield - they said we can store anything we want there.*

They've got interceptors [devices for containing chemical spillages] , and they've got Crown immunity, which is a bit of a copout for us, by saying we found somebody else's site who you [i.e. the EA] can't 'do', but they're saying with CAF, they're quite happy to let us …..

***FF3** - … I don't think a storage site is a problem. I know 'T' has rung round a few ….*

[Having foam stored in a way that complies with the EA's requirements is arguably an ill-structured problem, in that their requirements (i.e. minimising environmental damage) require a strategic approach that could be seen as being at odds with the operational requirements of HFRS (i.e. putting fires out quickly). However, FF3 narrates a solution that sees the problem as structured, privileging an action-orientated approach, rather than an investigative, exploratory, strategic one.]

***FF2** - …. But that's what I mean,….*

***FF3** - …. And Mick has spoken to some….*

***FF2** - so therefore, if we replicate what's happening at Tate & Lyle, around the service area, it's just the logistics of picking up what we need, and moving it to where we need it.*

[The story fragment "Tate & Lyle" is sufficient to communicate the full prospective narrative to the rest of the group. While this is evidence of longer term planning taking place, it is not creating strategy, but re-applying an existing one.]

Chairman - I presume with that, where we're storing stuff , were still responsible for it, testing of it?

***FF2** - oh yeah, absolutely. If it leaked, it would be our job to go down and sort it out.*

***FF5** - you would think if these were COMAH sites, that they'd have to have some interceptors built-in, wouldn't you? It's like where else do you look at, isn't it? If you look at the East Riding, I've got Goole and Bridlington as the two extremes, housing IBC's at the moment. We've had the bags delivered, we can't lift them in at the moment.*

> **FF2** - *but I'm trying to get rid of the stuff at Goole, Steve, cause that's still AP70 [an out-of-date type of foam]….*

> **FF5** - *well very shortly, very shortly, they're going to have a station refurb., And the building contractors want to construct a bit of a compound. And to be honest, the foam is going to be in the way, and I've been asked if I can, as a short-term fix, move it to Howden. But if we are thinking of getting rid of it, it might be…*

[Here, a solution narrative begins to emerge from the stories and fragments, implying the problem is structured, not ill-structured. This is constructive and valuable, but implies a preference for tactical, not strategic, aspects of the role.]

> **FF2** - *there's 6000 L of AP70 still kicking around which must be well past its sell by date, which we are having tested.*

> **O1** - *hasn't he tested all the foam stock?*

> **FF2** - *not yet, not all of it. It's on-going.*

The potential problems raised are logistical (i.e. where the foam could be stored), regulatory (i.e. the relationship with the Environment Agency), and operational (i.e. whether the foam could be accessed in practice). This level of complexity suggests that the problem of creating a 'foam strategy' is likely to be 'wicked', as the stances of the various stakeholders change in response to many other factors (for example, new chemicals, new research on the effects of older chemicals, experience of use of foam in the field, and importantly, changes in key personnel in stakeholder organisations).

The conversation in the foam meeting drifted in and out of the strategic issues, with story fragments seeming to randomly punctuate the discussion. I suggest that an observer who was specifically 'noticing' storytelling, could recognise that there were additional issues concerning the group as much as the central problem they had been

tasked with resolving. Members of the group seemed to be 'storying forwards' in an attempt to construct a solution narrative, trying to imagine how they would cope in an emergency with the current resource configuration. Given that the organisation has traditionally been designed to be a reactive one, it is understandable that a shift to a more strategic and proactive approach is a challenge, as it does not fit with the existing stories of self or group. Indeed it should be recognised that this is a very valuable skill, as many strategies fail due to poor planning of implementation (Niven, 2002, p. 3). However, the new organisational story, as set out in the Strategic Plan and IRMP, tells of a far more proactive service, and as I argue in the conclusion to this thesis, this conflict of 'core stories' can be seen as an ill-structured problem in its own right.

Further evidence that 'noticing' story fragments could help to identify ill-structured problems, appeared in Extract 19 – "Foam, Buncefield, and planning", p. 180 (above). Again, the problem relates to the organisation and its strategic decision-taking processes, and is taken from the 'foam' meeting, where the group seemed to be ill-at-ease with planning strategically. They seemed almost relieved when there appeared to be no value in making major changes to the arrangements for purchasing, storing, and using foam, thus allowing them to settle on a 'minor change' solution. This reinforces the view expressed earlier on page 194 of this thesis that had emerged through thematic analysis of the data, that there was a strong preference for 'operations' permeating the organisation, and perhaps by implication, a reluctance to address strategic issues.

Interestingly, the final outcome (confirmed in the second wave of data gathering) was in fact, definitely strategic and quite radical: The foam type was changed, there was a significant reduction of stock of foam being held by HFRS, this stock was being shared

with North Yorkshire Fire and Rescue Service, and part of the stock was being stored

on a commercial oil company's site. This is consistent with the observations made by

the chief fire officer in a final research interview, when he recognised that the strategic

thinking had been a problem when the initial research had been carried out, but that

that problem was now being addressed.

This move to a more strategic, proactive approach is not helped by a further major ill-

structured problem of the organisation that was raised by the most senior member of

the organisation to take part in the study, specifically the issue of the "*watch culture*"

(see Extract 25 below). In the fire service, a 'watch' is the term given to a team of

firefighters that work together on a shift system. These teams are unusual in two

respects: First, members typically spend long periods of both activity and inactivity

together, and work, rest, eat, and relax together on shifts lasting up to 15 hours.

Second, and I argue more importantly, when responding to an emergency, they often

work in life-threatening situations. This inevitably leads to the development of strong

personal relationships between team members, and this 'watch culture' has a

significant impact on the way in which the service can be managed. This was

recognised across the service, and was crystallised by the chief fire officer, who stated:

Extract 25 – "Watch culture"

> *You know, we've got this very strong **watch culture**. That lies at the heart of
> it. Because, the biggest fear of a firefighter - in Humberside,- but I would
> say nationally - is that [if] they are not part of that culture. And if they
> stand up with some courage and say, "Actually, management is right.",
> They will be excluded from that culture. And that's **terrifying**.*

The chief officer recognised that the nature of an operational firefighters' job and the risks that they are required to take could be part of the 'watch culture' problem, i.e. being an outsider in a life-threatening situation could quite literally, be terrifying. The act of sharing this fragment with the interviewer drew the officers' attention to the ill-structured problem of the 'watch culture', leading him to close the meeting with the significant comment:

Extract 26 – "Where I go next"

> *So really, having this discussion, leads me to start thinking, this is where I've got to go next, and tackle that.*

Managers at different levels were cognisant of the 'watch culture' issue, and confirmed that it created a management problem. For example in Extract 27 below, a senior fire officer makes an interesting response to a question from a non-uniformed member of staff, when discussing a potential reduction to the number of firefighters required to operate a fire engine:

Extract 27 – "What will the union think?"

> *Civilian staff member* – *are we talking two firefighters and one crew manager?*
>
> *Officer* – *… or even three firefighters and no crew manager, ….. errm, that might be a step too far, I don't know how the Union will take that. We'd have to wait and see.*

5.1. Exposing ill-structured organisational problems

The comment, while not associated with a particular story, contributes to the visibility of the problem. The topic did not regularly feature in any discussions unless raised by myself as the researcher, but the question of 'watch culture' and the power of the FBU were widely recognised by managers as organisational problems that were complex and unclear, blocked change, and as might be expected, had proved resilient to attempts to resolve in the past. I argue that my own sensitivity to story fragments helped me to identify the pervasiveness of this theme and its impact on the organisations attempts to move towards a more strategic mind-set in its middle managers, even though the issue was not the focus of the problem-solving activities that I had been invited to observe. Therefore, developing an approach that encourages such sensitivity could be seen as valuable to practicing managers. I also suggest that in Extract 25 – "Watch culture", and Extract 27 – "What will the union think?" above, there is tacit recognition of the importance of the group story (embodied in the 'watch culture'), albeit the issue is not articulated as such; consideration of how the stories of self, group, and organisation might be aligned could be useful here, and will be explored in the concluding Chapter, in Section 8.5. Areas for Future Study, on p. 340.

Further ill-structured problems were identified as story fragments emerged in a meeting that had been arranged to examine the location of Fire Stations in the region, and to make recommendations for possible changes. In the description of the problem by the senior officer chairing the meeting (see Extract 28, below), he includes four story fragments that provided insights into the relocation problem itself, but also, illuminate broader issues with the problem-solving processes being deployed :

Extract 28 – "The broader problems in planning a relocation"

> *…the only problem we've got, and what we're trying to do is, we're trying to align this to what we know **isn't in place at this moment in time***

[**In bold** is Fragment 1 – referring to the story of gaps in the current service provision.]

> *Continuing…. and that's the difficult [thing], that's the difficult issue we've got because we're trying to work off **what we are aware of now and what we see is available in front of us***

[Fragment 2 – compressing the story of the current needs of the organisation and the current resource availability into a short phrase that goes some way to capturing the task facing the planners who are involved in reallocating resources.]

> *Continuing…. But what we're not aware of, or what we haven't taken account of, is **the moves that are going to be played before 2011***

[Fragment 3 – addresses the lack of information provided to the team, and hints at the frustration this causes.]

> *Continuing…. One of those moves is going to be the technical rescue teams at 'X' and 'Y', and that's why I haven't gone for it [i.e. a particular station] at all. I've left it because I thought, right, **there's sufficient change happening** there without me looking at it.*

[Fragment 4 – shows a reflexive approach from the officer, who recognises the impact that his proposals will have on his friends and colleagues at the stations that would be affected.]

The stated problem being addressed by the meeting was that of making recommendations for strategic reallocation of resources to make a more effective service. This would typically be treated as a structured problem and the team would run different configurations of resources and locations (or 'scenarios') through computer software (i.e. the Fire Service Emergency Cover Toolkit (FSECT), colloquially known as the "risk model") that would resolve the problem in a logical, linear,

mathematical fashion. However, I suggest that the problem that was being tackled was inevitably ill-structured as, a) it relies on predictions that cannot be guaranteed to be accurate, b) has significant implications for friends and colleagues, and c) is a constant and recurring task as the needs of the various HFRS stakeholders change. Therefore by analysis of story fragments, not only is the core problem exposed as ill-structured, but in addition, the problem-solving process itself can be seen as a 'wicked' challenge.

The issue of a flawed problem-solving process appeared again in the same meeting, when the practicalities of making recommendations on strategic decisions were again brought into focus:

Extract 29 – "Risk management software"

> ***Non-uniformed staff member*** – *It needs to be somewhere in between those two [locations] really…*
>
> ***Officer*** – *it does, the only other place, ….and it'd be too…., I don't know which way it will go…., is actually on X Road itself. You know where the X garage is, on the X Road, going up to Y estate? I was considering there. When we did run it initially [on FSECT], we had some success when we ran it way, way, quite a long time ago, we stuck it on the corner of Z road and X Road….*
>
> ***Non-uniformed staff member*** – *it's fairly close to P [station] there isn't it?*
>
> ***Officer*** – *yes I know, but it seemed to have a better response standard there because it was getting into town quicker, and straight on X Road, but you've then got the issue about covering B, but your idea about moving and appliance from E to B… I like that, I like that a lot. But what I'll do, I'll put some more rationale behind that.*
>
> ***Non-uniformed staff member*** – *you need to run the scenarios [**i.e. use the FSECT risk management software**] as well, so we've got a backup.*
>
> ***Officer*** – *could you send me your scenarios, and I'll send you…. If you e-mail me that stuff, and I'll e-mail you this… .*

While the team would seem to be expected to use the FSECT software to inform their

decisions, the remarks in the extract suggest that the rationale for a decision is

constructed somewhat differently: In this process, the team seemed to be attempting

to generate statistical evidence from FSECT to back up recommendations for changes

to matters of both strategic and operational importance. However, it is useful to

consider whether the decision on what course of action to recommend was being

derived from the data, or whether the data was being organised to support a decision

that has already been taken. It may have been that this 'pre-decision' had been taken

through a less formal, less structured, more qualitative approach, where experience

and personal judgement were more significant influences. This is not uncommon in

strategic decision-making (Hayashi, 2001), and arguably is an important attribute of

some successful organisations, where data is out-of-date before it can be acted upon. I

argue that, as a researcher, I witnessed fragments of stories (backed up by

manipulated 'hard' data) being 'made sense of' retrospectively through being

organised into a story, and then transformed into what was in effect, a computer

narrative (i.e. the results of running the data through FSECT), that was then used to

test the decisions that were being proposed.

This behaviour is typical of prospective sensemaking, (i.e. attempts to discover and

craft productive alternative routes forward), but using retrospective sensemaking to

enable and facilitate it (i.e. adjusting the values entered into the 'risk model' to give

the outcome that the risk management team had decided 'looked right' – a behaviour

explored by Boje (1991), Weick (1995), and Abolafia (2010) and discussed in Section

2.2.1, on page 56 above. From the perspective of this research, this is significant as it shows a story being created to fit the data that have been inputted by the team and processed by the FSECT software. It raises a potential concern that if the software rubric were incorrect, its output would be misleading. Yet the discussion within the team suggested they were content, perhaps even conditioned, to trust the program at least as much as their instinctive reactions. This was illustrated by the comment by O1 towards the end of Extract 29 – "Risk management software" (above), saying "*I like that, I like that a lot. But what I'll do, I'll put some more rationale behind that*." This suggests that the culture at HFRS is at odds with this reliance on software, with personal experience and expertise being recognised by all staff as crucial to the effective and safe operation of the service, and particularly by frontline firefighters. However, the deference to FSECT can be justified as a method of informing key strategic decisions in a number of ways: First, the software is widely used in the Fire and Rescue Service, with data that supports its effectiveness. Second, the system is defensible to those who might question difficult and emotive decisions such as the closure or movement of fire stations. Third, the approach provides for a systematic and (as far as can be known) comprehensive consideration of the data that is available. However, it is important to recognise that the software is inevitably based on principles that are designed for well-structured, albeit complicated, problem solving. Where a problem is ill-structured, which is arguably typical of strategic problems, it is counter intuitive to expect that computer software can provide a single 'best' answer, and as such, the degree to which FSECT is relied upon presents an ill-structured problem. This is reinforced by at story told by a senior officer in Extract 30 below, relating to cost savings that were rationally identified by the service, supported by FSECT data, but rejected by the Fire Authority:

Extract 30 – "Making cuts rationally"

> *….and I remember having a conversation with an elected member telling me, because I was telling her "I can save you £800,000 a year here". And she said "no you won't. You will reinvest all that money, and you will re-employ all those people in different roles."*

I suggest then, that either deliberately or through habit, the risk management software is used as a testing ground for ideas that are 'storied' prospectively in the minds of those that operate it, rather than as a prescriptive decision-making tool. This implies that a story-based intervention introduced into this process might help to identify ill-structured problems, thus allowing them to be investigated more appropriately, but also could contribute to dealing with risk management more effectively in such scenarios.

Comments at the end of Extract 29 – "Risk management software" (p.202 above) also suggest that the risk management team instinctively knows that a form of story has to be created to 'sell' the proposal to those higher up the organisation who will ultimately make a decision on the issues they are exploring. The team understood and accepted that they needed to provide a data-driven risk model that supported what they intuitively sensed was the correct decision. As noted on p.63 of this thesis, this is consistent with observations of the 'best' decision takers made by Rudolph, cited in Klein, *et al*. (2006), in that it could be argued that the team made an early choice of solution, or 'pre-decision', and then tested it (as I argue, by storying prospectively), while maintaining an open mind. The assumption is that the 'best' decision could truly be known – this is rarely the case with ill-structured problems, and again suggests that

the problems were being perceived as well-structured, and that using a storytelling

'lens' could help to identify the problem as ill-structured.

Further analysis of the story fragments that surfaced in the Risk Management Meeting

suggested the existence of different organisational problems to those initially

identified within the meeting, as illustrated by the following two extracts, where both

superficial and deeper organisational problems can be identified:

Extract 31 – "Communicating with operational managers 1"

> ***Non-uniformed staff member*** *- Did the PSM's [Performance Service Managers] come back with anything we can use?*
>
> ***Officer*** *– No, at this moment in time, I haven't got any feedback off the PSM's at all. Errm, I've also had no feedback from the SDM's, the Service Delivery Managers. If we were to look at the project list that was given to us by R, I would have anticipated we would have had some feedback off S and R1 about technical rescue stations, ...*
>
> ***Non-uniformed staff member*** *– I thought there'd be a lot more than that actually.*

A few minutes later, relating to a different agenda item, a further comment was made

by the fire officer:

Extract 32 – "Communicating with operational managers 2"

> *The appliance types, errm, the small fire units with C, I was expecting that we'd get some information off them, and I'm surprised we haven't got any information whatsoever off them, so errm ….*

The superficial manifestation of the problem can be interpreted as a lack of information, as illustrated and easily identified within Extract 31 and Extract 32. However, the data also perhaps point towards a deeper, recurring, ill-structured problem, i.e. that other HFRS managers were not engaging with the needs of this Risk Management team. While this was not the problem that this meeting was attempting to solve, it significantly impacted on their effectiveness, the credibility of their prospective solutions, and potentially on their story of self.

So it can be seen that stories, and particularly story fragments can act as markers or indicators of ill-structured problems that exist within the organisation. Improving sensitivity to these fragments and simply 'noticing' them could improve our ability to identify and solve these difficult and persistent organisational problems.

This is not to claim that such conclusions could only have been drawn by being attuned to story fragments, but simply that the approach can contribute to exposing ill-structured problems. Indeed, this raises the issues of over-analysis and misinterpretation, where perhaps problems are perceived that do not really exist. This can be seen in an example of the alternative interpretations of the data that emerged from a reflexive analysis of Extract 21 – "The foam meeting – banter or power?", on page 190 above. In this exchange, the individuals using antes could have been presented as engaging in simple 'banter', that arguably makes a workplace a more enjoyable environment (i.e. not a problem). Alternatively, it could be presented as political activity and the playing of power games, with the actors attempting to manipulate the status and stature of certain groups or individuals through the use of story fragments. As such, this would then impact on the core of the problem-solving

activities that followed; such politicking would constitute an ill-structured problem affecting many, if not all, of the processes used to manage an organisation. Thus one reading presents a strength of the group, while another interpretation purports to expose a problem.

So while the precise problem identification remains an issue, my argument in 5.1 is that noticing story fragments helps us to recognise problems as being ill-structured, and as such, requiring a significantly different approach than if the problem were to be identified as well-structured.

5.2. Deep-seated issues related to the problem

In this section, continuing with the theme of exploring the role of story fragments in understanding everyday problem-solving practices, I extend the discussion on their role in identifying the level of complexity and degree of structure of a problem. I explore here how these antes may help us to go beyond simply noticing whether a problem is ill-structured or well-structured, to considering how they contribute to identifying what the additional, deeper facets of the central problem actually are.

A typical situation in which this occurred was observed in the scenario in Extract 33 below: an instructor playing the role of a firefighter in a training simulation, answered a question from the trainee regarding the presence of people in the fire that was being fought. His response contained the required answer but also a story fragment:

Extract 33 – "Garage Fire – there are cylinders here (shortened version)"

> *…. No, no sign of anybody here…. We can confirm the presence of cylinders*

I argue that the instructor knew that the key to solving the problem that had been set within the scenario was to 'manage' the gas cylinders that were caught up in the fire, i.e. to use water to cool them. He used the phrase "*presence of cylinders*" as a story fragment in the hope that it would trigger a storying process in the mind of the trainee, where the trainee would very quickly imagine the ramifications of having gas cylinders in a fire, and yield an appropriate response from him. I maintain that this was a deliberate, conscious intervention by the instructor, drawing attention to an additional dimension to the problem being faced by the trainee. The instructor was attempting to reproduce the information that the trainee would hopefully recall if faced with similar circumstances in a real fire situation. In other words, the fragment was providing a communication route into and out of the memory of the trainee, allowing him to recognise and retain a facet to the problem that, up to that point in the exercise, he appeared not to have considered.

In Extract 34, taken from the 'foam' meeting, a similar situation occurs. However, the intervention by the officer appears to be a much more subconscious one: In trying to solve the problem of the amount and type of fire-fighting foam to purchase for the brigade, the fire-fighter comments:

Extract 34 – "Beware of Bartoline"

> *….if we just look at our risk, our risk is going to be a tank fire… Sorry… A train crash, or a road tanker. You know, if those are the two planning scenarios that we go for, if **God forbid we have another Bartoline**, you*

> *know, we let it burn because we now have that burn policy in place, so we let it burn, and all we're looking at doing is ensuring we have sufficient stocks – probably four hours or five hours into it before we even implement any form of foam firefighting.*

In this extract, the fire-fighter begins by outlining the corporate responsibility (i.e. their "*risk*", and the events they are duty-bound to prepare for), but then voices deeper fears by using the fragment, specifically "…*God forbid we have another Bartoline,…*". This comment alludes to a major incident in the HFRS region, where a solvent packaging factory caught fire, causing significant destruction and pollution (Shoesmith, 2013). In the extract, the fire-fighter quickly moved on to continue with the evolution of the solution narrative that he was creating, but the "*Bartoline*" reference can be interpreted as a deeper fear surfacing, i.e. a fear of having insufficient resources (in this instance, foam) to fight a fire. There is also an indication of a degree of conflict between fundamental stories that exist in the organisation, i.e. deeper issues to consider that relate to the problem: First, there is tension between the corporate story and the fire-fighters' story of self. The corporate (or organisational) story holds that decisions are taken about fire and rescue resources and procedures on a very rational basis. For example, examination of fires similar to Bartoline, coupled with consideration of the ramifications of fighting such fires, had result in a 'burn policy', i.e. allowing the fire to burn itself out, rather than risk lives and use environmentally damaging chemicals to put the fire out. Yet the story of self for fire-fighters would presumably see a 'burn policy' as counter-intuitive. The second area of potential conflict arises through an interesting dimension to the conversation, in that there is an element of misalignment between the stated corporate goal (and corporate story) of reducing fire incidents, and the feeling of being valued and valuable as a service (i.e.

the group story). Fire-fighters often referred to a major incident as being a "*good job*", i.e. a serious incident, when their input is vitally important, saves lives, prevents serious economic losses, and fully tests their skills as fire fighters. Thus, a reduction in serious incidents may well leave fire-fighters feeling less valued, and may be responsible for the lower kudos associated with fire prevention when compared to fire-fighting. Individual firefighters would almost certainly recognise the importance of prevention, but group bravado would supress this in a Watch situation – i.e. the *unstated* group story tending to subjugate the story of self.

So it would seem that analysis of these fragments of stories illuminate issues that relate to the problem being addressed (i.e. foam usage), but also reveal other, deeper concerns that exist within the group being studied.

The "*Bartoline*" fragment had a further impact on the 'foam' meeting, as it facilitated a significant shift in focus of the discussion: Prior to the introduction of the fragment, the meeting was focused on which foam to use. Once the fragment was deployed, the discussion moved very swiftly on to a more fundamental debate on how to fight the type of fires where foam is typically used, with the "*let it burn*" approach being explored. While this issue was not specifically in the Terms of Reference for the meeting, given the commitment to a "*Sustainability Agenda*" in the Strategic Plan (Humberside Fire & Rescue Service, 2009, p. 2), it was important that the issue was considered, and I argue that story fragments had the potential to facilitate this.

Further evidence for this capacity of story fragments to illuminate deeper problems is provided by Extract 35 – "Spate conditions, 2007, and the floods" and Extract 36 –

"The impact of 2007" below. In an interview that centred around a discussion on 'spate' (i.e. extreme, prolonged) conditions and progress on deployment of specialist equipment for use in Road Traffic Accidents (RTA's), the fire officer uses the term "*2007*" to represent a period of severe flooding in June and July of that year, in which HFRS was stretched to its operational limits :

Extract 35 – "Spate conditions, 2007, and the floods"

> *Interviewer – ….right, so when you identified these issues with RTA's and spate conditions, as judged by….?*
>
> *Officer – ….our risk assessments from our major debriefs. What we did in **2007** was we debriefed the actual full event…*
>
> *Interviewer – what, you mean the floods?*
>
> *Officer – yes, the floods. Every single crew that was involved in that was sent a questionnaire and they highlighted the failures of the organisation during that period. So any of the failures, and a lot of the failures were in training and equipment, there were other failures as well, but they were the main areas that were shown as concern. We also had failures in policies as well, we didn't have policies written up, so we had to rewrite our policies.*

The term is used again in a later interview with the same officer :

Extract 36 – "The impact of 2007"

> *If we look at the last IRMP, within that we looked at spate conditions. And we used the title spate conditions. For firefighters, they might think, "well what do you mean by spate conditions?" And we're looking at volume of calls. So it could be snow spate conditions, or it could be flooding, or it could be grass fires. So we look at the full remit, and say "where within that umbrella of spate conditions, where are we at greatest risk?" Our greatest risk is the water, because of what happened in **2007**.*

5.2.   Deep-seated issues related to the problem

The officer was able to encapsulate all of the emotion, destruction, and disruption caused by the flooding in the Humberside area at the time with the simple term "*2007*". Indeed, he recognised the term as representative of a key story in the history of the organisation. It could be argued that the term compresses an event that held great significance to the stories of self, group, and organisation, with '2007' being responsible for significant re-editing and realigning of each of the three key stories. Using the term "*2007*" allowed those who heard the fragment and for whom, due to a shared history, it had resonance, to understand the importance of the scenarios that were being described. This included myself, as at the time, I had the role of external assessor of management NVQ's that were being taken by senior HFRS officers. I argue that anyone who had observed the events of "*2007*" would be able to understand the gravitas of a situation that was compared to "*the floods*", and attach appropriate importance to whatever issue is being discussed and compared to that story. Similarly, the term "*spate conditions*" is used repeatedly through the extracts. This term was 'invented' as a result of the internal HFRS review of the 2007 flooding, and is now used throughout the organisation to represent an extended period of any weather-related phenomena (for example, snow, ice, drought, etc.). The fragment would seem to carry all the importance and implications of the '2007' events, and as such, acts as a warning to those who 'hear' it, i.e. they hear the words, and understand their import. Therefore, use of the fragment suggests to listeners that there may be additional, deeper problems to be considered, problems similar to those exposed by the events of '2007'.

So in some senses, when identified and interpreted in this way, fragments and have the potential to act as pivot points for problem solving attempts, drawing attention to

new, unconsidered facets of a topic. However, interestingly, fragments were not always powerful enough to break through into a discourse and disrupt the flow of a problem-solving discussion. They were sometimes overlooked or ignored, with the opportunity to identify a deeper issue with the problem subsequently being missed: In Extract 37 below, a small HFRS Risk Management Team meeting of uniformed and non-uniformed staff, a story fragment emerged that did not deflect the discussion, yet may have pointed towards a deeper associated organisational problem. In this Extract, the core purpose of the meeting had already been accomplished. The discussion had then moved on to general matters relating to the non-uniformed team, and its need for expertise in the use of risk-management software (i.e. FSECT):

Extract 37 – "Concern for the team"

> ***Officer*** *– I prefer if you get the rest of the team trained up… Is there anyone else in there that you can see that actually coming up? That you can train up on it [i.e. the Software being used for the risk assessment],….. or…?*
>
> ***RM – everyone is so busy, it's hard really****.[Fragment 1]*

[This fragment raises the issue of the workload and morale in the non-uniformed team, but this is overlooked by the officer.]

> ***Continuing…. Officer*** *– I know, it's not easy*
>
> ***RM*** *– we've got, well, there's a post been advertised for my old job so…*
>
> ***Officer*** *– is K going to apply for that?*
>
> ***RM*** *- she has applied for that*
>
> ***Officer*** *– has she? Right, so there is potential…*
>
> ***RM*** *– at first it will just be getting up to speed with everything, but…*
>
> ***Officer*** *– what grade will she be going on to? Will it be grade five?*
>
> ***RM*** *– yes*

> **Officer** – *right, so will it be enough to get her to stay in the…*
>
> **RM** – **I don't think she'll stay that long to be honest, but***…[Fragment 2]*

[RM provides another fragment that implies that there is an issue for the Officer to address, but again, this is overlooked.]

> **Continuing…. Officer** –*… Ah well. we'll have to wait and see on that one. It'd be a pity really, because she's managed to pick the stuff up pretty quick.*
>
> **RM** – **J's gone part-time now though, so there's the other half of her job to cover as well.***[Fragment 3]*

[A final fragment is contributed, but the officer quickly moves to close the meeting.]

> **Continuing…. Officer** –*… Yes. Aar, I didn't realise J'd gone part-time…. Right. Well, if there's nothing else then, I will chase,… I'll email you this stuff. Could you send me your other one with this stuff as well? And then what I'll do is when you're away next week, I'll run all those scenarios, so that when you get back, we'll organise another meeting, if N is available, we'll confirm like for like, and then what will do is we'll have a look if anything else has happened during that time. Okay.*

In this instance, whether deliberately or by accident, the fire-officer leading the meeting did not respond to any of the three fragments that were offered to him by his non-uniformed colleague relating to deeper problems within the risk management team, specifically low staff morale and high staff turnover. Sensitivity to the story fragments in the conversation could have conjured up images of a dissatisfied non-uniformed workforce, and presented an opportunity to explore the causes of this unrest.

So it would appear that story fragments have a part to play in identifying organisational issues that are different and go deeper than the problems that a team or meeting may be addressing. In HFRS parlance, "*Bartoline*", "*2007*" or "*the floods*",

and "*Buncefield*" are examples of story fragments referring to highly significant events in HFRS history, and would seem to induce reflective behaviour in those who understand the reference. For a facilitator who is conditioned to identify story fragments, such antes provide a lever that could be used to help to explore the central problem, and indeed connected problems, in more depth. The possibilities for operationalising this finding are considered in Section 8.2. The Implications for Practitioners, on p. 328 below.

5.3. Encouraging broader perspectives on problems.

So far in this research question, I have discussed how story fragments have the capacity to initiate consideration of the true complexity of a problem, and to uncover different issues that contribute to the core problem that an organisation is attempting to resolve. Essentially, these are providing depth of understanding, rather than breadth. To provide some balance, in this section, I focus on the role of story fragments in encouraging broader viewpoints on problems, and examine the 'broadening' as opposed to 'deepening' capacity of these antes.

This aspect of problem solving behaviour is particularly difficult to evaluate in the absence of reliable methods and metrics for assessing an individuals' perspective, or for tracking changes in mind-set. Therefore, to explore this assertion, the data was examined while paying particular attention to the changes in the direction and tone of a discussion as a fragment appeared. It proved useful to identify where the data seemed to fit in the creative problem-solving process model offered by Isaksen, et al., (2011, reproduced in Figure 10, p.93), specifically 'Understanding the Challenge', 'Generating ideas', and 'Preparing for Action'. This provided some structure for the

analysis, and facilitated the identification of occasions when, to a greater or lesser

extent, story fragments had an impact on the perspective adopted by problem-solvers.

From the research data, it appeared that story fragments appeared most frequently in

the 'understanding the challenge' phase, and therefore this section looks more closely

at this important aspect.

As we saw in Section 4.1. (p.143), storytelling in general, and story fragments

specifically, appeared to be more important as problem-solvers attempted to

understand a problem. For example, when data was being collected, if narratives were

solicited, tellers would typically begin by using stories and fragments to help the

researcher to 'understand the challenge' (see Figure 10, p.93) that they had faced

within the narrative they were retelling. In doing so, they would present the 'facts' (as

they perceived them) of the event in such a way as to present it as single true, and

"*chronologically connected*" (Czarniawska, 2004, p. 17) version of events, suggesting a

structured problem to which they themselves were either the solution, or had a

solution to offer, i.e. in an almost heroic role.

In Extract 38 below, the interviewee, having been asked to give examples of the

problems she was having on a particular change management project, describes the

problem and her role, and explains her observations:

Extract 38 – "Solutions and behaviour patterns"

> ***Interviewee*** - *…And I just sort of said [to the senior managers in the
> organisation she was consulting to] "these are just observations" basically,
> everyone seems to be so set in their way of thinking, their behaviour
> patterns, errm, because that's the way it's always been, or the way they've
> always done it or whatever; no one's actually listening; it's like selective
> hearing. People might be coming up with some suggestions that are way
> wacky, but they're not being discussed. And then [I was saying] sort of*

"Why do you think this'll work? Is it because of this? Perhaps there's a gem or a nugget there that we can extract from that, and then think about that in a different way?"
It's [i.e. the idea] just instantly dismissed, because it's not "the way" or not what we're used to, or what we're used to, or how we do things.....

Interviewer - or maybe requires them to do something now, take a risk?

[The interviewee is recognising that her own fragments could help to induce a different perspective on the problems – this is highlighted by the interviewers' response.]

Continuing …. Interviewee - maybe yes, so I actually pointed this out as an example. I said, "I'm not having a go, or anything, or snigglling anybody up, just as an example, there is a particular issue here, sounds like you had a short-term solution, it's not the ideal solution, but it's something we could do now, that would have an impact now, and also has the added benefit of sending out a signal that "things are changing" to the workforce that might be resistant to the handheld technology and stuff. We could sort of sell this as stage one, "we are now doing this".
[the staff would say] "oh crikey! They're doing something".

[Again, this recognises the potential for a symbolic act to have a significant impact on the perspective of problem-solvers, that a small action in an organisation can have a substantial impact on the perspective adopted by its members.]

Continuing …. Interviewee - So, it sent out a good message, as well as solving a practical problem. And I rang him up the next week, and yes, they are doing that. So that worked, I thought "Chink! We're in there!", but then it sort of stalled again. But it was just pointing it out, that it [the idea] was dismissed without even being listened to, [not even] just for one second. Just, [I had to take a] deep breath, step back,.........[and get them to ask] "why not?"

Interviewer - Clearly they were unaware of their own behaviour.

Interviewee - Yes, very much so! And I think as a group. It just reinforces it, doesn't it? That did seem to shake things up a bit, which was very invigorating, and was the start of "Right. Now we can start chip away".

5.3. Encouraging broader perspectives on problems.

The interviewee recognised in this extract that her own story fragments had had a significant impact on the thought patterns of the staff she was trying to manage. However, as the interview progressed, she revealed that this change in perspective was temporary:

Extract 39 – "Too much change for *them* to handle"

> *Interviewee - I don't know if they subsequently had a meeting of their own [interviewee laughs], but with the moving depot and the announcing of a restructuring, everything immediately reverted back to type, because obviously people are now scared. People immediately went back into the silos. Resistance went up again….. The timing of it!!*
>
> *My thoughts were that they were trying to do too many things at once, so the depot move, the restructuring, the introduction of a handheld [diary device], they're still recovering from a SAP implementation, [the changes brought by] my processes and procedures which they're meant to be introducing; there are some other internal changes that are going through as well, and my boss is very excited because he sees them all coming together, and they all come together at once, and at that moment he can then turn round and say, "I told you it would be better!" Because he can see strategically, he's an ideas person, a visionary; he can see all of these strands coming together, bloody cracking [i.e. understanding, turning round] that business, but I think, my opinion is that, I can see it and I share the vision, and it's fantastic, but all the other guys can see is job losses, really.*

The implication from the interviewee was that she had the solution to the organisations' problem, generated from the skillset that she identified for herself earlier in the interview, but that other factors were blocking her influence. However, the storying process could be argued to be facilitating the discovery of different options to confront the problem. The interviewee recognised that 'reluctance to

change' was a generic problem that needed to be addressed, and she posited different causes of this. For example, issues such as the outcome of other meetings, a lack of understanding of the changes, or simply the volume of change, were all considered as potential causes of the reluctance of staff to embrace change, and as such, broadened the perspective through which the problem was viewed.

The phenomenon is also apparent in the solicited story in Extract 20 – "Transgender and the 'toilet' issue" (p.186), where the HR professionals who were interviewed presented themselves as occupying 'the moral high ground' in an issue of sexual discrimination, while their comments hint that this may not be entirely consistent with their instinctive reactions. The storying process, petitioned by the interviewer, could be argued to have encouraged the interviewees to confront their own prejudices that were exposed through their retelling of conflicting 'stories of self'. This, in effect, encouraged reflexivity in the storytellers, and reflection on the situation being storied, with the result that they could be better able to 'understand the challenge' they were trying to address, and as such, broaden their perspective on the problem they were considering.

This is a particularly interesting observation, as it raises the possibility that fragments can create pivotal, critical moments in the problem-solving exercise, just as the context for the activity is being determined. Introducing different story fragments at this stage may well lead to different stories (and indeed, prospective narratives) being constructed, which if used in a structured way, could allow broader perspectives on a problem to be explored.

5.3. Encouraging broader perspectives on problems.

This capacity of story fragments to encourage problem-solvers to adopt a different perspective, also interacts with the process of storytelling to lead to improved problem identification. This can be seen in two further areas of the data: First, in Extract 26 – "Where I go next", (p.199), the chief fire officer for HFRS recognised that the process of storytelling provided a lens through which to view and identify that a problem existed, specifically, the powerful organisational sub-culture described as the "*watch culture*", commenting *" .....this is where I need to go next."*

Second, in the HFRS meeting on foam usage, the apparent contribution made by story fragments in the 'understanding the Challenge' phase of a problem solving exercise can be seen throughout the meeting. The appearance of fragments in the discourse seems to coincide with repeated efforts to make sense of the ill-structured problem being tackled. As the problem was discussed, these 'snippets' of stories were introduced by participants, for example in Extract 1 – "Foam meeting gets underway", p.144 where various comments such as "*the head sherang*", "*your 'regional' kind of thing*", and "*Sales blurb*" are used, and in Extract 8 – "Foam meeting introduces Buncefield", p.157, when the name "*Buncefield*" is used as the group is attempting to 'frame' the problem they are addressing . In other words, they used fragments of stories in sensemaking, and did so in a way that created the 'feel' and perspective that the teller wished, and different fragments privilege different perspectives. The fact that the fragments appeared in clusters is consistent with Boje's work, as he recognises that telling one story leads to the need for telling of another, and of a dialogue of stories being initiated (Boje, 1991, p. 107).

It would appear then, that once started, the process of introducing fragments may begin to self-perpetuate. This could be a valuable part of an ill-structured problem

solving process, as particularly in this initial phase, encouraging a diverse range of perspectives on the problem is likely to spawn a wider range of potential answers.

However, there may be a tendency for participants to be led towards only contributing stories and fragments that are consistent with the evolving group story, and as McFaedzean's work (1998a) on CPS suggests, this diversity of ideas can be very difficult to achieve in relatively traditional and risk-averse organisations. It may be that story fragments could provide a more palatable, less threatening vehicle to introduce more creativity into this process.

This tendency was observed in the Fire Authority Meeting transcribed in Extract 40 below. In this meeting, members of the Authority (who are elected members of the local borough councils) debated the merits of different transportation arrangements in relation to changing the location of meetings. The problem is essentially well-structured in that the objectives are clear, the dimensions to the problem are static, effective solutions have been offered that have been applied in the past to similar situations, and there is little complexity to the situation. Yet the introduction of story fragments does not seem to promote expansive, divergent thinking in the same way as was evident when they were deployed in ill-structured problem solving. Indeed Fragments 2, 3 and 4 contribute to a solution narrative (identified as 'Narrative 1' below) that is put forward by Member 2 in the early stages of the discourse:

Extract 40 – "Fire Authority members and transport"

> *Member one – it would make it virtually impossible for me to get there [i.e. to a meeting at Bridlington or Barton Fire Stations] unless there was some type of arrangement [**Fragment 1**].*
>
> *Chairman – right*

> ***Member two*** *– we've discussed it before, chair, and as with other previous exercises away from here, transport is no problem for those people who don't drive: we've said, "it can be arranged"…. It can be arranged to pick people [up] from headquarters or wherever, and transport them across. We have got vehicles available, as the chief has explained before. So, it isn't the problem with transport at all. Getting people across to the other side [of the Humber Estuary]. And I think it's only fair that we should be able to do it. We have got facilities across at Northeast Lincs, and I imagine North Lincs have as well. So I don't think there's any problem with transport.[**Narrative 1**]*

[Here, Member 2 attempts to provide a narrative solution to the problem]

> ***Continuing ….. Member three*** *– there is a shuttle bus that goes across the Humber Bridge every half-hour. I don't know where it drops off….[**Fragment 2**]*

> ***Member two*** *– if it's a case of having meetings in another place so that we can visit other fire stations and CPUs, then I can understand it [the desire to change venues]. But if it's simply convenience for members, then I can't understand it. Having it in Grimsby is just as bad as saying let's have it in Bridlington. It's 35 miles to Bridlington from here, it's 20 odd miles to Grimsby from here. So travelling distance is difficult for anybody. This seems to be the most sensible place in terms of travelling for everybody.[**Narrative 1 continued**]*

As already stated, to this point, the problem being discussed is essentially well-structured. The two story fragments introduced do not fundamentally change the debate or the narrative 'plot' or pattern that is put forward by 'Member Two' as a potential solution to the perceived problem. However, comments in Extract 41 (below) that followed on immediately from Extract 40 – "Fire Authority members and transport" in the Fire Authority debate, seem to encourage a wider view of the problem, and indeed brought about a more fundamental reflection on what the true problem being addressed was :-

Extract 41 – "The 'real' issue for Fire Authority members transport"

> ***Member four*** - *just picking up on that, I think it's a governance issue.* [***Fragment 3***] *It's about trying to engage with residents, and as we've said previously, the fire authority is accountable to the public, and we should think seriously about it.*

> [Fragment 3 is a powerful intervention and causes a significant disturbance in the meeting. It represents both a different perspective on the problem and encourages further new perspectives to be considered.]

> ***Continuing…. Chairman*** *– [has to call the meeting to order]*

> ***Member five*** *– we're talking about these meetings in terms of convenience for the members [of the fire authority]….. we should be talking about convenience for members of the public!* [***Fragment 4***] *If 10 members of Northeast Lincs constituency want to come here, that's also 10 lots of £2.70 [the Humber Bridge toll] they've got to pay to get over this bridge. That's not the sort of penalty people on the north bank have. It's only fair that some of the fire authority meetings, and we are not saying every other one, but maybe one a year should be held on the South bank. So if members of the public want to attend the fire authority meeting, then they are not disadvantaged in doing so. And I think that's what we should be looking at.*

> ***Member six*** *– I hear what you're saying, but I have to get two buses to get here. I would have to get up at five in the morning to get there [Southbank] for 10:30. But listening to member two, I didn't know there was other arrangements here. I didn't know we could get a lift from here. I can always get here….*

Fragment 3 is an interesting example of the power of story fragments, causing a

significant shift in the discussion, and leading to the, somewhat self-righteous

deployment of Fragment 4, i.e. "….*we should be talking about convenience for*

members of the public!". While this is a powerful point, the reality of attendance by

the general public at fire authority meetings is that there are rarely any present (a

point confirmed in the second wave of data gathering), yet this fact does not reduce

the impact of the story fragment on the course of the solution finding process.

The Chairman drew the discussion to a close, making it clear that other items on the

agenda were far more important than the travelling arrangements of members, and

that the group could make arrangements outside of the meeting to accommodate

everybody. He also made the point that the minutes would reflect that the meeting

discussed travelling and "*the cost of a bus fare*", implicitly recognising that this

particular fragment of the narrative of that meeting would not reflect well on the

members. As such, his actions suggested that he inherently recognising the power that

the fragment would have when it appeared in the Minutes of the Meeting.

It is reasonable to assume that the participants in the debate shown in Extract 40 and

Extract 41 above, from their own personal, monological perspective, were considering

the problem as being well-structured – the solutions, for them, are obvious, and they

'arranged' stories and fragments to support their solution narratives. This is perhaps

typical of this type of forum, where participants have their own personal or political

agenda, and privilege this over the 'general good'. Indeed, it may be a feature of the

characteristically adversarial nature of meetings involving local politicians. From a

problem solving, reflective perspective, it can be argued that the exchange

demonstrated an innate desire in participants to construct narrative solutions (Boje,

1991; Brown, et al., 2005; Czarniawska, 2004; Guber, 2011). Logically, in well-

structured problem solving, there is little effort needed to understand the problem,

whereas when the problem is 'wicked' in nature, identifying and comprehending the

problem is extremely difficult, and it is perhaps here that story fragments have a

greater value.

5.4. Summary of Research Question 2

The purpose of this question was to investigate the role that story fragments, as distinct from other forms of storytelling, played in everyday problem solving processes:

The evidence suggested that story fragments emerged when the causes and effects of a problem were not clear, were not fully understood, and the route towards a solution could not be identified, i.e. when problems were ill-structured, or wicked. This may well have a subconscious dimension to it (Freud, 1900), and it may be that story fragments surface when members have not been able to verbalise their concerns over other issues that relate to the problem being discussed – concerns that are not directly mentioned in their everyday discourse. This is perhaps to be expected when considering ill-structured problems, as they are, by definition, difficult to 'map', rationalise and encapsulate, and a case could be made to claim that story fragments provide a communication route from the subconscious mind, just as the literature suggests they are a route into it. In this way, the concerns of participants emerge as fragments of stories, and have the potential to influence potential solutions.

Typical responses from problem-solvers as these fragments emerged seemed to be to attempt to impose a structure that would allow traditional, rational problem-solving techniques to be applied, without considering the rationale behind this learned behaviour. I suggest that simply noticing the occurrence of the phenomena would have significant value in terms of helping problem-solvers to recognising the need for a different approach to finding a solution.

Fragments also seemed to play a role in exposing additional, deeper dimensions to problems that could easily be missed if a more superficial approach was adopted. Given that the literature often links storytelling to the subconscious mind, it is reasonable to assume that stories, and specifically their fragments, provide a conduit for expressing concerns that problem-solvers may have about the issues, but that they may not be able to consciously verbalise.

Not only did fragments seem to encourage deeper consideration of problems, they were apparently also involved in encouraging individuals to think more widely about the issues, and as such, have the capacity, not only to contribute to a deeper understanding of a problem, but also to stimulate the contemplation of a wider range of solutions.

When fragments were introduced into a discourse, it was predominantly in the 'understanding the problem' phase of CPS and to a lesser extent when 'generating ideas', yet they were noticeably absent when problem-solvers were 'preparing for action'. This is perhaps not surprising given that both the data and literature suggest that we have a natural affinity for solution *narratives,* which provide (potentially false) certainly, rather than raising new doubts. It also suggests that story fragments appear more frequently and vividly within the problem-solving process when the level of uncertainty rises, and that this aspect is more significant than the specific stage within that process at which they appear, or when particular genre of problem are being solved (for example, relating to production, people, marketing, etc.). It was the generic degree of difficulty and uncertainty being faced that seems to be a major determinant. This has implications for the importance of facilitating the input of appropriate,

constructive, value-adding story fragments when they are needed. Supplying a credible

and comprehensive framework through which this can be delivered, and incorporating

a method by which fragments can be coagulated into a story that inspires and directs

action, could conceivably be an extension of this study, and will be considered in the

conclusion to this thesis.

Chapter 6 – Findings and Analysis of Research Question 3

6.0 – How do storytelling and story fragments affect the dynamic of ill-structured problem solving?

From the data explored so far in this thesis, the 'content' of story fragments, i.e. the words that are actually spoken, would seem to be important in solving wicked problems. However, they would also appear to have a significant role in the problem-solving 'process' i.e. how solution-finding attempts are performed. With this third research question, I extend my exploration into this process dimension. Here, I move on from examining the broad role of storytelling in ill-structured problem solving (i.e. Research Question 1), and the specific part played by story fragments (i.e. Research Question 2), to now consider the impact that these phenomena have on the social and organisational dynamic, i.e. the processes by which difficult, wicked problems are raised, evolved, and ultimately, solved. I will argue that the fragments, stories and narratives that were shared in the data were instrumental in both the content and process of problem solving – in other words, they affect the 'dynamic' of ill-structured problem solving.

As discussed in Section 2.4.3, p. 90, the mechanisms involved in problem solving through storytelling are similar to many creative thinking and CPS techniques. We know from research into CPS that the context in which the process takes place is important to the outcome of the exercise (see Figure 11 on page 97) , so it might be expected that the context and conditions in which problem solving through storytelling takes place are equally important to the approach, and this assertion is discussed here.

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To investigate this dynamic, the data was explored specifically with a view to identifying the impact of storytelling and story fragments on the broader context in which the problem solving activity took place. While the research evidence provides some clues as to this impact, it is recognised that, given the ethnographic style of this study, the process by which the fragments were created and introduced into the proceedings was not controlled by the researcher. That said, those contributing the storied content in meetings and discussions may well have done so 'deliberately', but without conscious consideration for the wider impact the stories may have on the problem-solving process. In this sense, it can be argued that storytelling and specifically story fragments were deliberately 'used', as a conscious decision was taken to introduce them, although it is unlikely that the introducer would have considered the full impact that it might have on the processes involved. For example, within the training scenarios that were observed, story fragments and other antenarratives were on occasion, introduced with specific purposes in mind, including the intensions to both help and hinder the trainees. This question therefore explores how fragments of stories were 'used' in this way, and what impact they had on the dynamic of ill-structured problem solving.

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6.1. Affecting the receptiveness of problem-solvers to the adoption of new perspectives.

While section 5.3 discussed how story fragments enable new perspectives to be considered, in this section, I look at how fragments and storytelling generally help problem-solvers to accept and use these new perspectives. Although in everyday language this is might simply be described as 'dropping hints', using story fragments to encourage listeners to consider and accept a new direction can be described as being particularly subtle in its effects. Denning (2001) argues that stories must give the listener the mental 'space' to imagine themselves within the story they are hearing if that story is to be the catalyst in bringing about a desired change, suggesting that people prefer to decide for themselves to change, rather than be told to do so. As such, fragments of stories may well fly lower "*under the radar*" than narrative and stories, as Brown, et al (2005, p. 169) discuss and Gabriel (1999) might suggest. That said, on occasions, fragments were used conspicuously by instructors to direct attention to specific areas of a scenario, for example, in Extract 9 – "Garage Fire – Persons reported", (p.162), with the use of the fragment "*persons reported*", and again in Extract 11 – "Garage Fire – cylinder concerns", (p.165), indicating the importance of "*cylinders*" in the Garage fire. In doing so, I suggest that the intention was to manipulate the way in which the problems were being perceived i.e. to affect the dynamic. The goal of the instructors was to lead problem-solvers to a pre-determined 'correct' solution through a relatively unsophisticated, controlling intervention. A problem with this approach is the question of being able to predict how individuals will react to the fragments that are offered to them with the scenario. Some may comply with the implicit message within a fragment, while others may choose to ignore or rebel against it, possibly seeing the fragment being offered as an attempt to mislead

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them, or to test their deductive powers, and as a result, go in search of less obvious solutions. This informed use of fragments has the potential to lead to a greater level of engagement, creativity and commitment to solving a problem, and the adoption of a different mind-set by the trainee.

This capacity of storytelling and story fragments to facilitate the acceptance of a different perspective is seen again in Extract 17 – "The 'stay in' policy" (p.178), where two incident commanders postulated over the likely action of tower block residents in the event of a fire. In essence, they were using their experience, empathy and opinions to 'story forwards', i.e. to construct a predictive narrative, attempting to explore the potential problem and formulate a solution narrative that provides (potentially false) boundaries to the problem, but enables them to develop a plan that could be enacted should the need arise. They arrived at the conclusion that a different and poignant story, captured by the fragment "*9-11*", was more likely to influence the behaviours of tower-block residents than some abstract policy produced and distributed by well-intentioned tower block safety officers. So here, it can be inferred that the factual, evidence-based, physical existence of a new "*stay in*" policy (see p.178) is unable to overcome a particularly resonant story fragment, a fragment that in effect, provides a different (and here, apparently irrational) perspective through which residents perceive the fire risks to themselves.

This is not to suggest that the value of stories, fragments or other narrative input cannot innately be recognised by problem-solvers in terms of their contribution to generating different, yet palatable perspectives. For example, in the 'Tower Block' fire simulation, an experienced incident commander undergoing 'refresher training' took a

particularly belligerent approach to dealing with an instructor who was playing the role of a resident in the exercise. Responding to continued complaints from the 'resident', the incident commander continued, saying " *f**k off now, or you will see the f**king police officer and he'll f**king arrest you for getting in my ear [i.e. way]*!"

There are a number of potential perspective-changing messages here (other than the obvious, literal, and offensive one): First, a story of self is being evolved and retold, focusing on a sub-text to the dialogue which relates to power and status, rather than on how to resolve the problem being faced within the scenario. This is significant, as if the comments from the 'resident' were to be made in a real fire and rescue incident rather than a simulation, the consequences of any distraction could be life-threatening, albeit highly unlikely that experienced officers would allow this to happen. However, it does perhaps explain and justify the authoritarian operational command structure typically found within fire and rescue services.

I suggest that within the brief exchange was a 'power' message from the incident commander to the instructor, saying '*I'm more important than you*'. The message, or threat, was transmitted through a prospective story fragment that implied that the instructors' character in the simulation would be arrested if he did not comply with the incident commanders' instructions. In effect, the fragment was intended to encourage the 'resident' to 'story forwards' to a potential future that would alter their current perspective. Second, there is an element of knowledge transfer. The incident commander is informing all those listening by seeming to claim that, while fire officers may not have the same powers of arrest as the Police, they typically have their unquestioning support. Again, it could be argued that there is an implicit 'power' message saying '*the Police will do as I tell them*', developing the story of self, and

6.1. Affecting the receptiveness of problem-solvers to the adoption of new perspectives.

influencing the willingness of listeners to accept the incident commanders' perspective of the problem.

Finally, there is a tacit recognition of the inadequacy of the scenario, as it is unlikely that the officer would respond to a member of the public in such an aggressive and rude way. Overall, the contribution by the incident commander undermines the credibility of the scenario as a training tool, affecting the perspective of all other participants and observers present, potentially moving them towards the negative view of the simulations that he had repeatedly expressed. Indeed, in the debrief of this particular training exercise (shown in Extract 42 below), the two incident commanders who had been involved discussed their performance in the scenario with the instructors; the abusive officer specifically identified a weakness of the training scenario as being the lack of credibility of the story fragments that are introduced by the instructor. I suggest that the abusive fragments contributed by the incident commander (on page 234 above) could have been an attempt to influence the context in which he planned to put forward his views, improving the likelihood that others would support his perspective. And as Extract 42 suggests, his approach may well have been successful, with the instructors choosing to avoid taking him to task on his views of the scenario-based training:

Extract 42 – "Tower Block resident abuse debrief"

> ***Instructor 2*** *– I hope when I'm doing my role-play later on, I don't get the same sort of abuse as you gave to that poor bloke! [General laughter]*
>
> ***Instructor 1*** *– what's this about telling some poor bloke to 'get lost'?!*
>
> [Various banter followed, relating to the way that the Incident Commander had spoken to the 'resident', with a fellow commander defending his colleague, jokingly]

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> ***Continuing….. Incident Commander** –[interrupting]… I'm sorry, but his attitude was wrong, therefore my attitude was like-for-like.*

> ***Instructor 1** – in some of these places you are going to get awkward people, …*

The discussion led to further stories of unusual incidents and dealings with difficult members of the public being shared, with one story leading to another, as Boje (1991) suggests is the natural flow of storytelling. As such, this allowed the discussion to consider problematic issues other than those intended in the scenario, and different approaches to resolving these, arguably paving the way for a more receptive response to new perspectives on them.

The perspective changing impact of storytelling was evident in a further problem-solving scenario, described in Extract 12 – "Barn Fire and the farmers' tractor" (p.166). In this simulation, the instructor shared multiple fragments with the trainee, supplying information that had (thinly veiled) serious and dangerous consequences for the success of the operation if they were to be missed or misinterpreted. The objective would seem to be to encourage the trainee to contemplate a range of potential problems, rather than to see the problem as simply putting out the fire. Creating fragments in this particular context, i.e. a training scenario, was an attempt to recreate the conditions that may be faced 'in-the-field', albeit as we saw earlier, there is some disagreement as to how successfully this can be done. Analysis of Extract 12 – "Barn Fire and the farmers' tractor" suggests that some of the information delivered to the trainee was in such an obvious and unnatural style that it becomes difficult to describe the scenario as a 'simulation'. For example, the instructor made direct and unsolicited reference to "*fertiliser*", having already explained that diesel fuel was spilt and was

alight in the barn. It is well known in the fire service that mixing diesel and nitrogen-based fertiliser creates an explosive compound. The fragments here were, to some extent, scripted ahead of the training event, lending weight to the assumption that not only were the training scenarios being treated as structured problems, but that fragments were implicitly recognised as being capable of creating a particular perspective, and that this could be done in a controlled and deliberate way. The effect seems to be to encourage the development of a 'correct' perspective, similar to the role of storytelling in building support for ideas (discussed in Section 4.3 on page 170), yet provides a contrast with the observation in section 5.3 on page 216 of this thesis, where fragments seem to play a part in expanding the range of possibilities being considered. This suggests that there is some flexibility for the role of story fragments in solving problems, and that in natural use they have the capacity to fulfil more than one function. Any 'intervention' that was designed to use fragments would need to consider this carefully. Indeed it reminds us that 'noticing' story fragments is important in problem solving, and that we must consider how they are impacting on the process.

While storytelling and story fragments seem to have the potential to be valuable when deliberately used in problem solving interventions, deployment is likely to be difficult. As various authors testify, we have a natural tendency to favour certainty over uncertainty, to prefer security over risk (Alpaslan & Mitroff, 2011; Manns & Rising, 2005; Black & Gregersen, 2003). This is supported by the research data. For example in the Extract below, a linear problem-solving approach is set out by the Chairman of the 'foam' meeting:

Extract 43 – "Setting the 'foam' agenda"

> *What I did propose to do, was to go through the terms of reference, and let everyone say their bit, what they're going to bring to the table, and then try and make a few decisions from there.*

The introduction of a story fragment at this stage may have developed a context in which a different perspective could be accepted by participants and adopted throughout the meeting, but I would argue that such a step would be contrary to normal chairmanship, where 'best practice' is to set out a prescriptive agenda, and ensure the members adhere to it.

So while there are doubts over whether this particular finding from the research has a practical application, it would seem that storytelling and story fragments have the capacity to facilitate the adoption of different perspectives on a problem.

6.2. Change the tone and style of communication.

Just as I have claimed that antes can change the perspective of those involved in a problem solving exercise, my analysis of the data suggests that the tone and style of communication, or 'atmosphere' of an interaction can also be affected by the use of storytelling and story fragments. As such, they are important to the dynamic of the problem-solving process. Multiple examples of this were collected in the research, with inputs that were both related and unrelated to the core discussion topic having an impact on the prevailing style and tone of the interaction.

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The effects included, changing the perceived importance of the problems being addressed, releasing tension, encouraging communication, and changing the focus of the meeting.

For example, in Extract 21 – "The foam meeting – banter or power?"on page 190, the chairman impacts the problem-solving atmosphere by inferring that "*T*" was central to the meeting, and by implication, was more important than other attendees. It could be argued his comments feed into a recurring story that runs through the meeting that, subconsciously, reduces the perceived need for those present to make a decision. While the chairman states, "*erm, I know we're under a little bit of, erm, 'pressure' shall we say, to at least get some interim proposals out.*" (see p.144) his earlier comments relating to the absence of 'T' imply that a decision cannot be taken without him. It is also perhaps significant that the fragment "*interim proposals*" is used, rather than something more committed and decisive, again suggesting that there is an inadvertent attempt to reduce the importance of the meeting.

Many of the themes of changing the tone and style of communication are evidenced in Extract 44, Extract 45, and Extract 46 (below), all taken from the same 'foam meeting' where the team continued to discuss the occurrence of fires that needed foam to control them:

Extract 44 – "Using foam for aircraft"

> **FF3**….. *From there it's just bits and bobs – we tried to break it down in each area, Scunthorpe, North Yorkshire, one at Central, and the rest of them are lagging at Drax. It's trying to decide what sort of fire we're looking at in the sort of incidents. But obviously we use [it for] car fires, and foam blankets are the ones we are hitting….. the vast majority. And then we have had various other little tiny…*

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> ***O1*** *– [looking at the statistics] …Gorr, you've had a lot of aircraft crashing in your area, Steve! [general laughter]*
>
> ***FF3*** *– there was one of them bounced up in Scarborough area,…*
>
> ***Chairman*** *– are these the little micros?*
>
> ***FF3*** *- yes, they're not particularly…, they're not proper aircraft…*
>
> ***FF5*** *- we don't realise what diversity we've got out there, do we?*
>
> ***FF2*** *– [joking related to the "proper aircraft" comment] they used to have them at Driffield [a local former World War 2 RAF base], years ago!*

The light-hearted references to incidents where foam had been used had the impact of lowering the relative importance of these incidents, perhaps justifiably. While there is potential to see this as trivialising an important debate, it could equally be seen as reducing the paralysis caused by the fear of making a mistake. The 'lifting' of the atmosphere by the introduction of these stories and fragments seemed to facilitate the expression of more radical ideas that might otherwise have been considered to be at odds with the core theme of the meeting, but that are potentially important in ill-structured problem solving. Extract 45 (below) continues from Extract 44, and further demonstrates this point:

Extract 45 – "Do we need foam?"

> ***Chairman*** *– I think it's quite important that we consider the distinct lack of incidents that we've had. I know obviously, touch wood, that's exceptionally good that we haven't had that many incidents where we needed to use foam, over a ten-year period. So should we not now base our risk assessment on the fact that we don't have a particularly large amount of…*
>
> ***FF2*** *- you could also probably look at them Tony, and think, we used foam because it was there, but when you look at some of them you think you've wasted a combine harvester…. [I.e. the foam has not been necessary and*

damaged the vehicle it was used on] and think, "water spray would have done in there" ….

FF5 - … I would think a lot of times, we thought "its fuels gone, let's put blanket of foam down"….

Chairman –… And how many of these are for NVQ purposes?! [General Laughter]

O1 –…. Causing a plane crash [to generate NVQ evidence]!!

From a reflexive perspective, the comment relating to NVQ evidence is also probably

influenced by my presence as the researcher, given my former role as the NVQ

assessor for the chairman and other members of the group. However, these fragments

lead to a surprising revelation about the core topic of discussion, namely that incidents

requiring foam are rare:

Extract 46 – "We don't need foam!"

FF3 - the number of car fires may have skewed … [the figures]. When we would normally have used a head reel spray [i.e. water], we've used CAFs [i.e. foam] because of NVQ…

Chairman –… Yeah, it's unit five! [flippantly]

FF3 – and a lot of the vehicles, they are scrap, they're derelict, scrap vehicles, so…

O1 –… So a burn policy would be more appropriate

FF3 - or a spray, or 45's [hose size] at the most

O1 – so in the 10 years then, without CAFs, I've got 110 incidents?

F3 – yes

Chairman – which is what? 10 incidents a year?

FF2 - … And were carrying 100,000 quids worth of stock…! Why are we carrying that?!

O1 – absolutely

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> *FF5 - … When it's got a shelf life, a life expectancy!*

> *Chairman – I think we're all agreed that, according to the stats, we can reduce the bulk stock that we're holding for our own purposes.*

From my perspective as researcher, there was a palpable change to the pace and tone of the meeting when the primary focus changed within this Extract. Prior to the participants introducing their own story fragments, there was a sense of seriousness and confusion in the meeting, as the group procrastinated over a range of operational concerns, such as the choice of foam, its environmental impact, the ability to apply it, the cost, storage and so on. After various antenarratives were introduced (i.e. the jokes, the 'what if's, and the terse comments etc.), the tone shifted to a much lighter, almost relieved atmosphere, where a 'no-change' decision was acceptable. I argue that these fragments and stories were instrumental in facilitating the change in tone, and the subsequent change in direction of the solution-finding. It could also be argued that the dialogue reflects a culture where there is reticence in relation to taking decisions that have a longer-term impact on operational activities. This reinforces two themes that run through some of the evidence, themes that are possibly related: First, as discussed in 5.1 on p.197, it is suggested that some levels of the organisation have struggled with strategic decision-making in the past. Second, the issue of a powerful 'Watch Culture' (see Extract 25 – "Watch culture", p.198) in HFRS is important here. It may be that the firefighters involved in this long-term decision on foam did not want to be held responsible by their fellow 'Watch' members if, in an incident requiring the use of foam, the materials and equipment needed were not available. Both of these themes were corroborated in conversations with senior officers in the second wave of data gathering, and both officers noted that a concerted effort had been made since

the time of the original observations to address both issues, with significant progress

being made.

I argue that the transformational impact of story fragments on the atmosphere of a

problem-solving attempt is tacitly recognised by those in decision-making roles. Two

comments that are made in the meeting between a fire officer and a non-uniformed

risk manager exemplify this: First, in examining the historic statistics on emergency

callouts of senior staff in the 'Risk Management' meeting, a comment was made,

"… obviously there's a blip in 2007…" referring to the extensive flooding in the area in

that year. Secondly, the officer leading the meeting states, *" … I spoke to AC and threw*

a pebble into the water …". There is a subconscious recognition of the power of a

"*pebble*" beginning ripples of change in the organisation, and of the impact of the

"*2007*" fragment. Both of these antenarrative inputs demonstrate a tacit recognition

that they would have consequences beyond that which might have been expected

from such small interventions, and that they would influence the messages

transmitted in a meeting.

A notable exception to the tendency for fragments to change the tone, style, and focus

of a meeting, is exhibited below in Extract 47, where a group was discussing

equipment that firefighters should be provided with by the Service:

Extract 47 – "Buy your own socks"

> ***Officer 1*** *- …. Do we know how many people are asking, or saying they want an additional pair of thick socks?*
>
> ***Firefighter 1*** *– well certainly, ….. I can't speak for whole-time, but the RDS [i.e. part-time] station that I'm on, nearly everyone is wearing some [extra] socks.*

> ***Officer 2*** *– … people are wearing them now?*
>
> ***Firefighter 1*** *- … people are wearing them now! But they are not thermal socks like these are.*
>
> ***Officer 2*** *- yes, I appreciate that.*
>
> ***Firefighter 1*** *- yes, so I think the uptake is going to be quite high, personally, I think we could easily be looking at a pair for everybody*
>
> ***Officer 1 - yes, I don't doubt. My suggestion is I'm sure controversial, but is that everyone should buy their own.…, If they feel they need it.***

[There is a stunned pause in the proceedings as the impact of this fragment takes effect.]

> ***Firefighter 2*** *– [But] they're going to be bringing in football socks, all sorts! Not the standard item.*
>
> ***Firefighter 1*** *- apart from the fact that you haven't got a standard, we're not recognising the fact that …..*
>
> ***Officer 1*** *- I'm saying we get the guys to buy them off us.*
>
> ***Officer 3*** *– but where do you draw the line? Do you start buying your own gloves? That's what we used to do, and it gets… I mean, and I fall into that category. I've got a pair [of socks] very similar to that; I've a pair of gloves as well…, … Shoes….*

The contribution by Officer 1 was delivered in a very dispassionate, cold, and matter-of-fact manner, and appeared to present an opportunity for the meeting to become polarised between officers (presenting the case for organisational cost savings) and firefighters (presenting the case for provision of the best equipment by the organisation, whether that be fire engines or socks). In the event, isolation, not polarisation occurred, and Officer 1 made no further contribution to the rest of the meeting. It would appear that he had misjudged his ability to garner support from those of a similar rank in a meeting that was composed predominantly of frontline

firefighters and experienced officers. Most of the officer constituents had made the difficult transition from first-line to middle- and senior management, and arguably were still influenced by the 'watch culture'. A possible reason for the lack of impact of the antenarrative input by Officer 1 could be that the story fragment was too far out of alignment with that culture and the general mood of the group, and so failed to gain any traction. In fact, it may have damaged the credibility of Officer 1 who offered the idea. This perhaps tells us a little about the importance of how a story fragment, or indeed, a story or complete narrative is delivered: I suggest that the input may need to be delivered by an individual that the target audience identifies with and respects, that it should be aligned (at least initially) with the audiences' own experiences, organisational culture, and views, and that it should demonstrate a connection to a shared goal. This is consistent with observations made by Denning who noted key features of stories that had to be present if they were to induce change (see Denning, 2001, p.197-199). There is also a potential link to the contrast of 'story of self', and the 'corporate story': Officer 1 could be argued to be putting forward the organisational position, while other members privilege the group story of firefighters that, subconsciously at least, depicts them as heroic individuals whose needs in some way supersede the needs of their organisation.

Given the arguments made so far in this thesis relating to antes being capable of changing the focus of a discussion (for example by raising new issues and encouraging new perspectives), it might be expected that story fragments were responsible for significant changes in direction in any given dialogue. Yet when the data in this research was examined through the lens of 'changing the tone and style of communication', significant exceptions were noted. This could be a useful and

constructive finding in terms of deploying story fragments to improve problem solving, as it appears that they may have the capacity for differentiated impacts in different contexts – for example, they do not necessarily take meetings fundamentally 'off course'. The implication is that they could be tailored to suit the different requirements at different stages of different problem-solving process. It is perhaps significant that, as a researcher, I was sensitised to fragments and stories and therefore more likely to notice them and be affected by them, potentially interpreting their impact in a way that would be contested by other observers.

A further dimension to this argument is added by analysis of comments towards the end of Extract 37 – "Concern for the team", (p.214), discussed within Section 5.2 : Within that meeting, a non-uniformed team member from the primary research organisation met with his manager (a uniformed officer). Several story fragments are contributed by the non-uniformed employee that could have been intended to move the discussion on to issues of team morale. For example, when asked to contemplate imminent operational team issues, he commented, "*Everyone is so busy, it's hard really*", and later, regarding a fellow team member, states, "*I don't think she'll stay that long, to be honest*". Significantly, these cues did not bring a response from the managing officer. This could be due to a reluctance to discuss the problem for any number of reasons (for example, the presence of the researcher, time pressure, inability to act, etc.). However, equally it could be that the managing officer was not sensitised to the storytelling cues being offered to him. I suggest that the influence of story fragments and storytelling in general is particularly subtle and therefore more difficult to recognise, and more difficult to counter.

So it would seem from the data that, if noticed, fragments can provide pivotal moments in discussions and provide a lever with which to change the tone and style of a problem-solving exercise. Whether these tangents are explored depends to some extent on how sensitised the tellers and listeners are to the story fragments that are shared.

6.3. Present opportunities to identify weak change signals

As we have seen, the data for this thesis contains multiple examples of story fragments being introduced into meetings and discussions. These fragments did not exclusively relate to the core purpose of any given meeting or discourse, and the phenomenon was not restricted to the primary research organisation, but occurred naturally within the full range of data studied. As many authors have noted, storytelling appears to be commonplace within organisations, and I argue that story fragments make up a significant part of this. While there may be other factors involved in how they influence the dynamic and direction of a discussion, they seem to offer an opportunity to identify issues and agendas that are currently 'off the radar', but have the potential to become important to stakeholders.

A classic example of the benefit of 'noticing' fragments and stories is discussed by Gabriel (1999, pp. 2-4) in his review of the enquiry into the Space Shuttle Challenger disaster, that occurred on January 28, 1986. He notes that in the lead up to the accident, a critical piece of information, presented in a memo 6 months before the ill-fated launch, had been ignored. Arguably the dominant organisational narrative that stated that there were no problems with the Space Shuttle, prevented stories or

fragments that were inconsistent with this view from being 'heard'. Any approach that could help with identifying these weak, often contradictory signals could be of particular interest to organisations who are increasingly recognising the importance of taking notice of small indicators of the need to begin significant change (Kahane, 2004; Day & Schoemaker, 2006; Alpaslan & Mitroff, 2011).

In this research, when these non-core topics surfaced within group meetings, typically they were not marked for further comment or investigation. For example, in Extract 45 – "Do we need foam?" (p. 240), when discussing the use of foam, a fragment is recalled in support of an alternative agenda, specifically that of the value of NVQ training. The fragment originated from the field-experience of the fragment contributor, who recognised that on at least some occasions, foam was being use to facilitate gathering evidence of its use, rather than for purely operational reasons. The comment met with wide agreement from the rest of the group. The reflexive dimension created by my former role as NVQ assessor with HFRS adds an extra layer of complexity to the debate, and may have increased the inclination to bring the fragment into the conversation. However, noticing the fragment provided an opportunity for promoting a discussion on the value of NVQ's, and of training in general, but this 'off-agenda' opportunity was not taken.

Continuing within a theme of evaluating Training and Development activities, in a debriefing session of the training scenario (described in Extract 15 – "Tower Block debrief, ships, and professionalism 1", p.173, and Extract 49 – "Learning by doing – professionalism 2", p.252), the trainees implied that the training system lacks 'realism'. The instructors' response to this is, "*We're going to have to get in touch with Vector,*

because when you click on the press officer, he has a lovely statement to give to them, and he goes "I've checked the bins!"". In using this fragment, the instructor is effectively saying, 'It's the software writer's fault that this simulation isn't very realistic – just look at the mistakes they make! It's not the Training Departments' fault'. I would argue that the instructor is also using the fragment to influence the group story and the story of self, rather than making an observation of a minor fault in the Vector programme. Other factors could also have been responsible for the training quality issue not being highlighted, for example the time, money, and personal reputations invested in the two training systems (i.e. Vector and Fire Studio) are likely to have been an influence, and these could be expected to dissuade the instructors from questioning the value of the existing approach.

The key point here is that the fragments that emerged in the dialogue were weak signals that the methods needed to be changed. I suggest that having participants in the meeting who were sensitised to storytelling and particularly to story fragments could have allowed the important problem of the value of the training system to be explored, raising issues that could have helped to improve the training itself.

The importance of this ability to identify and act upon key fragments was recognised as a critical operational issue for HFRS: An extremely valuable insight into the impact of fragments of stories, and of information more generally, was provided in an unsolicited interview with an officer from the primary research organisation:

Extract 48 – "Which fragments should we react to?"

> *I think one of the hardest things is, we do get a lot of information coming in there, and it's, taking notice, and reacting to what can be a very diluted piece of [information]…. Cos' it's only maybe one or two sentences off somebody, and they may have been in touch with you a dozen times throughout the year, and you might think "not him again!" But it might be something that is quite valid. It's quite difficult to listen to people sometimes.*

The comment exposes a key practical concern for this study in terms of operationalizing the research, specifically, when should problem-solvers be deliberately receptive and sensitised to the powerful, yet hidden messages in stories and story fragments, and when should these be filtered out to allow practitioners to focus on more obvious key issues? Furthermore, if the act of drawing attention to a weak signal is seen as unwelcome, how can individuals be encouraged to do so? While this research provides no clear answers to these questions, the essential first step is to identify the phenomena and acknowledge their potential influence; this at least enables a decision to be made on whether to respond, and allows generation of options to begin.

The value of having participants 'notice' storytelling in this way could have been exploited when, in Extract 53 – "Tower Block caretaker incident", (p. 268) and Extract 54 – "More on the impact of 9/11", (p. 269), the group discussed the policy that suggests residents of tower blocks should "*Stay in*" their flats in the event of a fire. The divergence between the corporate narrative (i.e. the written 'Stay Inside' policy) and the observed, natural behaviours of people in a fire is identified as an issue, but not discussed.

Further evidence on this theme occurred in the 'foam' meeting, when the discussion transcribed in Extract 44 – "Using foam for aircraft" (p. 239) and Extract 46 – "We don't need foam!" (p. 241) began to explore **reducing** the quantities of foam that the brigade should store and use. This contrasted with the initial direction of the meeting, where "*Buncefield*" (see Extract 8, p. 157) and "*Bartoline*" (see Extract 34 – "Beware of Bartoline", p. 209) were powerful antenarrative inputs that moved the debate towards **increasing** the storage and use of foam. I suggest that this reversal in the direction and tone of the meeting was due, at least in part, to the impact of the story fragments that were used within the debate, and that noting the contrasting antes and directions may have alerted the meeting to an emerging ill-structured problem that would require attention, i.e. the contrasting signals relating to whether to increase or decrease foam storage and use.

Weak signals for change were identified in the data in Extract 15 – "Tower Block debrief, ships, and professionalism 1" (p.173). In this example, when story fragments were introduced, the focus of the meeting moved onto the suitability of procedures (i.e. a weak signal), rather than the intended discussion of learning points gained from the training exercise. Noticing the fragment encouraged participants to relate further stories of ineffective or inappropriate procedures, with the result that the conversation evolved and strengthening the signal that there may be a fundamental problem with the way in which SOPs were crafted.

This rich data captured from the debrief transcribed in Extract 15 and continued in Extract 49 (below) yields further examples of weak change signals, when the concerns of the key storyteller (Incident Commander 2) seem to be privileged over the intended

agenda. The narrative he told suggested (again) that the scenario-based training method being used was unsuitable for its purpose, and lacked the capacity to recreate the non-conformity that characterised firefighting in real situations:

Extract 49 – "Learning by doing – professionalism 2"

> *Incident Commander 2 …imagine how stupid and unprofessional it is to drag hose 400 yards through a ship, bypassing points on the ships main [i.e. internal water supply]!*
>
> *Instructor 1 – yes, when all the captain has to do is press a button and in 20 seconds it charges all the lines.*
>
> *Incident Commander 2 – all we go and do is, we've gone to the compressors place [shop], and we bought 4 stops with 65 mm tails, and we've made our own 2 m lengths of them. We keep them on board the ships, or we're going to, we come on board, we take them, we connect in, [and firefighting starts].* **It's simple things like that, that you don't know about until you actually do it**. *And we had to write that into the SOP as well. But it's cost us what? 40 quid. But it's an agreement with P and O that we keep them on the ship….* **But you don't learn things until you actually do something like that!**

This again implies that increased sensitivity to story fragments could have identified this alternative agenda, and allowed the debrief to move on to explore an important issue for the organisation that appears in other meetings and exchanges, specifically the credibility of the training system.

It is interesting to note that this pattern of one story leading to the telling of another is consistent with Boje's observation of "*turn-by-turn talk*" (1991, p. 107), and could be argued to support the view that stories change and morph into versions that fit the prevailing circumstances and the needs of the authors. This phenomenon is perhaps

better known as 'confirmation bias', where individuals interpret and 'recast' the facts

of a situation in such a way that they are consistent with their own preferred view.

These extracts also provide an excellent example of when stories are, perhaps

inappropriately, converted into narratives: I would argue that the Fire Service as a

whole responds to its ever-growing body of experience by standardising its responses

to given situations, creating Standard Operating Procedures (SOP's). This point was

agreed in principle by the chief fire officer when interviewed in the second wave of

data gathering, albeit that these SOP's are considered 'live' documents. The laudable

intension of this practice is to address operational errors and wasted time, both of

which have the potential to cause loss of life. In effect, the SOP's are physically

updated and published, and I maintain that this creates rigid, reassuring, directive

narrative-based instructions from the stories that are shared by the firefighters who

were involved in an incident, via their incident reports and debriefings. In Extract 49

(above), the incident commander is apparently unsettled by the effectiveness of this

process. He perhaps senses that the SOP narrative is a poor approximation of a fitting

response in this type of incident, lacking the flexibility that is required to accommodate

the needs described in the various stories of his own experiences and the stories

shared with him by colleagues. In other words, he notices this weak signal for change.

If we take the SOP's to represent the story of the organisation, in this instance, at least

some of these would seem to be inconsistent and out of step with the stories of self

and group. This was 'sensed' as a weak change signal by the individuals required to

enact the SOP's, albeit these individuals did not specifically identify the need for

modification to the procedures or more importantly, the system that generated them.

More evidence of an important, but 'off-agenda' issue being raised but not marked for further action emerges in Extract 50 (below). Here, the data is from a different organisation, where a group of Trading Standards and Environmental Protection officers have come together to discuss how evidence can be gathered for an audit of the quality of their customer service:

Extract 50 – "Cash, customers and con men"

> *Participant 3 - do you still have the thing with the banks Dave, Trading Standards? I know Brian once went out on a call, because the banks, if someone looks vulnerable, blowing loads of money….*
>
> *Dave – there's a banking code, and they all are supposed to subscribe to that, but in practice, it's not brilliant. Funnily enough, we've just had one, where an old lady's fallen victim, and the banks haven't picked up on it - until she's gone to the bank to draw money out. I've got a project on now, this year, of going to all the banks to try to get this so that it does work, and put a proper partnership in place if we can. So it probably would fit into this one [Customer Service Excellence (CSE) Award criteria] nicely, but it's very early days, so I wouldn't…*

[An important issue of failure of banks to comply with agreed guidelines emerges here from the story told by Dave, yet the meeting continues to focus on their core agenda, in spite of their obvious concern.]

> *Continuing…. Emma – right okay, but it's showing signs of improvements [part of the criteria] so…*
>
> *Dave – yes, it feels right.*

[Emma continues to stay focused on the core topic of the meeting (the data for the CSE Award), while Trevor (the most senior member present) appears to sense a further issue emerging from the story.]

> *Trevor – [returning to the narrative of the 'old lady'] What's the trigger then [for the bank to act]? The amount of money?*
>
> *Dave – I always thought the magic number was £1000, but evidentially, if someone is elderly, there's more to it than that. This amount that I'm talking about was only £850, which is still a lot to go to the bank and suddenly want. And she told them it was for building work, and nobody said*

"are you sure you need it?", and asked a few questions. Had they done, they might have picked up on it. And she got ripped off for £1300.

Emma *– oh God. And it was just sort of, dodgy tarmac or something?*

Dave *– oh, there are the proper itinerants who knock on your door, two people knock on your door, and then five people appear, and they start threatening you if you don't have the money. They actually gave her 20 quid for a taxi to take it to the bank to get the money for them! And because she's on her own, she was totally scared stiff of them. It's quite a regular occurrence unfortunately.*

Emma *– hmmm. … Right, anything else on the second page?*

The participants are evidently concerned by the issue raised by the storytelling, but returned to the core business of the meeting, i.e. identifying evidence for the CSE award that the organisation was hoping to achieve. This resistance to being diverted was seen at the end of Extract 37 – "Concern for the team", (p.214) and was discussed in 5.2. In that data, there were clear signs of staff problems relating to staff morale and turnover, yet these signals were not acknowledged within the meeting.

My point here is that being sensitive to the emergence of story fragments could have helped to identify these weak signals of an evolving problem, be it well- or ill-structured. I acknowledge that it is typically regarded as 'good practice' to stay focused on the core topic of a meeting; I recognise that, in the example drawn from Extract 50 – "Cash, customers and con men" (p.254, above), Dave introduces the 'old lady' story to justify his suggestion that it be included as evidence for the Quality mark being sought; I agree that while the story was emotive and captured the attention of the meeting, it is to the participants' credit that it did not divert the group away from its

purpose. However, I believe that sensitivity to storytelling, stories and fragments could have identified a weak signal for change.

It was interesting to note that, typically when stories emerged in a discussion, the group became much more animated, engaged and interested in proceedings. This presents an opportunity to gain traction for interventions that might not have been contemplated without the contribution of the story. These brief digressions into storytelling tended not to evolve into major discussions, but as I have already suggested, sensitivity to their occurrence and content could be a valuable tool in identifying other issues that need to be addressed by the organisation.

The ability to avoid being distracted or diverted that was observed in the research participants is testament to their training, experience and professionalism, and perhaps reflects robust meeting processes. It could also reflect a tacit recognition by those involved of their inability to impact on the non-core problems raised, and therefore a subconscious decision is taken to ignore matters that they believe they cannot influence and 'move on'. Taking note of the storied input, and passing it on to those who had the power to act could be a useful habit to form in these situations.

This is not to say that the value of being sensitised to story is limited to noting the content of discussions: Broad analysis of the data facilitated the identification of weak signals running through a range of interviews, discussions, and meetings across different organisations and different contexts, which could be seen as indicators of the need to change.

In Extract 8 – "Foam meeting introduces Buncefield" (p. 157) and Extract 19 – "Foam, Buncefield, and planning" (p. 180) the Buncefield narrative, as depicted by the official Braintree Report into the disaster, is captured by the "*Buncefield*" story fragment. The organisational failures identified within the report were, to some extent, assigned to inadequacy of planning (Buncefield Major Incident Investigation Board, 2008, pp. 53-54), as the Brigades involved in fighting the fire had extensive and thorough plans to cope with the scenario, but for various reasons, in the event of needing to enact the plans, they proved to be ineffective. While this reinforces the presumed story of self of firefighters (i.e. preferring 'operations' to 'strategy'), it also suggests that strategic planning is critically important to the organisation. The second wave of data gathering from senior HFRS officers confirmed this observation to some extent, as they acknowledged that their organisation had improved significantly in the area of strategic thinking and planning in recent years. While the action to improve has now been taken, I suggest that noticing fragments of stories could perhaps have identified the need at an earlier stage.

One final example of a weak signal for change can be identified from the data – specifically, a lack of trust between the public and private sectors: This emerges in a range of data, for example, in Extract 1 – "Foam meeting gets underway" (p.144), the comment *"…I don't know how much of that is just sales blurb, and I think research would have to be done"* is made about a potential private sector supplier of foam. Then later in the same meeting, the nature of cooperation with the private sector is discussed:

Extract 51 – "Private sector cheapskates"

> *Tony was at a meeting last Friday with Tate & Lyle , a big top tier COMAH [Control Of Major Accident Hazards] site in Hull, and they may have a 'stay of execution' [re. closing down due to safety concerns], from the health and safety executive, and they are coming back next year. And they are working with Tony to see what they can do. They need a large quantity of foam, and what Tony is saying they will allow us to park our foam on their site, and that they'll say to the HSE "look, we've struck up a relationship with the Fire Brigade (and with BP), and they're keeping their foam on our site there, so we've got first use of it on our site, so we're covered",…. [said with incredulity] without spending a penny, they're covered aren't they?!*

The firefighter was concerned that a large privately owned organisation was potentially benefitting from an arrangement that in fact, also helped HFRS. Indeed, this arrangement has now been put in place. The story hints that the firefighter, as a public sector employee, has an innate mistrust of the private sector that could damage any mutually beneficial relationship between the sectors.

This is not to suggest that this mistrust resides only on one side of the relationship: A competing, equally stereotypical perspective on the same theme is offered by a private sector worker, working within the public sector: In Extract 38 – "Solutions and behaviour patterns" (p. 217) and Extract 39 – "Too much change for *them* to handle" (p.219) a 'change manager' characterises the public sector as inefficient, resistant to change, and fiercely protective of personal vested interests. She comments that the public sector organisation "… s*eems to be so set in their way of thinking, their behaviour patterns,…*" and that "*… no one's actually listening; it's like selective hearing*".

Both the perceptions of private sector workers of the public sector, and vice versa, are transmitted through story fragments, and raise potentially important signs of the need to change. For my thesis, the important issue is that noticing the contrast between the two stories is equally enlightening, and may help to provide solutions for any observer interested in, for example, resolving the 'wicked' problem of introducing and developing the perceived efficiency of the private sector into supposedly inefficient, bureaucratic public sector organisations.

6.4. Summary of Research Question 3

The evidence from this research suggests that storytelling and story fragments have a significant impact on ill-structured problem-solving processes, and indeed on problem-solving processes in general through their impact on the problem-solving context. In this question, I have highlighted some of the ways in which their influence is experienced by people in their search for solutions to problems in everyday organisational life.

Storytelling in general, perhaps not surprisingly, seems to be capable of encouraging problem-solvers to adopt new perspectives on problems – there is a great deal of literature available on how narratives can be constructed to achieve this effectively, and it could be argued that much of the world of art and entertainment has this as a central tenant. However, I argue that what has emerged from the analysis for this question is how the specific contents of story fragments have the power to achieve results similar to those achieved by narrative, but in more subtle, covert, less controlled and controllable ways. In problem-solving discourse, fragments provide

hints and indirect suggestions as to potential solutions, and as such, have the ability to privilege one outcome over another. This is particularly noticeable when the problems being addressed are ill-structured, when we are trying to find structure and order in a chaotic situation.

Narratives, stories and fragments also seem to be important in influencing the tone and style of communication between participants as they try to solve problems, with the capacity, for example, to release tension, encourage creativity, facilitate (or discourage) open discussion of issues, etc.. This creates an interesting dilemma for managers trying to use this understanding of storytelling: On one hand, they should welcome the access to the subconscious that the approach brings in terms of openness, honesty, and creativity in the problem-solving process. However, at the same time, they should be cognisant of the use of story fragments in particular, as their impact is difficult to predict and control.

Finally, analysis of the data for this question suggested that simply 'noticing' and taking note of story fragments had the potential to alert an observer to the early, weak signs of new problems and opportunities, and as such, could facilitate a more productive problem-solving dynamic. A risk here is that the fragments of stories that are taken as weak signals for change are overstated or misinterpreted, leading to common accusations that management are given to overreaction, or 'knee-jerk' responses, and 'using-a-hammer-to-crack-a-nut'. This will be discussed further within the conclusion to this thesis.

Evidently, there are difficulties in putting the learning from this question to practical

use, and these, as well as the opportunities presented, are discussed in Research

Question 4.

Chapter 7 – Findings and Analysis of Research Question 4

7.0 – What challenges and opportunities does working with storytelling and story fragments present to managers in dealing with ill-structured problems?

We have seen in other studies that storytelling plays an important role in problem solving (Barge, 2004; Cunliffe & Coupland, 2011). In this research, so far I have looked broadly at the generic areas of storytelling and problem solving, and specifically at story fragments and their role in solving more challenging, ill-structured problems. This has revealed that fragments seem to have an important potential part to play in stimulating ideas and encouraging thinking along diverse, yet connected lines of reasoning. Indeed, if fragments prove to be a catalyst for new ways of addressing difficult problems, then their use could be extremely valuable in promoting CPS - a vital ingredient in existing approaches to ill-structured problem solving. An added advantage is that storytelling and story fragments are both very natural parts of everyday organisational life, and as such, are likely to be widely accepted by inexperienced problem solvers.

This is not to suggest that deploying a story-based approach is likely to provide a panacea for practitioners in their attempts to solve organisational problems. In traditional organisations, the topic may well be perceived as frivolous and fanciful, and as such, there is little likelihood of widespread adoption of the concept throughout industry. However, I argue that the potential to add value to problem solving processes in general, and ill-structured problem solving specifically, has been demonstrated through the findings from my first three research questions. I believe the questions have exposed the possibility of evolving story-based interventions to inform and improve ill-structured problem solving in organisations. Deploying such techniques will

presents both opportunities and challenges, and these are discussed in this final

research question.

Opportunities :

7.1. Identifying and making sense of complexity in problem solving

The research evidence suggests that when tackling ill-structured problems, there is typically an urge in problem-solvers to prematurely construct a solution narrative from the stories and fragments that catch their attention in the problem-solving process. They develop a theme that encapsulates the 'evidence' as they perceive it, in effect, deploying confirmation bias. At a relatively unsophisticated level, if we can recognise this storytelling as a sense-making activity, it helps a listener to appreciate the storytellers' concept of reality, to understand their version of events, and to be cognisant that it is just one of many possible versions of events. Storying would seem to be regularly used to make sense of actions that were taken in the past, actions that are being taken in the here-and-now, or actions that are planned for the future, and as we have seen, this is not a perfect process. Given this tendency, and as might be expected, when subjects were asked to review their own performance in a problem-solving context, stories and fragments were shared with the researcher that suggested a logical, rational approach was taken to the difficulties they faced, when others may have had a very different view of events. For example, in Extract 52 below, taken from a solicited narrative, the teller explained her perceived role in saving an organisation from a human resources 'disaster', and in effect presented her preferred story of self:

Extract 52 – "I was the hero"

> ***Storyteller*** - *So the team were predominantly administrators at different levels, you know, up to a first-line manager. So the two ladies in question, it wasn't 'til I then started going in to the capability policy and procedure of the organisation, and talking to them, that clearly, the organisation could have found itself at tribunal and paying hefty sums of money, because these two ladies both had had either cases of constructive dismissal, ...errm,*

> *they were all, both having illnesses - stress related - so they could have gone for a case of, you know, stress, duty of care, so the organisation could have been in problems around duty of care, around stress in the workplace, which is, you know, a health and safety issue.*
> *So for me, it was like the alarm bells started to ring....*
>
> ***Researcher*** *- sorry - the alarm bells from.....?*
>
> ***Storyteller*** *- from a business point of view.*
>
> ***Researcher*** *- what about alarm bells ..... what were you feeling?*
>
> ***Storyteller*** *- Right. I was feeling that, clearly I was in an invidious position, but, because I hadn't carried out any of the investigations, I'm now needed to start from scratch and look at what the problems were.*
>
> ***Researcher*** *- did you feel sorry for, or did you meet the two that were on....*
>
> ***Storyteller*** *- .... yeah, they were fantastic ladies, and from my discussions with them, what I then unearthed was that, in the minute they were put on capability, the predecessor had restructured that group of people, and they'd put these two ladies, they were almost out of the restructure, and were square pegs in round holes.*

Here, we see the storyteller using storytelling in two related ways: First, she rationalises her own input as being a heroic act, centred on preventing both the organisation and the two employees concerned from experiencing stressful, difficult and unpleasant times. Second, a story within the narrative is used to cast her predecessor as potentially vindictive or incompetent, or both. Other observers, and undoubtedly her predecessor, would have seen and cast the situation differently, but the process of evolving a narrative from the fragments that the storyteller chose to retell provided a vehicle for the problem and its resolution to be represented, and allowed her to privilege a version of the scenario that fitted her story of self. In doing so, she 'made sense' of the complex problem that had been faced, albeit her version was one of many potential versions.

7.1. Identifying and making sense of complexity in problem solving

This pattern was repeated in other interviews, for example in Extract 3 – "Change managers' problems" (p.151), and Extract 38 – "Solutions and behaviour patterns" (p.217), where the interviewee presented her role as a change manager from the private sector as admirable, without acknowledging the complexity of the situation she was dealing with in the public sector, or that her role in resolving the issues facing the organisation may not have been as rationally and logically planned in advance as she suggests in the storytelling. This behaviour exemplifies a common phenomenon within the data, and more widely within the process of generating understanding in human beings, i.e. the habit of retrospective sensemaking. It is widely reported that we explain and rationalise experiences and behaviours after they have occurred (for example, in Brown, et al., 2008; Cunliffe & Coupland, 2011; Graves, 2010). In effect, we situate our experiences within an existing paradigm with which we are already familiar. It can be argued that this saves time and is in fact extremely valuable, as it allows us to learn from experience, and to avoid the need to re-understand data and facts that remain constant. To take fire-fighting as an example, in the second wave of data collection, senior HFRS officers confirmed that many (but not all) characteristics of a fire are predictable. As such, developing rules and SOP's for how situations are dealt with is a logical approach to improve the way in which the core problem is solved; the solutions to these well-structured problems remain relevant and effective for an extended period, and so the underpinning principles are justifiably 'taken-as-read'. However, I suggest that when trying to solve ill-structured problems, this approach is not congruent with the nature of the problem. There is a danger that false assumptions are made and events are misinterpreted, leading to a 'domino effect' on subsequent parts of the problem-solving process, with wrong decisions leading to the need for further action to correct mistakes, and without making progress on the core

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problem. Crucially, if the underpinning principles of the problem-solving process are flawed, then I maintain that solutions that are based on them will be similarly imperfect. Being alert to our predispositions to adopt this narrative-based approach would provide us with an opportunity to recognise when we need question whether the problems we are attempting to solve are well-structured enough to use it.

In the retrospective sensemaking described above, there is a tendency to exhibit confirmation bias, i.e. to misinterpret the facts in order to cast the sense-maker or storyteller in a particular, typically favourable light, or have a tale understood in a particular way. As we have seen, this often presents the teller as the central character in the narrative, and which may misrepresent the 'true' facts. Given the power of stories, there is a risk of prejudicing further decisions, as the predictive narratives that are used to plan for the future are based on the misrepresentations of retrospective narratives. This can be seen in the cases explained by Aplaslan & Mitroff and others, who describe major crises and other 'messes' that have arisen due to human error and personal failings. As Phil Angelides, chairman of the United States commission that conducted an enquiry into the global financial disasters of stated, "*These were acts of men and women.*" (quoted in Alpaslan & Mitroff, 2011, p. xi). Angelides argued that greed led decision takers to follow the hubris and arrogance of a few individuals who convinced themselves that they 'knew' the answers. These answers were based on inappropriate retrospective sensemaking, that had relied on the flawed logic that assumed the future would look like the past.

 However, this is not to suggest that retrospective sense making has no value in organisational life – it is fundamental to 'learning from experience'. When performed

with an open mind, when dealing with well-structured problems, or when the deliberate intention is to create alternative, practicable perspectives, this basic, instinctive, natural form of narration is an extremely valuable and important part of learning processes. If we are fortunate, our problems may be sufficiently structured and similar to previous problems, such that solutions based on retrospective sensemaking will be effective. This is demonstrated by the data; for example, when an incident commander addressed an instructor playing the role of 'caretaker' in the high-rise training scenario, the following comments were made:

Extract 53 – "Tower Block caretaker incident"

> ***Incident Commander 2*** *- can I speak to the caretaker again please… Have you got a "stay in" policy in these premises?*
>
> ***Instructor*** *– no, we don't.*
>
> ***Incident Commander 2*** *- You should have, all councils do!*
>
> ***Instructor*** *– I was only started last week! [Laughter]*

The story fragment here implies that if fire broke out in a tower block, the safest approach, based on evidence from other fires, is for residents of those flats is to "*stay in*" their homes. The extract involves Incident Commander 2, who is recognised within the fire service as an expert in high-rise rescue. He demonstrates how knowledge and learning from experience have been made sense of retrospectively, and encapsulated in protocols that are designed to save lives, explaining, "*most of the flats now have 'stay in' policies, so most people stay in.*"

So as discussed in Section 6.3, on page 253, the narratives (in the form of incident reports) that capture the experiences of both fighting and investigating the causes of different fires are systematically collected and used to update the fire safety policies of organisations and the SOP's of the Fire Service. This involves retrospective sensemaking, and as the Chief Fire Officer of HFRS confirmed, is an invaluable resource given that most fires behave as relatively structured problems. This type of policy is based on significant data analysis, rational forensic investigation, and logical decision-making. Sense will have been made retrospectively, and a solution narrative will have been constructed such that the guidance offered 'fits' with the data that has been gathered over many high-rise incidents. The "*stay in*" solution will have been statistically 'proved' to reduce harm to residents. However, later in the same conversation and as noted earlier in Extract 18 – "Tower Block debriefing introduces 9/11" (p.178), a different perspective is offered by an officer of the same rank:

Extract 54 – "More on the impact of 9/11"

> *Instructor 2 – in situations like that, the psychology of people is that some want to stay put, and other people want to get out.*
>
> *Incident Commander 2 – that's it. Every resident now that takes a flat now gets a brief on it, saying that it's a 'stay in' policy, and that unless someone comes for you, it's a 'stay in' policy. Now that didn't work like that there [in the simulation].*
>
> *Incident Commander 1 – well the thing is, what you've got now is, post 9/11, you've got the mentality that says in a high-rise building [that's on fire], start running and get away. That's the mentality there. We're trying to change people, but it's instinctive, this scene on the telly, and aeroplane hits a building, the building collapses, there's fire in the building…*

Here, Incident Commander 2 used fragments to retrospectively justify his behaviour towards the 'caretaker' within the scenario, and presented his own actions in the context of the corporate story, or perhaps more specifically in this instance, an 'organisational narrative'. This retrospective sensemaking is typical of a 'debrief', with lessons being learned by those listening, and who are likely to face similar problems in the future. However, of particular significance to this research question is the response from Incident Commander 1, as he uses an even more powerful fragment from the widely recognised "9/11" narrative to explain why residents would ignore the 'stay in' policy. This presents the opportunity for a listener to appreciate how simply 'noticing' story fragments begins a process of reflection and reflexivity, as well as how the fragments encourage an ebb and flow of information around a problem (in this example, around the 'stay in' policy). In this Extract, the "9/11" fragment impacts on both the process of storying, and the content of the story, working together to promote a recognition that the problem is complex and ill-structured. As such, the approach helps problem solvers to understand that such a problem may not respond to the traditional problem-solving techniques that they may wish to apply, i.e. in this situation, a solution that assumes residents in tower blocks will stay in their flats when there is a fire. Working with storytelling and story fragments in this way helps us to recognise that there are often many unpredictable, un-measurable forces at work in typical crises. These forces cannot be accurately reduced or compressed into a simple set of cause-and-effect relationships (Lissack, 2011). The evidence that had led to the 'stay in' policy remains an estimation of a future reality, and as such, I argue should not have been considered as representing a well-structured problem that typical procedural approaches are suited to resolving. In other words, 'noticing' storytelling and story fragments can lead individuals to the recognition that, particularly with

wicked, ill-structured problems, there are many ways to make sense of the events we experience. Understanding this should help us to understand different perspectives and to consider different solutions.

The role of story fragments in identifying and making sense of complexity can be seen in further examples throughout the data: For example, a particularly challenging and emotive sensemaking episode for HFRS revolves around the story of Michael Barnett, who died in the 2007 floods. The appointed coroner was responsible for composing the 'official story', or more accurately, the official narrative, from the public inquiry into the events of Monday 25th June, 2007, and this was reported in the syndicated press (Mail Online, 2007). However, the officer who was the Incident Commander for this notorious event was interviewed for this research. His account gives a feel of the difficulties, fears, and frustrations of the event (see Extract 55, below). The account is storied, rather than narrated i.e. it contains details and nuances that are missed in more sterile, inflexible tellings, allowing the tale to evolve and flex, and permits the storyteller to provide a tone and texture that he felt represented events more accurately than other official and unofficial narratives. Storytelling here provides the Incident Commander with an opportunity to make sense of the experience, both for himself and for the listener; it also hints at a 'need' to do so, implying that the officer may gain some cathartic impact through telling the tale:

Extract 55 – "The floods death"

> *Officer* - *An example is the Michael Barnett issue. The guy that was trapped in the drain. [The coroner might say]* "Why didn't you go below the surface to rescue him?"
> *[we reply]* "Because we have guidance that says we do not do subsurface rescues. We can't go under the water."
> *"Right, Mr Police diver, why didn't you do it?"*

> *"Because we are not a rescue unit. We are a search team. And we are recovery"*
>
> ***interviewer** – blimey, that must have been tough on the people there?*
>
> ***Officer** – it was, but it's "this is what we've done, this is the best that we've made of it, but there is a statutory limitation on what we can and cannot do".*

The incident itself was extremely complex, i.e. it was an ill-structured problem. At the time of the incident, the relevant organisational narratives (i.e. the SOPs of the various agencies involved) were not capable of providing a successful outcome. The second wave of data collection confirmed that the HFRS SOPs were subsequently reviewed, but noted that there remained an absence of statutory responsibility (and therefore an absence of funding) for providing underwater rescue.

We can only imagine how difficult it was for those involved to remain compliant with the organisational narrative that restricted the type of rescue that could be attempted, particularly given what we believe to be the relevant stories of self, group, and organisation. Having told this story, the officer continued to tell more stories to illustrate the same point, namely that, born of experience of enumerable rescues, the 'best' way to act was to remain within the rules of the organisation. These rules restrict the mode of operation, but are intended to reduce the loss of civilian and firefighters' lives, and to prevent litigation for failure to carry out the 'duty of care' that the organisation has for its employees and the general public.

The sensemaking and complexity identification capacity of storytelling and story fragments can be seen again at the end of Extract 15 – "Tower Block debrief, ships, and

professionalism 1" (p.173), through the comment *"Imagine how stupid and unprofessional it is to drag hose 400 yards through a ship, bypassing points on the ships main!"*

In the Extract, the officer uses storytelling and fragments to make sense of his 'unofficial' approach to firefighting on modern ferries, using the ships' water supply rather than the water carried on a fire engine, contrary to the organisational policy at the time. The storytelling incorporates a 'story of self' (i.e. a fear of appearing *"stupid and unprofessional"*), and attempts to produce a predictive narrative of what might happen in a fire on-board a ferry, i.e. the assumption that only *"two distinct types"* (See page 173) of fire need to be considered. Through the storying process, the Incident Commander introduces a 'rule' that to fight such fires, it would be necessary to drag hoses 400 yards. So a prospective narrative is evolved and used to plan what the best response might be (i.e. to use the ships' water supply).

This demonstrates how a fixed, prescriptive narrative is naturally used to make sense of a complex anticipated situation that the storyteller may face, facilitating the development of action plans. However, as reported in 4.2 on page 160, and in Extract 19 – "Foam, Buncefield, and planning" (p.180), the plans that had been made by a different fire service (i.e. Hertfordshire FRS) to deal with potential incidents at the Buncefield oil storage facility, proved to be inadequate when a major fire actual occurred. I argue here that this could have been due to a narrative-based prospective sensemaking approach that resulted in a predictive narrative, rather than a story-based approach. I suggest that an intervention that included and accommodated story fragments into the prospective solutions would provide an opportunity to improve the planning process by identifying and potentially simulating the complexity of the situations being planned for.

More evidence of the opportunities presented by storytelling and story fragments to

identifying complexity and making-sense occur in Extract 56 (below) and Extract 57 on

page 275. Here, the chief officer of HFRS provides a detailed and reflective account

that demonstrated the power of story fragments, and related this to the way in which

sense is made in particular contexts. In an interview, fragments were used by the chief

officer to explain the complexity of decision-making in the scenarios being described:

Extract 56 – "The Union, cuts and protecting the members"

> *During the previous set of plans when we tried to close some fire stations, it was a bad experience for [fire authority] members in general. They were a victim of a strong campaign from the Fire Brigades union. There was shroud waving and coffin carrying, and they got no support from the home [fire] authorities. The only ones that got support was East Riding, who were pretty courageous in every respect to be honest.*
>
> *In the end, they [East Riding] took all the cuts, and there was a real feeling of inequity there. And from my point of view, I never wanted to put our members through that again. I was present at the two authority meetings that were public meetings - they'd got to be public, because there was no reason for them not to be, but they were set up almost in a theatre-like way. And I thought that was wrong – [that is] to put members in a situation where they've got to make decisions under that spotlight. It was just about impossible for them. And with the exception of East Riding, they fudged a lot of decisions. So we wanted to do it differently this time.*

While the interviewee is attempting to facilitate understanding in the interviewer, I

suggest that in the process, the interviewee affects their own understanding, possibly

converting stories and story fragments into a narrative on which important decisions

relating to the future are potentially based. This process would typically have been

repeated a number of times as the stories and 'narrative-in-the-making' were

discussed with different stakeholders, or at least contemplated by different

individuals, until an 'acceptable' narrative was formulated on which the decision-

makers felt confident enough to act. I argue that the danger in this behaviour is that once set, the narrative is taken as 'truth'. Yet a different 'storying' would have generated a different narrative and different 'truth', with a different solution being considered appropriate. Given the power of storytelling, and the impact it can have on the decision making process, it may be that sensitising to storytelling and story fragments could present an opportunity to reduce the potential for selection of unsuitable solutions.

The ability of storytelling to influence sensemaking is implicitly recognised in Extract 56 above, where the decision-making meeting is described as being set up as "*theatre*", in which 'actors' perform – the implication being that there is lack of honesty in the scenario. There is also tacit recognition that a theatre is an arena in which stories and narratives are told, and where power and influence are exercised through this storytelling. Creating such a context in which decisions were to be made would typically privilege solutions to problems that were supported by good storytellers through monological, emotive narratives, rather than through a polyphonic storying process which attempted to include a broad range of views, again, potentially leading to less effective decision making.

This perspective is reinforced later in the same interview when the role of the fire authority is discussed:

Extract 57 – "The campaign against the cuts"

> *So the things it [i.e. the fire authority] stops us doing, it stands to reason, is station closures and taking fire engines away. I say they stopped us doing it, I'm not in favour of doing it myself: One thing I learned in the last round [of cuts] is that people are very precious about their fire stations. And they're*

> *very prone, and very, very susceptible to campaigns by the FBU. And the classic was Waltham fire station – [the area] didn't need it, simple as that. It was not needed. But the crew of the station, for their own purposes,… this wasn't about community safety, there was no community safety threat from closing the station….– went round every home in the area and got signatures from just about every home. They didn't visit my home – it was in my area – but the message that was coming out from some very prominent people in the community was, "we don't care if that fire station's not needed – we pay a massive amount in rates, it's our fire station, our rates far exceed the cost of that station, it's ours, and we feel better through having it."*

Just as the story helps the storyteller to make sense of events, the interviewer, through listening to the story, is able to interpret it to make sense of the actions of HFRS in not closing a station that was surplus to requirements – indeed this is a natural and normal function of storytelling. It also assists the listener in gaining an understanding of how and why the residents in the narrative knowingly chose to make sense in a way that defied logic – as the senior fire officer pointed out, the residents stance was, "*we don't care if that fire station's not needed …… we feel better through having it.*"

Recognising that this storying is a key part of sensemaking, and takes place in individuals, groups, and organisations may help in trying to understand the complexity of ill-structured problems, and ultimately therefore, in finding solutions to them. The evidence in Extract 56 – "The Union, cuts and protecting the members" (p.274) and Extract 57 – "The campaign against the cuts" (p.275) present an opportunity to consider a further dimension to problem solving: The officer retells the events and actions of the residents, the fire authority members, and the firefighters very much as

a narrative, i.e. a fixed account, with no room for change or negotiation. Simple

recognition of the use of this tactic could give problem-solvers an opportunity to adopt

a different approach. It may facilitate recognition of the need to treat and define the

problem differently, rather than persist with a style and a problem definition that were

not effective in achieving a solution that satisfied all stakeholders.

Exploring this opportunity further, in Extract 58 below, the use of story in sensemaking

appeared in the data when the chief officer retold a further narrative relating to the

behaviours of those involved in the service:

Extract 58 – "Attendance performance standards"

> ***Senior Officer*** *- I am still being harassed by XYZ Town Council, because we have an attendance [performance] standard that the second engine will be 'in attendance' [at an incident] 5 min behind the first. And the retained [part-time] crew are missing that standard, on occasions. They've missed it on three occasions now, once by five seconds, one by nine, one by 40 seconds. And XYZ Town Council are complaining. And I'm going to see them on the 20th. Because what they're saying is "you're not meeting your standards, we want the whole time [full-time] pump back".....*

> *.....I'll tackle it with facts, but in the end, I just have to bottom line it – that I answer to the fire authority, not to you [the town council]. "I'm here, (because I'm going on Monday night), I'm here as a courtesy, respect to you and your position. But I answer to the fire authority, not to you." And that'll be my position at the end, if I have to bottom line it. But yes, they're arguing over seconds.*

> [The narrative explains the stance the chief officer plans to take – a predictive, sensemaking narrative. It incorporates the fragments that he believes will be used to argue against him, and those that he will use to counter them. He goes on to use storytelling to speculate on the causes of the problem being addressed by the meeting he is planning to attend....]

> *Oh, and you know, I know why they are missing their attendance standards by seconds – on average, XYZ used to take just under 2 min to turn out. That's the whole-time pump – the slowest in the brigade to turn out. Since the retained pump went live [i.e. a full-time crew and fire engine were*

> *converted to part-time], their average has dropped just over 30 seconds.*
> *They're turning out quicker! So what that means is, if it took them 2 min to*
> *turn out, and then 5 min to get to the job, that's a 7 min attendance. The*
> *retained have to turn in [i.e. arrive at the station], and then they have to*
> *turn out again [i.e. leave the station en route to the incident]. If the whole-*
> *time turnout is 30 seconds quicker, they [the retained] have got 30 seconds*
> *less to turnout in. That's what's happening.*
>
> ***Interviewer** – do you think that's deliberate?*
>
> ***Senior Officer** – I do! I can't prove it, but yes, I believe it's deliberate. You've*
> *got your own staff working to damage your reputation!*

So the extract retells the sensemaking narrative of a performance problem that had

occurred, and demonstrates the use of future-orientated storytelling, with plans being

made in anticipation of what may happen at a future meeting. However, if just as a

solution was being formulated, different fragments of story were introduced to the

problem-solving process, it could have been possible to enhance the range of solutions

available for consideration by the problem-solvers.

The role of storytelling in understanding and making sense of problems surfaces again

in a discussion with a HFRS officer on how the organisation was changing. He uses

storytelling retrospectively, and to some extent prospectively, to help the researcher

to understand current actions:

Extract 59 – "Who rescues under water?"

> ***Officer** – What happened is, prior to 2007, we were already carrying out*
> *work on water rescue. But the problem is, there was no national guidance.*
> *Because, until the Fire Services Act changed in 2004, we had no statutory*
> *duty for attending flooding incidents. And it's only when legislation has*
> *changed that we have been able to change. The problem is that, if we were*
> *sticking to the old Fire Services Act, which was 1947, we would not prepare*

ourselves for flooding. Because we would have to say, "it's not our responsibility". So it's us making arguments to the government, saying "look, you're aware this act says nothing about water? What do you want us to do? You don't pay us to attend these incidents, there is no statutory duty for us to attend it, so what would you like us to do? We will deal with fires, but… "

Interviewer – I see, someone is going to ring 999, and ….

Officer – yes, were going to say "sorry we can't attend, phone the Coast Guard, or phone the police." And they'll phone us, and we'll say sorry we cannot do anything. But the government have put some extra powers in there, saying that we will attend emergencies, but we are asking them to define what those emergencies are. And they still haven't done that. At this moment in time, we don't get any funding for it.

The extract demonstrates how individuals use stories to justify action, and indeed here, inaction. The frequently used "*2007*" story fragment appeared again, and was deployed to support an image of the events that was consistent with, and made sense to, both the corporate story, and the story of self. I suggest that this is simply an attempt to form a sensemaking narrative that represents the problems that appeared in the flooding of that year. However, it may be that greater sensitivity to story fragments could have presented an opportunity to identify the complexity of the issues that underpinned the problems faced by the organisation at the time.

Extract 60 below shows similar issues and approaches arising in a different organisation, suggesting that this role of storytelling in problem solving that has been outlined in this section is not unique to HFRS. In this extract, a discussion is taking place within a local government organisation, relating to a proposal for a single point of contact and single telephone number to deal with all building and planning issues, as well as issues relating to food premises:

Extract 60 – "Toilets in the theatre"

> ***Participant 1*** *- …. You need one central one don't you, because I think the issue was Planning were giving them advice and they [the business] were spending money, and then Food were coming in and saying you need toilets, or whatever [i.e. more than Planning had said].*
>
> ***Chairperson*** *– it prevents any unnecessary changes I suppose*
>
> ***Participant 2*** *- this was an issue at the new Hull Truck - yes – toilet accommodation! They went to Planning, and they said "yes! Everything is fine", and then we [Food] went in and said, "I wish you spoken to us, because you haven't got enough [toilets]!"…[They] can't put any more in now!*

Presented in this way, a powerful case is made for a single point of contact for planning matters. Yet those who would resist this change could make an equally powerful case using counter-stories and introducing contradictory fragments. Recognising this, and developing an exploratory framework that requires a balance of positive and negative fragments to be offered within the decision-making process would seem to have some merit.

In Extract 61 below, arguably, an officer from HFRS makes a strong case for such an intervention, as he provides a narrative account of a case where a range of narrative options had been considered and acted upon separately by different agencies, but had not been integrated to provide a flexible story-based framework that could accommodate unanticipated events. In the extract, the incident commander retells his version of events relating to a chair fire in the stairwell of a block of flats – a fire that caused extensive disruption, but very little damage:

Extract 61 – "Chair Fire 2"

Incident Commander 2 - they had this on XYZ Street didn't they, I had a chair [a piece of furniture] on the first floor in the stairwell. The fire was out in 5 minutes, but what it did, it smoke logged [i.e. filled with smoke from ceiling to floor] on floors 2 to 14. Half of XYZ Street [flats] was smoke logged.. Five hours we were at that job, and the worry for me was we had no method of communicating to everybody that it was smoke. How do we do that? We had tried local radio, but how many people listen to that? And it was difficult, you had people sticking their heads out of windows "is it a fire? I'll open the door. Crumbs! I'll shut the door. What's going on? ". How did we then try to tell people "actually, it's smoke, there is no fire, there is no danger". We had seven pumps there. [Explains attempts to blow the smoke away].

Now, the great thing that the council have done,….[in their 'wisdom'], because people either throw stuff out, or throw other people out, of the flats, in the stairwells, they lock all the windows in the stairwells! So there was poor old Jeff going up all the stairwells chiselling locks. You couldn't smash the windows 10 floors up, because some bloke 600 yards away on his bike gets a shard of glass in his head from the wind. So all you could do was break the lock. So a very small, insignificant fire, caused a massive issue.

Instructor 2 – yes, there's a lot to think about.

Incident Commander 2 - yes, you had seven pumps there …… for a chair fire!! So whatever the causes were, the effects…!?!

We could perhaps imagine the story being characterised very differently by a different storyteller had there been an injury caused by an item being thrown from the windows that the Incident Commander found to be locked. A balanced story-based intervention could help to build recognition of different, equally valid perspectives.

One further dimension to this extract could be that the narrative may have been selected and told by Incident Commander 2 to support his earlier implicit criticism of the training simulation he had just completed (see Extract 15 – "Tower Block debrief,

ships, and professionalism 1", p.173 and Extract 49 – "Learning by doing –

professionalism 2", p.252). He seemed to use this story to develop the argument that

real fire scenarios can be extremely ill-structured, and that the simulation did not

capture that unpredictability and complexity, although this was not articulated

specifically. An observer who was sensitised to noticing story fragments might have

been able to extend the purpose of the training from its intended function (i.e.

identifying whether the incident commanders were operationally competent), to

encompass recognising the opportunity to evaluate the appropriateness of the training

process itself.

Applying this learning to a wider context, a current and popular concept in the

management literature is that of 'resilience' of organisations (Gilbert, et al., 2012),

meaning their ability to cope with an increasingly difficult and unpredictable

environment. The data above suggests that the flexibility of a storying approach to

planning, rather than the rigidity of predictive narratives, may facilitate the

development of resilience in organisations, providing the plasticity of 'story', where

challenges are welcomed as opportunities, where directions can be rapidly changed,

and where new solutions are quickly developed and tested.

It is this capacity to 'test' solutions that will be discussed in section 7.2.

7.2. Creating prototype solutions

The literature on change and change management suggests that typically 70% of change initiatives fail (Beer & Nohria, 2000; Huges, 2011). I propose that part of the cause of this poor success rate could be that response plans, scenarios and change procedures that define actions too tightly are unable to synchronise with the needs of real, practical, tangible change, as they cannot flex and adapt as implementation unfolds. The ability of story fragments to induce complexity and different 'paths' both in a prospective sensemaking narrative, and in real implementation, leads me in this section to consider how an approach might be developed that would be capable of accommodating and deploying fragments of stories in an attempt to improve success rates of change programs.

We have seen that when storytelling focuses on narrative, it provides a vehicle for retrospective sensemaking, and a linear, monological understanding of problems. This facilitates a similarly well-structured pattern in the prospective storytelling that is used to generate solutions. If this narrative-based storytelling were to be combined with a more conscious use of story fragments and other antenarrative inputs, it may be capable of contributing to an enhanced and extended story-based solution-finding process. This means using the randomisation effects of antenarrative inputs (specifically, story fragments) within both story and narrative **construction** to improve our ability to predict how a potential solution may work. Introducing story fragments to 'stress-test' these solutions could help to evaluate their chances of successfully resolving the problems being faced, perhaps in a similar way to the rational and well-used approach of asking "what if….?". If generic story fragment 'types' could be identified, fragments could perhaps be created that present a non-threatening, non-

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confrontational way to test the suitability, viability and acceptability of any storied

solution. The approach would present the requirement to balance the dichotomy of

needing to promote the emotional content of story to generate different ideas, while

trying to remove the emotional content to allow more rational, logical thought

processes to be used to evolve a workable narrative solution. This approach has

resonance with the combination of divergent and convergent thinking that features in

many creative problem-solving techniques (see Figure 8, page 91). However, in this

section I aim to present the concept of the approach, not a working intervention.

Predictive narration is seen throughout the data. Within the 'foam' meeting in Extract

62 (below), the conversation directly and indirectly addresses the issue of decision

avoidance. This was perceived by the group being observed to be a failing of the

Environment Agency, but is arguably exhibited in the primary research organisation

itself. While this makes the problem seem more complex and frustrating, it also leads

to attempts to simplify the problem through a storytelling process:

Extract 62 – "Decisions on foam"

> *Chairman – what we've got to be careful of is, that we don't spend £100,000 changing something over only for next year the environment agency to say, "right, that's no good".*

> *Firefighter 2 – Yes. But I tried to get the environment agency with a 'no strings attached' caveat to tell us, one way or the other, "can we use CAF? Can we use CAF concentrates, …please? If you say no, we won't challenge you, we accept what you're telling us for the reasons you tell us, and that will be the end of CAF". And they wouldn't give us a yes or no.*

> *Officer – and that's why I go back to my previous statement here, if we just put a caveat on all suggestions we put forward, [that] there is no such thing as an environmentally friendly foam – everything's toxic, but how much of this toxic substance do we want? [**Prospective storying process begins**] Do you want 36,000 L of it [foam concentrate] lying around the brigade area,*

> *or alternatively do we make a decision and turn round and say "right, how much foam would we need to tackle 40,000 L [of fuel], or however many thousand litres, or 80,000 L in 2 tankers coming together? How much foam? Worst-case scenario, 2 tankers coming together, in a collision, both well alight, how much foam would we need to tackle that? And we'll probably get that calculation from, errm, there is something out there…*

The storytelling process in this extract is an attempt to produce a narrative that circumnavigates the uncertainty introduced to the problem by the stance of the Environment Agency, and to move forward to the decision-making phase of the process– I describe this as predictive narration. It also demonstrates the preference for action that is a theme through the HFRS data, and apparently contrasts with the decision avoidance characteristics of the Environment Agency. However, the risk is that the use of narrative (rather than story) creates a false certainty in the problem-solving process – the group seems to be moving towards one scenario ("*2 tankers coming together*") as the defining case that has to be planned for. The introduction of story fragments could create constructive conflict and debate, where the ideas encased within the narrative could be questioned and tested, performing a type of structured "devils' advocate" function. I suggest this would move the group from predictive narration to prospective storying (see Figure 13 - Future-orientated Storytelling Terminology, on page 325) causing confusion in the group as it would disrupt the certainty that the selected narrative solution was the 'best' option, but at the same time, opening the way to the consideration of more, potentially improved, solutions.

Furthermore, simply noticing the stories and fragments in this extract highlights an emerging problem in HFRS of an innate preference for action, yet a reluctance to take a decision on foam use without the express agreement of the Environment Agency. In itself, this is a potentially useful outcome, as is noted by Pink (2012, p. 127), who argues that "*problem finding*" is as least as valuable in modern organisations as problem solving.

Similarly, in Extract 58 – "Attendance performance standards" (p.277), the chief fire officer anticipates the scenario of his meeting with the Town Council using predictive narration. In essence, he is preparing for two potential scenarios – one of conflict, and one of agreement. Introducing other story fragments into this phase of his problem solving process could have helped him to prepare for a wider range of possible scenarios, and as such, would become prospective storying.

Again, in the extract below, storytelling in the form of predictive narration is used in a problem-solving meeting to imagine how a more senior decision-taking group will be influenced by arguments that are put to them by the junior group. The meeting is discussing the use of short ladders as make-shift supports in rescues, and making a case for the purchase of specialised, relatively expensive jacks to fulfil the same role:

Extract 63 – "We *need* the jacks….honestly!"

> ***Firefighter 2*** *- …. But if you should have an accident while doing this, then there's going to be the question, "why are you doing this when there is [specialised] equipment available?"*

> [The firefighter is predicting what others would say if an accident happened, hoping to make a case in favour of the purchase of the specialised equipment i.e. the jacks]

> ***Continuing ….. Officer 1*** - *…. You see, the ladders aren't really designed for it are they?*

> ***Firefighter 3*** - *this is what I'm coming to in a roundabout way… If we look at them stats there, we've got 95 vehicles 'on-the-way' [in use], we've got 21 on the side[in reserve]. If we use 21 ladders there, [i.e. damaged in rescues] what's it going to cost? They're not cheap are they? It's not like going down to B&Q! …… [Conversation continues to develop a case for buying jacks rather than replacing damaged ladders]*

> ***equipment manager*** – *I'll have to speak to Roger about funding.*

[Other members of the meeting start to be drawn into the predictive narration process, wanting to be included, arguably enjoying the emotions and experience of evolving a solution.]

> ***Continuing ….. Officer 3*** - *yes, we'll have to make a business case, or we may have to delay it until September when we have this case conference, and then we'll make a case, and they'll say "right, we'll allocate you X thousand pounds for that in 2011".[**predictive narration**]*

> ***Firefighter 5*** - *your space, Norm, what will you do? If there's no space [on the fire engine to store the props], will you just take something off? Is it this committee what decides that?*

> ***Officer 3*** – *we leave that to the gang [Watch, i.e. firefighting team] -it's their equipment, if there's something they can live without, it isn't going to compromise their day-to-day duties…*

> ***Firefighter 5*** - *…I just want to say that, we've already mentioned, and Alan is always going on about space, and with a very long spec sheet, it takes a lot of space doesn't it…..?*

Further contributions are made by other members relating to the operational benefits of having the new equipment. I suggest that the emotional dimension of storytelling had encouraged engagement of more members of the meeting, and stimulated further thinking on how to justify the case for the purchase, to predict a limited range of objections, and to consider ways to counter them. In doing so, the predictive narration

process enabled participants to recognise some of the potential weaknesses of their case, and to some extent, test their proposed solution. However, consideration of more challenging story fragments that opposed the decision could have benefitted the process, introducing a prospecting dynamic.

The discussion continued to envisage and predict how the case for making the purchase of the specialised jacks could be supported at subsequent meetings of more senior decision-makers, having implicitly taken their own decision to purchase the jacks, seemingly without any formal recognition of that choice. They immediately moved on to testing the robustness of the case they would make to support that decision in the next stage of the process, again using predictive narration. While participants did not share specific historical stories in this process, in imagining forward what both the operational, and the decision-making scenarios might be, they were attempting to formulate plans that would lead to having their preferred decision implemented in a way that suited their own objectives.

I argue that here (in Extract 63), we can see the essence of what might become a story-based problem-solving intervention: The group are engaged with the problem, thanks to the seductive nature of storytelling. They are making sense of the problem, albeit using predictive narration and retrospective sensemaking, to provide solutions for first, the operational scenario in which the new equipment might be needed, and second, for the decision-making scenario where the final verdict on whether to purchase the equipment will be given. Objections and issues that are envisioned in the decision-making scenario lead to a re-narration of the operational scenario. Participants appeared to be thinking through possible objections (for example cost, space on fire

engines to carry the equipment, number required, etc.) and how they might respond to these objections. The groups' preferred solution resulted from the joining and structuring of story fragments and stories into a cohesive narrative that is 'tested' against the anticipated views of other key stakeholders. The outcome is that a story-based narrative solution begins to take shape.

This suggests that to problem-solve in this way is natural, even enjoyable. There is a risk however that a significant degree of confirmation bias comes into play in the predictive narration process described above, and this creates a potentially weak foundation for the finished narrative solution. However, with the introduction of story fragments, this predictive approach could be adapted to include a prospective approach. This creates an opportunity to yield more successful outcomes than predictive narration alone. It demonstrates some of the benefits and risks of storytelling being used in solution finding. While far from flawless, I suggest that there is potential for a significant improvement on the rather naïve, possibly delusionary and biased approach that uses only prospective narrative and retrospective sensemaking.

On a simplistic level, all the training scenarios observed in this research were deploying a storying approach to learning and testing competence. If the trainees story forward 'correctly', i.e. in a way that fits with the prescribed narrative from the software designers in "Vector", or that fits with the experience of the instructors in the case of "Fire Studio", then they are deemed competent, and pass the course. It would be interesting therefore to explore how non-standard approaches to the scenarios might be dealt with, for example, by further development of Fire Studio cases. Equally, recognition that the scenarios faced by firefighters are predominantly well-structured

problems would be valuable, and would expose the rationale behind the need to produce and adhere to SOPs for discussion and critical evaluation. This study may be of value in terms of encouraging the training section of HFRS to ask the question '*are the solutions to the scenarios sufficiently flexible to represent other possible outcomes that result from the decisions that trainees take?*' These could be opportunities to learn and consider unanticipated consequences, and to evolve and improve the scenarios used. In practical terms, it may be possible to develop a framework for pre-structuring story fragments to introduce into forthcoming problem-solving scenarios, and could identify the opportunity to focus debate on critical aspects of the scenarios that trainers wish to highlight. I suggest that story fragments can quickly create a powerful mental picture that impacts on a decision, and judging by the use of such antenarrative in the training scenarios observed, such input would appear to be accepted. If for example, as implied on page 285, instructors were to have a pre-prepared list of hints to offer, comprising both accurate and misleading story fragments, this could add to the realism of simulation-based training exercises, simulating live data as it might come into a fire officer in practice.

There appears to be scope here to consider the development of a problem-solving intervention, but this must be tailored to specific organisations and the typical nature of their problems. However, a new story-based problem-solving technique would not be a panacea for organisational problem solving, and could be counterproductive for organisations whose problems are predominantly well-structured.

A core tenant that underpins the purpose of this research into problem solving and story fragments is that in storytelling, there is a natural, familiar, and frequently used

form of CPS that we all practise to plan our way through future (potential) events. As such, a structured and controlled problem-solving method that draws on storytelling may find significantly more traction in organisations than existing 'radical' CPS tools. A technique that encourages and deploys the creativity of antenarrative (specifically, story fragments) and counter-balances this with the 'implementability' of narrative would make a valuable contribution to the improvement of organisational problem solving.

This view is confirmed by Boje (2006), who argues that many of the current crop of story interventions lack the sensitivity needed to emulate the dynamic of 'real' storytelling – they fail to account for the impact of antenarrative. An issue for this research is not so much whether story fragments can fulfil this role, but whether they can be controlled and balanced in an egalitarian, productive way to effectively ensure they 'nudge' and shape the debate on a problem in the 'best' possible manner. There is a risk that, when used, the power of some fragments (for example, in HFRS, "*2007*", "*the floods*", "*Buncefield*" etc.) is so great that they prejudice the problem-solving process to such an extent that solutions are produced that are no more appropriate to the needs of the organisation and its stakeholders than solutions reached by more traditional methods.   In noticing fragments, we are afforded the opportunity to identify where possible problems may be. Creating traditional, BME narratives in different configurations, with different inclusions and exclusions of fragments and stories allows resilience plans to be formulated and systems that deal with crises to be tested. However, one major difficulty with this model relates to how to identify and select the fragments that should be reacted to, and which to ignore – put simply, how do we filter out the 'chatter'? Reflexivity can play an important role here. In a doctoral

study of the effectiveness of medical decision makers, Rudolph (2003) noted that the

"best" problem-solvers were not completely open-minded throughout the process,

and in fact, they jumped to early conclusions about the nature of a problem and its

causes. However, rather than sticking to their BME solution that had been formed

early in the process, they reflexively challenged their early conclusions, and sought to

test the solution, rather than to 'prove' and support it. This approach would

presumably be exposed to the same difficulties i.e. which story fragments to include,

and which to reject?

This and other challenges to working with storytelling and fragments will be discussed

in the following sections of this thesis.

Challenges :

7.3. Identifying and interpreting story fragments

Many of the opportunities that working with story fragments presents are inevitably dependent on being able to recognise this specific form of antenarrative as it occurs 'in the field', and interpret and understand the meaning it brings to those involved. Given the localised, colloquial nature of key corporate story fragments, it immediately creates difficulties for practitioners who are external to any given group, as they are unlikely to be conversant with the group or organisational stories. This is also relevant to would-be ethnographic researchers.

Process observation is vital here, and being able to gain an authentic, representative view of how problem solving and storytelling normally proceed in an organisation are central to being able to work with story fragments. It should also be recognised that noticing the occurrence and impact of story fragments concurrently with using them in an intervention would be difficult. In my experience as a researcher, by employing a reflective and reflexive approach during the process of gathering data, the skill of identifying story fragments can be acquired. However, being able to deploy fragments purposefully to garner a useful response may not be as straightforward. Indeed, there is an inherent dilemma in the approach, as 'noticing' story fragments is likely to require a degree of detachment from the problem solving process being observed, while ideally the observer is fully immersed in the process to allow it to proceed naturally.

In addition, different observers could easily interpret the meaning and impact of a given fragment very differently, as Brown, et al., (2008) identify. Accurate

interpretation, or at least the ability to recognise and accommodate the possibility that a single interpretation may be inaccurate, is essential if there is to be meaningful use of a story fragment-based approach to improving ill-structured problem solving. As we have seen in Section 7.2, I argue that a key benefit of using story fragments and storytelling in problem solving is their ability to generate, and identify for contemplation, a range of alternative solutions. However, there is a risk that erroneous issues are implied into exchanges that have no real foundation. For example, some of the data (see Extract 62 – "Decisions on foam", p.284), suggested that 'responsibility avoidance' was an issue within the primary research site. However, this could very easily be interpreted as 'judicious caution', or as wishing to go through the correct channels and protocols. This introduction of uncertainty into the minds of problem solvers could create significant challenges for those wishing to use the approach.

Skilled facilitation could help here, and may be capable of presenting balanced alternative views of a problem, and to facilitate the adoption of a mind-set that recognises that all alternative interpretations have value. More research is needed into how and if consistency of interpretation could be managed to improve problem-solving outcomes.

Realistically, in most operational problem contexts, interpretation would need to be done by an individual who was involved in that activity. That person would have an informed view of the content of the problem, and be engaged with others in the process of solving it. Effectively, they would need to use the insight provided by the story fragments that emerged in the solving process to explore the problem from different perspectives. The use of this 'redrafting' approach is heavily dependent on an

individual observers' interpretation of the data, and the context in which it is made. Given the necessary 'embeddedness' of this key individual, they must be assumed to have views and opinions on the mattered discussed, leaving their storying input open to criticism of personal bias and the charge of presenting "anecdotal evidence". While this argument may have resonance with those who support evidence-based management, for example, see Pfeffer & Sutton (2007), it would not dissuade those who view high quality ethnographic research as essential to understanding the true drivers for human behaviour.

7.4. Deploying the approach

Antenarrative has an important role to play in understanding and solving problems. If we are to deliberately and consciously use Boje's concept, it is vital that story fragments can be captured or generated, as any attempt to deploy them in problem solving is reliant on being able to gain access to the appropriate raw materials for input into the process at the appropriate time. Given what we know about storytelling, it is reasonable to suggest that imagination and creative thinking are central to this in terms of identifying different interpretations, new perspectives, and ultimately, alternative solutions. In his book *"Imaginization – the art of Creative Management"* (1993) Morgan opens with the famous quote from Albert Einstein :

> *Imagination is more important than Knowledge. To raise new questions, new possibilities, to regard old problems from a new angle, requires creative imagination and marks real advance in science.*

> (Morgan, 1993, p. i)

7.4. Deploying the approach

While the quote seems to support the case for research of the type presented in this thesis, it does not indicate how difficult it can be to effectively and reliably stimulate creativity. The lack of an imaginative mind-set could be a significant barrier to deploying story fragments in an attempt to improve ill-structured problem solving.

In this context and in addressing this challenge, the potential role of CPS techniques in general could provide some reference points for the evaluation of a new story fragment based intervention that has been mooted in this thesis. There are many ways to facilitate the generation of new ideas - for examples, see Adams; (1986); McFadzean (1998a); Van Gundy (1992). These methods have the capability to produce a rich crop of potential routes to potential solutions, although the key to resolving any specific problem is to make sense of these independent antenarrative fragments and stories through 'prospective sensemaking' (Gioia & Mehra, 1996, p. 1229), i.e. speculating about how the future will evolve, and as I have described, creating a predictive narrative.

Of particular interest is the influence of improvisation; I suggest that the mental state required to deploy story fragments in solving ill-structured problems is similar to that explored by Weick (1998, p. 544) where he noted the contribution that could be made to organisational analysis by adopting an improvisational mind-set, taking jazz improvisation as an exemplar. He proposed a continuum of degree of improvisation that has resonance with the "*Creative Continuum*" in McFadzean's work (1998a, p. 4). These are represented in Figure 12 below:

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Figure 12 – Comparing Continua of CPS and Improvisation
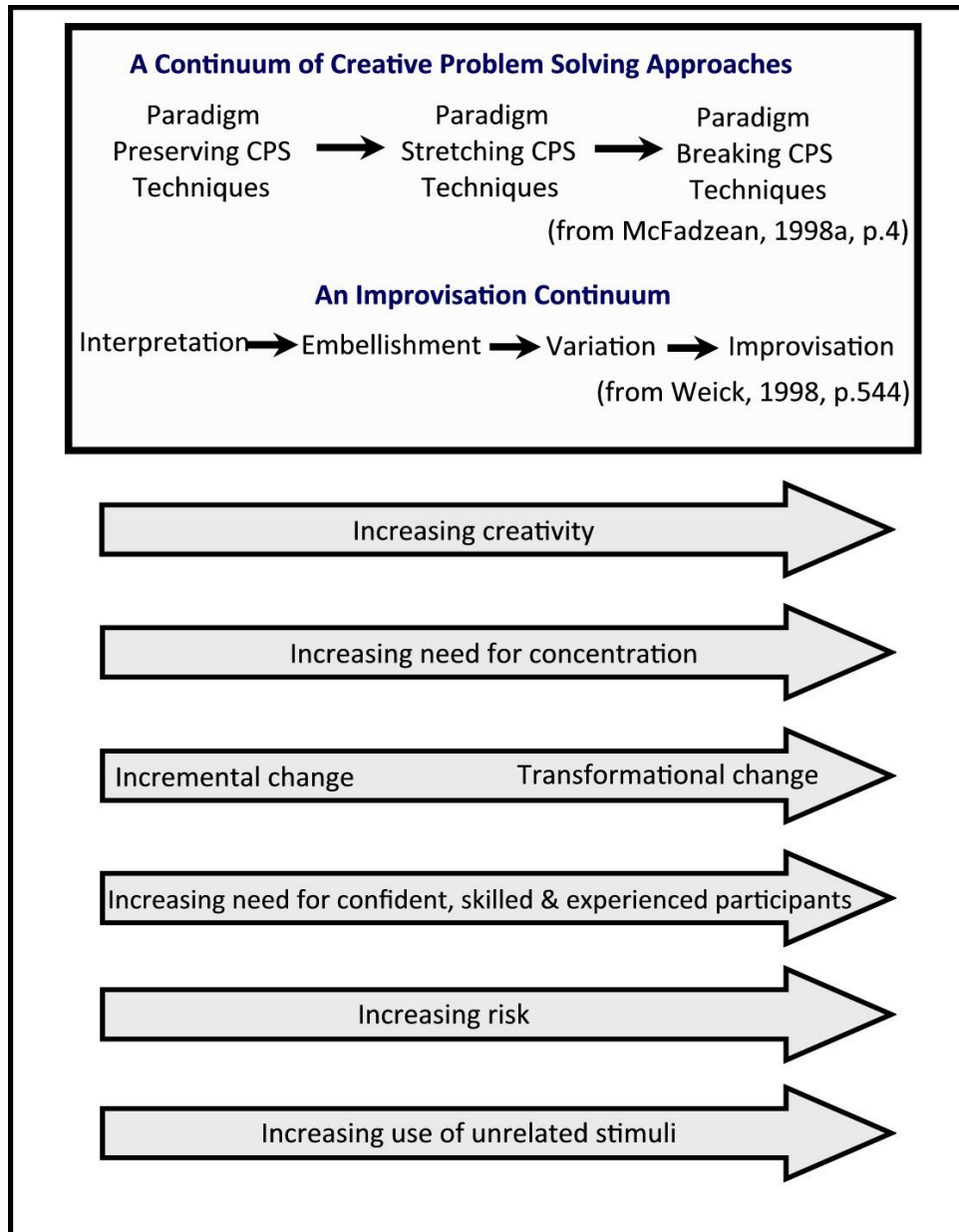
Source: (Snowden, 2011)

Both continua imply that as the requirement to progress from traditional problem solving to an approach based on storytelling and antenarrative, there is an increase in the requirement for imagination, concentration and risk-taking by those involved in the process. These are difficult skills to develop and challenging conditions to create in any organisation, and as such, represent a barrier to the deployment of a story fragment based intervention.

It is also important to recognise the risk of the improvised 'narratives-in-progress' being taken seriously by non-participants, and the ethical issues surrounding the possibility that authors would invent and discuss 'fictional' characters that were recognisable as real individuals from the organisation.

Other approaches to generating antenarrative for use in problem solving could come from the arts. For example, the work of Shane (1999), discusses how fine art has been used as a means of motivating and inspiring personnel while stimulating them to think about problems innovatively, and Linstead (2006), who explores the impact of music on organisational culture and change. Arguably, filmmakers invent antenarrative in the form of key moments that are engineered to catch the viewers' attention, and which stimulate the audience to think forwards through a range of potential futures (i.e. prospective storying) that hinge on a seemingly innocuous event. Filmgoers are invited to ask, "*Why was that important? What will happen now*?", and importantly, to contemplate a range of possible outcomes. With the benefit of hindsight, the audience can see how the story fragments fitted together (albeit in the director's typically monological narrative sensemaking). As explained earlier in this thesis, (see p.39), the play '*Tamara*', by John Krizanc (1981) is an important contrast to this tradition, showing that a story-based (rather than narrative) approach to sensemaking is viable.

Goranson & Cardier (2006) suggest that it is dissymmetry, incongruence and conflict that capture the interest and imagination of an audience, presumably facilitating their mental transportation into the future possibilities storied in the moment of the action.

It could be argued that interpreting art in many forms (for example dance, sculpture, poetry, etc.) is often concerned with representing antes, brought together into stories in one format or another. Narratives that explain the piece may be provided by an author, but I would suggest that part of the enjoyment of art is encouraging individual interpretations of what it means. Denning (2001) would perhaps argue that this incompleteness and flexibility of interpretation encourages observers to participate in contemplating a range of potential plots in which they can imagine themselves playing a part, and I would argue that this is consistent with the attitude required of ill-structured problem solvers. These plots emerge from fragments of story that observers decipher from the performance or viewing. Often in films and plays, a 'good story' keeps the audience guessing until the end of the piece, when finally the directors' or authors' narrative becomes clear. Paradigm-breaking CPS techniques (see Figure 12, p. 297) use the dissymmetry, incongruence and conflict that are present **before** a preferred pattern becomes clear to assist in generating radically new ideas and new perspectives. However, as already discussed in Section 7.3, to make use of an antenarrative-based approach to problem solving, we must also to be able to identify, generate, and collect the fragments when they occur: These are skills that can be learned (Boje, 2008).

While 'noticing' stories and fragments is an important, difficult, but viable step for anyone trying to understand their impact, given the range of interpretations that can be applied to these antenarratives, a simple application of the approach is unlikely to be helpful, and may even be counterproductive in problem solving, creating confusion and polarising any discourse. As has been found with CPS (Geschka, 1996; McFadzean, 1998), an expert external facilitator may well be necessary to 'seed' and control the

process. However, given the need to understand the antenarrative inputs, it would be necessary to train an individual who was already steeped in the organisations' culture to be able to recognise the need and opportunity to deploy a story fragment (i.e. one that resonates with the problem-solving group). That said, it could be that generic fragments could perform the function effectively, with the emphasis being on expert analysis of the process and timely delivery of a credible fragment, rather than on the detail of the content of the story or narrative that the fragment originated from. To some extent, this is a question of how important it is to have prior knowledge, experience and understanding of the fragment used. I suggest that the level of expertise and familiarity with the organisation that are required could therefore be a barrier to deploying this problem-solving approach. Furthermore, when putting the approach into practice in typical organisational group settings, given that social interaction and dialogue is so important in evolving our future-orientated narratives, the distribution of power and influence between those taking part in the discourse must be appropriate – indeed, who could judge this? Weick (1995) also says that sensemaking focuses *on* cues in the environment, and is focused *by* cues from the environment – there are so many cues, our sensitivity to these is again an issue.

Deploying the approach requires that our understanding of a situation continually shifts as new cues are noticed. This creates two problems: First, it requires that the problem-solver retain an open mind throughout the process. Rudolph (2003) identified that this was not the ideal mind-set for optimal decision-making, and I would argue is contrary to natural problem-solving behaviour. Second, the intervention is unlikely to be able to provide tightly defined outputs. Indeed, this is counterintuitive for this storying approach, which is likely to yield meandering, shifting, unanticipated results suitable for ill-structured problems, but not for well-structured ones.

In practice, creating and using fragments that can be deployed at exactly the correct moment is likely to be extremely challenging, and may well be seen as obstructive by more conventional problem solvers. It may not suit more traditional, linear thinkers, who are typically less flexible in their thought processes, and who could be expected to be uncomfortable with new and CPS techniques. This description may also fit those who have a preference for 'operations', such as those in the primary research organisation.

We should also note that a story-based approach to problem solving may lack the precision and speed of decision making that proceduralised, narrative-based approaches give: This was brought into stark focus when, in a HFRS training simulation that was observed but not recorded, hesitation and indecision in the 'Garage Scenario' caused failure, with the "*persons reported*" not being rescued. I suggest that the lack of a clear mental picture (for example, a narrative solution) prevented appropriate action being taken. For organisations such as HFRS, operational decisions need to be taken quickly, and rubrics provide an effective and relatively safe framework for individuals to use. While for strategic problems, these rule-bound patterns may not be appropriate, the engrained habit of using them is likely difficult to break. Indeed breaking these habits may be dangerous, particularly when the consequences of wrong decisions are, quite literally, a matter of life or death: We must be certain that story-based problem solving is appropriate to the context in which it is applied. This leads us to the consideration of wider deployment of fragments in both well-structured and ill-structured problems solving. It is reasonable to suggest that we typically search for solutions that have worked on particular problems in the past before we try to find or imagine for new ones. This sensible, logical human behaviour

saves time and energy and avoids 're-inventing the wheel'. When we look towards

deploying story fragments in problem solving, we note that they can be creative,

innovative, misleading, stimulating, diverting, affirming, challenging, etc., in other

words, they encourage difference and facilitate challenges to the status quo. In

contrast to this, narratives give us a comfortable, reassuring, familiar pattern to follow

that is therefore easy for people to commit to, making the application of old solutions

a much more attractive prospect than experimenting with untried possibilities. A key

step must therefore be to define a problem as being well- or ill-structured early in the

problem-solving process, so the appropriate approach to the problem can be

identified, and a decision taken as to whether we need to go through the disruptive act

of introducing story fragments into proceedings.

Some individuals may have an innate ability (or at least, a tendency) to introduce

fragments into discussions in a way that distracts and diverts the flow of the

conversation into a new direction. This may be deliberate or accidental, constructive or

obstructive. As already mentioned, deliberately creating and introducing story

fragments into a problem-solving context may well be seen as time wasting and

potentially divisive. If a technique were to be developed, it would be important to

understand the skill-level and mind-set required to use such an intervention. It may

well be that, using McFaedzean's (1998a) continuum, the technique would be for

advanced creative problem solvers only!

Learning to observe the problem-solving **process** to the same extent as the **content** is

likely to be challenging, and as we have seen, not without risk. I suggest it may form

part of a team leadership role, as is consistent with existing work on team building and development (Tuckman, 1965; Belbin, 2010).

It would appear then, that CPS techniques have a good deal in common with the practice of improvisation, and may well be appropriate for generating story fragments. To develop a pragmatic approach for use in an appropriate context, many different narratives could be developed by storying the fragments produced by a CPS technique. From these, it should be possible to evaluate and select some options for further development, while leaving others as potential seeds for yet more narrative routes; less suitable options need not necessarily be discarded, as "*folding*" of narrative (Goranson & Cardier, 2006) allows different perspectives and key themes to exist in a narrative simultaneously, as explored in 'Tamara' sensemaking (Boje, 2008).

Given that the skill set and mind-set required to make the proposed approach are rare in organisations and challenging to develop, it may be attractive to involve external facilitators, and possibly should involve key stakeholders in the dialogue. Yet organisations would be understandably cautious about fully involving (for example) current key clients in the processes. A leap of faith, and considerable development of the model, is required before the approach can be effectively trialled. It could be seen as trivialising the problem being tackled if users are not committed to the value of the tool or are mentally ill-equipped to use it.

However, if an organisation was sufficiently experienced and confident in the approaches being used, and trusting of all participants and facilitators involved, a storying approach to problem solving could be viable. This is consistent with very early

findings from my continued research in this area, where a group of mature and assured managers used a story-based approach to improvise solutions to an ill-structured problem, with some limited success. Deployment of 'safer' techniques and interventions may well be easier, but they are inherently less creative, with individuals more likely to 'interpret' rather than 'improvise' (Weick, 1998), sticking to existing frameworks and ideas, rather than developing new paradigms for solution-finding. The result is that the output is less likely to be valuable in dealing with the type of significant change associated with complex problems. As Weick put it:

> *As dependency on initial models increases, adaptation to more radical environmental change should decrease.*
>
> *(Weick, 1998, p. 545)*

This does suggest that a model that can be customized to fit the degree of change that is required could be valuable. However, we need to take care over the use of improvisation and CPS to generate story input: Improvisation in art is valued aesthetically, often for being artificially challenging and different; in business, this is not necessarily true – economic value does not automatically stem from being different.

A number of further deployment issues can be identified: First, the conditions under which story fragments are generated, sifted and ultimately refined into a future narrative are important. As Shotter observed:

> *[We] must both be able to 'follow' others in our talk entwined activities, and also, act and speak in ways that they can also 'follow'. To do this, to follow another person's utterances, and to grasp how they relate to their*

> *activities, we must actively adopt a responsively-expectant attitude toward*
> *them. Besides noting the reference of their utterances to the current*
> *context, their content, we must also note their point, the changes in that*
> *context toward which they 'gesture' in the future.*

(Shotter, in Barge, 2004, p. 120)

Here, Shotter is reinforcing the point that, to deploy a story-based problem-solving approach, participants must be sensitive and alert to the occurance of story, and be able to reflexively interprete the signs that point towards a potential solution. Second, Weick (1998, p. 549) quotes Wruck & Jensen in saying that when a firm "*disseminates improvisation rights*" it tends to encourage "*flexible treatment of preplanned material*". Again, fostering a management style that gives internal stakeholders the skills and latitude to improvise the way that they operate, while still respecting the organisations values and culture, is likely to be very challenging. Third, if the organisational leadership is to identify the end point for the problem solving exercise e.g. a vision of what the solved problem would be, Gioia & Chittipeddi (1991) suggest this would need to be negotiated, socially constructed, dialectic, and deliberately ambiguous; this is not a situation that is likely to be well received in most organisations. In addition, Dertouzos (1999, p. 31) describes creativity as requiring "*…a schizophrenic combination of rationality and insanity that is outside the ordinary experience*". Barrett (1999) adds that to tap into the "*deepest levels of creativity*" in staff, managers must also satisfy their physical, emotional, mental, and spiritual needs.

Controlling story-based inputs must be considered as a deployment issue. As a group becomes more aware of the power of stories and storytelling, it is likely that they will begin to use them more, turning a natural, intuitive act of sharing stories, narratives and fragments, into a deliberate, purposeful one. Creating a balance of arguments

within such a process, particularly when that balance may only be appreciated in retrospect, is difficult enough when storied inputs are assumed to be spontaneous, unplanned and responsive. But when actors begin to tailor and edit their storytelling behaviour, the intervention itself could easily become a 'wicked problem' in its' own right.

Two final issues arise under the heading of deploying the approach; first, there is likely to be an innate desire to filter out fragments that have a potentially undesirable impact in the problems solving process (for example, slowing decision-making down, or creating confusion and disagreement), if indeed we could recognise such fragments. Second, allowing fragments to impact, yet retaining a focus on the core theme of the problem–solving activity will be a fine balancing act. The extent to which the process can be allowed to run its course would sensibly need to be controlled by a facilitator, who could potentially colour the outcome with their own prejudices and bias.

These concerns could be contemplated when preparing a pre-planned intervention, but could inadvertently result in a flawed approach to ill-structured problem solving, producing pre-determined and predictable solutions in the same way as any of the well-structured problem solving techniques it seeks to improve upon.

Perhaps it would be more constructive to consider how overly negative, or excessively positive fragments might be countered when they occur, to provide a system where it is possible for fragments have the same facilitation affect as a narrative, but without imposing a (potentially) misleading structure to the problem.

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7.5. Summary of Research Question 4

This Research Question sought to explore the opportunities and challenges that may be encountered if managers were to attempt the use of storytelling and story fragments to help them solve ill-structured problems. There would seem to be an opportunity to influence processes and decisions with such an approach, and to recognise when they are being influenced. However, there are significant challenges to be overcome before deploying the intervention in real organisations.

The construction of narratives from stories and fragments appears to be a natural sensemaking behaviour in the organisations studied. They provide a framework around which a solution can be built, with the process providing a comforting certainty to problem-solvers when they are faced with any problem. This may be a satisfactory approach when problems are well-structured, but are perhaps far less appropriate when dealing with messy, wicked, ill-structured problems, and it is here that story fragments could have a particularly valuable role to play, both in identifying complexity, and in making a range of alternative 'senses' of the situation. These different sensemakings could benefit from the introduction of antes that can test and challenge a preferred solution in an effort to improve its resilience 'in-the-field'.

Analysis of the research data points towards a need for sensitisation of decision makers to the existence and power of story fragments, ideally those individuals who have knowledge and experience of the organisation concerned. While this is not an easy task, when working with story fragments in this research, I believe I became sensitised to the 'balance' of a problem-solving attempt, and to the variety of antenarrative influences on the problem solving process, suggesting that the technique

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may be viable. If this approach could be reliably duplicated and captured in some form of scaffold or 'framework', it may become possible to recognise deficiencies in a particular problem solving approach. Providing managers with a 'story-based problem-solving toolkit' could allow them to disrupt the often ill-founded certainty about a) the 'true' causes of a problem, b) how it might be solved, and c) how to implement a solution, and could assist a problem-solving team to improve on a naturally linear, BME problem-solving style.

To some extent, this could be argued to be counter-intuitive in that creating a **system** that replicates randomness is an oxymoron. However, I seek here to suggest ways to improve ill-structured problem solving, not to provide the perfect method for doing so: I accept the view that storytelling from an antenarrative perspective provides a better approximation of the real world of problem solving that a purely narrative construction perspective. However, pragmatically, I suggest that if some of the randomness of antenarrative has to be sacrificed for the sake of usability, so be it.

There are a number of obstacles to deploying the approach, and many of these resonate with the barriers to the use of existing creative problem-solving techniques. Furthermore, it can be argued that to use storytelling in this way is a political act, and working with politics in organisations is always extremely challenging (Gandz & Murray, 1980). Controlling the impact of antenarrative is difficult, and in a problem-solving context, has a further consequence for the climate of the problem-solving environment - the use of storytelling and story fragments is, in itself, an ill-structured problem, and one that must be resolved if the concepts within this thesis are to provide a usable intervention.

Summary of Research Questions

This chapter has provided detailed responses to the four research questions that evolved from the literature review.

It would seem that the general activity of storytelling features in setting the context of a problem-solving process, and has the power to impact on the mind-set and outlook of the individuals involved. Within the problem solving processes observed, narratives and stories tended to reduce the variation and range of solutions that were considered, whereas fragments of stories tended to encourage a broader perspective to be adopted, disrupting the level of certainty about a problem and its' potential solution. Constructing a narrative solution appears to have the effect of overpowering misgivings and concerns about a proposed course of action, and while this could be valuable in garnering action, it could equally be dangerous in terms of inducing false confidence in the solutions provided.

I argue that story fragments emerge more frequently when the problems being faced were ill-structured, and when they did appear, they encouraged deeper and wider thinking about the issues involved. This often resulted in the contemplation of new approaches to, and the adoption of new perspectives on, the problem being faced. Fragments also seemed to have the capacity to change the tone of a meeting, typically facilitating the establishment of a more creative environment for the problem solving activity.

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Finally, the recurring issue of deploying storytelling and story fragments in an ill-structured problem-solving intervention was discussed directly. There would appear to a case for developing a story-based problem-solving tool that utilises the sense making and action-orientation of narrative construction with the creative, disruptive, thought-provoking influence of story fragments. While such a tool has a number of challenges to effective development and implementation, it offers the prospect of evolving an aid to finding solutions to ill-structured problems that could be valuable to organisations in an ever more complex world.

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Chapter 8 – Conclusions and Reflections

… drawing conclusions from your research is the most important part of the process; in some respects it is also the most difficult.

(Matthews & Ross, 2010, p. 424)

In this final Chapter, the extent to which the research questions have been answered will be discussed, and the contribution to knowledge that the thesis makes will be evaluated. The aim of this thesis was to provide an improved understanding of the part played by storytelling and story fragments in solving ill-structured organisational problems, and contingent on that understanding, to explore how it might assist us as we seek to make plans for the future of our organisations.

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8.0 Introduction to Chapter 8

To draw this thesis to a close, I begin by reflecting on each of the four research questions and how effectively the data has been interpreted to provide appropriate responses, I highlight some of the key findings that emerged from the analysis in Chapters 4, 5, 6, and 7, and how these could be important. This is followed by a section that draws together these key themes and ideas, and relates them to how the research presented in this thesis might be applied in practice. The implications of the study for other researchers are then addressed, followed by a critical assessment of the limitations of the study. Finally, I present a discussion of areas for possible future research that I believe could prove to be particularly fruitful.

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8.1. Reflections on the Research Questions

Each of the research questions has contributed to knowledge in the field of storytelling in organisations to some extent. In this section, I clarify what that contribution is, and what I believe the broader implications may be.

8.1.1. How Storytelling features as part of people's approach to ill-structured problem solving in a specific organisation.

There seems to be a natural tendency for people to deploy narrative processes in their everyday problem solving, with traditional narratives and 'BME' story patterns appearing to be widely used as scaffolds for future-orientated problem solving, i.e. making strategic and operational plans to allow their organisation to deal with problems that they believe will arise in the future. The data suggests that the solution narratives that emerge from the storying processes are 'tested' in the mind of the storyteller, with the responses from stakeholders and the results of solution-implementation being predicted within the narrative in a way that makes sense of the actions that are planned and taken. In other words, there is significant scope for confirmation bias to play a key role in the solutions that are constructed. This study confirms the concern, frequently alluded to by Boje, that as the 'soup' of story fragments swirl around in this solution-finding context, only those fragments raised and 'heard' will have a significant impact on the formulation of the potential solution. As we see with "*Tamara*" sensemaking (Boje, 2008, p. 15), a vast number of possible solutions could be formulated, and I suggest that this natural use of storytelling in organisational problem solving filters out many of the more creative and credible options that could have been implemented.

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Similarly, when we review the impact of a solution, it seems we tend to recast the stories and fragments that were selected to construct the narrative solution, and with the benefit of hindsight, make retrospective sense of the actions taken. This is confirmed by Gioia, et al., (2002), who argue that we make sense of experience only through retrospection, i.e. through the development of a narrative that fits the 'facts' after they have occurred.

Had problem-solvers been able to select from a wider range of fragments to include in a prospective solution, it could be that different solutions may have been proposed, or a different implementation plan developed, or possibly, a different metric used to judge success. This process might involve the deliberate development of "*living stories*" (Boje, 2008, p. 54), where a more flexible, malleable, story-based (rather than narrative-based) solution would be encouraged to form. The data seemed to suggest that this more creative approach materialises in everyday problem solving in situations where no obvious solution was available or the traditional approach to solving problems had not generated an acceptable answer, when the issues being discussed were contentious and important to the protagonists, or when attempting to consolidate and share learning. As such, taking deliberate steps to encourage a storied approach to problem solving could be beneficial.

One of the most frequent uses of storytelling in solving problems was as a means of aligning the understanding of the group with the approach that the storyteller wished to promote. On a number of occasions, stories and narratives were told within groups and in one-to-one interviews to clarify the core of the problem, at least as the teller perceived it. This is an effective vehicle, but does not guarantee that the

understanding delivered is appropriate to the problem, although it does ensure that

the perspective of a good storyteller is heard. This raises an obvious opportunity, and a

major concern: We can learn to be better storytellers, and therefore promote our own

perspective more effectively, but this does not ensure that the solution we propose is

the correct one. Using narratives, stories and fragments in problem-solving has the

capacity to privilege one preferred version of events, one understanding, and thus one

approach, over other potential versions, understandings and approaches. High-profile

scandals such as Enron (BBC, 2003) where leaders presented a false narrative of

financial security, or despots such as Hitler and Stalin, who convinced millions to

believe tales that demonised large sections of the population, are testament to the

potential for misuse of storytelling: We must concern ourselves with who to empower,

not only how to empower through storytelling.

While from the research data for Question 1, storytelling seemed to be important in

the creation of prospective solutions, it was equally important and valuable in gaining

an initial understanding of a problem. I suggest that this latter role leads to a

dangerous urge to settle on a premature presumption of a clear understanding of a

problem. This is facilitated by *narrative* 'certainty', i.e. the assumption of "*there is only

one right answer*" (Kahane, 2004, p. 7), and may severely damage the probabilities of

finding an effective solution to ill-structured problems. I suggest that the mistake here

is that we tend to create petrified narratives that miss the nuances of antenarratives

and fragments, and risks jumping to conclusions. This may of course be necessary

when a quick decision is needed in an emergency. Moreover, as Alpaslan & Mitroff

(2011) recognise, structured, predictable, rational problems do exist and are solved

effectively by direct, systematic, traditional approaches, and we must not assume that all problems are wicked.

To make constructive use of the powerful features of storytelling, it may be possible to develop a typology of fragments, similar to the narrative types identified by Denning (2006), which could be used to attempt to provide a more balanced problem-solving process. There is perhaps scope for an intervention to be developed, similar to De Bono's '*Six Thinking Hats'* (2000) that could improve the exploration of the various potential interpretations of a problem, and a more extensive range of potential solutions.

8.1.2. What a focus on story fragments uncovers about everyday problem-solving practices

This question looked more specifically at story fragments in problem solving, rather than at storytelling in general. To recap, as stated in Table 1 (p. 13), a story fragment is a specific form of antenarrative; typically, a fragment might occur as a small piece of a story, a short phrase, or even a single word, that encapsulates a core idea, concept, emotion or meaning of a tale. Other authors may simply call them 'hints', but for a listener who recognises it, a story fragment is a representation of not only the information in the more complete version of the story, but also the feelings and emotions embedded within it.

In the case study organisation, it seems that story fragments emerge in everyday discourse, and when 'noticed' by listeners, have the potential to make a significant

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impact on organisational problem-solving practices. I believe that this 'noticing' of fragments is the key to harnessing their value, but this is not necessarily a straightforward aspect of the approach. While we are all influenced by stories and fragments, it seems that there are two levels to this awareness: First, a natural observance, when we are sufficiently acquainted with the organisation, its history, and its issues to 'get the hint' – this is consistent with Boje's "*Terse Telling*" (Boje, 1991, p. 115); Second, there is a deliberate, thoughtful noticing, that recognises that a fragment has been shared, and that there is implicit as well as explicit meaning attached to its use. This implicit meaning may be deliberately shared by the teller, or it may be inadvertent, unintentional, or even unnoticed, and as such, exposes issues and problems that are normally hidden (as is typical of ill-structured problems), and would not otherwise surface.

It is this second level of awareness that I believe has most to contribute in terms of improving ill-structured problem-solving processes, and to some extent requires reflexivity of the listener. It is fundamental to the opportunity to benefit from the findings of the research relating to this question, specifically, exposing ill-structured problems, uncovering ancillary problems related to the central one, and encouraging people to consider broader perspectives on the issues being addressed. Other researchers have noted that reflexivity is important in storytelling, with Fisher implying that storytelling encourages a reflexive approach to making sense of experience, and is a mechanism that provides "*principles – probability and fidelity – and considerations for judging the merit of stories, whether one's own or another's*" (Fisher, 1985, p. 349).

Reflexivity allows us to identify differences and anomalies in discourse, and Denning argues that by its very nature, storytelling focuses on the exception, not the rule, and comments that to have impact, a storied input must have "*strangeness*" (Denning, 2001, p. 126). I argue that this strangeness is not sufficient to raise our awareness of story fragments to the level at which the full benefits of the concept can accrue. In this research, recurring fragments that stood out when the data was analysed, and played a role in all of these aspects of problem-solving practice. Themes like "*Buncefield*", "*2007*" and "*Bartoline*" occurred regularly within the data from HFRS problem-solving attempts, and influenced and shaped the decision-making landscape, i.e. the context in which prospective stories were created to fit with the problem data in order to test potential solutions. However, relatively infrequent mention of other story fragments were similarly influential, such as "*9/11*", the individual identified as "*T*", and "*watch culture*".

I argue that the key contribution from this question is that an active attempt to notice story fragments could help to improve our identification of ill-structured problems and the issues involved with them. A further contribution is that it recognises that frequency of use of a fragment is not necessarily an indicator of its impact or importance.

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8.1.3. How storytelling and story fragments affect the dynamic of ill-structured problem solving

When researching the "*dynamic*" of ill-structured problem solving in organisations, the objective was to explore the context and conditions in which people search for solutions to wicked organisational problems, and how storytelling and story fragments impacts on this dynamic. In other words, I examined how storytelling affects the conditions in which the process of problem-solving takes place.

The findings and analysis identify that storytelling in general (i.e. including narratives, stories and fragments) seemed to impact on the problem-solving dynamic in various ways. There was evidence of an almost ritualistic aspect to the telling of stories in various phases of the problem solving process. For example, stories were told as meetings prepared to open, and after they had closed. I suggest that these influence the overall attitude of problem solvers going into the meeting, affecting the tone and attitude within the meeting, and as such their ability to generate creative solutions to complex problems. This view is supported by a range of work on the 'press', or internal and external environmental context in which CPS takes place (Rhodes, 1961; Kaufmann, 2001; Basadur, 1995; Goodman, 1995). Not only does this have an impact on the problem-solving performance of those involved, it may also impact on the likelihood of decisions and ideas being implemented afterwards. Considering carefully when storytelling takes place, and how to influence this, may well help in our attempts to find and implement solutions to wicked problems.

So having already identified that storytelling contributes to setting the tone and perspective adopted by problem-solvers (in Research question 1), and that they help to reveal the existence of ill-structured problems (in Research Question 2), this

question contributes to a third dimension: It allows us to see that when storytelling is used, it impacts on the problem-solving context and environment, and as such, affects the people and processes involved. By recognising and understanding this, we can begin to observe the influence of storytelling in our everyday problem-solving activities and compensate for it, thus allowing the problems themselves to be more accurately identified and better understood, and hopefully then, more effectively solved, resolved or dissolved. To succeed in using this understanding, it requires that we develop the skill of noticing how communication is taking place through storytelling: Experience in other challenging areas of communication, for example, in efforts to improve cross-cultural awareness, suggests that this skill can be acquired through training (Schneider & Barsoux, 2003; Bezrukova, et al., 2012). It does, however, contrast with the perspective offered by the literature reviewed in Section 2.3. Stories in Organisational Culture, Power and Politics, on page 67), where storytelling may seem to have a more covert, potentially Machiavellian role to play in organisations.

Improving our ability to interpret information in a way that is sensitive to the context in which it is shared could be a valuable aid in our attempts to solve ill-structured organisational problems. To some extent, story fragments seem to be capable of performing this function, in that the fragments seem to enable a voice to be given to concerns that may be difficult for members of an organisation to verbalise. Their appearance provide evidence that a connection is being made between the current problem, the participants in the meeting or discussion, and other indirectly related concerns that emanate from the context in which the problem solving is taking place. It is an encouraging sign that story fragments could contribute to gaining a better understanding of problems, and consequently to how solutions might be found.

It must not be forgotten however that some individuals could see antenarrative in general as a distraction from the main focus of the meeting, and it maybe that the absence of fragments may imply an authoritarian approach to problem solving. Here, a more creative approach may not sit comfortably with the organisational culture, or with the context in which the problem is being solved. Given that the main research organisation in this study seemed to have a strong preference for action rather than debate, and is predominantly a uniformed service, a degree of hierarchical structure was to be expected, and this influenced the problem-solving dynamic. There was however, an interesting tendency for participants to gather and swap stories after formal problem-solving meetings had finished. It suggests that people had information to offer, but they felt unable to share within the prescribed context, and that strong informal networks existed where views and stories were shared more openly. Stories, narratives and fragments collected in these less formal pre-meetings and de-briefings could provide a rich source of information for incorporating storytelling into the organisations' problem-solving practices.

So it would seem that the storytelling dynamic in organisations may both affect and be affected by the context in which the activity takes place. It would therefore be important to consider the consequences of this observation for the context of a story-based problem-solving intervention. It may well warrant specific action to encourage storytelling, perhaps through changes to the way group meetings are managed, although such an approach would contradict the apparent suppression of storytelling that may well have been a deliberate action, intended to help a meeting to 'stay focused'.

8.1.4. The challenges and opportunities that working with story fragments present to managers in dealing with ill-structured problems

There appears to be a case for developing an approach to organisational problem-solving that exploits story fragments and the concept of antenarrative. Indeed, Boje has developed antenarrative intervention techniques that deploy his concept in an organisational context, with significant success (Boje, 2008, pp. 187-242). However, it is useful to consider some of the benefits and barriers to working with storytelling and story fragments with practicing managers.

Given that antenarrative and narrative arguably occupy opposite poles on a continuum of flexibility of storytelling (see Figure 1 on page 34), it is perhaps counter intuitive to bring them together in a tool that is aimed at attacking the problems brought about by a chaotic world. In addition, Boje's methods are in themselves, complex and complicated, and not easily accessed by those seeking to implement the tools in organisational contexts. To some extent, Denning presents the 'narrative perspective' on this issue with his "*springboard stories*" (2001, p. xxi - xxii), describing how certain, well-crafted stories have the capacity to act as catalysts for action. I argue that their impact on people is both a strength and weakness, as the manner in which people 'buy in' to changes that Denning's narratives may have covertly or explicitly suggested, leads to the listener storying forwards and imagining how the story might be superimposed on their own lives or organisations. Denning notes that this results in being able to make changes more effectively, but does not fully explore how the approach distinguishes between making positive, productive changes to organisations and not bad ones. More work needs to be done on how to facilitate the selection of the 'right' changes before recommending that storytelling be used in implementation, a point supported by Boje (2006). I believe that there is an opportunity here to draw

on the flexibility of story fragments to overcome the overly deterministic nature of narrative. Perhaps the approach necessary to solve ill-structured organisational problems is to see narratives as the very potent forces for change that they are, and that they have the strength of influence to create solutions to wicked problems simply by overpowering the forces that create the various interwoven problems, albeit temporarily. The contribution that antenarrative could make would be to nurture the evolution of a more flexible, malleable, storied approach to a narrative solution that could be applied to the problem.

It was also interesting to note in the data that when individuals reflected on the events like "*2007*", the overall focus seemed to be on mistakes, lessons to be learned, and improvements to be made. Yet in the challenging situations that occurred at the time, there were undoubtedly numerous acts of heroism, bravery, and incredible dedication from all HFRS staff, a point that was reiterated in the second wave of data gathering. Yet these positive stories did not surface as readily in reflections on "*the floods*": This may be a significant learning point for any story-based problem-solving intervention, as it suggests that the storytelling process that resulted from the retrospective sensemaking may have a tendency to focus on the negative and underplay the positive.

While the opportunity to create a 'system' for addressing ill-structured problems might be attractive to practitioners, it could be argued that such an idea is inconsistent with antenarrative principles and with ill-structured problems, as typically, a 'system' guides, confines and restricts activities, rather than encourages the new, unexpected, and unusual. There is an obvious challenge in that much of the work in this thesis, and

more widely on antenarrative, could be seen to question the value of creating an organisational narrative.

However, an evolved storytelling technique may offer a method to bridge the gap between the randomness of free-flowing antenarrative, and the often inappropriate yet familiar and comfortable certainty of petrified narrative. Such an intervention would seek to use the power of a well-crafted story as the final output of the proposed approach, combining Denning's narrative approach with Boje's antenarrative. While interesting, the practicalities of this topic lies beyond the scope of this thesis, and in fact raises another perplexing issue - can we plan to deal with chaos at all? While it would seem that this situation is something of an oxymoron, a contribution of this thesis and of Boje's concept of antenarrative is that it opens up a space for this tension to be examined. Exploring this conundrum provides an interesting site for future research, and presents a tantalising prospect for practitioners.

Part of such a practical approach may well require an augmented storytelling vocabulary to enable participants to recognise and understand key features of the process they were following. To this end and as a contribution to narrative theory, it is useful here to expand and explain more fully the terms '*prospective storying*', '*prospective narration*' and '*predictive narration*' as used in this thesis. I suggest that the relationship between them is summarised in Figure 13 below, and in essence, relates to how the output of storytelling in treated. In prospective storying, new input causes a change to the storyline; in narration, new input is interpreted and manipulated so that it becomes consistent with the existing storyline:

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Figure 13 - Future-orientated Storytelling Terminology

Feature of the term:-	Prospective Storying	Prospective Narration	Predictive Narration
		Term used in Storytelling:-	
Flexibility	High	←——————————→	Low
Certainty	Low	←——————————→	High
Structure	Low	←——————————→	High
Storyline Options	Many	←——————————→	One
Thinking Style	Divergent	←——————————→	Convergent

Prospective storying is taken as a process of evolving and developing options that embrace the stories and fragments that emerge, but that provide multiple possible endings (or solutions), as seen in 'Tamara' sensemaking (see Boje, 2008, p. 15) and on page 39 of this thesis. It explores possibilities, rather than probabilities. By contrast, *predictive narration* is taken to mean a bias towards one particular outcome of the storytelling process, privileging probabilities over possibilities. It may well use a form of deliberate conformation bias to understand how various fragments of story might be accommodated by a solution narrative. The term relates to 'prospective sensemaking' (Gioia & Mehra, 1996, p. 1229), but here emphasises that, while there is an initial consideration of different storyline options, once a preferred narrative emerges, problem-solvers gravitate towards that single solution rather than towards many, and search for ways to make the fragments fit with that one narrative solution. A *predictive narrative* is taken to be a finalised, crystallised, definitive version of one of the pathways through the story fragments that relate to the issue being considered, and lacks the ability of a prospective story to evolve and pick up and drop different fragments as the tale (or plan for a solution) unfolds in implementation.

Sitting between the two extremes is the *prospective narrative*, as used already within

this thesis. It presents a limited range of storied options, but exhibits a degree of reflexivity, in that it recognises that many other interpretations of the story fragments are credible, but that to be of practical value, the 'best' prospective stories must be selected for development.

This practical dimension is explored more broadly in Section 8.2.

Finally, the research highlighted the value of a 'storytelling lens' through which to view organisational discourse in terms of identifying weak signals for change. Analysis of the data suggested that 'noticing' story fragments may provide a tool that can help to recognise embryonic organisational threats and opportunities before they develop into issues that appear on 'the corporate radar'. This could be extremely valuable in any rapidly changing market context, but is not without risks: If the weak signals are misinterpreted, action could be initiated that was unnecessary or inappropriate, or could result in an overreaction the caused more problems than it solved, as discussed on page 260. It may also present an image of managers who ignore the obvious problems, and focus on minutiae, and as such, creates a new, unrelated ill-structured organisational problem for managers to address. In the case study organisation, this could have severe consequences in operational circumstances, where delays and misdirection of resources can very easily lead to the loss of life. This reinforces the importance of correctly identifying the type of problem being faced, and of considering the context in which it appears.

The opportunities and challenges associated with prospect of working with story fragments are significant, and seem to point towards the need for further research

before managers could contemplate evolving techniques that relied on these findings

to improve their responses to wicked, ill-structured, organisational problems.

8.2. The Implications for Practitioners

Storytelling has become a popular device through which leaders, managers and consultants communicate with people inside and outside of organisations. Much has been made of the value of using stories in strategic management, as they are deployed to provide a powerful and emotive message that give the listener a clear vision of where the strategy is intended to lead, but gives them the latitude to implement a strategy using tactics that fit with their own context (Denning, 2005). Story listeners interpret what they hear in the light of their own knowledge and experience. While the results are positive in terms of implementation, it could be argued that there is a detrimental effect on the production of new ideas and new strategies (Garvey & Williamson, 2002, p. 74). Organisational members hearing a narrative are encouraged to consider the application of existing ideas and concepts in new contexts, rather than to invent new approaches. When attempting to resolve ill-structured problems, this use of storytelling is an obstacle to new, creative ideas. While it is recognised that old ideas applied to new situations is a valuable way to innovate, it does not encourage 'break-through thinking', or creativity per se. drawing attention to this impact is a valuable contribution made to praxis by this thesis.

Organisations use storytelling in solving the common organisational problem of strategy implementation. Popular methods such as those proposed by Denning (2001) and Guber (2011) create a link between the strategies that are typically formulated by senior teams, and the actions they require people throughout the organisation to take. These storytelling methods encourage those involved to find stories in their own experiences to help them to identify and link emotionally with the proposed strategic approach. As such, these personal narratives are guiding their actions, albeit I would

argue this is using retrospective sensemaking to assist prescriptive narration. People hear the broad strategic approach from the skilled storyteller, engage with the narrative they are told, and are thus provided with a description of the implementation problem. The narration encourages listeners to search their memories for similar experiences, and use their own recollected narrative as a basis for constructing a solution to the new problem. The concern, and indeed the contribution from the perspective of this thesis is that this approach to using storytelling perpetuates existing patterns of organisational problem solving that focuses on structured problems, and is unlikely to be useful with ill-structured problems that, by definition, have proved to be resistant to traditional solutions, are novel, and complex. I argue that management practice should account for this, and suggest that an opportunity exists for the development of less prescriptive, more creative approaches to ill-structured organisational problems, with the exploration of interventions that are based on controlled deployment of story fragments.

There is a fundamental issue with the way in which some practitioners use the concept of storytelling to effect change, specifically, that many try to prescribe a narrative that will provide a 'fix' for the particular problem being faced. Yet as we have seen in this thesis, the most significant problems faced are typically ill-structured in nature, as such are unlikely to be solved by a silver-bullet approach (Boje, 2006). A single, well told, well-constructed, emotionally powerful narrative has regularly been shown to have the capability to bring about change; the concern is that the prescribed change is unlikely to provide anything other than a temporary improvement in the situation, and worryingly, has the potential to cause a 'problem' to become a 'crisis' (Alpaslan & Mitroff, 2011). Narratives are useful in garnering action, but Boje (2006) explains that

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the process of creating them happens too quickly, and makes too many assumptions about the predictability of the sequence of events. This work supports Boje's theory, and as already stated, points towards the need for development of more refined story-based problem-solving tools.

Other studies have shown that the key obstacle to using CPS approaches is the level of comfort participants have with 'off-the-wall', radical techniques, for example McFadzean's work (1998a) suggests that 'extreme' creative thinking techniques should not be used with novice problems solvers. So while an approach based on storytelling and antenarrative (as suggested in this thesis) may well have a better chance of finding effective *solutions* than an approach that assumes all problems are 'old' problems, and that they can be resolved using old patterns and old thinking, if a storying approach is to be used, it will need to address the pragmatic issues of gaining acceptance with problem-solvers and being easy to deploy.

However, this is certainly not to imply that current storytelling practice has no place in a practitioner's armoury: The principles described by Denning (and others), where stories and narratives encourage listeners to draw analogies between the story they are told and their own situation, does have value. The approach facilitates the application of learned, historical, proven solutions, to different, new, live contexts. Indeed, this can be a rich source of ideas for CPS attempts. However, the concern remains that stories, or more specifically, narratives, impose a false certainty as to the cause and effect relationships between actions and reactions within them.

An approach that recognises and accommodates more complexity within the environment could address these concerns over existing organisational storytelling praxis. Indeed, the conclusions I have drawn directly from the research questions suggest that an awareness of this flaw may allow us to consciously use story and fragments to manipulate the decision context and environment – and to recognise when this is being done – and therefore balance or counteract the impact of overly prescriptive narrative if necessary. By highlighting this need for a blend of narrative and antenarrative, my research could facilitate an improved understanding of how fragments of stories can influence decision makers in practice. However, as yet I have not attempted to suggest how this might work in practice. Work by Colville, et al., (2011, p. 6) advances the discussion to some extent, with their consideration of "*simplexity*". This is a term originally coined by Colville (1994) created from a combination of the words 'simplicity' and 'complexity', and refers to the need in organisations for complexity of thought, fused with simplicity of action. This resonates with my suggestion that, to solve wicked problems effectively, we need the simplicity of action provided by narrative, combined with the complexity of antenarrative that represents the 'wickedness' more accurately. So a complex story that represents a wicked problem could potentially be simplified sufficiently to enable problem solvers to react to the problem, rather than be paralysed by the complexity and fear of unforeseen consequences of their action. This concept does however need testing, as when dealing with ill-structured, wicked problems, in some cases, no action may be preferable to the 'best' available intervention – a satisficing solution may not be an improvement on the status quo!

To consider operationalization of this argument, I propose that a more flexible, informed approach is needed when dealing with complex, interwoven problems, and Horn & Weber (2007), Boje (2008), and Alpaslan & Mitroff (2011) have valuable suggestions and contributions here. I align myself with these authors who tend to support the use of storytelling to explore, identify, and find solutions to problematic issues, rather than with the views of authors who advocate using stories to implement a predetermined solution to those issues. These uses are not mutually exclusive, indeed one without the other may well be dangerous: Imposing a storied solution that is born of an exclusive process rather than an inclusive one, or a narrative that is poorly crafted, will damage an organisation, whereas a multifaceted, polymorphic, chaotic story, is unlikely to provide an organisation with a clear and pragmatic vector to follow. Such an approach would hopefully avoid both 'paralysis by analysis', and 'change-for-changes-sake'. Evidently there are merits and problems with both perspectives, and I seek to identify possibilities for combining the approaches. As stories and narratives seem to be naturally used as mental devices within problem solving activities, a framework could be evolved to provide a flexible, 'scenario planning' form of vehicle to test business strategies in a balanced and controlled way before they are implemented in an organisation, and could produce a more palatable way to be creative in exploring new strategies. This approach could be similar to the scaffolds seen in Edward de Bono's work (1991; 1992; 2000). Such a framework might be of generic stories (e.g. an optimistic, a pessimistic, a happy ending, etc.), that could be pre-populated from the collective organisational memory, and supplemented or replaced with stories from the wider business environment. Further rational choice models could then be used to facilitate the selection between the narrative options produced. Polyphonically evaluating the narratives as they emerge via a moderated

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dialogue may engage stakeholders in the resolving of organisational problems more effectively than other (traditional) evaluation methods. This has resonance with Systemic Story Creation (SSC) described by Cecchin (1987); the SSC technique is retrospective in nature, as it looks back at what organisational members have said in relation to particular topics and attempts to deconstruct the narratives told; it then reconstructs a new narrative from new perspectives using the story fragments. It is possible therefore to see the prospect of extending the same SSC approach to look at prospective sensemaking, rather than as Cecchin used it, i.e. in making sense of the 'now' by re-interpreting the past.

Arguing critically, creating an intervention that draws on a story fragment or storying framework to help to explore problems and solutions is little more than a "devil's advocate" approach. However, ideas that emerge from even a very open and deliberate attempt to play devil's advocate are not always well received, and tend to polarise a dialogue. As story fragments can be seen to have the ability to "*fly under the radar*" (Brown, et al., 2005, p. 169) perhaps even more effectively than stories, they could possibly fulfil the role more effectively.

We must not forget that telling stories in the wrong way or in the wrong context can lead to them seeming unacceptable, impracticable, or too challenging, resulting in their rejection, as illustrated in the data in Extract 47 – "Buy your own socks" on page 243, but also described by Denning (2001, p. 192) and Guber (2011, pp. 111-112). Story fragments may be more subtle in their influence, and as such, avoid the risk of a premature return to an excessively logical, dogmatic style of thinking, i.e. with

organisational members tending to take the stance of "why we can't change" rather than "How we can change".

Two further contributions to practice emerge from this reflection on my research: First, any attempt to deploy a more sophisticated model for dealing with ill-structured problems may well lead to slower decision taking, which as Colville, et al., (2011) noted, can create frustration and a rush to find a solution – an approach that is not conducive to successful problem solving. Second, practitioners may also benefit from this work by considering the multitude of sources of stories and storytelling, and recognising that, as we saw in the data (for example, with the"*9/11*" fragment, and the point made by the Chief fire officer in Extract 57 – "The campaign against the cuts" (p. 275), that FBU campaigners "*didn't visit my home*"), these storied contributions can have significant influence on organisations. Figure 2 on page 70, adapted from Hatch & Schultz, (1997, p. 361) demonstrates this point. The focus of these authors' research was on organisational culture, identity and image, and as my adaptions to their diagram suggest, fragments, stories and narratives told in many arenas will affect the organisation. This adds a storytelling dimension that is largely out of the control of practitioners, and as such presents an additional level of complexity to the application of any story-based intervention.

So there would seem to be a number of contributions to praxis and implications for practitioners that can be drawn from this work. While I will return to some of these when I consider future work in this field (See Section 8.5), developing the ideas and concepts presented in the current section is beyond the scope of this thesis, but might be the focus for future work.

8.3. The Implications for Researchers

The research methods deployed in this study are not unique, but are perhaps not typical for a PhD thesis. A number of lessons have been learned that may well be of interest to researchers, and these are outlined in this section.

In focusing on the impact of fragments of stories as they emerged in organisational problem-solving contexts, this research has contributed to the debate on when, where and how storytelling can be of value in organisational contexts. It highlights that, while initially appealing, to attempt to explore the significance of the frequency with which certain fragments appeared was potentially misleading, with this idea being rejected on the following grounds: In a qualitative, inductive study of this nature, to attempt to include numerical data would not necessarily have been helpful, and may have detracted from the importance of individual, crucial comments that were made but not repeated.

In addition, Denning's argument that to have impact, a story must have "*strangeness*" (2001, p. 126); to some extent, this militates against statistical analysis of the recurrence of different story fragments – the more often a fragment is used, the less strange it becomes. However, the importance of identifying themes and patterns must not be overlooked, although I do not seek to offer advice on when a single incidence of a story or fragment has a different level of importance to one that has repeated occurrences.

The research was conducted in an ethnographic tradition in that I selected a primary research site in which I was relatively unobtrusive, and attempted to sense, analyse, interpret and write about what I observed. However, it was far from a perfect example

of the genre, as is illustrated by the content of the following extract from the 'foam' meeting with HFRS:

Extract 64 – "Just pretend I'm not here"

> *FF2 – Solberg are calling theirs "environmentally benign". And I've asked them to quantify what benign means, and have not got back to me yet. But, like I say, RH, the head sherang at the environment agency …*

[some joking took place, followed by the comment "***no, I can't say that***" relating to a derogatory remark he made regarding the environment agency staff member. The implication is that FF2 was modifying his comments in the knowledge that he was being tape-recorded]

The implication is that, while I was well known within the organisation and made every attempt to remain unobtrusive, the individuals within the meeting were editing their responses in light of my presence. To combat this, the ability to think reflexively is essential for the researcher, i.e. to ask the question, '*to what extent did my presence impact on the data?*'

However, I argue that in storytelling, the importance of an awareness of one's own presence and impact within a research sample extends beyond the simple issues of collection of data. I suggest that it is only through reflexivity that we are able to escape what seems to be an innate need to create a traditional narrative or BME story, and so be able to challenge the validity of that BME. Despite being *inside* the story, we must be able to see it from *outside* to appreciate how we are adapting and changing it as we record it in our memory. Without reflexivity, we simply make the perceived facts of our experiences fit our preferred narrative, and as discussed earlier, suffer from

confirmation bias. Giddens, cited in Best, et al., considers that to be reflexive is to have a "*life narrative*" (Best, et al., 2000, p. 242). This is an important point for both future researchers, and for the contribution to knowledge that this thesis makes: On occasions within the data, subjects seemed to be developing and building their own life narratives i.e. they appeared to used stories to explain and justify their actions to themselves and to others, to 'make sense' of their actions (Abolafia, 2010; Brown, et al., 2008). I suggest that these stories were edited, recast, and constructed to give the impression that the teller wanted to give. In other words, they are adopting a reflexive approach to life, as if they were saying to themselves "*this is how I want to be seen, therefore I will tell the story in a way that is consistent with that self-image*". Over time, these stories may cease to evolve, and petrify into a fixed life narrative of 'who I am'.

This is perhaps an issue when stories are solicited, rather than when they are collected through an ethnographic approach, and is an important point for researchers to consider before embarking on story-based data gathering.

This question of a personal 'life narrative' is important in a further contribution that this thesis makes, and is discussed as part of my proposed "Three Organisational Stories" Model on page 341, below.

8.4. Criticisms and Limitations of the Study

This study would not be complete without a consideration of areas of weakness within the research, and where I believe the work could have been improved.

First, as already alluded to in the previous section on page 335, this was not a classical example of an ethnographic study. Evidence of this appeared on a number of occasions, for example, the comment "*no, I can't say that*" (made in Extract 64 – "Just pretend I'm not here", on page 336) clearly noted the presence and impact of myself as a researcher. Recognising this, in a different meeting, I took the deliberate step to become involved in the content of the meeting, rather than simply observing it: in discussions between a HFRS officer and his non-uniformed staff, I intervened with a comment in the discussion, and thus became an active participant, rather than a 'fly-on-the-wall' researcher. From that point onwards, the meeting flowed much more naturally, with participants seemingly more relaxed and actively engaged. This highlighted the difficulties involved in deploying ethnographic study techniques, and suggested that further insights may have been gained into the problem-solving activities of the primary organisation had I been able to embed into a single team over a period of time, rather than attempt to become an invisible observer. To some extent, the data gathered for this study was limited by my presence becoming 'the elephant in the room' in some of the data gathering episodes. While steps were taken to minimise this effect, its influence on this study cannot be ignored.

Secondly, there is the issue of interpretation – what I perceived as significant narratives, stories, or fragments could easily have been interpreted differently by different researchers. The second wave of data gathering attempted to address this

concern by corroborating my interpretation with that of key informants, but given the practicalities of research and the timescales involved, this was not, and could never be a perfect exercise. While all the data is available for review, in the spirit of antenarrative, the context of that data has now changed, the content has been sanitised, and I have influenced interpretations of it with my own interpretation. Unfortunately, this is the nature of research that attempts to follow an ethnographic tradition. Compensation could have been made by including an element of quantitative analysis, and attempting to look for patterns that could be verified in the data. However, this would represent moving towards a more 'scientific' approach to responding to influences on decisions, and undermines a key position of the research, i.e. that single fragments of stories as well as full narrative tellings, possibly shared only once, can be very powerful influences on our everyday problem-solving activities – repetition is not necessarily a contributory factor.

It must also be remembered that this was in essence, a case study. HFRS is a unique organisation, with distinctive behaviours and characteristics that cannot be found elsewhere. So while no claims are made in terms of generalizability, I believe there are some interesting conclusions that could be tested in other organisations. One of these (the '*Three Core Stories*' on page 341) that could have the potential to make a significant contribution to knowledge is outlined in the following section.

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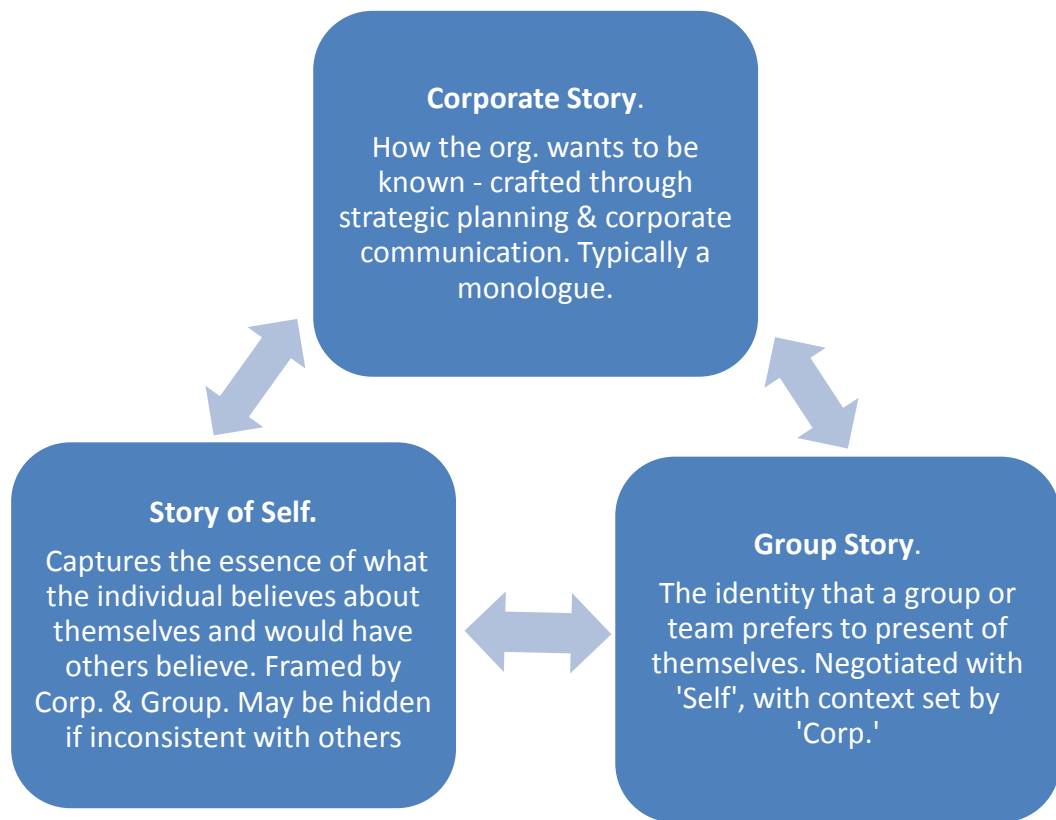
8.5. Areas for Future Study

While there are, I believe, a number of areas from this research that warrant further research, possibly the most interesting and valuable contribution is the concept that I described as a "*triangular relationship* on page 141, and introduced more specifically on page 152 of this document, namely that of the existence of three 'core stories' in organisations.

This simple model brings together the some important theories from this thesis, such as storytelling playing a part in setting a corporate image and culture (supported by Hatch & Schultz, 1997), developing a "*life narrative*" for individuals, (supported Giddins, in Best, et al., 2000, p. 242), and playing an important part in cementing group norms and behaviours, as seen in HFRS as the 'Watch Culture'.

I posit that a reflexive relationship exists between the 'life narrative' of individuals (or the 'story of self'), the corporate story, and the team, or group story. The similarities and contrasts between these stories is an area worthy of further exploration, and while it extends beyond the scope of this thesis, I maintain that it is a valuable contribution to knowledge, and as such, to begin the exploration of the concept in this section of my work is justified.

This relationship between the three core stories is set out in Figure 14 below:

Figure 14 – The Three Core Stories

Corporate Story.
How the org. wants to be known - crafted through strategic planning & corporate communication. Typically a monologue.

Story of Self.
Captures the essence of what the individual believes about themselves and would have others believe. Framed by Corp. & Group. May be hidden if inconsistent with others

Group Story.
The identity that a group or team prefers to present of themselves. Negotiated with 'Self', with context set by 'Corp.'

The suggestion I make is that in an organisation, there is typically a 'Corporate Story' or 'Organisational Story' that is crafted by the senior leadership, and is an attempt to dictate how the organisation is perceived by its stakeholders, and particularly the groups and individuals within it. This story is deliberately constructed to be consistent with the external environment, is shared through strategic communication, and is represented by the way the organisation behaves. It influences, but does not necessarily overpower the other core stories. The 'Group Story' is a representation of group norms and behaviours, by what is valued and what is not, and by what is perceived as 'normal' and expected of team members. This affects and is affected by

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the various 'Stories of Self' brought to the group and organisation by employees within the group, which may not necessarily be shared, but still contribute to the evolving stories of self, group and corporation/organisation. In some situations (for example, as in the 'Watch Culture') the group story overpowers the story of self, forcing individuals to align themselves with the team. In other situations, a key individual (for example, an inspirational leader, or a 'rotten apple') with a powerful story of self can shape the group story to a significant degree, and potentially, also the corporate story.

I argue that, to improve achievement of strategic goals, the three core stories should be congruent within an organisation, i.e. broadly aligned with each other. Focusing on the fragments that represent these stories allows us to see inconsistencies between the three, and such a situation would perhaps typically be an ill-structured problem. The concept also introduces the possibility of re-drafting the fragments of story that comprise an individuals', groups', or corporate story, and ultimately facilitating the re-drafting of their beliefs about themselves. It suggests that an intervention into their life and activity that draws on story fragments could be developed and may have sufficient traction to bring about change. This has resonance with an approach that Denning (2001) explores thoroughly, where he prescribes a very deliberate and thoughtful crafting of a narrative to generate the desired effect in an organisation.

I have used the term 'story' knowingly, as all three stories could be expected to evolve and change over time, and it is here that the value of the concept lies: Perhaps if we can 'hear' the three core stories more effectively, we can understand the problems we face when they are not aligned, and how their incongruence blocks organisational progress. As a method of analysis, researchers and practitioners should be able to

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identify, compare and contrast the core stories in search of the issues that concern those involved. It also provides a logical route to the possibility of managerial intervention, through the use of storytelling to develop a more productive configuration of core stories, be that more aligned to create harmony, or misaligned to stimulate creativity and innovation. Stories are naturally negotiated and contested between different actors, and this could be a strength of this model.

The concept is not without precedence, for example work by Näslund & Pemer (2011) it was found that stories that fitted semantically with the dominant corporate story were considered to be convincing, while those that were at odds with the dominant story were less so. Jacobides (2010, p. 3) explores the link between a corporate level and business level narrative in an attempt to understand organisational issues.

Support for the idea can be found in the research data for this thesis. For example, the 'solution' to the foam problem that was discussed in Extract 1 – "Foam meeting gets underway" on page 144, was constructed as a narrative that fitted with all three core stories: the 'story of self' (i.e. as highly competent operational individuals), the 'group story' (i.e. as a team swayed by evidence, not emotion), and the 'corporate story' (i.e. as providing more efficiency, yet with up-to-date resources). As such, the '*Buncefield'* story fragment had been influential in locating an acceptable solution. It could be argued that in Extract 1 – "Foam meeting gets underway" the firefighters were using story and fragments to create a narrative that accommodated all three core stories, perhaps focusing on story alignment more than the problem itself. Participants may have been tailoring their comments to align themselves with where they think the solution narrative of the foam issue would ultimately settle and solidify, leaving

themselves better placed to further their own agenda when that solution was implemented. Indeed, their stance would also be noted in the written records of the meeting, that would provide recognition and evidence of their personal position and contribution to proceedings, thus having the potential to contribute to the personal story of self that is presented to those not in attendance. These behaviours may be what Lissack & Leitiche see as a search for coherence, and be typical of these problem-solving scenarios (Lissack & Letiche, 2002).

Exploring the practical value of the model further, it would seem very difficult to present an individual story of self that is different to the group story – perhaps more commonly described as a feature of peer pressure. This difficulty was demonstrated by the stunned silence following a comment in Extract 47 – "Buy your own socks", p.243, where an officer, in a very direct approach, suggested that firefighters should purchase their own socks to wear at work. The comment was not well received, and was largely ignored by the group. Using story fragments could provide a vehicle for responding to peer pressure in a less confrontational manner.

Put another way, storytelling allows the concerns of those who are preoccupied with their operational roles to be aired, while the 'corporate story' can also be told and its primacy recognised. This goes to the heart of this theory in that, as seen in the storytelling episode in Extract 2 – "Foam and the environment" (p. 148), the story relating to the environmental impacts of 'foam' was initially told in a style that is congruent with the embedded, traditional narrative of the organisation, when the practice was "*to flush it down the drain*". This fragment was quickly modified to be

consistent with the current corporate story, where the damage that could be done to the environment was recognised.

The effectiveness of this approach to achieving this realignment of core stories could have been due to the storyteller initially gaining a degree of traction with the group by acknowledging the historic group and corporate stories. This provided a base from where a rationale for the introduction of change was storied in a way that made it consistent with the 'new' corporate story that is communicated in the Strategic Plan and the IRMP (see p. 70 of this thesis). In this storying, story fragments came into play as the corporate story was evolved, edited, predicted, and manipulated to better suit the narrative that the members of the meeting feel comfortable with, i.e. story fragments were arguably used to influence the group story, to align team members with the organisational goals.

There is perhaps a risk in adopting the "Three Core Stories" model, as the stories could become narratives – this would not be desirable as I would argue that the storytelling needs to continue, the three core stories need to evolve as the environment changes.

There are inevitably a great many unanswered questions with this model, and as such, I suggest that it be a site for future study, rather than purely as a contribution to knowledge.

Finally in this section, a further site for further research emerges from an intriguing parallel between evolving stories and solutions and the world of art. This link should not perhaps be a surprise, given the discussion in Chapter 2 of this thesis, where problem solving and storytelling are linked to jazz music (see page 61). Many artists

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present their work with a 'statement' that is intended to help the viewer to understand the meaning of the piece; the implication is that there is a 'correct' approach to interpreting the message that has been embodied in the artwork. As such, this approach can be equated to narration. By contrast, other artists (perhaps from the Conceptual School) exhibit their work without guidance. The intension is to allow the viewer to attach meaning to the piece, and is similar to the practice of storying. While the fields of problem solving and art are very different, not least in terms of what is valued as an output from artistic processes rather than problem solving practices, storytelling provides a link between the two disciplines that I suggest has the potential for a symbiotic relationship, and is a potential topic for future research.

8.6. Concluding Remarks

This research has explored how storytelling and story fragments are involved in solving wicked, ill-structured problems in organisations, and has considered how this role could be usefully extended.

Narratives and stories, as parts of the activity of storytelling, are widely noted for their ability to create coherent problem-solving action in a wide range of scenarios, including those of great uncertainty, and this was confirmed within this study. They are recognised as being able to facilitate action when none would otherwise be taken. My research confirmed that storytelling is used in organisational problem-solving contexts to impose a structure onto a problem, even onto problems of the most ambiguous, vague, mutating, dispersed and challenging variety. This structure tends to make problem solvers more comfortable with the problem, more confident in their storied solutions, create a degree of certainty about cause and effect, and help to convince them that they can solve such problems in a traditional, logical, rational manner.

Yet we must ask the question "*is it appropriate to impose this structure?*"

For wicked problems, we have seen that this creation of certainty is an illusion, with the result that our traditional problem-solving approaches that rely on having a clear definition of what a problem *is*, are largely ineffective.

I recognise that it is human nature to continually envision a future state of being, and similarly natural to imagine how that vision may or may not become reality as time passes. We continually revise our actions, and ultimately the envisioned goal, as events impact on its chances of realisation. In other words, plans change. To abandon this

would be counterproductive in problem solving, as there is much in traditional systems that works well. We emphasize obvious failures of these systems to cope with chaos, perhaps without giving due recognition to the successes; environments are not chaotic all the time, and less radical problem solving and sensemaking techniques give good value in stable situations (Czarniawska, 2004).

However, it is also human nature to seek improvement; we continue to misjudge what is going to happen in our organisations, to overlook influences that come strongly into play, and to fail to account for unforeseen events. In short, we make mistakes. This work has explored the contribution that sensitisation and sensitivity to story fragments can make to reducing these mistakes. It has considered using an understanding of story fragments and of narrative to evolve our ill-structured problem-solving approach in order to reduce errors, not eliminate them: It would seem that an intervention based on this understanding could offer more intelligence on prospective outcomes and influences, opening our eyes to different possible solutions, and helping us to prepare for the unexpected. Deploying this through narrative sensemaking seems to gives us the motivation and ability to act. The need to account for the non-linear, rhizomic, complexity-sensitivity of wicked problems is accepted, yet a vehicle that delivers solutions in a palatable, credible, and actionable form is also recognised. This makes combining story fragments that supply diversity of ideas and options, with narrative coherence supplying clarity of purpose and direction, a potentially attractive approach.

While I believe this research could be of value to the everyday practice of solving problems in organisations, in evolving this work towards use 'in the field', we must

remind ourselves of the power of stories, story fragments, and antenarrative in general. While as this research suggests, fragments can indicate the existence of deep-seated problems, ill-structured problems, and weak signals for change, we must consider for example, whether we are being influenced too much or too little by a powerful storyteller, an engaging narrative, or an inadvertent reference to an evocative story fragment. Finding this balance is an ill-structured problem in itself, and this must be addressed before attempting to turn theory into praxis.

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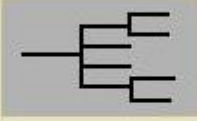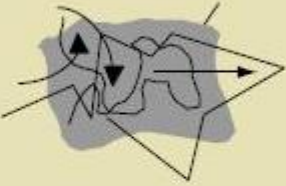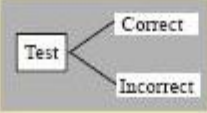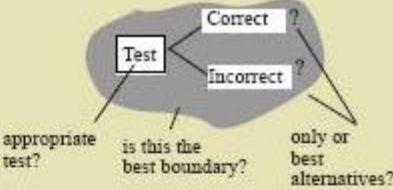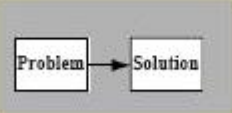Available at: http://en.scientificcommons.org/2123901
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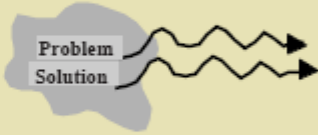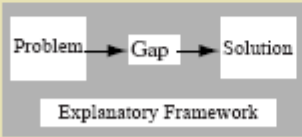Wortmann, C., 2008. Can stories change a culture?. *Industrial and Commercial Training,* 40(3), pp. 134-141.

Appendices

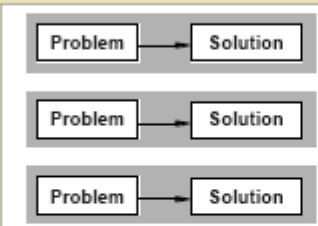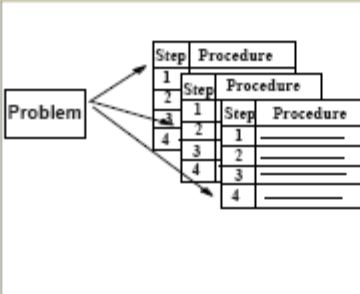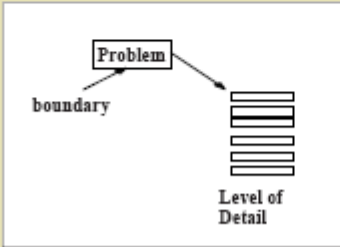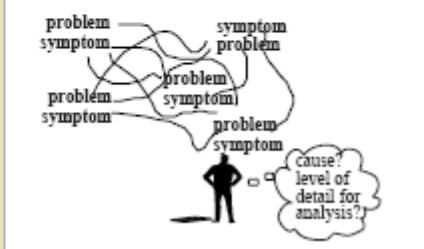**Appendix 1 – A Comparison of Tame and Ill-Structured Problems**

(Horn, 2008)

Characteristics	Tame Problems	Ill-Structured Problems
Ability to determine whether problem has been solved	Have a clear ending point and a determinable solution. Problem → Solution → done? Yes/No. A clear rule or test can be stated to determine completion.	No stopping criteria…the problem may be ongoing and continuously changing, so there is no way of determining completion. Problem/Solution
Tractability	Exhaustive list of operations used to solve problem exists. Step / Procedure: 1, 2, 3, 4	No list of operations exists for solving ill-structured problems. Problem/Solution ?
Relationship between explanation and solution	Can be stated as a discrepancy between what is and what could or ought to be, and an explanation exists for every gap. Problem → Gap → Solution. Explanatory Framework	Many possible explanations and each one "contains" or "implies" a different solution. Problem/Solution. explanation → solution, explanation → solution. More on this table on the next page

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Appendix 1 (cont.)

Characteristics	Tame Problems	Ill-Structured Problems
Uniqueness or reproducibility of problem	Problems can be abstracted from the real world and similar solutions can be found.	Each problem and each solution is unique.
Repeatability of solutions	Attempts to solve can be made repeatedly until one works.	You cannot undo what you have tried, so that each solution is unique and changes the nature of the problem.
Level of analysis	Identifiable, "natural" form with high degree of certainty...level of detail for solving the problem can be found...and boundaries for the problem are reasonably easy to agree upon.	No identifiable causes...every "symptom" is a problem and vice versa...level of detail and approach are not easy to define...little agreement on setting boundaries of the problem.

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Source: Mitroff, et. al. (1983) The 1980 Census: Policytmaking Amid Turbulence. Lexington MA, Lexington Books

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Appendix 2 – Concept Diagram of Problem Complexity

(Storer, 2006)

PROBLEM COMPLEXITY SPECTRUM

SIMPLE ← → COMPLEX

Thinker's Toolkit p.51 — simple ← → complex

facts ← emphasis on facts vs. judgment → judgment

Simplistic: factual. Only one right answer

Deterministic: only one answer, but correct formula must be used

Random: different answers are possible, all can be identified

Indeterminate: different answers are possible but are conjectural, so not all can be identified

Practical Systems Thinking p.27 — simple ← → complex

"Hard" systems — "Soft" systems

low ← degree of human activity → high
high ← predictability → low
easy ← ease of quantifying and measuring attributes → difficult

Solving Tough Problems p.31 — simple ← → tough

low ← dynamic complexity → high
(close) ← (proximity of cause and effect in space and time) → (distant)
low ← generative complexity → high
(familiar & predictable) ← (familiarity and predictability of future) → (unfamiliar & unpredictable)
low ← social complexity → high
(high) ← (commonality among people involved) → (low)

Dialogue Mapping — tame ← → wicked

low ← social complexity → high
low ← problem wickedness → high

Tame problems (p.18-19):
1. Well defined & stable problem statement
2. Definite stopping point
3. Solution right or wrong
4. Belongs to class of similar problems with similar solution processes
5. Solutions can be easily tested
6. Number of solutions is limited

Wicked problems (p.14-15):
1. Don't understand problem until have attempted solution
2. No stopping rule
3. Solutions not right or wrong just better or worse
4. Each problem is unique and novel
5. Every solution is one shot - changes problem
6. No given solutions

Most appropriate solution approaches

authoritarian or expert solution acceptable ← → Inclusive, dialogic approach required

Research — Analysis — Systems analysis — Workshop — Dialogue

Typical tools and methods

tools for simple problems ← → tools for complex problems

past solutions, statistical analysis, system map, tree diagram, dynamic facilitation, dialogue mapping, literature search, data, charts and graphs, fishbone diagram, relationship diagram, causal loop diagram, view graph, flip chart, graphic recording, dialogue, benchmarks, block diagram, process diagram, models, simulation, influence diagram, "rich picture", "mess map"

Karen O. Storer 2006
www.picturesitsolved.com

Sources: Thinker's Toolkit, Morgan D. Jones, 1998
Practical Systems Thinking, Alan Waring, 1996
Solving Tough Problems, Adam Kahane, 2004
Dialogue Mapping, Jeff Conklin, 2006

Appendix 3 - Sample Transcript

Transcript T7-S

Training Scenario at Incident Command Training Centre – HFRS – 10-2-11

<u>Fire at Eastfield Farm – simulation</u>

0:00 – Very clear and precise instructions given by trainer 1, setting out the problem to be addressed, and specifying that the firefighter/trainee must follow SOP's.

2:00 – trainee begins working through SOP's , briefing crews (Trainer 1 and 2 in this simulation). Trainer 1 enters the simulation in character.

04:45 Trainer 1 – Hi! My Barn's on fire!

Trainee – your barn's on fire is it. What's in your barn?

Trainer 1 – well I was filling my tractor up with diesel, and I spilt some of the diesel, and it bloody caught fire didn't.

Trainee – how was you filling your tractor? Is a big bowser in there, or…?

Trainer 1 – well yeah, my bowser's in there, and I was filling it up from that, and I dropped the hose and everything, and spilt it all over the place and that's caught fire, and my tractor still in their…

Trainee –… So it's free-flowing is it?

Trainer 1 – no it's got a valve.

Trainee – what else have you got in your barn?

Trainer 1 – well I'm bothered about my tractor, I want that taking out. But I've got fertiliser in there as well.

Trainee – what sort of fertiliser is it?

Trainer 1 – it's DDT, and just between you and me, I've got some paraquat in there as well. I shouldn't have it in there, but I have. 05:55

[the simulation continues with Trainer 1 giving prompts and fragments of information (not stories), with the fragments are intended to lead the trainee along certain thought patterns. The trainers use of fragments of information is fundamental to the simulation, although these are not used in what might be termed a "story" format - i.e. there is little emotion in the sharing of information. Perhaps an improvement to the simulation might be to train the trainer in simulating emotion.] 07:38

11:10 [after various operational exchanges, Trainer 1 (as the farmer) is recalled and given instructions to stay clear, but in touch.]

Trainer 1 – can you do us a favour mate? Can you get my tractor out please, 'cos I'm not insured.

Trainee – right, I'll see what I can do about that.

[Trainer 1 has introduced a fragment of information, (in the form of an antenarrative?) With the intention of testing the trainee's response to a relatively common scenario]

[the trainee is remembering and following SOP's. There is no indication that his actions are based on previous experience, but maybe. The scenario is working as a story in which the trainee and the SOP's are tested. However, it will be relevant to question whether the scenario is developed with the preconceived notion that the SOP's are appropriate. I.e. the answer we want is X or Y SOP, so what question do we need to ask? So the scenario predetermines that correct SOP's will be successful at solving the problem. Based on the assumption that fires operate in a largely predictable fashion i.e. they are structured problems, this approach would seem to be appropriate. The question for this study in relation to this training may well be, how to spot a fire that is an ill structured problem.]

[As a farmer's son, I recognise DDT and paraquat are poisonous chemicals, but are not "fertiliser" - however, at around 20:30, the trainee recognises that fertiliser and diesel are explosive when mixed.]

End of incident

Within the feedback/debrief, the trainee is praised for not spraying a jet of water onto the fire - this would have caused an explosion. It suggests that the problem was more complex than it first appears, and that the SOP's and training have been developed to structure the ill structured part of the problem. At about 26:10, Trainer 1 explains that the exercise is about overloading the trainee with information.

At about 32:00, the trainer explains that there is a balancing act to be performed in terms of controlling the toxic smoke plume on one hand, versus the polluted run-off on the other. Much of the debrief revolves around the information gathering and sifting process, all of which has been proceduralised and documented as much as possible. This seems to be a justified and valid approach to solving the problems faced by a fire service in the context in which they arise, and many problem solving techniques attempt to give structure to ill-structured problems.

This raises the question of problem context – stories and fragments were (relatively) abundant in meeting contexts, perhaps where more strategic "wicked" problems were being discussed and resolved, but here fragments have been used to help to add realism to the scenario, rather than to help find a solution.

The debrief continues to discuss how real firefighting scenarios can become very complex and ill structured, and the SOP's are there to provide structures and systems to help minimise errors.

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Trainer 1 refers to a decision making model that has been developed. (see below)

there is a possibility that this recognition of the lack of complexity in the current scenarios could be improved or enhanced by considering more carefully the inclusion of fragments of stories. These need not necessarily be complete, and I would suggest not thought through to set ends and outcomes, but left open to discussion and review and contemplation.

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Appendix 4 – Ethics Approval Documents

Email Confirming ethics approval

From: A.Cowling@hull.ac.uk [mailto:A.Cowling@hull.ac.uk]
Sent: Thu 02-May-13 11:20 AM
To: Nicholas C Snowden
Subject: Research ethics application HUBSREC 2013/08

Dear Nick,

Thank you for your research ethics application for your research "Storytelling, story fragments and solving ill-stuctured organisational problems".

I am please to inform you that Wayne Rodgers, on behalf of the Research Ethics Committee, has approved your application on 2nd May 2013.

Best wishes, Amy Cowling

RESEARCH ETHICS COMMITTEE

CONSENT FORM – For Institutions/Organisations

I, ... Richard Hannigan............. of   Humberside Fire and Rescue Service

Hereby give permission for   Humberside Fire and Rescue Service staff

to be involved in a research study being undertaken by ..**Nicholas Snowden**..

and I understand that the purpose of the research is

To investigate the role of storytelling in solving problems

and that involvement for the institution means the following:-

One-to-one interviews with a range of staff members
Problem-solving meetings will be observed
Non-life threatening training scenarios will be observed

I understand that

1.   the aims, methods, and anticipated benefits, and possible risks/hazards of the research study, have been explained to me.

2.   I voluntarily and freely give my consent for the institution/organisation to participate in the above research study.

5.   I am free to withdraw my consent at any time during the study, in which event participation in the research study will immediately cease and any information obtained through this institution/organisation will not be used if I so request.

3.   I understand that case studies will be used for research purposes and may be reported in scientific and academic journals, non academic publications and the internet.

I agree that

4.   The institution/organisation MAY / ~~MAY NOT~~ be named in research publications or other publicity without prior agreement.

5.   *I /~~We~~ DO / DO NOT require an opportunity to check the factual accuracy of the research findings related to the institution/organisation.*

6.   *I / ~~We EXPECT~~ / DO NOT EXPECT to receive a copy of the research findings or publications.*

Signature   Date: 25/4/2013 .

The contact details of the researcher are: