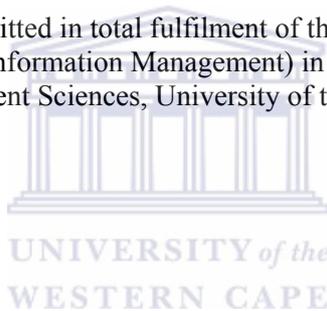


Using storytelling to elicit tacit knowledge from subject matter experts in an organization

By

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A Thesis submitted in total fulfilment of the requirements for the
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Keywords

Constructs

Correlation

Elicitation

Expert review

Grounded Theory

Interpretive

Knowledge

Knowledge management

Knowledge sharing

Organizational memory

Retiring experts

Story

Storytelling

Subject Matter Expert

Tacit knowledge

Tacit knowledge elicitation



Abstract

Knowledge Management has been at the heart of mounting focus over the last several years. Research and literature on the area under discussion has grown and organizations have come to realize that success is often determined by one's ability to create, disseminate, and embody knowledge in products and services. This realization has led to increased interest in examining the ways in which knowledge can be effectively identified, elicited, codified, distributed and retained.

When an employee leaves an organization, the knowledge they possess often goes with them. This loss can potentially have a negative impact on the productivity and quality of the organization. Knowledge Management seeks to find ways to minimize loss of knowledge when an employee leaves an organization. One of the impediments that knowledge management seeks to overcome is the accepted tendency in people to hoard knowledge. People often withhold knowledge when they feel it provides them with a competitive advantage over others. The argument of this study was intended to provide the organization with an approach that it can utilize to facilitate tacit knowledge elicitation by means of the storytelling method. In keeping with Grounded theory principles, and utilising an interpretive approach, stories from Subject Matter Experts were collected and re-coded into fitting knowledge management constructs. The coding of the stories into the various knowledge management constructs was then further refined by means of expert review. Pearson's cross correlation analysis was also used as a supporting tool to determine and validate that the collected stories were classified correctly under the knowledge management constructs. The research findings eventually demonstrated that storytelling is an effective means of eliciting tacit knowledge from experts. In addition to this, the research has inadvertently resulted in the construction of a knowledge management framework for storytelling.

Declaration

I declare that “*Using storytelling to elicit tacit knowledge from subject matter experts in an organization*” is my own work, that it has not been submitted before for any degree or examination in any other university, and that all the sources I have used or quoted have been indicated and acknowledged as complete references.

Full Name Date.....

Signed.....



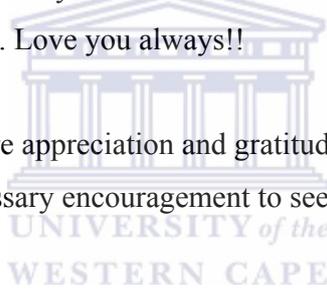
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First I want to thank God for bestowing the needed courage, good health and mental ability to complete this study.

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Chapter 1

1.1 INTRODUCTION

For the past decade businesses have certainly been facing more challenges, including the need to change the way they do conduct business. To sustain a competitive advantage businesses therefore not only relies on technology, patents or strategic positions, but also on how they manage the knowledge entrenched in their workforce.

Today, knowledge plays a major part in the delivery of corporate performance (Bontis, 1998; Bontis et al. 2000), enables an organization to differentiate itself from its competitors and there is recognition that knowledge is a valuable resource that should be protected and preserved (Laszlo and Laszlo, 2002). Also many industrial companies are now facing a looming crisis, and many of them do not know it yet. The crisis, which these companies have helped to construct, is that as those who hold expert knowledge are nearing retirement, they will take their expertise (which is a category of tacit knowledge) and their human information networks with them. There simply will not be enough skilled experienced, well-trained knowledge workers to replace them. The difficulties of transferring their specialist knowledge within an organization have also been cited in both theory and in practice. For instance Davenport and Prusak (1998), asserted that knowledge transfer entails two actions namely (1) transmission (sending to a potential recipient) and absorption by a person or a group (learning knowledge).

The transfer of specialist knowledge is seen by Jensen and Meckling (1992), as expensive and time-consuming, or occasionally impossible, because of the tacitness of individual knowledge. Additionally the elicitation, explication and transfer of specialist individual or organizational knowledge could endanger the competitive advantage of organizations because the core competency becomes reproducible (Spender, 1994; Loebecke et al., 1999; Argote and Ingram, 2000). One of the most important practices related with knowledge management is the Organizational Memory (OM) that naturally can be categorized as the registration

of valuable data, information and knowledge. According to Ackerman (1994), OM can be preserved in the external files, corporate manuals, the people's databases, culture and stories within an organization. In effect, one cannot claim that the entire knowledge is registered in documents. The experience of the organization's employees, their decisions and ideas cannot be excluded from the OM. Nonaka and Konno (1998) define these rudiments as tacit knowledge. Experts are occasionally well aware that they are having difficulty expressing their knowledge. If the knowledge elicitation method provides proper scaffolding, subject matter experts (SME's) can then verbalize their tacit knowledge and express concepts that they had never explicitly expressed before, including information about their strategies and procedures. Nonaka and Takeuchi (1995) in their influential book "The knowledge creation company", demonstrates that the main ways that tacit knowledge is made explicit is through analogies, metaphors, hypotheses, concepts and models.

The first study to explore tacit knowledge acquisition was an experiment conducted by Okagaki, Sternberg, and Wagner (cited in Sternberg et al., 1993), which focused on methods of facilitating the acquisition of tacit knowledge. The study scrutinized three key acquisition processes: selective encoding, selective combination, and selective comparison. An assortment of cues were presented to participants to help them (a) to differentiate relevant from irrelevant information (selective encoding), (b) to integrate information according to rules of thumb (selective combination), and (c) to relate the information to prior experience or knowledge (selective comparison).

Nowadays many organizations are looking for quick fix solutions in eliciting tacit knowledge from its employees. Of those discovered in literature are the concept mapping process, which can create meaningful diagrams and is regarded to be highly efficient at scaffolding experts in eliciting their domain knowledge (Basque et al. 2004; Hoffman 2002). Methods such as the critical decision method effectively, elicit knowledge about procedures, processes and reasoning strategies.

Since tacit knowledge is not easily measured and quantifiable, the approaches of diffusing it are more than a few. The suggested methods are examples such as, narrations or storytelling (Linde, 2001), interview sessions (Karhu, 2002), the repertory grid (Jankowicz, 2001), knowledge exchange protocols, (Herschel et al. 2001), analogies and metaphors (Nonaka and Takeuchi, 1995), among many others. The key will be for organizations and management to elicit the knowledge held by these subject matter experts before they retire etc., through the utilization of a knowledge elicitation method(s) and in particular for this study, the storytelling method.

Storytelling has thus far been fairly concealed in today's organizations and that is why the researcher has considered it tempting and important to study this concept further. The power of storytelling to comprehend and elicit the nature of work in various organizational settings has attracted a great deal of discussion in recent years (Feldman and Skoldberg, 2002; Snowden, 2000; Gabriel, 2000; Denning, 2001; Brown et al., 2004; Golant and Sillince, 2007). Nevertheless, there is limited literature on methods to motivate or elicit the story, which is the focus of this study. In fact, the literature is beset with examples of information rich settings where reflective organizational and experiential stories are in short supply.

Despite the appealing potential of knowledge management, investment to acquire it has by and large had limited return (Alavi and Leidner, 2001; Ba et al., 2001; Christian, 2001; Kubo and Saka, 2002; Oltra, 2005). According to Foos et al., (2006), management should start to think of tacit knowledge transfer as an independent entity and manage it accordingly. They also advocate that management should foster an environment of trust where tacit knowledge is shared, communicate and explicate the continuing objectives of tacit knowledge management, build up and amalgamate a system to unearth tacit knowledge and set aside resources to elicit tacit knowledge.

1.2 Background of the study

Knowledge has become an important resource in many organisations. The success of an organisation depends greatly on its ability to transform tacit knowledge of employees within an organisation, into organisational knowledge. This knowledge can then be made widely available to the entire organisation and be reused when needed. So when long serving employees leave the organization (voluntary or involuntarily) because of i.e. retirement, downsizing, death, incapacity etc., they have a huge amount of intellectual property (especially tacit knowledge) that leaves with them. These exiting employees are at times subject-matter experts (SME's) and possess a level of know-how that is difficult to replace, thus lowering the overall organizational memory and in the long term this loss of talent can create a competitive disadvantage.

1.3 Problem statement

Tacit knowledge is being lost to the organization as retiring knowledge experts leave.

1.4 Research objectives

The purpose of this study is to establish a knowledge elicitation method that an organization can utilize to elicit its employee's tacit knowledge and to unearth ways in which the organization can support this elicitation process and ultimately developing a knowledge management framework for storytelling, and hence is guided by the following questions:

Main research question:

- a) Can stories captured from tacit knowledge be organized into knowledge management framework?

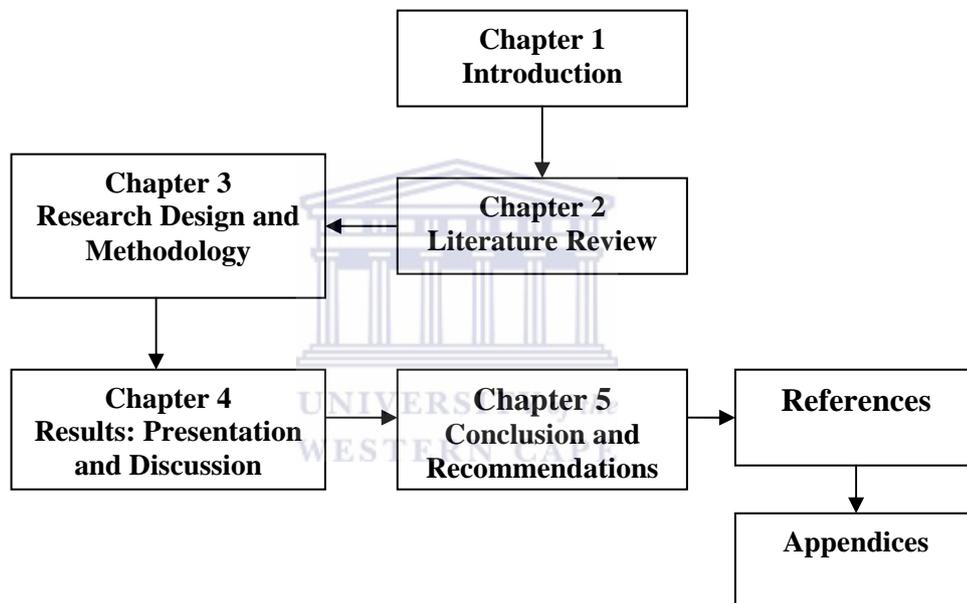
Sub-questions:

- b) What is the basis of story and storytelling?
- c) How is stories utilized in the organization?
- d) What are the taxonomies of stories?
- e) What are the benefits of storytelling?

- f) What are the different types of tacit knowledge?
- g) What are the benefits of tacit knowledge to the organization?
- h) What are the barriers to acquiring tacit knowledge?
- i) How can the organization facilitate tacit knowledge acquisition?
- j) How can the organization employ the storytelling technique, to elicit tacit knowledge from its employees

1.5 Thesis framework

The framework below delineates the layout of this thesis.



1.6 Outline of the Study

Chapter 1:

This chapter familiarizes the reader to the topic and explains the reason for this study, namely to investigate the usage of storytelling to elicit tacit knowledge from subject matter experts within an organization. A summary was given on the topic of the research problem, as well as the aim and objectives of the research.

Chapter 2: The pertinent literature regarding knowledge, stories, storytelling, elicitation of tacit knowledge, the types, benefits of tacit knowledge, the barriers of acquiring tacit knowledge and how the organization can facilitate tacit

knowledge acquisition is discussed, as well as exploring whether the organization can employ the storytelling technique to elicit tacit.

Chapter 3: In this chapter the research methodology, study design, study sample and strategy, data collection procedures, data analysis procedures, trustworthiness, ethical consideration of the study are discussed. The researcher also describes the defined field of the research.

Chapter 4: The data analysis, presentation of the findings and interpretation of the results are presented.

Chapter 5: A summary of findings, conclusions and recommendations is presented in this chapter. This chapter relates the recommendations of the study to the gaps in the research findings.



Chapter 2

LITERATURE REVIEW

In this chapter some of the theories and definitions used all through this thesis will be established. With the intention of starting to answer the research questions it is important to comprehend what knowledge and knowledge management is, the various types of knowledge that exists, knowledge sharing, the critical success factors for sharing knowledge, what knowledge elicitation entail and what storytelling is.

2.1 What is knowledge?

Wigg, as cited by Liebowitz (1999), delineate knowledge as “a concept that consists of truths and beliefs, perspectives and concepts, judgment and expectation, methodologies and know-how”. Beckman, as cited by Liebowitz (1999), defined knowledge as “reasoning about information and data actively enable performance, problem solving, decision-making, learning and teaching”. Both Wigg and Beckman’s definitions acknowledge that the knowledge theory has a strong relation to intuition. Problem solving, judgment, decision-making are all elements of the thinking process. Iske and Boersma (2005) expressed that knowledge results from the interaction of person’s insights (intuition, attitude and past experience), imagination and information. Knowledge is not to be mixed up with data, as data are raw truth, statistics and measurements.

Moreover, knowledge is more complex than information as information results from organizing data into meaningful forms. Knowledge is the product of interpreting information based on one’s understanding and is influenced by the moral fiber of its holder, since it is based on judgment and intuition. Knowledge includes beliefs, attitudes and behavior (Lee and Yang, 2000).

2.2 What is knowledge management (KM)?

Beckman, as cited by Liebowitz (1999), assert that “knowledge management is the formalization of and access to experience, knowledge, and expertise that create new capabilities, enable superior performance, encourage innovation and enhance customer value”. Van der Spek, as cited by Liebowitz (1999), delineates KM as “the explicit control and management of knowledge within an organization aimed at achieving the organization’s objective”. Thus, KM is the theory of encouraging organizational learning, both internally and externally, to augment the organization’s competitive position in an extremely competitive, frequently changing and modern market environment.

2.3 Types of Knowledge

There are many classifications of different types of knowledge. The types found in literature is articulated or non-articulated (Itami, 1987), transferable knowledge (Winter, 1987), classified as the degree of entrenchment and migratory knowledge (Badaracco, 1991) and tacit and explicit knowledge (Polyani, 1962; Polyani, 1966).



Nonaka and Takeuchi (1995) have also divided knowledge into two categories, according to accessibility: explicit and tacit knowledge, which is also supported by Duffy (1999); Tiwana (2000); Zack (1999b). They argue that explicit knowledge can be stored in documents or electronic media and reside outside the human mind, and that tacit knowledge is knowledge that resides within the human mind and is consequently difficult to express explicitly. For example, a surgeon might find it difficult to explain to an assistant how to perform an operational procedure in the operating theatre.

Reuber (1997) and Carrillo (2004) consider tacit knowledge or procedural knowledge as expertise developed from experience. Tacit knowledge has a personal component which makes it tough to formalize and communicate as it consists of technical, often denoted as know-how, and a cognitive dimension that includes schemes, ideas, mental models, beliefs and perspectives; in summary a

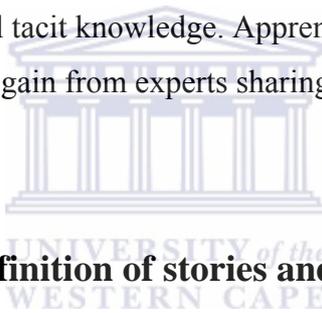
conception of reality (Hussi, 2004). Tacit knowledge is conceptualized by Sternberg and his contemporaries (Sternberg et al., 1995; Sternberg et al., 2000) according to three main features, i.e. 1) corresponding to the conditions under which it is acquired, 2) its structural representation and, 3) the conditions of its use.

First, tacit knowledge generally is acquired with little support from other people or resources. By way of explanation, the person is not directly instructed as to what he or she should be taught, but rather be required to extract the central lesson from the experience even when gain knowledge is not the prime objective. In keeping with Sternberg (1988), formal training environments facilitate certain knowledge-acquisition processes, which comprise of selective encoding (sorting relevant from irrelevant information in the environment), selective combination (integrating information into a meaningful interpretation of the situation), and selective comparison (relating new information to existing knowledge) (Sternberg, 1988). When these processes are not well supported, as frequently is the case in learning from everyday experiences, the probability increases that some individuals will fall short to acquire the knowledge.

The second feature of tacit knowledge is that it has direct significance to the person's ambitions. Knowledge that is anchored in one's practical experience will possibly be more influential in attaining one's objectives than will be knowledge that is founded on somebody else's experience or that is very much non-specific and conceptual. Thirdly, tacit knowledge is observed as procedural in nature. It is often context-specific knowledge regarding what to do in a known situation or class of situations. Drawing on Anderson's (1983) distinction between procedural and declarative knowledge, tacit knowledge can be deemed as a subset of life-pertinent procedural knowledge that is drawn for the most part from individual experience sooner than formal instruction. As is the case with procedural knowledge, knowledge gained from everyday experience has a propensity to funnel action without being easily articulated (Anderson, 1983). Horvath (2007) states that as tacit knowledge remains unspoken and hidden, it can also be

knowledge embedded or knowledge embodied. Embedded knowledge is revealed in processes, documents or products, while embodied knowledge inhabit people's minds or social networks (Horvath, 2007).

By contrast, explicit knowledge can be transmitted in formal and systematic language, i.e. words and numbers and shared in the form of data, specifications, manuals, scientific formulas etc. (Nonaka and Konno, 1998), making it easier to communicate and share than tacit knowledge. Though tacit knowledge is not easily available, the use of fitting interviewing methods may permit stories performing as the transporter of the tacit knowledge of experts, to be articulated and recorded. According to Janson and McQueen (2007), who asserts that by using stories as a transporter for expert knowledge, the receiver can join their personal experiences with those in the stories and enthusiastically construct, refine and expand their personal tacit knowledge. Apprentices who are constructing their own tacit knowledge can gain from experts sharing stories of successes (Hill et al., 2003).



2.4 The basis and definition of stories and storytelling

Stories are the fabric of our lives and if we explicate our deeds to others or to ourselves, we tell stories. Stories assist us to make sense of what we are, where we come from, and what we want to be. Social psychology suggests that stories are a convincing way to communicating intricate ideas, in preference to facts, summaries, and policies which may be abstract and uninteresting (Harris, and Barnes, 2006).

Swap et al., (2001) defines an organizational story as, “a detailed narrative of past management actions, employee interactions or other intra - or extra-organizational events that are communicated informally within the organization”. So stories can be anecdotal, scripted (the official line of an organization), factional (conforms to current requirements of reality) or even fictional (Ferney and Sobreperez, 2009).

Stories and the telling of stories have almost certainly been with us since the beginning of human existence (Kaufman, 2003). The earliest record of storytelling is 4000 B.C. as stated by Ruth Sawyer in her book entitled, “Tales of the Magicians” (as cited in Abrahamson, 1998). Great leaders of all types (e.g. religious, political, educational, and military) have used stories in the form of parables, legends, myths, fables, and real life examples to convey important information (Davenport and Prusak, 1998; Brown and Duguid, 1998). In one sense storytelling and stories assist to delineate the character of humanity and is vital in the creation of meaning and understanding in social situations (Gabriel, 2000; Dennehy, 1999). Stories including myths, legends, and folktales (McLellan, 2002; Reamy, 2002) have been used to convey wisdom, knowledge and culture for thousands of years. Some authors (Denning, 2001, 2004b; Hannabus, 2000; Smart, 1999) have used the terms narrative and story interchangeably. For the purpose of this research the term story will be used in preference to the words narrate and narrative. According to Mládková (2007) stories are an important part of social processes and store and help to share experience and knowledge. Stories can be told in many contexts. They are partial, structured memories of observed and articulated reality (Davenport et al., 2000). While stories can be regarded as a good means to account past experiences, it can too be a critical element of the organization knowledge (Boyce, 1997; Czarniawska, 2004). The key for organizations to build competitive advantage from storytelling is for the organization to understand not only the activity and nature of storytelling, but also the stories that are being told.

2.5 The utilization of stories in organisations

Stories have long been recognized as valuable in organizations and are seen to be uncomplicated, timeless and appeal to people in spite of culture, age or profession (Kouzes and Posner, 2002; Harris and Barnes, 2006). Stories are so fundamental to organizations that not only do organizations count on them, but they couldn't function without them. Wilkins (1984) observes stories in organizations as a sort of social glue, where shared stories act to unify various individuals into a single entity.

Big or small each organization is dependent upon a myriad of stories for its functioning (Mitroff and Kilmann, 1975). Accepting this view, it should be anticipated that stories can be used for many different purposes within organisations. Some examples of the many possible uses of stories and storytelling can be found in the table below:

Table 1: Uses of storytelling

Brown, Denning, Groh and Prusak (2005)	<ul style="list-style-type: none"> • for making decisions and managing change • to typify corporate culture • to solve problems • to transfer knowledge
Reamy (2002); Stewart (1998)	<ul style="list-style-type: none"> • to diffuse knowledge • to capturing what is tacit • success stories • lessons learned • creating a memory framework
Gill (2001)	<ul style="list-style-type: none"> • capturing what is tacit, • diffusing knowledge, • creating a memory framework
Hansen and Kahnweiler (1993)	<ul style="list-style-type: none"> • to wield considerable influence on employee attitudes as a way of generating commitment • telling of perceptions of past events, people or problems
Randal and Martin (2003)	<ul style="list-style-type: none"> • communicate implicit organizational values
Brown and Duguid (2000a)	<ul style="list-style-type: none"> • to teach somebody something or to explain something • to save our experiences forever • to let others know what we are thinking
James and Minnis (2004)	<ul style="list-style-type: none"> • knowledge sharing
Boyce (1995)	<ul style="list-style-type: none"> • effective form of constructing collective sense-making
Sole and Wilson (2002)	<ul style="list-style-type: none"> • to share tacit knowledge, • to develop trust and commitment • for innovation and new product development, • facilitate unlearning • generate emotional connection
Kirsch (2004)	<ul style="list-style-type: none"> • to create a shared understanding and a collective representation of organizational reality
Poulton (2005)	<ul style="list-style-type: none"> • primary method for collecting, transmitting and retaining information about past decision making

Parkin (2004)	<ul style="list-style-type: none"> to persuade individuals to discuss and share their own fears or concerns about change
Walsh and Ungson (1991)	<ul style="list-style-type: none"> integral to the storage and retrieval of organizational memory

Of this list, quite a few of these particularly mention the transfer/sharing of knowledge or use in a very similar terminology. Stories are broadly identified and have been for a number of years as a means of sharing knowledge in organisations. This provides support for the research problem and should present a useful reference point for the analysis of the use of stories in the case study organisation.

2.6 Taxonomies of stories

Diverse types of organizational stories have before now been identified and among them are: fantasy (Putnam et al., 1991), organizational justice (Woodilla and Forray, 2008), organizational saga, dramatic, negative (Abma, 2003) humorous, manifest, smart (Franey, 2002), romantic (Browning, 1992), heroic/epic (Mitroff and Kilmann (1975), ironic and tragic (Beech, 2000). Denning (2001) categorized organizational stories as: Springboard story and Anti-story. A springboard story is a story that allows a leap in understanding by the audience so as to grasp how a community or an organizations or intricate system may alter. Denning asserts that a springboard story has an impact not such a great deal in the course of transferring a profusion of information, but by means of catalyzing understanding and that it permits listeners to visualize from a story in one context what is involved in an extensive transformation in an analogous context. On the other hand Denning (2005), states that an anti-story is a story that occurs in opposition to another. Any story that has a noteworthy impact in a group or organization will give rise to related stories. Anti-stories endeavor at undermining the original story. Denning (2005) in his work as well as Gargiulo (2005), classified stories found in written literature as follows:

Table 2:

Taxonomies of Stories

Chronicle	a historical record of facts/events organized in the order in which they occurred
-----------	---

News	information previously unknown
Account	Typically a reckoning of financial matters; or an explanation or description
Rumour	General talk or story not founded on definite knowledge
Comedy	A drama/story with a happy ending or non-tragic premise
Parable	Short, straightforward story, generally of an incident of a known kind.
Myth	A traditional story of unidentified authorship
Legend	A story handed down for generations among people and is thought to have a historical basis
Fable	A fictitious story intended to teach a moral lesson
Drama	A literary composition that tells a story, typically of human conflict by way of discussion and action.
Tragedy	A serious drama/play, usually dealing with the problems of a central character leading to a disastrous/unhappy ending.
Satire	A literary work in which follies or abuses are held up to ridicule and contempt

Also McKay and Dudley (1996); McLellan (2002); Reamy, (2002); Miller (2009); Kaye (1979); Hansen and Parry (2007) and Souci (2009) categorize stories as, sayings, personal story, legend, fable, folk tale, fairytale, parable or traditional tale. Similarly, Strauss (1996) classifies stories as: stories that might be true, factual stories, legends, anecdotes (Ferneley and Sobreperez, 2009; Gargiulo, 2005) and oral histories, while Wortmann (2008) categorize stories as fun, failure and success. Martin et al., (1983) distinguishes between 7 types of organizational stories and categorize them on the basis of likeness as:

- (1) Rule-breaking story - high level executive breaking a rule is taken to account by a low level employee, who is later applauded.
- (2) Is the big boss human? - anecdotes showing a warm aspect of high level executive,
- (3) Little person rises to the top - employee starting in low level position reaches the top,
- (4) Firing stories,
- (5) Moving office stories,
- (6) Boss reacting to employee mistakes - boss forgives mistake of junior Executive
- (7) Organization dealing with obstacles

Straker (2008) conversely catalogue organizational stories as follows:

Table 3:

Organizational type stories

War stories	Stories of trials and troubles and how people survived and overcame the events that afflicted them
Visionary stories	Stories about a desirable future that inspires and motivates people to work towards that future
Leadership stories	Stories about how organizational leadership happened
Stories of failure	Stories about things that did not work. They may be stories of big failure or small, personal failure.
Stories of transformation	Stories about how individuals, groups and the entire organization went through deep and fundamental change, transforming from one state to another.
Founder myths	Stories from before they founded the company, including formative tales from their childhood or former employers
Cautionary tales	Tell people what not to do. They usually tell stories about people who did the wrong thing and the consequences that were suffered.
Heroic stories	Stories in organizations can be very heroic in structure, using principles found in classic tales of heroes and their actions. An example, a bad situation where people are panicking and nobody is there to save them.
Genesis stories	Stories about beginnings, foundations and how things got started
Fearful stories	Stories about a person's concerns, worries and fears and they may be direct and graphic or indirect and even make use of metaphor.
Stories of hope	Stories of hope tell of what might be.

Hansen et al. (1994) organized stories as conflict, conflict-resolution, culture, struggle, decision-making and process stories. Furthermore, according to Simmons (2001), there are 6 types of organizational stories that can form a basis for influencing others: “Why I Am Here” stories; “I know What You Are Thinking” stories “Who I Am” stories”; “The Vision” story; “Values-in-Action” stories and “Teaching” stories”. Simmons (2001) also asserts that these 6 types of stories are each related to precise goals for instance, ‘teaching stories’ are told with the aim of making sense of new skills. A skill would not be taught without telling the reason why. (Simmons 2001). O’Connor (2002) classified stories in the high-technology environment into 3 types, i.e. generic (strategy and marketing stories), situational (predictable and historical stories) and personal (vision and founding stories).

Also Collison and Mackenzie (1999) differentiate between 3 types of organizational stories i.e., story as metaphor, the biographical or anecdotal story and the creative characterisation, while Amtoft (1994) focus on life stories (Miller, 2009) and reputation stories. In keeping with Amtoft (1994), life stories are about the past history of a project and reputation stories are stories presently told about the project in the form of myths, rumours/opinions and tales.)

What the aforementioned has revealed is that there are many different forms of stories and that they can be thickly imbedded with meaning (Boje, 1995; Gabriel, 2000) and that through storytelling we can discover how we might apply the various storytelling types to the benefit of the organization. Following on from this we will then investigate the benefits of storytelling.

2.7 Benefits of storytelling

Whatever the use (or intention) of the story, there may be a number of benefits to be realized. Within the anthropology of storytelling, Chand (2006); Hummel (1991) and Koenig (2008) all acknowledge stories as being a useful form of communication. For instance, significant benefit can come from the use of stories to share knowledge and meaning, and stories allow the communication of complex ideas in a simple, memorable form (Scholtz, 2003; Snowden, 2000b; Sole and Wilson, 2002). An exploration of the literature revealed that a number of authors have identified benefits from the use storytelling as illustrated in the table below:

Table 2:
Benefits of storytelling

Scholtz (2003)	<ul style="list-style-type: none"> • stories allow the communication of complex ideas in a simple, memorable form
Denning (2001)	<ul style="list-style-type: none"> • capability to communicate, naturally, clearly, honestly, collaboratively, convincingly, accurately, intuitively, entertainingly, movingly, feelingly, interactively through the use of stories more than by other means
Weick (1989a)	<ul style="list-style-type: none"> • stories convince because they are lifelike, believable and coherent.

Swap et al. (2001)	<ul style="list-style-type: none"> • great conveyors of meaning and tacit knowledge
James and Minnis (2004)	<ul style="list-style-type: none"> • storytelling can inspire and motivate employees • storytelling engage both reason and emotion
Parkin (2004)	<ul style="list-style-type: none"> • the transition of the organisation can happen more swiftly, at less cost with a better degree of success
Kaye and Jacobson (1999)	<ul style="list-style-type: none"> • encourage a broader understanding • enable people to understand things in meaningful and relevant ways
Boyce, 1997; Martin et al., 1983; Shaw et al., 1998; Senge, 1990	<ul style="list-style-type: none"> • guide organizational leaders • create realistic images for strategic planning • aid planners in forecasting • help employees focus
Armstrong (1992)	<ul style="list-style-type: none"> • stories are fun to work with, makes it easy to communicate a message and makes it more memorable
Wilkins (1984)	<ul style="list-style-type: none"> • tend to stick with humans longer than abstract ideas alone
Martin and Powers (1983)	<ul style="list-style-type: none"> • promotes employee commitment and trust
Snowden (2000a)	<ul style="list-style-type: none"> • highly effective means of mapping knowledge within the organisation • embedding sustainable lessons learned

In summing up, there are quite a few benefits which have been identified and supporting the use of stories and storytelling as practices for use by individuals, teams and the entire organization. By using storytelling, the key benefits brought to knowledge sharing are that it can become much more memorable, meaningful, easier, longer lasting and of greater value. This provides a further basis on which to analyse the research.

2.8 Knowledge sharing

Sharing knowledge provides value to organizations (Widen-Wulff and Suomi, 2007) and the potential to create competitive advantage (Boisot, as cited in Bryant, 2005). Knowledge transfer or sharing involves the dissemination of

individual experiences, information or knowledge to those who might need it (Williamson and Beghtol, 2003).

If knowledge sharing or transferring were no more than a communication dilemma, an e-mail or meeting would suffice. However it is more intricate. To start with, it is difficult to discover since knowledge exist in the employees of the organization, their memories, strategies, processes, tools and tasks. Also once found, it is complicated to get a handle on since a good deal of knowledge in organizations is intrinsic (tacit) or difficult to articulate. More often than not it is the intangible that is an organization's means to success. The intention of knowledge sharing can also be to construct fresh knowledge by diversely merging existing knowledge or grow to be superior at utilizing existing knowledge.

For the aim of this paper, knowledge sharing is defined as individuals sharing experiences and information with one another. Finestone and Snyman (2005), asserts that knowledge sharing has to come about in a culture of trust, understanding, support and openness and should be actively encouraged. Hult et al., (2004) and Goh (2002), also share the same assertion in that for culture to contribute to the knowledge transfer process, it must have a strong set of core values and norms that encourage the sharing of information and active participation of employees in the process. According to Kapp (2007), one of the largest complex concerns facing organizations over the next decade is knowledge transfer and that businesses need to share the knowledge, business intelligence and experiences of their baby-boomer employees (especially those with specialist knowledge) to the new generation of employees. If this does not come about swiftly and effectively, organizations will experience great impediments in profitability, output, quality and safety.

There are also a number of mechanisms for sharing or transferring knowledge. These tend to fall into two main categories: tools and techniques (Al-Ghassani, 2003). Tools rely on the use of IT to share typically explicit knowledge, that which is easy to document and store. Examples are project extranets and

groupware. Techniques use a more human-centred approach to transferring mainly tacit knowledge, that which is based on expertise and intuition and is difficult to transfer. Typical examples are communities of practice (Wenger et al. 2002), brainstorming, scenario planning, suggestion schemes and post-project reviews. Interestingly, practices that are oriented in the direction of the transfer of tacit knowledge include: community of practice, coaching, mentoring, job rotation, succession planning, retirement and storytelling (DeLong, 2004; Stovel and Bontis, 2002; Butler and Roch-Tarry, 2002).

There is now an increasing amount of advice from bodies such as the Department of Trade and Industry, Construction Excellence and the Construction Industry Research and Information Association on how knowledge can be shared and the types of techniques and tools available. Brooking (1996) points out that only 20% of an organization's knowledge is actually used, while Newell et al. (1999) highlighted the need for organizations to have a supportive organizational culture and trust to encourage knowledge sharing. The challenge is identifying which mechanism best suits the organizational context.

Researchers appear to agree that the complicatedness of knowledge sharing most frequently arise from social dilemmas, knowledge dilemmas and a combination of the two (Osterloh and Frey 2000; Cabrera and Cabrera, 2002). These often result in behaviour of knowledge that is counterproductive to the common good of the organization. Social dilemmas are referred to as “dilemmas of the common good”, while knowledge dilemmas refer to cognitive barriers and epistemologically differences of knowledge, i.e. that knowledge can be either explicit or tacit and exist at either individual or organizational levels (Nonaka and Takeuchi, 1995; Hinds and Pfeffer, 2003). A few ways of prevailing over the knowledge and social dilemmas are believed to be, increased organizational value, increased financial incentives, top management leadership and commitment and a knowledge sharing culture (Dixon, 2000; Davenport et al., 1998, Chong, 2006; Yu et al., 2007; Bishop et al. 2008). Generally the knowledge and social dilemmas gives rise to 5 five problems intrinsic in organizational knowledge sharing:

- (1) The stickiness of knowledge (Bush and Tiwana, 2005; Szulanski, 2003; Nonaka and Takeuchi, 1995, Lei, 1997),
- (2) No willingness to share knowledge (Osterloh and Frey 2000; Cabrera and Cabrera, 2002),
- (3) No knowledge of knowledge (Gupta and Govindarajan, 2000; Borgatti and Cross, 2003),
- (4) No common identity (Davenport et al., 1998; Brown and Duguid, 2000),
- (5) No relation between the sender and receiver of knowledge (Hansen, 1999; Davenport and Prusak, 1998).

2.9 Critical success factors for sharing knowledge

For knowledge to be shared and ultimately alleviate the elicitation process we have to be familiar with the factors that are essential in ensuring a successful knowledge transfer among staff.

Reward system – According to Syed-Ikhsan and Rowland (2004), employees need a strong motivator to facilitate the sharing of knowledge. It is impractical to presume that all employees are eager to easily offer knowledge with no consideration of what may be achieved or lost as a result of this deed. Managers must mull over the magnitude of working in partnership and sharing best practices when planning reward systems. The idea is to establish methods in which sharing information and horizontal communication are promoted and certainly rewarded. Such rewards ought to be founded on group rather than individual performance (Goh, 2002)

Trust – Interpersonal trust or trust between colleagues is a very critical quality in organizational culture, which is said to have a strong control over knowledge sharing. Interpersonal trust is known as an individual or a group's anticipation in the consistency of the promise or actions of other individuals or groups (Politis,

2003). Team members require the existence of trust so as to respond candidly and share their knowledge (Gruenfeld et al., 1996)

Information systems - Organizations employ diverse information systems to facilitate knowledge sharing through creating or obtaining knowledge repositories, where employees share expertise electronically and access to shared experience becomes likely to their employees (Connelly and Kelloway, 2003).

Organization structure – Conventional organizational structures are generally characterized by intricate layers and lines of responsibility with certain details of information reporting procedures. These days, nearly all managers comprehend the disadvantages of bureaucratic structures in slowing the processes and raising restrictions on information flow. Syed-Ikshan and Rowland (2004), believes that knowledge sharing flourish with structures that support ease of information flow with fewer boundaries between divisions.

Communication between staff – Communication here refers to the human interaction through verbal conversations and the utilization of body language while communicating. Human interaction is very much improved by the existence of social networking in the workplace. This type of communication is essential in encouraging knowledge transfer (Smith and Rupp, 2002).

2.10 Elicitation

According to Schreiber et al. (2000), knowledge elicitation “comprises a set of techniques and methods that attempt to elicit knowledge of a domain specialist through some form of interaction with that expert”. It is a process of extracting knowledge. Traditionally the tasks involve finding as a minimum one expert in a particular knowledge domain and performing comprehensive interviews with her or him.

2.11 Elicitation of tacit knowledge

According to Nonaka and Takeuchi (1995), tacit knowledge embodies values, beliefs and is actionable and explicit knowledge is codifiable into objects such as multimedia formats and documents. Nonaka and Takeuchi (1995); Nonaka et al,

(2000) offers a dynamic outlook of knowledge founded on the main assumption that tacit and explicit knowledge can convert into each other. As part of this theory, the SECI model was developed with its four stages of knowledge conversion. The transmission of knowledge from one person to another can take the forms shown in the table below:

Conversion	Process	Facilitating tool(s)
Tacit to Tacit	Socialization	Conversation , e-meetings
Tacit to Explicit	Externalization	Conversation, stories
Explicit to Explicit	Combination	Document classification, text search
Explicit to Tacit	Internalization	Mental picture of data

Tacit to tacit (socialization) which occurs through apprenticeship or mentoring; this step has also been described as learning by doing. Tacit to explicit (externalization) or articulation - this step comprises of knowledge that is usually written down or communicated in some permanent or semi-permanent way. Stories, narrative, multi-media presentations, group reflection, conversations, e-mails, and memos are all instances of this type of knowledge transfer. Explicit to explicit (combination) – this step typically take place through a standardized and systematic procedure. An example would be a computer database or an expert system. Explicit to tacit (internalization) - this step result in the distribution of knowledge throughout the organization and beyond and this often comes through active participation and repetition.

Of the likelihoods shown in the table above, the elicitation of tacit knowledge from experts and the codification into explicit knowledge embodies a main task in the knowledge creation process. In reference to Eraut (2000) an elicitation task is easier if a mentoring or training relationship was part of the behavioural and cultural anticipation of the organization, a precedent of regular mutual consultation existed between experts and novices, informal meetings were held, where riskier remarks could be made and there was a perceived potential crisis for modification..

2.12 WHAT ARE THE DIFFERENT TYPES OF TACIT KNOWLEDGE?

Tacit knowledge can be divided into cognitive, technical and social tacit knowledge. Procedural or technical knowledge refers to the silent well-developed routine and technical skills and is the noticeable part of the expertise. It's known to combine in a silent procedural task performance and the performance of design, namely the preparation (Hedlund et al., 2003; Powell, 1998). Cognitive tacit knowledge can be partially conceptualized but also completely unconscious and consists of observations and internal mental models. Cognitive tacit information is particularly important in decision-making and problem solving (Hedlund et al. 2003; Stenmark, 2000; Hannabus, 2000).

In line with Linde (2001), social tacit knowledge consists of individual social knowledge and incorporates knowledge about what the identity of the group is, what it means to be a member, and how to be a member. This is the type of knowledge which is most commonly and best communicated through stories. The other type of social knowledge is knowledge which is held by the group or organization itself and consists of tacit knowledge which manifests as work practices, as well as the knowledge about how and when to use these knowledge resources (Linde, 2001). Furthermore according to Linde (2001) other types of group tacit social knowledge consist of, the ways that teams and groups work together, how decisions are made, and how communications flow.

On the words of Lubit (2001), there are 4 categories of tacit knowledge “(1) hard to pin down skills or “know-how”, - many skills workers possess are based in tacit knowledge e.g. from swinging a golf club, to handling cells in a biology laboratory cannot be completely explained in words. People need to continually practice skills, be given feedback and get the feel for them”; (2) mental models – they show us the world is constructed, which elements are central and how the parts are related. Also on the words of Lubit (2001), mental models assist us to make sense of the heaps of data we are faced with to extract those constituents which are pertinent, to formulate an understanding of problems and to locate

solutions”; (3) organizational routines – “knowledge becomes embedded in the routines of the organizations as managers develop the routines founded on their judgment of how issues should be addressed. The tacit knowledge embedded in routines include an intuitive grasp of the relative priority of competing demands” and of what data to focus on; (4) ways of approaching problems - tacit knowledge lie beneath the decision trees people use. Our ways of approaching problems derive from custom and the mental patterns we develop when we see how others think through problems. The decision tree one uses to address a problem will noticeably affect the solution one selects.

In keeping with Bennet and Bennet (2008), they assert that tacit knowledge can be categorized in 4 aspects. (1) Affective tacit knowledge, which is connected to an individual’s feelings and emotions. Feelings are believed to become explicit via its emotions and those feelings that are not expressed, will then fall into the region of affective tacit knowledge. (2) Intuitive tacit knowledge, which is the sense of knowing coming from inside an individual that may influence decisions and actions, yet the decision maker cannot explicate how or why the action taken is the right one. Intuitive tacit knowledge is the product of continuous learning by way of experience. (3) Embodied tacit knowledge, is both kinesthetic and sensory. Kinesthetic is related to the movement of the body and is important to every individual every single day of their lives, e.g. having knowledge of riding a bicycle. Sensory is related to the five human senses through which information enter the body (touch sight, smell, hearing and taste). An example is the smell of burning metal from your car brakes while driving and this smell can transmit knowledge of whether the car brakes need replacing. (4) Spiritual tacit knowledge is knowledge founded on matters of the soul and may be the guiding purpose, vision and values behind the creation and application of tacit knowledge. According to Zohar and Marshall (2000) spiritual tacit knowledge is the intelligence with which we address and unravel problems of meaning and value.

2.13 WHAT ARE THE BENEFITS OF TACIT KNOWLEDGE TO THE ORGANIZATION?

Several authors view tacit knowledge as the basis of all knowledge, and predominantly of innovative ideas in organizations (Ichijo et al., 1998; Nonaka and Takeuchi, 1995) and for others it is the basis of continuing competitive advantage (Johannessen et al., 2001; Ambrosini and Bowman, 2001). As noted before, tacit knowledge resides in individual skills, previous experiences of collaborations and their social context. According to Nonaka and Takeuchi (1995), tacit knowledge generates new tacit knowledge by a process of socialization in which people converse with each other and that tacit knowledge generates new explicit knowledge by a process of externalization. Also as cited in Howells (1996) in a survey of Research and Development workers in 23 organizations revealed that tacit skills acquired largely on the job made a greater contribution to innovation than had formal knowledge acquired from literature and education. Consistent with Alder (1990), in areas where tacit knowledge is noteworthy, for instance experiential learning, scientific discovery and knowledge creation, and where know-how cannot be formalized or codified, it should be seen within a wider framework of a more conscious process of learning. According to Bennet (1998) and Brockman and Anthony (1998) the use of tacit knowledge improves the efficiency of decision-making, producing goods and serving customers.

Tacit knowledge can also enable organizations to recognize and transfer best practices more effectively (O'Dell and Grayson, 1998). On the word of Horvath (2007), "people build up tacit knowledge as they solve real difficulties in pursuit of real goals and this denotes that tacit knowledge, when match up to explicit knowledge or information, tends to reveal more closely the reality of how work actually gets done (i.e., work practices rather than business processes)". Tacit knowledge can assist the organization to defy imitation by competitors (Winter, 1987). Since it is embodied in people and embedded in the things they create (Horvath, 2007), tacit knowledge has a propensity to be "sticky". Albeit this stickiness makes the mobilization of tacit knowledge for the most part challenging, it makes its appropriation by competitors, all the more challenging (Kogut and Zander, 1992). In accordance with Arora (1996), the definitive value

of capturing tacit knowledge is that, codification leads to an augmented workplace efficiency, by and large lower organisational costs and superior return on investment.

2.14 WHAT ARE THE BARRIERS TO ACQUIRING TACIT KNOWLEDGE?

According to Chase (1998), in a study of 500 companies, found that existing organizational culture, hindered the successful execution of knowledge transfer strategies, because it reinforced the notion that knowledge belonged to specific employees and should not be seen as an organizational asset.

In the same way, Skyrme and Amidon (1997), in a study of 430 companies found that internal cultures were a major barrier to knowledge transfer and that changes in culture were essential to the successful execution of any knowledge transfer strategy. In line with Szulanski (2003), “people may be reluctant to share their knowledge with others for fear of losing ownership, a position of privilege, superiority, for the lack of insufficient rewards or even sometimes due to being unaware of the fact that their knowledge might be of interest to others”. Szulanski (2003) in his experimental analysis came up with three barriers with major potential to upset the transfer of tacit knowledge. Firstly, “the indistinctness of the mostly tacit knowledge which needs to be transferred appears to have much influence, where neither sender nor receiver can find enough congruence. This is closely connected to the second barrier which is the lack of absorptive capacity, which happens if the receiver is not able to deal with the indistinctness and therefore the probability of failure increases. The third interconnected obstacle to smooth transfers according to Szulanski (2003) is difficult relationships between sender and receiver (Lehner and Lehmann, 2004)”.

Other barriers, but with less influence are the lack of motivation by sender and receiver which might be overcome with executive fiat, and the unreliability of the sender which might slow down the transfer, but does not seem to affect its

effectiveness. Organization systems and structure seem to have influence on the number of projects, but less control on the outcome (Lehner and Lehmann, 2004). “Emotional factors such as power, trust, likes/dislikes seem to play an important role within the transfer of tacit knowledge (Cook and Cook, 2004)”. Individuals can become barriers to transfer when they hoard knowledge and resist collaboration. The grounds for such actions include anti-trust, issues embedded in organizational culture (Falconer, 2006; Augier and Vendele, 1999; Lucas, 2006) inappropriate skill level (Lee et al., 2006) and ownership rights (Smale, 2008). At the management trainer level, barriers may take the form of unidentified tacit assets, resistance to change (Ordonez de Pablos, 2004), failure to accommodate global need (Smale, 2008), or misconceptions about ICT benefit or use (Perez-Araos et al., 2007). Top level leadership may de-emphasize transfer to maintain competitive advantage (Uzzi and Lancaster, 2003).

Regardless of level, these barriers transmit a fundamental current for change. Abou-Zeid (2005) notes that the value organizations place on knowledge shapes the cultures that either hamper or assist transfer. Although this cultural matter is intricate, many researchers consider that value placement and conventional top down approaches are old-fashioned and need to transform to reflect bottom-up approaches that encourage tacit transfer (Falconer, 2006; Lucas, 2006; Perez-Araos et al., 2007; Uzzi and Lancaster, 2003).

In the following section we shall explore ways in which the organization can facilitate tacit knowledge acquisition.

2.15 HOW CAN THE ORGANIZATION FACILITATE TACIT KNOWLEDGE ACQUISITION?

The knowledge of an organization is for the most part carried in the heads of the employees. This critical valuable resource of the organization time and again does not get abridged to a tangible form that an organization can manage. Yet, in today's setting an organization is to all intents and purposes managing knowledge above anything else.

Knowledge (expertise) is as source of power and the disclosure of which might lead to the erosion of individual power, thereby partly explaining an individual's disinclination to share it with others (Bartol and Srivastava, 2002). Davenport and Prusak (1998) advocate that organizations hire smart people and let them talk to one another and use water coolers, talk rooms and picnics as examples of places where the transfer of tacit knowledge can take place. In this respect, an assortment of methods is recommended as fitting for facilitating the transfer of tacit knowledge. Nonaka and Takeuchi (1995) use examples of apprenticeships, brainstorming camps, the utilization of metaphors and analogies, social network, and learning by doing as viable ways of tacit knowledge transfer.

According to Mayfield (2010), mentoring programs present more individually tailored knowledge sharing and allow senior workers to directly transmit their experience. Mentoring frequently occurs in an informal way in organizations, but can be extra effective when systematized; providing a more equitable dispersion of mentoring prospects and allowing organizational guidance in the information exchange process. Also important, these same efforts can be augmented to embrace succession planning. Formalized mentoring also facilitates cross-unit mentoring, thus augmenting worker skill sets. However, the prerequisite for all successful mentor programs includes participation rewards and support for the worker and mentor. In accordance with Mayfield (2010), reward programs are the most superior means to augment worker tacit knowledge sharing. Behaviour is shaped by rewards and tacit knowledge sharing will respond accordingly. Ahead of explicit motivation, rewards signal management's commitment to tacit knowledge sharing and thus help shape an organization's cultural lens. These rewards should be, relevant, attainable, well-communicated and incorporated to reveal a unified knowledge management strategy.

In keeping with Foos et al., (2006), management should start to think of tacit knowledge transfer as an independent entity and manage it accordingly. They advocate that management should foster an environment of trust where tacit knowledge is shared, clarify and communicate the long-term goals of tacit

knowledge management, develop and integrate a system for extracting tacit knowledge and dedicate resources to extract tacit knowledge. Employees ought to be given the space, time and chance to transfer and hence share tacit knowledge which is transmitted verbally. This is helped by the organization structure and culture, e.g. by way of HR policies, performance measurements, the decision making method and so forth (Cook and Cook, 2004). These success aspects are also cited by Hall and Sapsed (2005), who strongly underscore a fit between the organizational roles, structure and reward systems, along with socio-cultural factors such as, power relations, culture etc. in addition to industry dynamics (Hall and Sapsed, 2005).

Consistent with Mayfield (2010), one discernible and noteworthy method for augmenting tacit knowledge sharing is a wiki. A wiki is a web based, software tool where people can send information and revise each other's entries. (The best known wiki is the Wikipedia.) In this way, knowledge is disseminated and expanded through a collaborative effort and at times arranged into unique interest groups known as communities of practice. For instance, one worker may create a page asking for proposals on training new employees. Another worker may then list effective methods that have been used personally, and other workers may elaborate on these ideas. In this way, information is elicited and developed in an ongoing fashion. Also according to Lubit (2001) organizations should foster knowledge acquisition through the development of a knowledge sharing culture, teaching others need to be supported and valued and knowledge hoarding should be soundly rejected. Training in open communication helps to keep away from the defensive practices that frequently plague communication and believe in having efficient ways to find experts and obtain useful knowledge are crucial to effective knowledge management (Lubit, 2001). Dong (2008), equally declare that the organization can promote tacit knowledge sharing through means such as, educational training, conferences and forums, practice community and cross-functional team.

In the next section we will examine the question whether the organization can assist knowledge elicitation by means of the storytelling method.

2.16 CAN THE ORGANIZATION EMPLOY THE STORYTELLING TECHNIQUE, TO ELICIT TACIT KNOWLEDGE FROM ITS EMPLOYEES?

Storytelling is a powerful mechanism in tacit knowledge capture as storytelling is innate and directs behaviour. Stories provide a conduit between the tacit and the explicit form of knowledge as stories express the speaker's moral attitude (Linde, 2001).

There are many techniques that can be used for storytelling and in contemporary society; stories extend from the internet, radio, magazines/newspapers, television, books etc. According to Benjamin (2006) early people for example, wrote their stories with symbols and pictures carved on stone, cave walls or bones. By about 3500 BC, Sumerians had commenced using a cuneiform alphabet, pressed in clay with a triangular stylus, to tell their stories. Although modern forms of the paper we use today for written storytelling did not exist in the ancient world, bamboo, papyrus and animal skins were extensively used as far back as 2500 years BC. Around 2,000 years ago, the Chinese first used cloth sheets to record their writings and drawings and in 150 BC, the first paper, as we know it, was made in Lei-Yang, China, by breaking down hemp fibers in water. The rise of digital media is an occurrence of the late twentieth and twenty-first centuries and we are still in the process of sorting out its impact on storytelling. The World Wide Web equally is a repository of virtually infinite stories, from urban legends and gossip to case studies (Benjamin, 2006). Consistent with Wortmann (2008), he asserts that stories can either be told verbally or digitally (e.g. presentations, e-mails, portals, newsletters) in organizations. Schwartz and Abbott (2007) lists case studies, vignettes, small group work using scenarios, journaling and reflective analysis as storytelling techniques.

Examples of successful storytelling are that of Edutech and NASA, who used internal magazines to spread tacit knowledge. According to Post (2002), the people at Edutech managed to write stories about their experiences and in doing this trust that future teams, would learn from their errors about what not to do, by

reading their stories. Also according to Kalid and Mahmood (2009), Edutech also produced a storytelling magazine for NASA which was part of the knowledge sharing initiative under the Academy of Program and Project Leadership (APPL). The magazine was used by NASA to spread key knowledge throughout the organization and a knowledge sharing community was then built among project managers throughout NASA using storytelling. The storytelling approach was well-liked in the project management community, since project managers rely on their tacit knowledge when encountering a problem. Their tacit knowledge is typically personal and this is what makes it ideal to use stories to capture that knowledge through stories (Kalid and Mahmood (2009). According to Holden (1999) as cited in LeBlanc and Hogg (2006), Nighttime Pediatrics Clinic hired the company Storywork, which developed training programs that dealt with storytelling for leadership and teambuilding; and this partnership resulted in the development of "Nighttime Stories" which is a book of stories told by the patients and employees of the hospital. Another company that uses the storytelling method according to LeBlanc and Hogg (2006), is the Walt Disney Company, who according to the executive vice president of Walt Disney Imagineering believes, that each profession is for the most part a storytelling profession and that the World Wide Web is a good medium for storytelling.

At the 3M Corporation, they have reinvented their strategic planning process to incorporate storytelling techniques. Prior to this process redesign, 3M's business plans consisted of lists, outlines and bullet points. "Cognitive psychologists have established that lists, in contrast to stories, were remarkably hard to remember as people mainly remembered the first and last items on a list but not the rest of it, and more dangerous yet they remember what they like or find interesting; they do not recall the whole" (Shaw et al, 1998). Since 3M had a corporate culture that values storytelling and because it has used stories comprehensively in other parts of the organization, key executives recognized the need to enhance the strategic planning process. As described in Shaw et al. (1998), the new planning process, called "planning by narrative", incorporates a number of traditional storytelling techniques. All things considered the strategic planning story at 3M, ended up

building trust and honesty and increased the accuracy of understanding by others in the company.

To briefly summarize, stories can provide an effective means of eliciting tacit knowledge and they present this knowledge in a way that promote assimilation and adaptation by the knowledge consumer. "A good story has a point that becomes clear through the telling, it defines relationships, a sequence of events, cause and effect, and a priority among items - and those elements are likely to be remembered as a complex whole" (Shaw et al., 1998).

2.17 DISCUSSION

As mentioned in the literature, a primary condition of knowledge transfer is the willingness and motivation of the knowledge holder (an individual) to share her or his knowledge. Secondly, the individuals must be able to explicate knowledge on the one hand (knowledge holder), and to integrate and reconstruct knowledge on the other hand (knowledge seeker).

The literature has revealed there are many benefits to be gained through the use of storytelling such as, it can inspire and motivate employees; allow the communication of complex ideas, the mapping of knowledge within the organization etc. In contrast there are also some barriers such as the reluctance for employees to share their knowledge for fear of losing ownership, emotional factors such as lack of trust, the indistinctness of tacit knowledge, insufficient rewards from the organization, organizational culture etc. Conversely there seems to be consensus around the literature that organizations need to provide its employees with some reward/incentives e.g. financial rewards where MacDonald as cited in Greenfield (1993), conducted research in the top 100 companies in South Africa and found that 96% of respondents indicated that money was the most important motivating factor, institute mentoring programs, dialogues and so forth, to encourage their employees to share their knowledge with others. Various types of stories (e.g. dramatic, factual) and storytelling have also been uncovered

and ways in which these stories can be retold to the listener/receiver. Of those storytelling methods mentioned in the reviewed literature, are social networking, using media such as an intranet or internet e.g. Wiki's, brainstorming camps, conferences and forums, reward programs etc. The literature has also provided us with some examples where storytelling, has been found to be usable as a means of eliciting tacit knowledge from employees.

The following chapter will discuss the research methodology of the study and how the established theory of this chapter could be tested using sound theoretical research methodology.



Chapter 3

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

The preceding chapter offered an outline of some of the available literature and argumentation of the theory that provided a foundation and motivation for this study. This chapter outlines the research design and methodology by exploring the various options available for conducting a research study and motivates the methodology used in this study. The data collection method, sample selection as well as validity and reliability issues will be presented.

3.2 METHODOLOGY DISCUSSION

A research design is the plan of actions or structure which links the philosophical foundations and the methodological assumptions of a research approach to its research methods in order to provide credible, accountable and legitimate answers to the research questions (Gelo O. et al 2008). The design focuses on the end product, the study that is being planned and the kind of results that are expected.

Onwuegbuzie and Leech (2005) assert that the choice of research methodology should be dependent upon the research questions. According to Zikmund (2003), the terms quantitative and qualitative are used regularly to classify different modes of inquiry or approaches to the research process. Fuchs and Hanning (2001) also declared that there are two methods to select from when carrying out research in social science: “qualitative or quantitative”. They argue that the most significant difference between these two approaches is the use of numbers and statistics in the quantitative approach while the qualitative approach focuses on social aspect of life and the meaning people attached to it. As stated by Bell (1987), quantitative research is all about quantifying relationships between variables, about individuals’ perceptions and insights into relationships about the world. Neuman (2000) maintained that quantitative research uses a deductive method, which commence with a synopsis, logical relationship among concepts and then shifts toward concrete empirical facts.

Qualitative research uses an inductive method, which commences with only indistinct concepts, which are then filtered to develop empirical simplifications

and discover initial relationships (Neuman, 2000). Burns (2000) describes qualitative research as being naturalistic, involving the importance of subjective experience of individuals, an ideographic approach and as a holistic analysis, as opposed to the criteria of reliability and statistical compartmentalization of quantitative research. Along with Eldabi et al., (2002), qualitative research methods are associated with “face-to-face” contact with people in the research setting, jointly with observations and verbal data.

Creswell (2007) believes qualitative research is a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem. The process of research involves emerging questions and procedures, data typically collected in the participant’s setting, data analysis inductively building from particulars to general themes, and the researcher making interpretations of the meaning of the data. The final written report has a flexible structure. Those who engage in this form of inquiry support a way of looking at research that honours an inductive style, a focus on individual meaning, and the importance of rendering the complexity of a situation (Creswell, 2007).

Creswell (1994) summarizes four qualitative research designs that are commonly found in social and social human research: (1) Ethnographies, in which a researcher studies a cultural group in a natural setting during a particular period of time; (2) Grounded theory, in which a researcher expands a theory through multiple stages of data collection and weigh it against other theories found in the literature; (3) Phenomenological studies, in which a researcher scrutinizes a human experience through detailed descriptions; (4) Case studies, in which a researcher investigates a particular event that occurs during a distinct time or activity and collects data.

For the purpose of this study, the researcher would like to outline, consistent with Creswell (1998), what some widely shared assumptions are about Grounded Theory:

- the aim of grounded theory research is to uncover or spawn a theory;

- the researcher has to set aside theoretical ideas to permit a “substantive” theory to emerge;
- theory is derived from data attained by way of interviews, documents, fieldwork and observations;
- data analysis is systematic and commences as early as data are on hand;
- data analysis carry on through identifying categories and connecting them;
- the resultant theory can then be reported in a narrative framework or as a set of proposals.

Like qualitative researchers, those who engage in this form of inquiry have assumptions about testing theories deductively, building in protections against bias, controlling for alternative explanations, and being able to generalize and replicate the findings (Creswell, 2008; Neuman, 2003). Grounded theory according to Glaser (1992), is “based on the systematic generating of theory from data, that itself is systematically obtained from social research”. Grounded theory according to Strauss and Corbin (1994) is, “a general methodology for developing theory that is grounded in data systematically gathered and analyzed”. Consistent with Strauss and Corbin (1994), the theory evolves throughout actual research, and it does this through constant interplay between data collection and analysis. In consideration of the aforementioned, I conclude that qualitative research is by its nature directed by an exploratory descriptive and contextual design. Burns and Grove (1999) verify this as they point out that qualitative research is intended to explore and describe the richness, depth and complexity of a phenomenon or issue.

Mixed methods research is an approach to inquiry that combines or associates both qualitative and quantitative forms. It involves philosophical assumptions, the use of qualitative and quantitative approaches, and the mixing of both approaches in a study. Thus, it is more than simply collecting and analyzing both kinds of data; it also involves the use of both approaches in tandem so that the overall strength of a study is greater than either qualitative or quantitative research (Creswell and Plano Clark, 2007).

RESEARCH APPROACH

3.3 SAMPLING

According to Powers et al. (1985) a sample is a subset of measurements drawn from a population in which we are interested. Mouton (1996) defines a population as the entire set of data from which a sample is selected and about which the researcher wishes to draw conclusions. Similarly Sekaran (2001) defines a population as “the entire group of people, events or things of interest that the researcher wishes to investigate.” According to Neuman (2003), sampling like random assignment, is a method of systematically selecting cases for inclusion in a research project. A researcher gets a set of cases (elements) or sample, which is more manageable and cost effective to work with than the pool of all cases. Sampling reduces labour requirements, cuts costs and gathers key information rapidly (Zikmund, 2003). In this study the target population will be employees nearing retirement or are deemed to be SME’s.

3.4 SAMPLING STRATEGY

Sarantakos (1993) assert that purposive sampling is a technique where researchers, “choose subjects who, in their opinion, are relevant to the project”. In keeping with Creswell (1998), “purposeful selection of participants represents a key decision point in qualitative study”. In accordance with Trochim (2001), an advantage with purposive sampling is that the researcher selects the participants based on the purpose of the study. Since a qualitative approach was used which according to Mason (2003), is rich in contextual and detailed data, the sample size was 10 participants, which were all identified by the host organization’s Human Capital Division as SME’s in their respective divisions.

3.5 DATA COLLECTION METHOD

The next step in the research design is to determine how the data will be collected from the experts in the host organization. The approach taken to collect the data

was in utilizing the storytelling method (qualitative) by way of interviewing. Consistent with Sampson (1972), interviews, being one method of qualitative research, may either be non-directive or semi-structured.

In non-directive interviews it is essential that a relaxed, considerate relationship develops between the interviewer and the interviewee, and that questioning does not cause partiality in responses. In contrast a semi-structured approach to interviews permits the researcher to cover a particular list of subject areas, with the time apportioned to each subject area being left to the judgment of the interviewer. According to Sampson (1972) the open structure guarantees that unexpected particulars or feelings can be easily explored. For the purpose of this study the researcher used a semi-structured interview method as the key data-gathering instrument.

In reference to Harre et al. (1995), semi structured interviews facilitate rapport and also permit for superior flexibility of coverage enabling the interviewer to enter novel areas. Along with De Vos et al. (2005), researchers use semi-structured interviews with the aim of attaining a meticulous picture of a participant's beliefs relating to accounts or perceptions of a particular subject matter. This approach allowed the researcher to have a set of predetermined questions on an interview schedule, although the interview will be guided by the schedule rather than dictated by it (De Vos et al. (2005). The researcher also believed that this method provided the prospect to pose questions in an open-ended manner as the researcher aims was to elicit responses of a contemplative nature.

3.6 VALIDITY and RELIABILITY

Consistent with Merriam (1998), all research is concerned with producing valid and reliable information in an ethical manner. The trustworthiness of the research results depends on the extent to which validity and reliability have been accounted for in the study.

As stated by Bryman (2004) and Berg and Theron (2003), validity refers to the issue of whether an indicator (or set of indicators) that is devised to determine a concept really measures that concept. Creswell (1994) defines the many types of validity through effective questions. These questions support the efforts by researchers to establish validity: (a) Do the items measure the content they were supposed to measure? (content/face validity); (b) Do scores predict a criterion measure? (Predictive validity); (c) Do results correlate with other results? (Concurrent validity); (d) Do items measure the hypothetical constructs or concepts? (Construct validity); (e) Do the items appear to measure what the instrument purports to measure? (Face validity).

According to Bryman (2004) and Berg and Theron (2003), reliability refers to the consistency of a measure of a concept. Likewise Cooper and Schindler (2003) states that reliability refers to the accuracy of a test, consistency of scores obtained by the same individuals, when re-tested on the same test on a different occasion or different sets of equivalent items or variable examining conditions. (Creswell (1994) list the following questions that support the efforts by researchers to establish reliability: (a) Are the item responses consistent across constructs? (item consistency); (b) Do individuals vary in their responses when the instrument is measured a second time? (test stability); (c) Were errors caused by carelessness in administration or scoring? (Consistency in test administration and scoring).

Reliability and validity are therefore the most important criteria for research and assessment effectiveness and may be part of and reflect all or most sources of measurement error (Berg and Theron, 2003).

3.7 RESEARCH METHODOLOGY ADOPTED

The study to be carried out is intricate involving multiple factors which comprise of knowledge which is mainly abstract in nature. From the literature review, the researcher believed that limited research into the elicitation and capturing of tacit knowledge from experts by means of storytelling has been conducted in this area, and therefore this project shall contribute to the further examination of this area for future researchers. The study employed an empirical research method.

Empirical research is characterised by the fact that knowledge or theory that is derived from it, is arrived at as a result of observations or testing. In keeping with Robson (2002), empirical research entails a systematic investigation of an experience which should be both ethical and skeptical. This research made use of an interpretive philosophical approach and in keeping with Walsham (1995), “interpretive research does not predefine dependent or independent variables, does not set out to test hypotheses, but aims to produce an understanding of the social context of the phenomenon and the process whereby the phenomenon influences and is influenced by the social context”.

Also in line with Mouton (1996), within the interpretive tradition, the goal of human sciences is not to analyze or explain, but to understand. Since this research is rooted in the interpretive approach, its aim was to formulate an understanding if storytelling can be used to elicit tacit knowledge from SME’s within an organization. It is important to remember that interpretive is not synonym for qualitative (Klein and Myers, 1999; Walsham, 2006), as qualitative research may well or may not be interpretive, depending upon the underlying philosophical assumptions of the researcher (Myers, 1997). Also in keeping with Walsham (2006), one can make generalizations from one organization, as “generalizations can take the form of theories, concepts, rich insights or specific implications”, as was done in this research.

This research also made use of Grounded Theory (GT) methodology (Strauss and Corbin, 1990), as it was fixed on making sense of the data collected and giving them a structure (Parker and Roffey, 1996). The researcher chose the grounded theory (GT) techniques to analyze the storytelling/interview data because, consistent with Strauss and Corbin (1990), grounded theorizing is complementary to capturing the interpretive experiences of managers/owners and developing theoretical propositions from them. This methodology allowed the researcher to develop a theoretical interpretation of an organisational phenomenon. Consistent with Parker and Roffey (1996), Grounded theory aspire to categorize “many ideas which have emerged from analysis of the data through systematic analysis of the

documents, interview notes, or field notes by continually coding and comparing data to produce a well constructed theory”. Also in line with Goulding (1998), Grounded theory is a method that has been utilised to offer a fresh slant on existing knowledge or to create theory where little is previously known.

The justification to use this method comes from the fact that Orlikowski (1993), in her seminal work successfully used Grounded Theory to analyze organizational changes. The researcher will also make use of Orlikowski (1993) justifications in her use of Grounded Theory Methodology, as it is useful for areas where no prior theory exists and that it includes the intricacies of the organizational context into the understanding of the phenomena, as was the case in this research, whereby the aim was to extract tacit knowledge from SME’s in an organization via storytelling. Similar to Orlikowski (1993) where she connected GT derived from the data with aspects of existing formal theory, the researcher also wish to highlight that it has used Knowledge management concepts alongside the Delphi technique with GT. The Grounded Theory process (adapted from Strauss and Corbin, 1990) that the researcher has followed are along these lines:

1. Selection of an appropriately complex research question
2. Collecting data and transcribing interviews
3. Coding, follow-up sessions and re-coding
4. Analyse/determine relationships between the categories (constructs)
5. Emerging theory compared with data

The collection of the stories from the experts was done by way of interviewing (semi-structured). Frequency analysis was performed on the stories and the Delphi technique (expert review) was utilized to create an initial classification of stories using a knowledge management frame. The researcher chose to use this method because:

1. An important prerequisite for knowledge sharing is a common language (Howard and Longstaff, 1998; Grant, 1996) using expert reviews of the data which would ensure commonality.

2. There are many classifications of stories but none specifically applicable to the managing and sharing of organizational knowledge; this framework would be knowledge management specific.
3. Using expert academic reviewers to classify stories ensured that the emergent knowledge framework would be industry agnostic.

Also the Delphi method has been applied by many authors as a research tool in the Information Systems sphere e.g. Dexter et al., 1993; Doke and Swanson, 1995; Hayne and Pollard, 2000; Lai, 2001; Mulligan, 2002; Akkermans et al., 2003; Lin et al., 2008, Yeoh et al., 2008; Sharma et al., 2008; Kim and Kim, 2008; Lin and Chang, 2008). In addition as a supporting analytical tool, Pearson's correlation analysis was performed on the variables (constructs) to identify areas of co-linearity or overlap and provided confirmation of where constructs should be combined. Rosnow and Rosenthal (1996) assert that correlation processes are used to measure the strength of association between two variables.

The research followed a series of steps which are embedded in the Grounded Theory process (adapted from Strauss and Corbin, 1990) are as follows:

1. Selection of an appropriately complex research question
2. Collecting data and transcribing interviews.
 - **Step 1** which encompasses the collection of the stories via interviews
 - **Step 2** comprise of frequency analysis that was performed on the various stories
3. Coding, follow-up sessions and re-coding
 - **Step 3** consists of the re-coding of stories
4. Analyze/determine relationships between the categories (constructs)
 - **Step 4** involves the Delphi Technique (expert review sessions) which bring about our 21 Primary constructs.
5. Emerging theory compared with data
 - **Step 5** consists of more expert review (Delphi technique) and Pearson correlations, which then results in 14 constructs.

3.8 ETHICS STATEMENT

Consistent with McMillan and Schumacher (2001), ethics in research studies involve considerations of informed consent, confidentiality, anonymity, deception, privacy and harm to the subjects. In this study all attempts have been made to consider these ethical issues.

3.9 HOST ORGANIZATION

“No 1 petroleum ltd.”(not the actual name of the organization used in this study), is an African-based energy group focused on the refining and marketing of petroleum and petroleum-based products. It has offices in 17 countries in Sub-Saharan Africa. No 1’s shareholders are Petroliam Nasional Berhad (PETRONAS), the Malaysian national oil company, which holds 80% of “No 1’s” equity, and Worldwide African Investment Holdings (WAIH), which holds the balance. No 1 is a wholly-owned subsidiary of Engen Limited, and conducts all downstream activities in South Africa. Its business areas are its Refinery, Lubricants, International Business Division, Sales and Marketing (Retail and Commercial), Supply, Trade and Optimization, Human capital Division, Information Systems department and Customer service centre department.

3.10 INTERVIEW SETTING

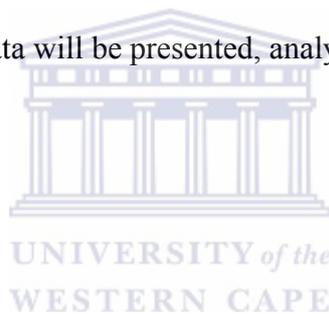
The researcher had the participants select their preferred venue for the research to be carried out. This enabled the participants to be in a setting that was known to them and as an upshot allowed them to be more comfortable during the interviews. The researcher ensured that appointments with the participants was secured ahead of the interviews, so that the participants may prepare sufficiently, which in turn also afforded the researcher a way to acquire well thought responses from the interviewees. The interview session(s) was conducted by way of taking notes and recordings (digital) that was later transcribed.

Each interviewee was given guided questions with the intention to establish how well the interviewees are informed around the subject of storytelling (see Appendix 5). All interviewees were given a prompt card (see Appendix 2), listing some of the various types of stories that exists universally e.g. success stories,

project stories, personal stories etc. The interviewees were not prompted using specific knowledge management terminology and this was done so as not to constrain the discussion, but the interviewees were allowed to use language and concepts with which they were most comfortable. The duration of the interview sessions ranged between 1-2 hours. Where storytelling sessions could not draw to a close within the allotted time, follow-up session(s) were held to guarantee that the interviewees shared nearly all of their stories.

This chapter described the overall research approach that was utilized in this study. A discussion around the qualitative approach used in this study was explained as well as the data collection process, methods and data verification. Research ethics were also adhered to.

In the next chapter the data will be presented, analyzed and discussed.



Chapter 4

DATA PRESENTATION AND DISCUSSION

The previous chapter discussed the methodology adopted for this research and the logic behind the choice of data collection method. This chapter is devoted to a

presentation and discussion of the results of the interviews. The presentation proceeds with an analysis of the descriptive statistics on the variables under consideration. The statistical program used for the analyses and presentation of data in this research is the Statistical Package for the Social Sciences (SPSS) version 19. To facilitate ease in conducting the empirical analyses, the results of the descriptive analyses are presented first, followed by the inferential statistical analysis. Pearson's correlations as utilized by Madsen et al., (1990) were performed on the data and were selected because of the ordinal nature of the variables. The upper level of statistical significance for null hypothesis testing was set at 5%. All statistical test results were computed at the 2-tailed level of significance in accordance with the non-directional hypotheses presented (Sekaran, 2001).

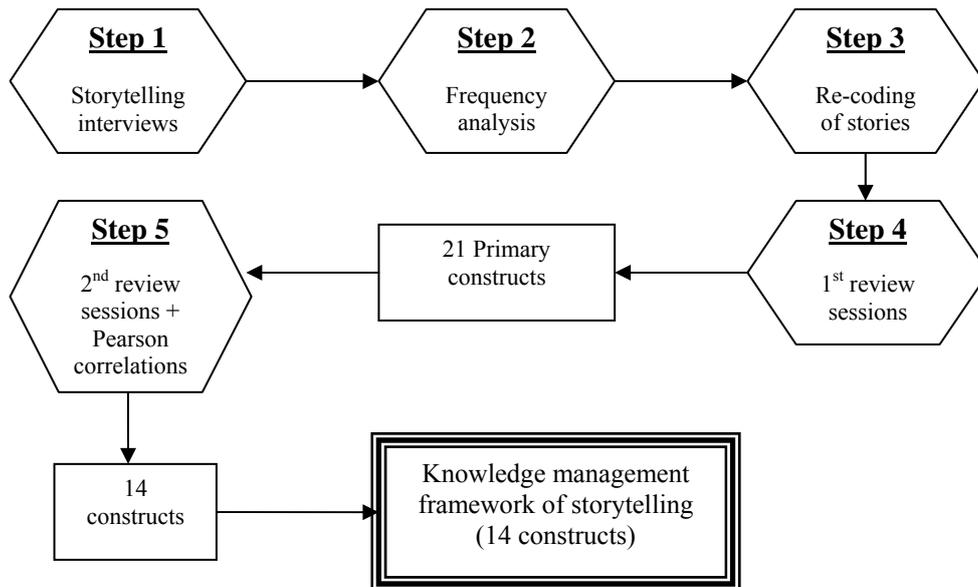
4.1 PRESENTATION OF RESULTS

The researcher prior to each interview supplied each candidate with an invitation (cover letter) outlining the purpose of this study (see Appendix 1), as well as a spreadsheet (prompt card) containing a brief array of story types (see Appendix 2) that they could share during their interview session(s). The aim of this was to stimulate their dormant experiences, knowledge etc. in the hope that the interview sessions would yield better continuous flow of storytelling from the candidates. The researcher can self-assuredly report that this did take place, as the candidates found this to be very helpful in igniting their memories of past events, personal experiences and knowledge.

4.1.1 RESULTS

The next section is devoted to the **5** analysis steps that were carried out and will form the basis of the analysis.

Figure 1: Analysis steps



4.1.1.1 Storytelling interviews (Step 1)

In total 64 stories were collected from the interviewees/participants. Some participants were interviewed numerous times during the research period with the intention to ensure reliability was in the data collected. Each interview lasted for an average of 90 minutes. Importantly as mentioned before, at no time during the interview sessions were the participants prompted using knowledge management jargon.

4.1.1.2 Frequency analysis (Step 2)

After each of the interview or storytelling sessions the researcher had in conjunction with the interviewees, reviewed the stories by classifying them as accurately as possible according to its nature i.e. project, teaching etc. The idea was to ascertain the storyteller's impression of the type of story he/she thought they conveyed. Table 4.1 represents the frequencies of the story types identified in this study. What follow are the categorizations of the stories:

Table 4.1: Frequency of Story Types

Stories

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Chronicle	5	5.1	5.1	5.1
	Comedy	2	2.0	2.0	7.1
	Factual	8	8.2	8.2	15.3
	Founder	2	2.0	2.0	17.3
	Genesis	2	2.0	2.0	19.4
	Personal	23	23.5	23.5	42.9
	Project	29	29.6	29.6	72.4
	Strategy	6	6.1	6.1	78.6
	Success	6	6.1	6.1	84.7
	Teaching	15	15.3	15.3	100.0
	Total	98	100.0	100.0	

Table 4.1 shows that of the 64 stories collected it consisted of 98 variants of story types. Of the stories collected from the 10 candidates, 29 (29.6%) relates to stories with Project as its main subject matter, 23 (23.5%) related to Personal type stories, 14 (15.3%) related to Teaching, 8 (8.2%) related to Factual type stories, 6 (6.1%) and 6 (6.1%) were Strategy type stories. Also 5 (5.1%) relates to Chronicle type stories, and 2 (2.0%) relates to Comedy, Founder, and Genesis types stories respectively. What was gleaned from the accumulated stories is that most participants had a predilection to share their accounts about projects and personal stories followed closely by teaching type stories.

4.1.1.3 Re-coding of stories (Step 3)

To allow for the various stories (which are more closely linked with the field of Anthropology) to be understood with respect to the field of Knowledge management, the researcher had after the storytelling session(s); revisited the collected stories after storytelling sessions and by inspection, coded them into fitting knowledge management constructs. The coding of the stories into the various knowledge management constructs was then further refined by the expert reviewers. These knowledge management constructs for the purpose of this study, will be called Primary constructs. The 21 Primary constructs are outlined in Table 4.2:

Table 4.2

Knowledge sharing	Knowledge capture	Innovation	Process improvement	New knowledge	Knowledge application	Best practices
Competitive advantage	Knowledge storage & retrieval	Knowledge integration	Knowledge culture	Customer knowledge	Knowledge erosion	Time savings
Knowledge reuse	Staff ideas	Knowledge worker	Financial impact	Environmental impact	Human impact	Risk

A definition for each Primary construct can be found in Appendix 3. Each story that contained a premise that was consistent with a Primary construct was assigned with a value = **1**. If no topic within the story could be associated with the Primary constructs, then a value = **0** was assigned to it (see Appendix 4). An example of these associations can be viewed in Table 4.3 below:

Table 4.3

Story	Knowledge sharing	Knowledge worker	Knowledge culture	Best practices	New knowledge	Knowledge erosion
S1	1	0	0	0	0	1
S2	0	0	0	1	0	0
S3	0	0	1	0	0	0
S4	0	0	0	1	1	0

Examples of these stories and how they were classified under the Primary constructs are illustrated below:

Story 2 from respondent 1

I have also once logged a call with building services, since I noticed that on the 4th floor there was many old computer stock, some storage racks and redundant computers, servers and cabling lying around. This was aside from being a health and safety risk, also gave an untidy impression on that floor. I then recommended that the company or perhaps in particular the IS dept., create a computer room to store the redundant equipment, sell or donate it to a charity organization. This recommendation then prompted the IS dept. to refurbish their old computer room which also contained many redundant equipment and which appeared to be very dusty and had no furniture, by installing air conditioning, office furniture and move the old computer equipment from the floor as well as the computer room. This recommendation was well received within the company as more office space was eventually created on the 4th floor and the creation of the refurbished computer room with its now improved accessibility and complying to the company's and building safety regulations.

In story 2 received from respondent 1, we concluded that the story also shared elements consistent with that found in knowledge management. Particularly we

deemed that this story from respondent 1, had constituents of Knowledge application, Best practices and Staff ideas. It was deemed by the researcher together with expert review that this story makes reference to the Primary construct Knowledge Application, as can be exemplified in the text:

“prompted the IS dept. to refurbish their old computer room which also contained many redundant equipment and which appeared to be very dusty and had no furniture, by installing air conditioning, office furniture and move the old computer equipment from the floor as well as the computer room”

Pertaining to the association with the Primary construct Best Practices, we for example considered the following passage fitting:

“more office space was eventually created on the 4th floor and the creation of the refurbished computer room with its now improved accessibility and complying to the company’s and building safety regulations”.

With reference to the connection with the Primary construct Staff Ideas, we for instance considered the following wording appropriate:

“I then recommended that the company or perhaps in particular the IS dept., create a computer room to store the redundant equipment, sell or donate it to a charity organization”.

Story 2 from respondent 7

In 1983 at the Mobil building in Cape Town, I remember that I was transferred from Woodstock depot to Cape Town head office and back then we would play table tennis daily during our lunch breaks and after work as well. We also held table tennis tournaments among different divisions within the company. Our CEO at that time was Rob Angel had received numerous complaints about us not getting home in time to our families, because we enjoyed playing this game at work so much. We felt part of a group and Mobil as a whole. My lesson I wish to convey here is that if a simple game of table tennis back then could bring us as employees together as a group, how many other initiatives the company can employ today to support that type of comradery.

In story 2 received from respondent 7, we concluded that the story shared elements consistent with that found in knowledge management. In particular we

considered that the story from respondent 7, had constituents of Knowledge culture and Staff ideas. It was deemed by the researcher together with expert review that this story makes reference to the Primary construct Knowledge Culture, as can be illustrated in the text:

"we enjoyed playing this game at work so much. We felt part of a group and Mobil as a whole"

Relating to the association with the Primary construct Staff Ideas; we for example considered the following passage appropriate:

"My lesson I wish to convey here is that if a simple game of table tennis back then could bring us as employees together as a group, how many other initiatives the company can employ today to support that type of comradery"

What follow is the Delphi technique (**Step 4**) that was carried out on the Primary constructs.

4.1.1.4 Delphi review (Step 4)

The Delphi technique (expert review) was used to determine if other experts would yield similar results that was obtained in Step 3. The aim of the early expert review sessions was to achieve general consensus about the initial classifications related to knowledge management. Stories were read, reviewed and classified by the panel (academics from the University of the Western Cape, University of Missouri-Columbia in the USA, and knowledge management practitioners in the Western Cape, South Africa).

4.1.1.5 Formation of 21 Primary Constructs

Rooted in the expert review sessions held, as outlined in Step 4, 21 Primary constructs (as delineated in Table 4.2) by means of consensus was achieved.

4.1.1.6 Delphi review and Pearson correlations (Step 5)

Further expert review sessions were held, and what was ultimately accomplished was the formation of 14 constructs as summarized in Table 4.4, from the original 21 Primary constructs.

Table 4.4

Knowledge sharing	Knowledge capture, storage & retrieval	Innovation (Process Improvement + staff ideas)	Knowledge culture	New knowledge	Knowledge application + reuse	Best practices
Competitive advantage	Knowledge worker	Knowledge integration	Risk	Customer knowledge	Knowledge erosion	Knowledge Benefits = time savings + financial impact + environmental impact + human impact

The researcher established by means of the expert review sessions that the 21 Primary constructs shared complementing elements with some of the other primary constructs and these were therefore grouped together to form a more encompassing construct. These formations of constructs will now be discussed.

The Primary construct Knowledge capture and Knowledge storage and retrieval were considered by means of the expert review to share a relationship and as a result led to the formation of the construct **Knowledge capture, storage and retrieval**. It was deemed by way of expert review, that when knowledge is captured, that it would need to be stored in some repository/database to allow for the retrieval of that knowledge at some later stage. Furthermore the Primary constructs Innovation, Process improvement and Staff ideas were regarded by means of expert review to share a relationship and consequently resulted in the creation of the construct **Innovation (Process improvement + staff ideas)**. It was reasoned that process improvement emanates from an idea of a staff member that could eventually bring about innovation. Additionally the Primary constructs Knowledge application and Knowledge reuse were considered through expert review to share a relationship and were therefore fused together to form the construct **Knowledge application + reuse**. It was surmised that when knowledge is applied that it can later be reused in some new manner that would bring about a noteworthy change.

Also the Primary constructs Time savings, Financial impact, Environmental impact and Human impact were grouped together to form the construct **Knowledge benefits** which includes *Time savings Financial impact, Environmental impact and Human impact*. It was reasoned that for example, Time savings can result in a favorable outcome for an organization whereby employees perform their work resourcefully and thus can perform more work, but that the lack thereof can result in much less benefit to the organization. The constructs of Knowledge sharing, Knowledge culture, New knowledge, Best practices, Competitive advantage, Knowledge worker, Knowledge integration, Risk, Customer knowledge and Knowledge erosion, were all deemed by way of expert review to be independent constructs.

The Pearson's Pairwise Correlation which was used as a supporting tool was computed for the purposes of determining and validating the relationships among the 14 constructs and is presented in the following tables:

Note:

- * Correlation is significant at the 0.05 level (2-tailed)
- ** Correlation is significant at the 0.01 level (2-tailed)

Table 4.5

		Knowledge capture, storage & retrieval construct	Knowledge Application & Reuse construct	Competitive advantage construct
Knowledge sharing construct	Pearson Correlation	.262*	.390**	-.330**
	Significance (2-tailed)	.036	.001	.008

In Table 4.4 the results indicate that the Primary construct Knowledge sharing, correlates appreciably with the Knowledge application and reuse construct ($r = .390, p < 0.01$) as well as the Competitive advantage construct ($r = -.330, p < 0.01$). Also the Knowledge sharing construct signifies that it has a notable correlation ($r = .262, p < 0.05$) with Knowledge capture, storage and retrieval construct. With the cross correlation performed on the **Knowledge Sharing**

construct with the other constructs signified in Table 4.5, we can therefore infer that:

- a) It can supplement the capacity to store and retrieve knowledge ($r = .262$ $p = .036$).
- b) It would result in a noteworthy increase in the application and reuse of knowledge ($r = .390$ $p = .001$).
- c) It would result in a considerable decrease in competitive advantage ($r = -.330$ $p = .008$).

Table 4.6

		Knowledge erosion
Knowledge capture, storage & retrieval construct	Pearson Correlation	.282*
	Significance (2-tailed)	.024

In Table 4.6 the results indicate that the construct Knowledge capture, storage and retrieval has a noteworthy correlation with the construct Knowledge erosion ($r = .282$, $p < 0.01$). With the cross correlation performed on the **Knowledge capture storage and retrieval construct** with the other constructs shows in Table 4.6 that we can infer that it:

- a) Causes a reduction in Knowledge erosion ($r = .282$, $p = .024$).

Table 4.7

		New Knowledge construct
Innovation, process improvement, staff ideas construct	Pearson Correlation	.271**
	Significance (2-tailed)	.030

In Table 4.7 the results indicate that the construct Innovation, process improvement, staff ideas correlates to some extent with the New knowledge construct ($r = .271$, $p < 0.01$). With the cross correlation performed on

Innovation, process improvement, staff ideas construct with the other constructs shows in Table 4.8 that we can infer that it:

- a) Causes a decline in competitive advantage ($r = -.267, p = .033$)
- b) Decreases the erosion of knowledge ($r = .276, p = .027$)

Table 4.8

		Competitive advantage construct	Knowledge erosion construct
Knowledge application & reuse construct	Pearson Correlation	-.267*	.276**
	Significance (2-tailed)	.033	.027

In Table 4.8 the results indicate that the construct Knowledge application and reuse correlates notably with the Competitive advantage construct ($r = -.267, p < 0.01$) and Knowledge erosion construct ($r = .276, p < 0.01$). With the cross correlation performed on **Knowledge application and reuse construct** with the other constructs shows in Table 4.8 that we can infer that it:

- a) Causes a decline in competitive advantage ($r = -.267, p = .033$)
- b) Decreases the erosion of knowledge ($r = .276, p = .027$)

Table 4.9

		Knowledge erosion construct
Best practices construct	Pearson Correlation	.524**
	Significance (2-tailed)	.000

In Table 4.9 the results signify that the construct Best practices, correlates appreciably with the Knowledge erosion construct ($r = .524, p < 0.01$). With the cross correlation performed on the **Best practices construct** with the other constructs shows in Table 4.9 that it:

- a) Has a strong relationship with Knowledge erosion ($r = .524, p = .000$), whereby we can infer that it would result in a noteworthy decrease in the erosion of knowledge.

Table 4.10

		Knowledge integration construct	Customer knowledge construct
Competitive advantage construct	Pearson Correlation	.349**	.306*
	Significance (2-tailed)	.005	.014

In Table 4.10 the results indicate that the construct Competitive advantage, correlates appreciably with the Knowledge integration construct ($r = .349, p < 0.01$). In addition Competitive advantage construct has a noteworthy correlation with the Customer knowledge construct ($r = .306, p < 0.01$). With the cross correlation performed on the **Competitive advantage construct** with the other constructs shows in Table 4.10 that it:

- a) Has a strong relationship with the construct Knowledge integration ($r = .349, p = .005$), whereby we can infer that it would result in a notable enhancement in the integration of knowledge.
- b) Appreciably increases knowledge about customers ($r = .306, p = 0.014$).

Table 4.11

		Customer knowledge construct
Knowledge integration construct	Pearson Correlation	.306*
	Significance (2-tailed)	.014

In Table 4.11 the results denote that the construct Knowledge integration construct, correlates with the Customer knowledge construct ($r = .306, p < 0.05$). With the cross correlation performed on the **Knowledge integration construct** with the other Primary constructs shows in Table 4.11 that we can infer that it:

- a) Enhances the knowledge about customers ($r = .306, p = .014$)

Table 4.12

		Customer knowledge construct
Knowledge culture construct	Pearson Correlation	-.266*
	Significance (2-tailed)	.034

In Table 4.12 the results point out that the construct Knowledge culture, correlates with the Customer knowledge construct ($r = -.266, p < 0.01$). With the cross correlation performed on the **Knowledge culture construct** with the other constructs as depicted in Table 4.12, we can infer that it:

- a) Causes a reduction in Knowledge about customers ($r = -.266, p = .034$)

Table 4.13

		Knowledge benefits construct
Customer knowledge construct	Pearson Correlation	.276*
	Significance (2-tailed)	.027

In Table 4.13 the results signify that the construct Customer knowledge, correlates to some extent with the Knowledge benefits construct ($r = .276, p < 0.01$). With the cross correlation performed on the **Customer knowledge construct** with the other constructs as shown in Table 4.13, we can consequently infer it:

- a) Results in an increase in Knowledge benefits ($r = .276, p = .027$)

No cross correlations or dependencies were established with the constructs, **New knowledge, Knowledge erosion, Knowledge benefits, Knowledge worker and Risk.**

4.2 DISCUSSION

In this section the results presented earlier in Chapter 4 will be discussed.

The researcher has effectively collected 64 stories from 10 participants, re-coded them into fitting knowledge management constructs (Primary constructs), read and reviewed the constructs by way of expert review and eventually categorized them. Additional expert review sessions revealed that the 21 Primary constructs could be further refined and resulted in 14 constructs by way of fusing some of these constructs. Some of these reasons why some of these constructs were combined were also shared. Pearson's correlation analysis was also performed on the 14 constructs which further gave credence to the expert review sessions.

The results has shown that stories placed into knowledge management constructs is an effective means of classifying them into a structure and that could be stored and effectively accessed or extracted and eventually used by employees to attain tacit knowledge from experts. For example it was found based on some further examination with some of the participants and managers at the host organization, that they felt that the stories relating to the way things are done in the company, were fittingly placed under the construct Knowledge culture. Other examples where they felt that the needed information was retained appropriately were all stories related to risk, and that it was placed in proportion to the construct Risk. Matters of how a competitive advantage was or could be achieved were aptly placed under the construct Competitive advantage and so forth. It is imperative to remember that none of the interviewees were prompted using knowledge management terminology, and for this reason their responses remained untainted.

What the results has revealed, is that stories can be used as an effective elicitation method for experts to share their stories. In addition to the findings presented earlier, the researcher has inadvertently achieved the formation of a knowledge management framework for storytelling.

Chapter 5

5.1 CONCLUSION

In this section the researcher will give a brief overview of the study by reviewing the research questions at the centre of the research and its answers whilst also assessing the research design approach used for the research, providing recommendations, outlining the limitations of this research and giving directions for future research.

The purpose of this study was to establish the following research objectives with the aim of answering our main research question:

- a) Can storytelling be a useful means of eliciting tacit knowledge from subject matter experts (SME's)?

Sub-questions:

- b) What is the basis of story and storytelling?
- c) How is stories utilized in the organization?
- d) What are the taxonomies of stories?
- e) What are the benefits of storytelling?
- f) What are the different types of tacit knowledge?
- g) What are the benefits of tacit knowledge to the organization?
- h) What are the barriers to acquiring tacit knowledge?
- i) How can the organization facilitate tacit knowledge acquisition?
- j) How can the organization employ the storytelling method technique to elicit tacit knowledge from its employees?

What the researcher can report is that for question **b) What is the basis of story and storytelling?**; the researcher has through the reviewed literature determined that stories have been with us since the beginning of time and that stories have been used in many forms such as parables, fables real life stories, etc. to pass on

knowledge, wisdom and culture. Also it has been established that stories is key in the foundation of meaning and understanding in our social situations.

With respect to question **c) How is stories utilized in the organization?**; the research has revealed that stories can be used in many ways in the organization such as, to disseminate knowledge, capturing what is tacit, generating emotional connections, to solve problems etc.

In relation to the question **d) What are the taxonomies of stories?**; the literature has shown that there are many stories that can be found within the organizational context and in the extant literature. Some of the organizational stories uncovered were leadership stories, firing stories, stories of transformation, conflict-resolution stories, visionary stories etc. Of those relating to written literature was comedy, tragedy, parable, chronicle, myth etc.

Concerning question **e) What are the benefits of storytelling?**; it was established that many benefits could be generated by storytelling for instance, stories tend to stick with individuals longer than abstract ideas alone, helps employees focus, it engages people's emotion and reasoning, can motivate and inspire employees, is a great conveyer of tacit knowledge and so forth.

Regarding question **f) What are the different types of tacit knowledge?**; the literature revealed that tacit knowledge does take on many forms such as cognitive, technical, social, affective, intuitive, embodied and spiritual tacit knowledge. Other categories of tacit knowledge included organizational routines, hard to pin down skills (know-how), mental models and ways of how to approach problems.

Pertaining to question **g) What are the benefits of tacit knowledge to the organization?**; the literature shows that tacit knowledge is viewed by many authors as the foundation of all knowledge and innovative ideas in organizations. Tacit knowledge also generates new tacit knowledge, enhances the effectiveness

of decision-making and the production of goods and delivery of services to customers. Tacit knowledge can also aid the organization to defy replication by its competitors and the capturing and ultimate codification thereof, can result in enhanced workplace efficiency which could result in a reduction in costs and an increase in return on investment.

With regard to question **h) What are the barriers to acquiring tacit knowledge?**; the literature uncovered that organizational culture, the reluctance of people to share their knowledge for fear of losing ownership, lack of adequate rewards, the indistinctness of tacit knowledge, lack of absorptive capacity, difficult relationships between sender and receiver were all major barriers to acquiring tacit knowledge. Other barriers to acquiring tacit knowledge consisted of lack of motivation, by sender and receiver, the untrustworthiness of the sender, organizational systems and structure, emotional factors etc.

Concerning question **i) How can the organization facilitate tacit knowledge acquisition?**; the literature revealed that organizations can make use of brainstorming camps, social networking, learning by doing, institute mentoring programs, succession planning, initiate rewards programs to augment worker tacit knowledge. Other means consist of ensuring that management is committed to tacit knowledge acquisition, developing and integrating a system for extracting tacit knowledge, dedicate resources to tacit knowledge acquisition, allowing employees space and time to share tacit knowledge, implementing a knowledge sharing culture, educational training, forums, conferences, reject knowledge hoarding etc.

The researcher has in part by way of (1) the reviewed literature and (2) by way of investigation undertaken at the host organization, attempted to question **j) How can the organization employ the storytelling method technique to elicit tacit knowledge from its employees?** What was uncovered in (1) literature was that in contemporary society stories are shared with others through e.g. radio, internet, magazines/newspapers, books, television, movies etc. Examples of storytelling

have also been presented where storytelling has been successful at some organizations e.g. Edutech and NASA. (2) Has uncovered through the analysis of the results obtained from the experts (n=10) at the host organization, that they do indeed had a profusion of untapped tacit knowledge which could be related to others through the storytelling technique.

In summation, this research had gone by way of storytelling (interviewing) and making use of an interpretive approach to provide the experts within the organization with a mechanism to represent what they do or know and hence make their tacit knowledge perhaps unknowing to them, explicit to others within the organization. At one with the principles of grounded theory, the data have been collected with an open mind and the researcher has consistently inspected the data for patterns that can be utilized to construct theory that is grounded in the data (Creswell, 2002). In this study, the subject matter expert's stories were captured/collected on digital tape and transcribed. Follow-up interviews sessions were held with the participants and their stories were then re-viewed for accuracy and reclassified under the story type they felt it fitted best. Additionally frequency analysis was performed and what emerged was that most participants had in order of predilection, shared stories relating to projects, personal and teaching stories. The stories were then re-coded with the aid of other academics and latter by means of expert review. The intention of the expert review sessions was to validate the researcher's interpretation and analysis of the data collected and also insured credibility had any biases been identified within the interpretations. Pearson's correlation analysis was also performed on the 14 constructs which further gave credence to the expert review sessions.

Consistent with Barone and Eisner (1997), "validation occurs when the observations that are made through artistically grounded qualitative research are acknowledged and valued by a competent critical community". Also according to Merriam (1998) as well as McMillan and Schumacher (2001), they indicated that information from only one source cannot be trusted to offer an all-inclusive interpretation of results. In this research multiple sources were used in order to enhance the validity of the findings and to allow cross checking. An outcome of

the review sessions was the formation and validation (face validity) of 21 Primary constructs, which was evaluated in subsequent expert review sessions. The result of subsequent review sessions had refined the 21 Primary constructs to 14 constructs. These constructs were tested using Pearson's correlation analysis and some cross correlations were identified which were explained earlier. What was ultimately achieved through the process outlined above was the establishment of a Knowledge management framework for storytelling rooted in the 14 constructs identified.

In keeping with Cohen et al. (2007), reliability in research concerns the dependability of the data, their accuracy, credibility, authenticity, honesty, richness, fidelity to real life, comprehensiveness, detail, depth of response, and meaningfulness to the respondents. In this study the interviews specifically focused on the real-life stories of the participants, discussed them in the participants own terms and from their own examples, and used respondent validation to check that the understanding of and interpretation placed on them by the researcher was correct. In order to ensure dependability the methods employed were systematic as explained earlier in my description of procedures at the data collection phase. This was done by way of the digital recordings of the storytelling sessions, which were transcribed and which provided records of the exact words of the interviewees (respondent validation) (Cohen et al., 2007). Data analyses were conducted on the verified interview scripts; to enhance the validation of the data analyses.

The results of this study has established that tacit knowledge can be elicited from experts through storytelling, as experts demonstrated that they found this elicitation method to be undemanding, derived from the wealth, variety of stories and the candidates reactions to the use of this technique (see Appendix 5), as well the researcher's own observation preceding, during and subsequent to the interview/storytelling sessions. This research also recognized the serious lack of established theory and prior empirical research in the extraction of SME's tacit

knowledge by way of storytelling, and has as an added outcome developed a theoretical knowledge management framework for storytelling.

In conclusion, this study has supplied evidence and makes an important contribution to managers or businesses and academics or researchers alike, whereby they can utilize the storytelling technique to elicit tacit knowledge from subject matter experts.

5.2 RECOMMENDATIONS

The following recommendations are made on the strength of the findings in this study:

1. To elicit stories more effectively, emphasis must be placed in getting the storyteller to describe the message behind the story.
2. Founded on the research performed in this study, the researcher has uncovered that stories can be multidimensional, and hence the story taker should be attentive as to how the stories could be classified. What this mean is that a story can for instance contain various types of different and at times interrelating story types (e.g. personal, teaching etc.).
3. Storytelling in the form of example a Wiki, could be setup which could provide a platform for experts to share their various experiences or know-how which would support in the unlocking of their tacit knowledge.
4. The research study has explained that an organization could employ diverse strategies e.g. financial incentives etc. to motivate experts to share their tacit knowledge through storytelling, but that it is vital that the organization take into account that different strategies could have a different motivational impact on different people.
5. The rotation of employees could also expose them to diverse environments and processes, and allow them to work with subject matter experts within the organization and by itself would amplify the overall organizational memory.
6. Make certain mentoring frequently occurs in an informal way at the organization but ensure that this is done in a regulated manner.

5.3 LIMITATIONS OF THE STUDY

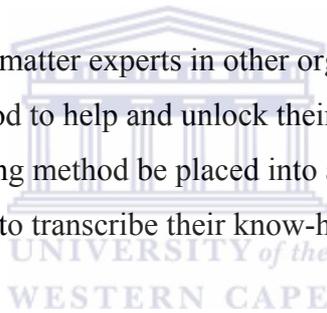
As with all research processes some limitations were identified in this study.

This study was conducted at a large petro-chemical organization in South Africa and the sample group was selected from 7 out of 8 of the business units within the organization. Attributable to the fact that a convenient sample was used; the research has intrinsic problems as the findings cannot be generalized and therefore would be low in external validity.

5.4 DIRECTIONS FOR FUTURE RESEARCH

As this research was performed at a single organization within the South African context, some questions for future study leap to mind:

1. How will subject matter experts in other organizations receive the storytelling method to help and unlock their tacit knowledge?
2. Can the storytelling method be placed into an online/offline system, which could aid experts to transcribe their know-how (tacit knowledge)?



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APPENDIX 1

COVER LETTER

Dear Sir/Madam

I am inviting your participation in a study, which forms part of my research for my Master's degree in Information Management at the University of the Western Cape, Republic of South Africa. The title for my research topic is "How to uncover tacit knowledge from experts through the use of storytelling methods?"

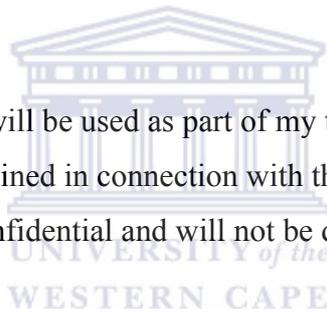
By participating in this study it will be understood that you have consented to your participation herein. The information that you supply will remain confidential.

The results of the study will be used as part of my thesis, but you may be assured that any information obtained in connection with this study that may be identified with you, will remain confidential and will not be disclosed.

I thank you for your willingness to be part of this research.

Yours sincerely

Selwyn Classen



INTERVIEW GUIDE:

1. What is your understanding of storytelling?
2. What in your view would make a fine story?
3. Where do you think storytelling has its best purpose?
4. When do you believe storytelling should not be used?
5. Do you think storytelling can have a positive outcome for the organization? Please explain.
6. Do you think storytelling can have a negative outcome for the organization? Please explain.
7. According to you, would you prefer to be rewarded to tell your story? Please explain.
8. Do you have any stories/experiences to tell i.e. projects/business ideas etc



APPENDIX 2

War stories	Stories of trials and troubles and how people survived and overcame the events that afflicted them
Stories of hope	Stories of hope tell of what might be.
Visionary stories	Stories about a desirable future that inspires and motivates people to work towards that future
Leadership stories	Stories about how organizational leadership happened
Stories of failure	Stories about things that did not work. They may be stories of big failure or small, personal failure.
Genesis stories	Stories about beginnings, foundations and how things got started
Stories of transformation	Stories about how individuals, groups and the entire organization went through deep and fundamental change, transforming from one state to another.
Founder myths	Stories from before they founded the company, including formative tales from their childhood or former employers
Cautionary tales	Tell people what not to do. They usually tell stories about people who did the wrong thing and the consequences that were suffered.
Heroic stories	Stories in organizations can be very heroic in structure, using principles found in classic tales of heroes and their actions. An example, a bad situation where people are panicking and nobody is there to save them.
Fearful stories	Stories about a person's concerns, worries and fears and they may be direct and graphic or indirect and even make use of metaphor.
Chronicle	a historical record of facts/events organized in the order in which they occurred
Account	Typically a reckoning of financial matters; or an explanation or description
Rumour	General talk or story not founded on definite knowledge
Comedy	A drama/story with a happy ending or non-tragic premise
Parable	Short, straightforward story, generally of an incident of a known kind.
Legend	A story handed down for generations among people and is thought to have a historical basis
Fable	A fictitious story intended to teach a moral lesson
Drama	A literary composition that tells a story, typically of human conflict by way of discussion and action.
Tragedy	A serious drama/play, usually dealing with the problems of a central character leading to a disastrous/unhappy ending.
Satire	A literary work in which follies or abuses are held up to ridicule and contempt

- ❖ Teaching stories
- ❖ Personal stories
- ❖ Values-in-Action stories
- ❖ Factual/true stories
- ❖ Success stories
- ❖ Generic (strategy and marketing stories)
- ❖ Stories about projects

APPENDIX 3

Primary Constructs – Definitions

Knowledge sharing – the process where people jointly share their knowledge and together generate new knowledge.

According to Williamson and Beghtol (2003) knowledge sharing involves the dissemination of individual experiences, information or knowledge to those who might need it.

Williamson, N.J. and Beghtol, C. (2003), "Knowledge Organization and Classification in International Information Retrieval", Haworth Press, Binghamton, NY.

Knowledge capture – the process to obtain knowledge.

According Gold et al. (2001) knowledge capture consists of a firm's capability to identify, acquire and accumulate knowledge (whether internal or external) that is essential to its operations.

Gold, A.H., Malhotra, A., Segars, A.H. (2001), "Knowledge management: an organizational capabilities perspective", Journal of Management Information Systems, Vol. 18 No 1, pp. 185-214.

Knowledge culture - behaviours that are already deeply ingrained.

According to Oliver and Kandadi (2006), knowledge culture is a way of organizational life that enables and motivates people to create, share and utilize knowledge for the benefit and enduring success of the organization.

Oliver, S. and Kandadi, K.R. (2006), "How to develop knowledge culture in organizations? A multiple case study of large distributed organizations", Journal of Knowledge Management, Vol. 10, No. 4, pp. 6-24.

Innovation - the introduction of new processes, procedures and products, through the successful application of ideas.

According to West and Anderson (1996), Innovation is the effective application of processes and products new to the organization and designed to benefit it and its stakeholders.

West, M.A., Anderson, N.R. (1996), "Innovation in top management teams", Journal of Applied Psychology, Vol. 81 pp. 680-93.

Process improvement – the tactical approach to improve processes, products and services.

According to Paul (1987) process improvement entails the logical organization of people, materials, energy, equipment, and procedures into work activities designed to produce specified results.

Paul, G.A. (1987), "Quality Process Management", Prentice-Hall, Englewood Cliffs, NJ.

New knowledge – knowledge that can be created from existing knowledge or from an original idea.

Knowledge application – the iterative process where knowledge is put into practice.

According to Bhatt (2001) knowledge application means, making knowledge more active and relevant for the firm in creating value.

Bhatt, G.D. (2001), "Knowledge management in organizations: examining the interaction between technologies, techniques, and people", Journal of Knowledge Management, Vol. 5 No 1, pp. 68-75.

Best practices - practices that have been demonstrated to work best in a particular situation(s).

According to Zahorsky (2003) best practices is every practical, knowledge or know-how which showed its effectiveness or its value in part of the company and which is applicable to another part of the company.

Zahorsky, D. (2003), "Small business best practice benchmarking – how to effectively borrow ideas, strategies and tactics", available at: <http://sbinformation.about.com/library/weekly/aa011903a.htm>.

Competitive advantage – the utilization of the unique mix of assets, activities, attributes, market conditions and relationships that distinguishes an organization from its competitors.

According to Besanko et al. (1999), competitive advantage is a situation in which a firm earns a higher rate of economic rents than the average competitor.

Besanko, D., Dranove, D., Shanley, M. (1999), "Economics of Strategy", Wiley, New York, NY,

Knowledge storage and retrieval - the process involving the storing and retrieving of knowledge from a repository.

According to Alavi and Tiwana (2003), knowledge storage and retrieval consist of "the development of organizational memory, classified in internal (individual's skills and organizational culture) and external (formal policies, procedures, manual and computer files)".

Alavi, M., Tiwana, A. (2003), "Knowledge management: the information technology dimension", in Easterby-Smith, M., Lyles, M.A. (Eds), Handbook of Organizational Learning and Knowledge Management, Blackwell Publishing, Malden, MA, pp. 104-21.

Knowledge integration - knowledge and experience of workers at all levels is harnessed to improve operations

According to Badii and Sharif (2003), knowledge integration entail that timely insights can be made available to be drawn at the right juncture for sense making by the transactors, i.e. knowledge can be exchanged, shared, evolved, refined and be made readily available at the point of need.

Badii, A. and Sharif, A. (2003), "Strategic integration of knowledge management and customer relationship management", Journal of Knowledge Management, Vol. 12 No. 4.

Customer knowledge – the understanding of customers, their needs, wants and aims.

According to Rowley (2002), customer knowledge is knowledge about customers which includes knowledge about potential customers, customer segments and individual customers and knowledge possessed by customers.

Rowley, J. (2002), "Eight questions for customer knowledge management in e-business", Journal of Knowledge Management, Vol. 6 No. 5, pp. 500-11.

Knowledge erosion - the loss of knowledge due to aspects such as retirements, redundancies etc.

According to de Albuquerque (2006), knowledge erosion occurs when the processes of transmission of knowledge breaks down.

de Albuquerque, P. U. (2006), "Re-examining hypotheses concerning the use and knowledge of medicinal plants: a study in the Caatinga vegetation of NE Brazil", Journal of Ethnobiology and Ethnomedicine, Vol. 2 No. 1.

Knowledge reuse – the application of knowledge to a new situation in a way that produces a considerable efficiency gain.

According to Demian and Fruchter (2006) knowledge reuse consist of knowledge from previous completed (or "dormant") projects in a current (or "active") project.

Demain, p. and Fruchter, R. (2006), "An ethnographic study of design knowledge reuse in the architecture, engineering, and construction industry". Research in Engineering Design, Vol. 16 No. 4, pp.184-195.

Staff ideas – propositions put forward by employees.

Knowledge worker - an individual whose principal contribution is through the

According to Despres and Hiltrop (1995), knowledge workers manipulate and orchestrate symbols and concepts, identify more strongly with their peers and

professions than their organizations, have more rapid skill obsolescence and are more critical to the long-term success of the organization.

Despres, C. and Hiltrop, J.M. (1995), "Human resource management in the knowledge age: current practice and perspectives on the future", *Employee Relations*, Vol. 17 No 1, pp. 9-23.

Risk - probability or threat of loss, damage, liability or other negative occurrence caused by external or internal vulnerabilities.

Hall, (2001) defines risk as, the possibility of loss.

Hall, E. (1998), "Managing Risk - Methods for Software Systems Development", Reading (MA): Addison Wesley Longman.

Environmental impact - possible adverse or positive effects caused by a development, industrial or infrastructural project or by the release of a substance in the environment.

A web definition for environmental impact as found on www.blueegg.com for Environmental impact is, "any change, positive or negative, to land, ecosystems, and human health as a result of any action".

<http://www.blueegg.com/Green-Glossary/Environmental-impact.html>

Financial impact - cost or fall in income arising out of a disaster, change in market conditions, failure of a product or other incidents under or beyond one's control.

A web definition for financial impact as found on www.aibc.com is that its, "an operating expense that continues following an interruption or disaster, which as a result of the event cannot be offset by income and directly affects the financial position of the organization".

http://www.aibcm.com/servlet/ContentServer?pagename=AIB_CapitalMarkets/Miscellaneous/cm_x_glossary&index=F&channel=CMHP

Human impact – the internal or external factors that affects humans.

Time savings – the amount of time saved by performing an activity efficiently and diligently.

APPENDIX 4

Respondent	Story type	Story Code	Knowledge sharing	Knowledge capture	Innovation	Process Improvement	New Knowledge	Knowledge Application	Best Practices	Competitive Advantage	Storage & Retrieval	Knowledge integration	Knowledge culture	Customer Knowledge	Knowledge Erosion	Time Savings	Knowledge Reuse	Staff Ideas	Knowledge Worker	Financial Impact	Environmental Impact	Human Impact	Risk
R1S1	Project	P1	1	1	0	0	0	1	0	0	1	0	0	1	1	1	1	0	0	0	0	0	0
R1S2	True	T1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0
R1S3	Teaching	T2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
R1S4	Teaching	T2	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0	1	1	0	0
R1S5	Tragedy	T3	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	1	0	0	1	0
R1S6	Chronicle	C1	1	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0
R1S7	Tragic & personal	T3, P2	1	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1
R1S8	Teaching	T2	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
R1S9	True	T1	1	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0
R1S10	True	T1	1	1	0	1	0	1	1	0	0	0	1	0	1	0	0	0	1	0	0	1	0
R2S1	Project	P1	1	0	0	1	0	1	0	0	0	0	0	0	0	1	1	0	1	1	0	0	0
R2S2	Personal/Success	P2, S1	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0
R2S3	Teaching	T2	1	0	0	1	0	1	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0
R3S1	Genesis	G1	1	0	1	1	1	1	0	0	0	0	1	0	1	0	1	0	1	1	0	0	0
R3S2	Teaching	T2	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0
R3S3	Success	S1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0
R3S4	Success	S1	0	0	1	1	1	0	0	1	0	0	1	0	0	0	0	1	1	1	0	0	0
R3S5	Success	S1	1	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0
R3S6	Teaching	T2	0	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0
R3S7	Chronicle	C1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
R3S8	Personal & success	P2, S1	0	0	1	0	1	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0
R3S9	Teaching	T2	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0
R3S10	Personal	P2	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
R4S1	Teaching & personal	T2, P2	1	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0
R5S1	Project	P1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
R5S2	Project	P1	1	0	1	1	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0
R5S3	Project	P1	1	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
R5S4	Project	P1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1
R5S5	Project	P1	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0
R5S6	Project	P1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
R5S7	Success	S1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R5S8	Personal & teaching	P2, T2	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
R6S1	Teaching	T2	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1
R6S2	Project	P1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R6S3	Project	P1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
R6S4	Project	P1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
R6S5	Personal, Project & teaching	P2, P1, T2	1	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
R7S1	Values	V1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0
R7S2	Teaching & personal	T2, P2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0
R7S3	Chronicle, teaching & personal	C1, T2, P2	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
R7S4	True	T1	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
R7S5	Chronicle & teaching	C1, T2	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
R7S6	True, teaching & values	T1, T2, V1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	1	0
R7S7	Tragedy & teaching	T3, T2	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	1	0
R8S1	Teaching	T2	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
R8S2	Teaching	T2	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
R8S3	Teaching	T2	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
R8S4	Teaching	T2	1	0	0	1	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
R8S5	Teaching	T2	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
R8S6	Teaching	T2	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
R8S7	Strategy & founder	S2, F1	1	0	1	1	1	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0
R8S8	Teaching	T2	1	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	1
R8S9	Teaching	T2	1	0	1	1	0	1	1	0	0	0	1	0	0	0	0	0	1	1	0	1	1
R8S3	Factual & teaching	F1, T2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
R8S4	Tragedy & teaching	T3, T2	1	0	0	1	0	1	1	0	0	0	0	0	0	0	0	1	0	1	0	1	1
R8S5	Factual & teaching	F1, T2	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
R8S6	Factual & personal	F1, P2	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
R10S1	Comedy, personal & teaching	C2, P2, T2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
R10S2	Strategy	S2	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0
R10S3	Factual & strategy	F1, S2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	1	0
R10S4	Teaching & strategy	T2, S2	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0
R10S5	Project & personal	P1, P2	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
R10S6	Project	P1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
R10S7	Project & personal	P1, P2	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0

APPENDIX 5

Respondent 1

“Please answer the following details for purposes of the research study”.

1. What is your highest level of education?
National Diploma (UNISA)
2. How many years have you been with your current organization?
15 years
3. What is your present designation within the organization?
Middle management
4. What division within the organization do you form part of?
Production Planning
5. What in your view is your area of expertise?
Refinery optimization

INTERVIEW GUIDE:

- ❖ **What is your understanding of storytelling?**
Storytelling involves relating an experience or happening that occurred or that was told, overheard, read or that I have direct involvement in.
- ❖ **What in your view would make a fine story?**
A truly fine story is one that carries some sort of meaning, has interesting characters, and follows a storyline or plot, and has a beginning, middle and an interesting or un-expecting end.
- ❖ **Where do you think storytelling has its best purpose?**
Story has its best purpose if it is used to educate people about something or the other. Also where it can relate an experience about something or someone to an individual who the information would matter to. A story at times could make for more useful conversation among say work colleagues as people are always interested to listen to a story than where there is an underlying message or lesson to be learnt than merely looking at bullet points on a projector overhead or sheer and listening to concise points and uninteresting comments. I think that a story creates some sort of connection between an individual and another.
- ❖ **When do you believe storytelling should not be used?**
I believe it should not be used where the listeners are not tuned into listening or reading stories, as an example presentation on financial data or

records of a company or where limited time is at the disposal of the listeners.

❖ **Do you think storytelling can have a positive outcome for the organization? Please explain.**

Oh yes, storytelling can convey stories of positive happenings around the organization, giving people new hope about something that went well or was structured in a beneficial way to the organization. This will afford people to share their stories or experiences with the company and which could inspire others to relate their stories or create their own.

❖ **Do you think storytelling can have a negative outcome for the organization? Please explain.**

Yes, people could use stories to spread all sort of negative and sometimes inaccurate information about the company with others. This information could then land up in the wrong hands e.g. the company's competitors or the media and this could have disastrous affects on the company brand and image/reputation. Story should not be used to spread "gossip" about say its managers or its employees. This could also in turn hurt the organization as people could for example hold the company liable for any unfounded stories about any person employed by the company.

❖ **According to you, would you prefer to be rewarded to tell your story? Please explain?**

Yes, most definitely. It is always great being rewarded for something well done. I am not only referring to monetary rewards here, but rewards in the form of recognition by one's peers and sometimes just a thank you will suffice. Yes, money is also a great reward or incentives from the company, but sometimes a good word to others about one's abilities goes much farther. I personally would opt for a pleasant word about my skills and knowledge than a few extra bucks here or there. As people usually say "his reputation precedes him"

❖ **Who would you consider to be your target audience should you share your stories?**

Generally those interested in wanting to know about my experiences at my time at the company. I have been involved in so many workshops and assignments and have held many positions here, there is bound to be something I could teach someone or I have a story to tell about.

❖ **Do you have any stories/experiences to tell i.e. projects/business ideas etc?**

Yes,

Story 1 - Project

I remember this one time I was involved in a project where the focus was to evaluate at what can be done to minimize loading times of bitumen at the gantry's and weighbridge at our Wentworth depot. The project team came up with some

old and tried initiatives, and did have some information from the current role-players as to what the bottlenecks are. However they have failed to solicit the customer's role in the process and this was pointed out by me and was discovered to be around 80% of the problem and that a similar study was done many years ago but was not recorded in a formal manner and hence this information was forgotten or misplaced. Since I have been around for some time now, I could remember that the end-user was at times the main reason for the delays, as they would not have valid order numbers in the system or did not have a good credit standing with the company. This information then afforded me to make better recommendations to the project team and resulted in the project time to be essentially halved once we concluded as to what would be the way forward.

Story 2 – True story

I have also once logged a call with building services, since I noticed that on the 4th floor there was many old computer stock, some storage racks and redundant computers, servers and cabling lying around. This was aside from being a health and safety risk, also gave an untidy impression on that floor. I then recommended that the company or perhaps in particular the IS dept., create a computer room to store the redundant equipment, sell or donate it to a charity organization. This recommendation then prompted the IS dept. refurbish their old computer room which also contained many redundant equipment and which appeared to be very dusty and had no furniture, by installing air conditioning, office furniture and move the old computer equipment from the floor as well as the computer room. This recommendation was well received within the company as more office space was eventually created on the 4th floor and the creation of the refurbished computer room with its now improved accessibility and complying to the company's and building safety regulations.

Story 3 - Project

Speaking about safety I was also later involved in a project where the goal was to implement a system to assist the staff to effectively and efficiently manage the health, safety environment, quality and risk. During the project the scope changed to focus specifically on the implementation of a system for HSEQ incident management. Sitesafe which is an Australian package required a great deal of customisation was eventually selected as the solution by Corporate HSEQ. At the refinery they had used 2 other systems for HSEQ incident management before Sitesafe was implemented. This was Riskman which was replaced by Riskrep. I was part of the user requirements team which were tasked to assist in the data modelling of the system by highlighting the business needs regarding HSEQ business processes and reporting at the refinery. With the implementation of Sitesafe we noticed that more incidents were being logged, the business process of incident management was formalised and improved as well allowing us in collating root causes of incidents. The expected benefits with this project were the promotion of HSEQ awareness and reduction HSEQ related incidents. Initially the project team should have looked at including a hazard register but was scrapped because of time etc. related issues. In hindsight this project nearly faltered because of some minor oversights. Fortunately this was later added as a continuous

improvement component to this project. Although the project was not implemented without pain, it provided business with a tool to manage its HSEQ incidents and thereby I feel that the business and project objectives were met. I believe the major contributing factor to the success in this project, was the skilful effort of the user requirements team.

Story 4 – Teaching

During a refinery tank to ship diesel transfer sometime last year (2009), misdirected flow of product resulted in the overflow of a vent tank and spill of approximately 95,000 litres of product to ground. Emergency response resulted in recovery of 10,000 litres of free product, and removal of contaminated soil to a local hazardous waste disposal site.

The investigation identified a number of factors related to the design of the system and transfer operations between different stakeholders: BP, Engen and Chevron. A transfer between Chevron and Engen 2 days prior to the incident resulted in a line-up which contributed to the misdirected flow. The initiation of the tank to ship transfer without checking the entire line-up resulted in product being routed incorrectly. In addition, the lack of response to emergency alarms resulted in the loss of containment of a large quantity of product, and subsequent environmental damage. The incident has highlighted a number of inefficiencies in the transfer of product between Chevron refinery and the terminals located in Montague Gardens (operated by Engen and BP respectively), and presented an opportunity to improve the operations to avoid future incidents. Some of my findings in this investigation were that there was an incomplete execution of the operating procedure as the valve on the line from Chevron was not closed, as required by the operating procedure. I also found that there was a misunderstanding during communication between the Engen Quality Controller and the Chevron Console Operator. Another finding was that the transfer of Diesel from Chevron Refinery to the Cape Town Harbour (Wharf) was started without the line-up being properly checked at all sections of the line. Another was the delayed activation of emergency response plan as well as communication of scheduled transfers by all oil companies. My recommendations to this disaster were to identify the risks associated with the piping system. Also the availability of documented operating procedures based on design, different operating modes, aligned among all stakeholders (BP, Engen, Chevron), with clear roles and responsibilities as well operator training material based on these procedures. In the end all stakeholders was asked to reinforce the operating procedures to be followed consistently at all times to avoid a recurrence of such incidents. I believe this incident can or is used today as an example of significant losses through business interruption and environmental damage to illustrate the consequences of procedures not being followed.

Story 5 - Tragedy

I think it was around early January 2007, when a dual load was scheduled for Solly Kharbai Motors in Pretoria by the scheduler at Waltloo depot. The bulk tank operator arrived at site at around 8 am and offloaded ULP. He was, however, unable to offload the LRP. He then informed the garage supervisor that he could not continue due to a faulty tank and then returned to the depot. The dealer then

reported the incident to customer service centre (CSC). The CSC recorded it as a possible blocked vent pipe and logged a call with Atmei Construction. However, Atmei did not respond to the call. Later that day the dealer placed an emergency order with CSC. The second delivery was made as scheduled since no work had been done on the vent pipes it was still not possible to offload the LRP. The dealer logged a call with CSC who in turn logged a call with Atmei. The Atmei Supervisor passed the job to their standby technician. The job card read something like, “Check and unblock the faulty vent pipe”.

The CSC then in turn informed our dept about this dilemma and the word from our camp was that they leave the site until our people could inspect this vent pipe and ensure that all safety protocols are followed. The stand-in technician found that the vent pipes were approximately 7 metres above ground level. Having no equipment to access them, he asked the pump attendant to open the dip manhole. It was noted that the dip cap was off and that the manhole was full of fumes. Be that as it may the stand-in technician then phoned his supervisor to tell him of the situation. The supervisor in turn instructed him to leave the site and return the following day with a ladder to access the vent pipes. The technician stated that he would remove the dip pipe to allow the tank to vent. This operation would normally require the use of a modified pipe wrench, which enables the removal of the pipe without entering the manhole. The supervisor in turn concurred with this decision. However, since this was not a part of the original scope of work, this technician did not have this purpose made tool with him.

The technician then instructed his assistant to enter the manhole and remove the dip pipe. The assistant refused on safety grounds since he could see vapours coming out of the dip pipe, probably due to the dip pipe having no cap. The assistant emphasized that safety comes first. The technician then asked for a wrench to do the job himself, at which point the assistant asked him again to leave the job for the next day as was proposed by our team. The technician ignored the assistant’s advice and continued with his work. After about five or six minutes the technician struggled to get out of the manhole and was very dizzy. The assistant again asked him not to go back in and to leave the work for the next day. The technician ignored this request and went back into the manhole. After three minutes he had collapsed in the manhole and the assistant called for help from petrol attendants to remove him.

The technician then appeared to be unconscious and was very weak. The assistant then checked the technician’s pockets and found his cell phone which he used to make a call to his supervisor. A petrol attendant then called the emergency services and paramedics arrived on site about twenty minutes later. A few minutes later the technician was pronounced dead. As a result of this incident it was recorded that safety alert, based on this incident report, should be developed and issued to all engineering and maintenance staff and contractors, highlighting the importance of applying the principles of a management system to enforce adherence to procedures, risk identification and assessment.

Story 6 – Chronicle

Between February and March 2008, Obaru sold 12 drums of Avgas to various customers. They were left with three drums in stock, which they sold to a Mr. Scholtz. Avgas that is drummed and sold by us is contained in drums with a distinctive colour combination of black with a broad central circumferential grey stripe and labeled Avgas. Of the three drums of Avgas sold to Mr Scholtz, two drums had the characteristic black/grey colours while one was blue in colour. All three drums carried the Avgas label. The label on the blue drum showed an expiry date of 25 March 2008. The two black/grey drums had expiry dates of August 2008. Mr Scholtz kept two of the drums (one blue and one black/grey) at his Hoedspruit farm and shipped one drum (black/grey) to his farm in Mozambique. On or about April 2008, Mr Scholtz then transferred the bulk of the contents of the blue drum labeled Avgas (approximately 160 litres) to his helicopter.

He then acknowledged that he carried out only a “visual” check for possible water in the blue drum labeled Avgas but did not do the required qualitative test for colour to ascertain that of the product was blue as per the colour of Avgas. He also mentioned that he did not check the expiry date indicated on the blue drum. He further acknowledged that he did not have concern over the difference in the drum colours of his two drums of Avgas (one blue and another black/grey). Shortly thereafter, during April the helicopter’s engine failed in mid-flight and the impact of the forced landing arising from this apparently caused the helicopter extensive structural damage. In addition, the blades of the helicopter hit a passing truck causing damage to the bodywork and to pallets on the back of the truck. Fortunately no fatalities or serious injuries occurred. Engen Commercial Fuels, was notified of the incident telephonically and visited the scene of the incident and parties involved the following day. All our Avgas sold from Obaru was identified and located, by Obaru staff and our field agency manager, and quarantined these immediately until quality was assured. Once the drum and fuel colour, as well as expiry dates were established, the quarantine was lifted and samples were taken from the suspect drum on and submitted to our laboratories for analysis.

Our laboratory analysis of the samples taken from the blue drum labeled Avgas confirmed the product was in fact Tekprol. This was consistent with the assumption that during somewhere in September 2007, there was an overrun in the printing of the Avgas label as a result of which one blue drum of Tekprol was pasted with the Avgas label. The investigation revealed a number of shortcomings in the supply chain for Avgas that include labeling, stock recall process in the event of anomalies, like expiry dates and wrong product, as well as pre-flight qualitative checks on the Avgas prior to refueling the helicopter. Also prior to the incident there appear to be people in the supply chain that were not aware of the product information and data which includes the type of drum used and the expiry dates that need to be adhered to. The immediate recommendation from me and some other team members were that we identify, locate and freeze all Avgas sold by Obaru until product quality had been assured and withdraw all expired Avgas and review stock control and dispatch procedures. I also advocated to share the

lessons learnt from this incident with other similar processes across the business in order to review current practices and put in interventions where required.

Story 7 – Tragic and personal

On a more personal note security officers William and Humphrey were busy with access and outlet duties at the exit gate at Langlaagte Depot., where I had worked for a few years. William to my account was busy with an Engen truck on the inside lane taking down the meter reading. Humphrey were busy on the outside lane searching another vehicle about to exit and then proceeded to the exit gates to open it for the private vehicle to exit. After opening the left-hand side gate, he noticed that the right-hand side gate was either over the stopper or had jumped the track or both. This was not the first time that this had happened. However no record of notification to either the depot or security management could be found. While the left-hand side gate was broken, it could not open, and acted as a stopper preventing the right-hand side gate from moving passed the vertical supports. The left-hand side gate had been repaired the day before the incident.

Humphrey then attempted to lift the right-hand side gate back over the stopper or onto the track. Because this did not work, he then stepped to the outside and tried to push or lift the gate back into position. As the gate had now passed its vertical supports, it started to fall towards him. Unfortunately, the gate was too heavy, I reckon +500kg for him to hold up and it fell to the ground, landing on top of him. The other security officers and bystanders and I saw this happening and rushed to his aid. We then lifted the gate off Humphrey and found that he was bleeding profusely and was unconscious. We applied first aid by turning him on his side and clearing his throat of all the blood. We phoned the ambulance services and informed the operations supervisor of the incident. The ambulance shortly arrived and transported Humphrey to the hospital emergency unit. Later that day the doctor informed our manager that Humphrey had passed away as a result of his internal injuries and loss of blood and suffered a broken rib which had punctured his heart. An outcome of this tragedy is that even though we perceive things to be not working as smoothly as was intended one should highlight equipment failures and unsafe conditions with management, which is also a legal requirement as per the OHSAct and an important element of our HSEQ Management system.

Story 8 – Teaching

I remember incident while scaffolding was being built inside a petrol tank's floating roof at Enref, some of the legs supporting the roof collapsed due to the weight of the scaffolding, causing the scaffolding to tilt and become unstable. Another employee who tried to secure himself when the incident occurred sustained a back strain. We later identified that the weight of the scaffolding being built on the floating roof caused the roof legs to collapse, making the scaffolding tilt and become unstable. There was no risk assessment or safety plan for the job to evaluate each step to be executed, as this was done for the first time. The scaffolding company was given no guidelines with respect to the weight that roof could support so they continued to build until the incident occurred. Some the things we learnt from this were that a floating roof is not designed to take load and therefore no scaffolding will be built on a floating roof. Also when floating roofs

are resting on legs, all precautions must be taken not to add any weight on top of the roof. Some recommendations that rose from this event was that jobs, no matter how big or small, must be planned and discussed and where necessary a safety plan or risk Assessment must be carried out. Floating roofs must also not be used as a working platform and scaffolding must not be built on floating roofs. An alternative method was to source for example, swing scaffolding or rope access, to execute this job.

Story 9 – True

I am reminded of an episode where 2 trainees were working in the workshop re-lamping using a 3m extension ladder. One was on the ladder while the other was holding the extension ladder and passing the tubes. The trainee holding the extension ladder then went to retrieve new tubes which were about 1.5m away from the extension ladder. When the ladder was let go it slipped with the other trainee still on, causing the trainee on the ladder to fall and sustain an injury. What I found was that the task to be done was not adequate. The tubes should have been next to the individual at the bottom of the ladder. The individual on the ladder could have come down to leave the tube then taken a new one up the ladder. A third person could also have been called in to take and pass the tubes (if necessary). The extension ladder should have been tied at the top to secure it in place. Also the floor surface which was painted in gloss paint should have been taken into account from a risk factor when the job was being planned. I then wrote up a procedure for better job planning where portable scaffolding could have been used instead of the extension ladder and focus on the task at hand must be adhered to at all time and so forth. In hindsight, I should have published this finding throughout the company other than the site where it had occurred.

Story 10 - True

Once a worker received an electric shock on a piece of equipment he was using. Luckily he was not injured, and he did not report the incident. A few days later another worker also received a shock from the same defective equipment, and again did not report the problem. Within days a third worker also received an electrical shock which killed him.

This true story illustrates what can happen when we ignore close calls in the work place. I see a close call as a chance to identify a hazard and correct it before someone is seriously injured or killed. We have all had many experiences with close calls or near misses in our everyday lives. The best thing we can do is to pay attention to them and learn from them. For example, most of us have slipped while rushing down a stairway. We may have caught ourselves before falling, and then resolve to slow down in the future. Another example is pulling out to pass when driving and being faced with an on-coming car. We quickly pull back into our own lane, and tell ourselves next time we will make sure it is safe before we try to pass. In both instances, there was the potential for a serious accident but we were lucky. I am confident that the company have learned something by the close call, and that its staff and those employed not too long ago are made aware of such incidents.

- ❖ **If you had to consider to publicize your experiences/”know-how” within the organization, what types of stories and media would you prefer? Why?**

I would prefer relating stories about positive stories or stories relating to successful implementation of projects or initiatives. I do not see it to be constructive to relate stories about negative incidents, as this has no benefit to the readers or listeners. A negative story can be told, only if there is lesson to be learnt out of it. If not, then it should be disregarded.

My stories I will prefer conveying in a concise way and perhaps through an electronic/digital format as oppose to paper format. Stories can then be posted on the company’s blog, intranet although a inert form but can be made useful if most people participate or if the IS dept. could setup a portal with topics related to themes such as past projects/initiatives, experiences (company/personal), teaching on values, technical issues, contracts etc., as not everybody has the time to read or listen to stories that is to lengthy. The idea is obviously to get the reader hooked into one’s tale and then describing your story clearly and its message. Once this is achieved one could attract the reader to read up on some more stories as they would not take to much time off him/her and should allow him/her to add their views or comments to the story or storyteller and hopefully inspire them to tell about their own experiences be it similar or not.

Respondent 2

“Please answer the following details for purposes of the research study”.

1. What is your highest level of education?
Masters of Science (University of Cape Town)
2. How many years have you been with your current organization?
25 years
3. What is your present designation within the organization?
Laboratory specialist
4. What division within the organization do you form part of?
Health, Safety, Environment and Quality (HSEQ)
5. What in your view is your area of expertise?
Laboratory information management systems (LIMS)

INTERVIEW GUIDE:

- ❖ **What is your understanding of storytelling?**
To me storytelling entails communicating with people and relating one’s ideas, reading and can be used in forms such as teaching and learning etc.

❖ **What in your view would make a fine story?**

I believe a story should be appropriate and riveting. There should be an interesting character(s), plot and climax.

❖ **Where do you think storytelling has its best purpose?**

Storytelling would have its best purpose where it can be used as a teaching tool around the office i.e. to relay some knowledge or meaning to the listener. In this way the listener has learnt something and this teaching can then be relayed to another person. This will result in a productive way of telling a story and should hopefully encourage others to do the same. In essence storytelling will be great if it could be used in business and in this way can get rid of the mundane ways of conveying a message to the listeners as what is currently being used e.g. overhead projectors with numbers and figures.

❖ **When do you believe storytelling should not be used?**

Storytelling should not be used where people are forced to use it or where the interest in using it is limited or where there are not appropriate systems or processes in place to make this possible and efficient for all to use.

❖ **Do you think storytelling can have a positive outcome for the organization? Please explain.**

I believe so, if it encourages active participation among employees to this concept and overall enhances people's listening skills, increases their creativity and offers insights into people's experiences at work. The wisdom being shared among employees should on the whole allow the organization to thrive as the knowledge base would have increased.

❖ **Do you think storytelling can have a negative outcome for the organization? Please explain.**

I would say perhaps. My reasons being that if the stories are shared with the company's competitors or it somehow ended up in their hands accidentally, it could have adverse implications for the organization who rightfully owns the story. For example a competitor can use that intelligence to benefit their own agenda. So should the story not be secured within the realms of the company and people not understand the value it carries, then the company could lose out on a valuable asset. Also, if stories are not retold accurately and does not add any worth, then the story could be considered void of meaning. Storytelling could also convey the wrong type of message and this would have to be closely monitored by people or systems to ensure that it does not spread for example negative stories about people and the company.

❖ **According to you, would you prefer to be rewarded to tell your story? Please explain.**

I would say yes, a reward is as good as a holiday. I at times feel much more appreciated when senior management recognizes my efforts and reward me with a small token of thanks here and there. But, don't get me

wrong, I'm not in it only for the rewards. I am only saying that it is a welcome addition. People usually become inspired when there are some goal and in this case a reward out there for the endeavors. This can take form in rewards such as thank you's, due increases to remuneration, vouchers for apparel, consideration for progression etc.

❖ **Who would you consider to be your target audience should you share your stories?**

I should think people who are interested in technical data, such as specifications, refinery units, pressure testing (pumps & lines) and maintenance around equipment.

❖ **Do you have any stories/experiences to tell i.e. projects/business ideas etc?**

Yes,

Story 1 – Project

I recall this one time when I worked on the cleaner fuels project where we were tasked to look planning and implement the necessary changes in Engen's fuel supply chain from Refinery, Supply and Distribution and finally to forecourts, to eliminate lead and reduce sulphur to the Cleaner Fuel specifications for the South African market. The objective included ensuring that all HSEQ and governance requirements are met, to assess project risks, develop fall back positions and plan these options etc. Ultimately the project team did not focus too much on the manufacturing side of the project and this almost had them having to undertake a mini project just to understand the complexity of the manufacturing process. Since I had many years of refining experience, I saved the project team plenty of time and money by explaining to them in a more understandable way as to what needs to be considered for this project. At the end of it all I felt even more useful and could share my knowledge, some of which I thought had forgotten with others and in turn the company benefited from this experience.

Story 2 – Personal

Epping laboratory had a fire in 1995 started where the chemicals lab had in it TBN (Total Base Number) testing unit and a Karl Fischer unit all sitting on an old school table bench. Also in this room was a fridge which was not intended to be used for chilling of product and was not suitable for laboratory use. There was an analyst who was performing motorsport trial blends and he left this gasoline fuel samples in this domestic fridge which is not intrinsically safe. So when you open it the light goes off and you get a spark. So if one places fuel in the fridge but don't put the lid on the tin properly, you will have vapour over time raising and then condensing in the fridge and which eventually got into the insulation and once it reaches its saturation vapour point it becomes combustible. So what happened was that a spark ignited the vapour and the fridge exploded and the fire burnt out the fridge completely, but it did take a while. When the fire department arrived the next morning to do their investigation, they reckoned that the fire likely started around 12am. The fire was only discovered the morning around 7am when the front windows blew out. There were no sprinkler system or smoke

detection systems in place and this was as a result of the vintage of the building and thus could not risk having it. The depot which is situated next door to the laboratory also never smelt anything. The fire was not discovered until the morning because it burned in the small chemicals room as that room had a small fire rated door on it and so took 2 hours for the door to burn through. Also because the fire was fairly well starved of oxygen it burnt quite slowly. The problem was once it had burned through between the small chemical room and the main lab., an intense fire then started as the fire now had more oxygen and additional gasoline and solvent samples to burn. The roof, benches and all computer screens were burned through halfway. The LP gas line which was made of copper was also scorched and this only demonstrated as to how extremely hot it must have been in the main laboratory when the fire raged. We were extremely lucky that the gas was turned off and the LP gas was also empty. What was learnt out of this undocumented experience is that the laboratory needed fire and smoke detector system, working procedures etc. Nothing from the solvents lab that was downstairs was recoverable except for one of the pressure cells from the DSC. The lubes lab which was upstairs was fortunate and we packed up everything and were sent to Reometric and what they did was that they stripped everything down and washed all of the equipment. Yes, we did learn out of it, but it was a poor experience. A good experience out of this incident was the quick response from the guys of the laboratory to clear out the mess caused by the fire and smoke.

Story 3 – Success

In no small way in my view, part of Engen's success in Africa can be attributed to recognizing firstly the strengths, skills and competencies of the people in the countries and markets in which Engen operates and secondly recognizing the need to embrace and respect cultural, ethnic and religious diversity. In my analysis this stance is evidenced by the fact that our company employs no South African managing or financial directors in any of the Africa affiliates. Historically many companies have set up operations in foreign countries without focusing on creating a healthy mix of foreign interest with local investors and resources. This tack is not seen as a sustainable model and I believe our company do remain committed to using local resources and respecting local communities and environment. As you know our aim as a company is to increasingly become part and parcel of the local social and economic fabric of the countries in which we operate. We do treat each country as unique and the way we conduct business is informed by the particular customs, regulations and business technology of each. The company thus focuses on citizen empowerment and consultation. I still see us striving to work closely with all key stakeholders including those in government, environmental circles and communities to the shape the industry in the country's best interests.

Story 4 – Teaching

Most of us can take one look at a particular work area and know exactly how the employees in that area feel about safety. Housekeeping always tells the story. Employees or their foreman who are serious about safety keep their work area clean and orderly because they know that this is a proven method for preventing accidents.

Good housekeeping provides many benefits like the reduction of accidents, better work efficiency, improved employee morals and lower risk of fire due to the accumulation of combustibles. With all of these benefits you would think that everyone would make good housekeeping a top priority in their work routine. Unfortunately, this is not always the case. Many times we get caught up in our efforts to complete the job and the thought of cleaning up doesn't arise. This is most likely because we don't think of housekeeping as part of the job. Housekeeping is part of the job and it's important as the job itself in any work environment. I believe it is the responsibility of everyone to make sure housekeeping is maintained, but the supervisor must take the ultimate responsibility. It is also the supervisor's responsibility to motivate others to make an effort to keep a clean work area.

Trash and scrap are not the only concerns in keeping a clean work area. Air hoses, welding leads, hand tools, grinding and cutting disc, old gaskets and other work accessories can create tripping hazards. From my experience I believe we should develop clean work habits and don't throw trash around the work area and expect others to clean up. Put it in the containers that are provided. Don't let trash and debris accumulate in one's work area. Keep it neatly piled or stacked until it can be correctly disposed off. Keep walkways and aisles clear at all times and place all tools, equipment, material, cords, leads, etc in a manner to maintain clear access with a minimum tripping hazard potential at all times

❖ **If you had to consider to publicize your experiences/"know-how" within the organization, what types of stories and media would you prefer? Why?**

I would choose to tell stories about my personal experiences and hopefully this would educate employees without them having to attend expensive courses to learn a skill and so forth. I would choose to use media like the internal publication "Pipeline" to share my stories throughout the organization. Since an online version is also available it makes for easier reading and referencing. The intranet is our most used site and updates all employees about events and news within company etc. This can be used and a link can be posted on the intranet to a site where people can upload their own or download someone else's stories. Of course these would need to be categorized according to the types of stories told by the employees, which in turn should minimize confusion and provide those employees looking for some insight or something interesting to read without having to search for the right type of story.

Respondent 3

"Please answer the following details for purposes of the research study".

1. What is your highest level of education?
BTech Quality Management
2. How many years have you been with your current organization?
Twenty

3. What is your present designation within the organization?
Chemicals Supply and Demand Planning Manager
4. What division within the organization do you form part of?
ESM
5. What in your view is your area of expertise?
Logistics and Supply of Petroleum Products

INTERVIEW GUIDE:

- ❖ **What is your understanding of storytelling?**
Story Telling is recording History in the mind.
- ❖ **What in your view would make a fine story?**
Good Theme, and content for Laughter, plus lessons to be learnt.
- ❖ **Where do you think storytelling has its best purpose?**
At home to develop the minds of Children.
- ❖ **When do you believe storytelling should not be used?**
The keep the mind of an audience captivated.
- ❖ **Do you think storytelling can have a positive outcome for the organization? Please explain.**
Yes –An organization has its own history, good and sad moments involving people thus it can have a positive outcome because the story can be about that organizations culture.
- ❖ **Do you think storytelling can have a negative outcome for the organization? Please explain.**
It can if the story is based on one time periods and or concept and ethnic group thus making others feel despondent. Especially when the story is based on a snap shot in time
- ❖ **According to you, would you prefer to be rewarded to tell your story? Please explain.**
Some times a monetary gain is not all but as part of mentoring and talent management it is necessary for stories to be told about the past and thus self sufficient
- ❖ **Who would you consider to be your target audience should you share your stories? The younger people.**
- ❖ **Do you have any stories/experiences to tell i.e. projects/business ideas etc?**
Yes –the stories of sacrificing to make a career in Engen...skills about positive solutions.

Story 1 – Genesis

As you know that Engen has many grades of bitumen (penetration, oxidised, and cutback). At one time we used to make approx. 1200m³ of bitumen daily, which equates to 36000mts per month. So in terms of new beginnings and we are always looking for new business, so we had the emulsifiers, where we used to take the hot run down bitumen, with the chemicals to cause the emulsions i.e. the emulsifiers, and the water and the colloidal rod and we used to make SS60. So one was a cat ionic grade and the other an-ionic grade and we used to sell that product probably 600mts per month and sold around 1200mts per month of MC-30. What I'm referring to is that we realised that we had MC- that is medium curing, but now there was some contracts that required rapid curing and then myself and Surge, Trevor Disten ex Engen bitumen employees are now part of SABITA (South African Bitumen and Tar Association). So RC-250 and RC-70 these were grades of bitumen we never did before. Sapref used to make a grade called 30/40, so we tried to make it and our closest to this was a 54/45 is was oxidise grade but we had it in the penetration grade category. So what I'm saying is that we had these new products, and my pint is that we took risk as we saw someone else was making new products and had our main lab to do the research themselves, and then we went to the plant to make the product , apply it, test it, send the samples to the customer and before you know it we had got own grade 20/30, 54/45, MC-70, RC-50, MC-3000, Cat ionic emulsion and anionic emulsions. Now we don't do that, so what has changed? The plant /tanks is still there, but the colloidal mill was sold off, so Realit and Colas knew if Engen has got the colloidal mill they could compete with us. So obvious Trevor Disten being an ex Engen employee, and as you can see that there is a lot of subtle things happening outside that affects our business on the inside and this is what our CEO is talking about touching dishonest dollars as we have too many people who have the Engen experience working against Engen on the outside, whether intentionally or unintentionally. So what this is telling us is that we had people who with a lot of knowledge and Mobil had this ability to transfer this knowledge and train people, re-train them and make them experts.

What Genref and Engen couldn't do was to contain that knowledge. So that's where we find now that how many products are coming out are new; very few. So its not that the products are not there, it's the driving force behind creating a new beginning or how things are going to start. When I used to work in Supply, I created MDO (Marine Diesel Oil) and 150cSt fuel oil. Why because I'm coming from that cloth that was cut from a different piece of material and now I find myself in the Chemical division and have been here 7 months and created a new product (Fluiden 1628) and as you can see it's a part of me and are part of the driving force – problem, diagnose the problem, come to a solution, new product, new , specification, new tank, new line, new pump, new ways of doing things and that is what is presently lacking in Engen. Its not that the new ideas do not exist, it's the individual. And you can't train them because there is a difference between intelligence and intellect. The person who is intellectual never takes everything for granted and he questions everything, and that is what is lacking. So the stories yoy want to tell or you want people to know about the past is to trigger in them the cause for the intellect to come about. Now Engen has intelligent people and

we need them otherwise we would not have a good company, but what we are lacking as a company is that intellect. Personally I believe currently the key and prime problem on the bitumen side is the lack of initiative. The moment the pump fails; we fix it, because the moment you wait they say what you do regularly and repetitively becomes your character. For example if you don't smoke and you take one cigarette and you smoke it, nobody will say that you are a smoker, but if you smoke everyday one cigarette then you become a smoker. So just like that, the moment the pump fails; if you fix it then you won't categorised it as a problem unit, but if its fails and you not fixing it and the line plugs and the tanks are leaking and that is why Peter Dent has come and gone to Petronas and came back and as an example tank 420 is still out of service today 10 years ago. When at that time when the tanks came out of service and if we had invested the money 10 years it would have been cheaper then to fix it.

Much of today's decisions are about such things are wrapped up in discussions and no actions. So what I'm saying is that to change the culture we need some actions and in my view the action people are all at Enref. So how do we change this? I starts with intellect; the person and the drive because we are lacking this, and the new generation of people coming into the organization we thinking we going to pass on the knowledge, but is not willing to receive the knowledge. So just as good as the teacher is, you also got to have a good student. So with regard to bitumen there are a few people left at the refinery who has the skills to transfer the testing, to reduce the inherent error and to make sure things are rapidly done i.e. in the plant how to do the blends, but the other guys came in with the mindset that we are here but we are going to be here for 6 months so who cares what I know or don't know. These people are in my views jack of all trades and master of none and we also see this in the world today. In my view Engen is suffering from a herd mentality and this need to stop, and we should be leaders and this starts with the definition of work vs duty. As you know we all get paid for the decision we make, so what I'm highlighting is that somewhere along in this company we don't have to know anything and its not what you know is who you know. The we talk about change management e.g. today's IT manager is tomorrow's technical manager, and the next technical manager is next years' lab manager, and that is actually a quadratic loss function, because for example if one would go to the doctor and see a man with a white coat would one accept that person to be the doctor, because a butcher can too wear a white coat. The fact that a person studies as surgeon, means that what his nature is all about, his character, his psyche; everything about him says I'm a surgeon. So how does it happen that someone that is a surgeon is somehow made to world as a butcher? We see this happening in the corporate world where people in the corporate are coming from teaching background. Why? Because it's not what they know, but who they know. It is not impossible for people to study one thing and then doing something different, but I believe you qualification should be relevant to occupation. Now that is the essential difference why these other people moved from Engen, and I'm saying is that we lost good people, as they were qualified, they were experienced and they knew their stuff. So that is after 15 years they left Engen and opened their own businesses. So in 15 years we going to look back at the current population and say that they were unqualified, they did not know their stuff, but

they left Engen to do something else. So if you look at the white oil market, we can see that these ex Engen employees have taken away some of our market, and it might not be a lot, but it adds up. And if they are not considered to be capable, how is it that possible that they still run their businesses and we continually losing market share to them. So what Engen have done is that it allowed them to leave, Besides taking away their knowledge they also taking away the business. Engen might be thinking that the particular person can be replaced. Replacing a body in my view consists of e person who has a mind, intelligence and intellect and whatever specifications, manuals, procedures, blends, products these individuals created to day we are still using in the chemical division. Now we see that one cannot replace that intellect that the person used to develop those things, neither can you bring in a new person to replace that individual because the new person is a coming from a mass region of high concentration to region of low concentration. Our region of high concentration of poor knowledge to a region low concentration that needs high knowledge, yet in the previous time there was a low concentration of people with high knowledge that moved to jobs of low concentration. The was very little facility for them, so they had to best of the best as this was the only way you could get selected. However now, you have hundreds of graduates coming out of the college and then they come into a job and they still don't know anything, so it's not only knowledge in Engen, and what I'm saying is the whole educational structure has changed.

So as a company what do we do? What we do is that we have to emulate successful countries and we got to go countries where have been through apartheid or Victorian rule (i.e. India) and these settlers when they left they also took some of their skills with them, but they did leave some things behind e.g. train lines, factories etc., but somehow the people that was living in that country and i.e. took the pump that was not working and got the instrument to keep on working by other means. How come today we see the Eastern economy is growing and ours is not? It starts with basic needs and quality of life. What Engen is providing is that we are a corporation, which means we are all coming together co-operate to achieve our needs. We are working because we got our personal needs. What I'm saying s that on a philosophical level is that the difference between human and animal is that although we all have bodies, the animal has a body and a mind while the human being has a body, mind and intellect. So what I'm highlighting in terms of the transferring of knowledge is that you cannot appeal to the intelligent person, as we can go to the University and we go and look for the person with the best symbols, but actually that is not the person we should look for. We need t look for the person that has within him that has the drive and passion about life. This person might be a failure and what I'm highlighting is that is doesn't have to be based on BEE. We need to look in the rural areas and find the guy who for example makes his own chemicals or go to the industries where the people are blending their own asphalt, people making blends of bitumen and taking this bitumen and making it into something else. And this can be done, if the search structure for bringing people into the company is different of where it is today. Then you have to put them through their paces, because there is no shortcut. If Engen is going to succeed for the next 10-100 years you got to find that new type of person and the do need to have some intelligence but they need to

have more of the intellect, questioning: what have we done? Why have we done it? How can we do it better? Is it needful for the future? Roads are certainly going to be needed for the future whether you have a car running on petrol or solar energy etc. Energy cannot be created nor destroyed; it can only be transformed from one to the next. So whether we run diesel at a power plant or in a vehicle to drive it; we are going to need diesel. So when we realise that solar power is not pure on its own, it will work temporary for your houses, but when you get solar powered vehicles at some stage you going to need some fuel. So my point is that for the 50-100 years we still going to need fossil fuels and that means we need factories and Engen might be around and if we look at a 50 year period, we need to think for example where does bitumen go? For example we know about our housing problems, our current government has been in power for the past 15 years and have not provided the promise they made in their original promise “housing for all”, unfortunately they never did. Presently is primarily just gets stuck on the roads and as you know bitumen gets used in the building industry, paint industry, agriculture. Tar itself is very hard and tell me you can’t make a brick out of tar? We making a road but who is stopping us from making a brick from sand and stone? What I am thinking of is MCB which is a binder; a brick that is hard that’s binded, to make a low cost house. Maybe we can put some of the problems together e.g. we can go to the dump and look at the amount of dirt can be crushed and put a binder vvtb which has a very high flashpoint, very high melting point and low penetration. We can bind it and mix it and then you make bricks, and suddenly you have a new material. In the future this material can be placed back (recycled/reprocessed) into the roads. So the future is dependent on it. So a man who not from his heart is thinking of recycling and revitalising, re-energising, re-thinking, and then you got a problem.

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Story 2 - Teaching

People with poor concentration and consistency. For example my kid when his eating thinks of many different things, so concentration in my view is that you keep your mind on the present occupation. That is why there are so many people in jobs today that have flickering minds as they can’t keep their minds on the present occupation. The current people is not doing the job, if he/she is not fixing their minds on the present and then worry about the past and have anxiety for the future. They are then thinking let me do my current job well and get a good appraisal and earn more money. They then plan to stay in the job for i.e. 6 months and then they move and because you have this mass exodus of people; we as Engen has got to now change the whole structure of how people’s contracts are designed and the have to force the training. The training might be different but now the probably going to have long term contracts where a person for example has to spend a whole month in a lab to learn first hand of testing and then g back to what they were doing originally and then repeat the process. Later it is hopeful that the person would get a sense of where they fit in the organization.

Like our parents they worked in the clothing factories and they continued to do the job almost up until the day they died. So in terms of retaining knowledge and putting it into processes and procedures is relevant but is only so to a point in time, because the future has changed. If say I had to put out procedure how to

make LRP95, I would say in year's time it would have changed because we moving into ULP. So trying to document that is good in its state, but more importantly is to document the methodology of how we made LRP95. So that when you go on to make ULP95 and then you will know the methodology i.e. equip the person to do things in an intellectual manner. Because may for instance in our lifetime work on say on 3 units at the refinery, but if you can take these new people through the process to show them all the units then they will have a greater appreciation and understanding of what the doing or are going to do. But because these people want to move fast, you have to take in that the energy of the training and re-training is different. So that is why OBE (outcome based education) objective is trying to do that. So that if you e.g. make a table you would have to take the person to the farm where they cut the wood, because many of them don't know that a table is actually wood and that the wood comes from the tree etc. Like for me I am struggling on Polymers and the reason being is that I cannot see it, feel or taste it. I am working with many products but don't know what exactly they look or feel like etc. So in my view you cannot change the new person, but you can mould them to become the person that wants to check, wanting taste, wanting to investigate then that will be the benefit to the organization. Like you have an organogram, you can have one for training. So you don't expect them to be say in the lab for 10 years but at least they should go through the process and then there is movement. So the lab in my view for Engen is like the basis, because you might not know the pump but you may now know the product that comes from that pump.

Story 3 – Success

What is a problem, a problem in my area of work is that I don't have Xylene. If you peel away the first layer of say an onion we can say we don't have Xylene because its off-spec, then the question is do I doctor it, do I waiver it, do I reject it? If I can't correct it then my customer stocks out, because I don't have the time to correct it. Sometime we supply it to clients on waiver but if the client rejects it he stock out. So do I have to do now? They say customer is king/queen. Then I have to go and buy Xylene and if I can't buy it internationally to bring it here in time, then I have got to source it locally. So if say I can't load Xylene in one location because the pump failed, would it then be possible to load it from a different location. Yeah, but I can load it in that location but then the truck fitting is different, then you go and change the fitting. So that is what with the Xylene, as it was off-spec, the import was delayed and what I did was if I didn't get the off-spec Xylene the customer would have stocked out. Then we broke that further, and said which customers are loading Xylene but don't need it in its pure form. Some clients then responded that they do not need it in its purest form. So on the Xylene we made a pudding by taking the off-spec stuff and we did something different to it and we made blends and then supplied it to customers and the one that was slightly off-spec we sold it as pure Xylene under a waiver. Technically we were supposed to be stocked out but we didn't, and when that volume was finished, that's when we loaded the Xylene from the refinery because there we transfer Xylene down the line and we can only transfer the product based on the line fill. To give an analogy, its like buying a pack of beer so you can only buy a 6 pack so the Xylene transfer was like that, as we can only transfer 180m³ and its

only after the transfer of that volume you can start to test it and the supply to your customers. What we did was, we went all the way back and said no we can't wait for a "6 pack" to get made, as we only wanted 1 bottle and therefore we only loaded the 1 truck right at the source. This operation was never done in the history of Engen as Xylene was never loaded at the refinery as it was always loaded at IVD (Inland View Distribution).

Story 4 – Success

On the Fluiden 1628 we used to market a product called 1828 and is a product that comes from the KHT (Kero Hydro Treater) its like DPK (Duel Purpose Kerosene) or JET A-1, but it is a high flashpoint material. The customers that buy it currently are using it in the mines. What they do is they can't use DPK whci has a low flashpoint and it's used in the coal industry, and then the clients drills holes and the they leach colas Fluiden 1828. Then the client would light a charge which causes the coal to explode, because of the high flashpoint.

The other use is uranium extraction, where the 1828 is like sludge and the slurry collects the uranium which eventually collects anodes. So the electrical charge does not cause the thing to ignite., although there are some plants that can ignite in the plant. So what we done we realised we cannot supply the 1828, because we make it in batches, so when we make it in batches we have to make many of the same and it takes time. It was the same with this customer we had where it was feast and famine; because when we got it his trucks was there and when we didn't he was complaining. This feast and famine that was going on is causing a lot of inconvenience for the trucks, because if you are planning your trucks e.g. I need 10 trucks today and tomorrow and the next day we say sorry we don't have product. And then the following day we have and then the 10 trucks are required. We therefore asked the question how do we minimise the impact?

How do we manage consistent supply? The refinery was telling us "I can't give you 1828 because its special conditions to make it and the customer is complaining and we cannot get peaks and troughs. So eventually we said, let see what spec the customer has been taking and what is it the refiner can consistently produce without changing the unit parameters and what we realised that it was DPK as this product comes from the KHT as well as the 1828 and 1528. That meant we had 3 products coming from the KHT. So we then asked can we take the 1828 an consolidate it in the DPK specs. So now we no longer make 3 products fro the KHT but 2, but with 1 effort. The only way to have done this was to reduce the specs, and from there we went to the customer and told him that we have this product that is not to the 1828 specification s and if he was willing to take on a slightly relaxed specification. So what we did was that we took the upper and lower control limit and provided the product on the lower control limit and was within the customer's product tolerance and that lower control limit is was the 1628. So all the KHT is doing now is making DPK which we can now batch as 4 separate products DPK, JET, 1528 and 1628.

No real changes was made as we only changed the specification and by doing that the customer will come everyday with 4 trucks , instead of sending 10 trucks or no

trucks which no means the customer has consistent supply of product and the customer in his relationship with his haulier is also improved. This no means that he can now plan better his trucks to Durban, then go up to Isando they do something there and then come back with something else and the whole logistics becomes so much more simpler. The refinery now also has no need to switch the KHT as often to make 1828 and everybody is looking happy. My point is how many other products out there could also be fit for purpose.

Story 5 - Success

The MDO (Marine Diesel Oil) we struggled to make it and Sapref was complaining about the haziness of the product. So what we have done is change the specification and made MGO (Marine Gas oil) which now has a colour specification which is clear. MDO was a bit of a giveaway but was supplied for 2 purposes. The same thing was on the LRP95; why would you keep an LRP93 Tank and LRP95 tank? Rather make one product that fits both purposes just waive the colour and then you got 3 tanks to load the ship with LRP95, load the same ship as LRP93 and can be placed into the pipeline and then you free-up tanks.

Story 6 - Teaching

Tank 789 was a decision we had to have taken many years ago. The tank was utilised as an MFO (Marine Fuel Oil) tank and was owned by Chevron. We should have bought the tank many years ago and as a consequence we lost out on the opportunity to own this big tank today. The reason for this was because we delayed the decision. So in some areas you can wait for a learning experience to take a decision, but there are other areas you can't wait. For example if there is a bunch of bananas on a tree and you are hungry you are going to take and eat the bananas - it's an opportunity, because if you let it pass would one be sure it is going to be there tomorrow - you won't. The lesson here is that the company should take more calculated risks with the aim of ensuring a better future.

Story 7 - Chronicle

Here at Engen we got this relic of the past managing this company. This consciousness of taking is alive at Engen i.e. I come to work I smoke, lunch-time I go shopping, come back have a break and then at the end asking oneself "did I do anything today"? Then one can answer and say; that I did hardly anything but at month-end I get paid for nothing. So what is Petronas saying - "don't touch dishonest dollars". You didn't steal anything, but you didn't earn it properly. So if one goes home at month-end thinking, I didn't do enough work this month and then think that next month I'll do less. There is however the reality here because we constantly see people walking around the whole day. In my view it starts right at the top. These "relics" are still sitting there making decisions and as the saying goes, "you can't teach an old dog new tricks". These relics are still here, and they come to do the least but get paid the most. But if they are thinking I've come here to do the most because Engen is my company and I work here and my livelihood depends on it as well as my family's livelihood depends on it and the future of the company is actually so important for the next generation of people no matter who it may be, then you got something.

Story 8 - Personal/Success

If one goes to the refinery in Durban you will find a mango tree there. That mango tree was planted by a retired Engen employee named Ram. Next to the mango tree was an old South African flag as well as a Mobil flag. People would walk in out of the refiner and nobody would give one credit, but it was my own idea to change that and recommended to place a fish pond with a bridge over it in place of the flags. Sand the idea was that if fish could survive in the refinery then there is no pollution. Also on the health aspect I have also recommended to erect a gym at the refinery which also followed on to a recreational club for all employees. And subsequent to this, I also erected the Engen athletic club.

The idea behind this was that I noticed that people were going to gym outside of the company and why can we not have the gym in the refinery. I believe that Engen need ideas person so that other people can visualize what the solution is, so that they can implement it. I did not personally build the initiatives but it start with the intellectual or idea – never take anything for granted, always questing it , why can't we have a swimming pool that Engen family can come to say over the week-end. As an example when I told my then manager Jon Mackey to not scrap tank 612, my supervisor wanted to fire me, because according to him I was going against his authority . I then responded by stating that they should no let this tank go even though the tank wall was thin , and that we didn't have the money to build a new tank. I then suggested that they didn't have to put steel in it but think of something else. We knew that the tank floor was leaking so I suggested that we put in a concrete floor and for the thin wall let's grit blast it and fibre glass line it. 2 days later my then manager came back and stated that they got a contract and eventually they put a half a meter concrete on the floor; the grit blasted the whole tank and the put an 8-10mm fibre glass lining on the inside of the tank. Tank 612 is now today still in service and is used to store DPK and JET A-1.

Story 9 - Teaching

When the Nino vessel ran aground in Transkei which carried diesel and gasoline and ruptured the tanks and the products mixed. What we knew was that some tanks was still fine and other diesel and gasoline tanks got mixed. Because of insurance we didn't know what to do. My manager didn't know either as to how to proceed as well as our shipping department manager stating that we should not blend the product off. My manager also recognized that it was costing the company money. This incident happened over the weekend and when I went back to work on the Tuesday we pumped the product from one ship to the next ship and they were bringing the ship into Durban. I then did the blends for 3 days (Tuesday, Wednesday & Thursday) and didn't sleep for 3 days at home and had slept in the office. The last 5000m³ the shipping department manager again reiterated that we should not bother blending it off., but my manager intervened and noticed that here was something here. Through this type of commitment and initiative I was eventually moved to a better utilised position in Cape Town. When I left many other technicians soon left, and then everything went back to its original state. I liken it to an elastic band when you stretch it and then release it return to its original state. So what this means that when these other guys left too, everything went back to its normal state of rest and that is why there is no

progress. If the heads is not functioning, how are the hands and legs going to function? So what this company needs are managers to motivate people to get them working by getting their hands and feet to moving. In my view there are way too many meetings and too many resolutions, but no solutions at this company. No solution means no actions; and that is what is missing in this company. We are getting this done, but this is problem with benchmarking. If we think that the competition will stand idle waiting for one to come? The competition is not standing idle, as they are also developing and growing and improving. So by the time to get where they were they have already gone.

Story 10 – Personal experience

We had 2 shifts working in the refinery lab., so I would test the bitumen, leave a sample and then go home. Meanwhile the afternoon technician would not test the sample. So instinctively I would recognize that he afternoon technician didn't test it. However this person was protected by my then supervisor. This afternoon technician would then provide a result and the I would come in the morning and this other technician would then give the guys at the plant the result and they would then go ahead to doctor the tank. What he actually did was that he gave process guys a false result. So talking about values what could I do? If I had to go to my supervisor and told him that this technician was not testing the tanks samples and giving false results, would I not get into trouble? This technician was friends with my then supervisor.

What I then did was that I left a half an hour later and made sure that I pour the sample out so that he is now forced to do the testing and regrettably he still didn't do the testing. These unfortunately are the type of person(s) we have in the company who for example will go to the retention lab. and takes all the gasoline samples and put them in his car. We talk about touching dishonest dollars and why I'm mentioning this is that I had to work long hours and to date and will continue to do an honest job for the company. I also remember doing the hydrofluoric acid test and I got an of-spec result. In the meantime another technician gave the plant an on-spec result. So I did the 1st, 2nd and 3rd sample and found them to be all off-spec and the informed the process guys to shut the unit down, because the purity (88-89%) of the hydrofluoric acid drop one will have to shutdown the alkylation unit. So what my manager said to the plant was, "sample it but don't sample it; sample the bomb and send me an empty bomb and see what happens". I the continued to test the bomb and found that there was no sample in the bomb. The next day my manager came and said to me that they now trusted me and it was all a test to see if I was crooking results or not. Although dangerous what he did, it was some things I and others had to tolerate. And perhaps that is what I mean about concentration; that people lack a low level of tolerance and you cannot trust them. The outcome of this was that I personally always had to be watchful e.g. make a test standard and then go and hide the standard.

- ❖ **If you had to consider to publicize your experiences/"know-how" within the organization, what types of stories, media and methods would you prefer? Why?**

Currently most data is stored in Electronic media but the people who have the knowledge seem to be experienced with written documents so this gap can lead to insufficient human interface thus leading to poor transfer of the story and knowledge. I would prefer to tell a story about my experiences using sketches which can be used as a visual aid when telling my stories. This should engage the audience even more as they would hopefully through my sketches not just only listen to my telling but also stimulate their interest and hopefully engrave it in their memory.

Respondent 4

“Please answer the following details for purposes of the research study”.

1. What is your highest level of education? Masters in Business Administration
2. How many years have you been with your current organization? 7 years
3. What is your present designation within the organization? Planning and Optimisation Manager
4. What division within the organization do you form part of? Supply, Trading and Optimisation
5. What in your view is your area of expertise? Supply Chain Management, Supply Chain Optimisation

INTERVIEW GUIDE:

- ❖ **What is your understanding of storytelling?**
Being able to narrate a set of circumstances and events that ultimately portray a message to help people learn and/or understand a concept
- ❖ **What in your view would make a fine story?**
The ability to clearly share a message but through a thought provoking, gripping and interesting manner
- ❖ **Where do you think storytelling has its best purpose?**
Areas where routine and typical teaching methods are not fully able to educate people or bring them into a new level of understanding and awareness
- ❖ **When do you believe storytelling should not be used?**
With very intellectual people as it could be misconstrued as being insulting. Technical areas as I don't believe that story telling could help. The storey itself could become too detailed and very long and could digress

from the topic and even bore the audience more than the actual technical work

❖ **Do you think storytelling can have a positive outcome for the organization? Please explain.**

I think it can if properly utilized. One way is to be able to gauge the understanding of the organization. If there is a tendency for a specific concept or teaching aid to be ineffective in knowledge transfer, story telling can be trialed as a potential solution. It may also be difficult in setting up the story as well as I believe this could be a challenge in itself. However, if people are open to trying new concepts then it can bring a positive outcome.

❖ **Do you think storytelling can have a negative outcome for the organization? Please explain.**

If one tries to apply story telling in a very complex environment, there could be a proliferation of story's that then needs to be managed. Each story will also need to be tested in its ability to transfer knowledge. I'm not too sure that it can have a real negative outcome but if story telling becomes too long and drawn out there is potential for a lot of time to be wasted

❖ **According to you, would you prefer to be rewarded to tell your story? Please explain.**

No. I like to be rewarded for producing solutions and sustainable results. I prefer to be rewarded for Performance linked to a hard Organizational target rather than for telling a story. While story telling could be linked to empowering people, I don't believe that by not telling story's you are not empowering people. I could be doing it via other Traditional methods.

❖ **Who would you consider to be your target audience should you share your stories?**

Not too sure. Anyone who would be interested in reading it or maybe learning something. A preferable target audience however would be someone who would be responsible for carrying out a task for which knowledge transfer was required.

❖ **Do you have any stories/experiences to tell i.e. projects/business ideas etc?**

Yes.

Story 1 – Teaching and personal experience

The CO Boiler is a critical piece of hardware in the Combination Unit at ENREF. Its sole purpose is to destroy carbon Monoxide (CO) before it can make its way out of the stack into the environment. Carbon monoxide is a toxic odourless gas and is easily absorbed by the bloodstream, combining preferentially to the hemoglobin in ones blood therefore preventing the absorption of oxygen. It is thus critical that carbon monoxide is destroyed within the CO Boiler. The CO Boiler is

linked to the FCCU (Fluidised Catalytic Cracker unit) which is responsible for the upgrading of various streams in the Refinery to Mogas and LPG. In this cracking process air is blown into the FCCU and reacts with the hydrocarbons in the presence of a catalyst. In the process CO and CO₂ are produced. As the rate to the FCCU is increased there is a tendency to produce more CO gas. CO gas however is very difficult to destroy as it is an inerting gas. CO also burns with a pale blue flame so it is fairly difficult to detect within the CO Boiler. In order to supplement the firing of CO, fuelgas is burned as an auxiliary fuel. The CO Boiler as its name suggests burns fuelgas as well as CO and the heat produced is used to boil water and hence produce steam for the Refinery. Some time back the CO Boiler was experiencing problems which were causing the boiler to trip. Attempts to understand why the boiler was tripping ended up with no answers despite various Root Cause Analysis (RCA's) being done. The trips continued and an urgent answer was required in order to correct the situation.

CO Boiler trips causes the FCCU rate to be decreased since the FCCU needs to be run in full combustion mode i.e. all of the available air entering the boiler cannot be used to remove the carbon off the catalyst partially i.e. C is destructed to CO but needs to be destructed to CO₂. It is the boilers function to destruct CO to CO₂ not the FCCU regenerator. This decrease in FCCU rate has implications for production and hence money is lost. From a Process Engineering point of view the typical methodology would be to find a specific or groups of variables e.g. temperature, air rate etc. and try to correlate this to a trip event. However this methodology, although sound may not always yield useful results. It is sometimes necessary to dive deeper into the technical details and understanding of what's occurring in the boiler to understand the fundamental reasons for a trip event.

As mentioned CO is a notoriously difficult gas to destruct to CO₂ as it has a large inerting effect i.e. flame suppression effect like nitrogen gas for example. In order for the CO combustion flame to be detected and thus keep the boiler on-line from a safety perspective various flame scanners are utilized. There are two types of flames scanners, Infrared and Ultraviolet. Infrared flame detectors actually detect heat in the boiler while ultraviolet flame scanners pick up the actual pale blue flames. If the actual flame is extinguished in the Boilers the flame scanners detect no flame and shut the boiler down. The fuelgas will be cut off preventing a potentially dangerous build up within the Refinery and the gas from the FCCU is automatically re-routed via special valves away from the CO Boiler. The Boiler is thus in a tripped position and starts cooling down. It is critical at this point to understand what caused the trip while Operations continue trying to restart the Boiler.

When one tries to correlate specific variables to the trip event and it is not successful one needs to start looking for a host of related variables that acting together could have caused the trip event. This is not necessarily easy to do or find despite access to good technology at a Refinery. However CO Boiler manufacturers typically have good guidelines as to the operation of their boilers and one useful parameter (combination of multiple variables) is called the Net Heat Value. The Net Heat Value is an indication of what energy content is

required to safely combust CO and its' units are kJ/kg where kJ is the energy in joules and kg is the kilograms of CO that needs to be destructed. The Energy is a combination of the heat released by the fuelgas plus the sensible heat across the boiler and the energy released by the combustion of CO. Divide this by the CO entering and you have a term called the Net Heat Value. The Net Heat Value is a parameter. If one now plots this parameter against the percentage of CO entering the Boiler one sees a correlation. It was noticed that when the CO% to the boiler was decreasing the Net Heat Value also decreased. Operations should have increased supplemental fuelgas and or tuned the FCCU slightly differently to increase the CO but there were no variables or alarms indicating that they should do this. At any one time a fixed flow of FG should be routed to the Boiler but typically when there is a good flame and high CO concentration, the Operator would tend to not waste the fuelgas and thus trim back.

However, when eventually the CO concentration becomes too low and the Net Heat Value drops below a certain threshold e.g. 620 kJ/kg the flame will extinguish. The flame scanners will not detect a flame and will send an emergency signal to shutdown the boiler. In order to correct the situation I implemented a TDC based NHV calculation on the Operations DCS system and put in an alarm limit. So whenever heat is lost in the boiler either via Fuelgas or CO concentration entering the boiler and a potential inerting atmosphere arises, the Net Heat Value parameter will compute this phenomenon before the trip event occurs. A predefined alarm will alert the operator before the trip point is reached and the Operator can take steps to prevent the trip from occurring. Root Cause Analysis is typically not as easy as it seems despite there being defined methodologies and techniques. It is critical that a detailed understanding of technology exists so that the real root cause can be found. It is only then that one can take the proper mitigation steps to prevent recurrence of an event as well as mitigate possible very unsafe conditions e.g. a trip situation. While Units at a Refinery have both hardware and software safety systems to prevent unsafe operation it is best to avoid the unsafe condition in the first place. Various parameters and variables needs to be adhered to and there needs to be a proper understanding of the upper and lower control limits so a unit is kept within those tramlines. Thus maintaining a safe and steady operation improves reliability, keeps people safe and improves production output.

If you had to consider publicizing your experiences/"know-how" within the organization, what types of stories and media or methods would you prefer? Why?

Powerpoint presentation. Although these can become long and it takes more effort to put together especially if it incorporates a lot of text and or frameworks and concepts, for me this represents the best modern media from which to engage a potential audience. I would also not brush-off the idea of using a story here and there to re-enforce a particular issue or to explain the contents better, if it will help the audience to remember the content other than where one is only restricted to explaining the facts or stats. Stories be it scenario-based, personal or indirectly would commonly revolve around the subject matter and hence would need to be supportive of this. A story if negative would need to communicate any lessons

learnt out of the wrong. Overall I think telling a story adds an element of fun to the whole exercise and this could also generate more interest from the audience.

Respondent 5

“Please answer the following details for purposes of the research study”.

1. What is your highest level of education?
B. Com (Comp Science.) degree
2. How many years have you been with your current organization?
20 yrs
3. What is your present designation within the organization?
Business Process Consultant - EH&S / QM
4. What division within the organization do you form part of?
Information Services
5. What in your view is your area of expertise?
IS & IT

INTERVIEW GUIDE:

- ❖ **What is your understanding of storytelling? -**
- ❖ **What in your view would make a fine story? Where do you think storytelling has its best purpose?**
- ❖ **When do you believe storytelling should not be used?**
- ❖ **Do you think storytelling can have a positive outcome for the organization? Please explain.**
- ❖ **Do you think storytelling can have a negative outcome for the organization? Please explain.**
- ❖ **According to you, would you prefer to be rewarded to tell your story? Please explain.**
- ❖ **Who would you consider to be your target audience should you share your stories?**
- ❖ **Do you have any stories/experiences to tell i.e. projects/business ideas etc?**
Yes

Story 1 – Project

The business had made a decision to upgrade to the SAP 4.6 C as SAP would not be supporting the older versions of SAP. SAP 4.6 however required an upgraded SAPGUI interface and the majority of the user platforms were seen not to be able to accommodate the new client along with the rest of Engen’s monitoring tools and applications. Some of the objectives to this project were to provide the correct level of client infrastructure via user audit, GAP analysis, infrastructure audit and to install the needed hardware and software for Metaframe. I was assigned as project team leader as part of a project group of 7 people. Based on my experience with SAP I knew from the outset that this project would not be completed within time because of problems with SMS and Remedy recording incorrect data. Ultimately because of my intuitiveness within this project it was discovered that this problems would need to be handled as a separate project. The upgrade to SAP 4.6 C was seen by the business as successful and all objectives were met.

Story 2 – Project

As you know Engen strives toward being “the preferred African Oil Company”. For this to be achieved up-to-date & accurate information, both internal and external is crucial. I recall working on the ERIC system project which aim was to provide for in-line transaction processing (OLTP) and standard reporting of retail information. ESM Retail however also required a platform for data interrogation for the purpose of business intelligence. ESM retail found that they were unable to run ad hoc queries without impacting heavily on ERIC availability and performance. The BIW (business information warehouse) is Engen’s current platform for ad hoc type queries and data archiving. In discussions with the IS Development team, the IS database administration group and the BIW then agreed that a separate storage area was necessary for the purpose of ad hoc reporting and archiving and agreed the BIW was the appropriate platform. I am remembering suggesting that a business user requirements study be undertaken across a representative sample of users. The objective of this was to identify and develop user requirements regarding the housing and archiving of ERIC data on the BIW and then completing the Eric system and also to create views that would provide for flexible, ease-of-use data interrogation. As a result of my proposal a separate storage area for the purpose of ad hoc archiving was created and user views were ultimately accessible via Impromptu.

Story 3 – Project

Engen’s Information services had planned to revitalize their Disaster Recover (DR) strategy, by re-evaluating the DR plan in terms of DR declarations, DR restores, recovery procedures, site preparedness and aligning itself with the Information service DR recovery policy. From the outset I knew we would have to establish an updated configuration management database, which would depict the identified components per critical DR system. I also proposed that we consider possible utilities that could enhance the DR strategy and examine the dated infrastructure i.e. evaluate if any hardware procurement is needed or employ other tactics that would ensure a healthy DR strategy for Engen’s Information services. As a result of the proposals, Engen’s DR plan and procedures were put to the test literally by conducting 3 weeks of DR rehearsals at the DR site which ultimately

ensured that a comprehensive set of processes and procedures were completed and was deemed to be highly efficient and resulted in the timely delivery of documentation.

Story 4 – Project

During 1998-1999 Engen evaluated SAP's Treasury product and subsequently purchased MySAP.com which included SAP CFM (Corporate Finance Management). I and some of my peers have prior to this purchase, identified a number of shortcomings within the Treasury Department related to processes and systems. These shortcomings had exposed the company to a number of potential risks though the information not being visible and transparent. In addition I noticed that the company was also at risk in losing information through the use of systems (i.e. Excel) with lack of controls. Due to this Engen had decided to embark on the analysis of the latest functionality within the SAP related to the Treasury business. It was through this that SAP CFM was identified as the optimal solution within the Engen environment as the company was making extensive use of SAP as well as the maturity of the functionality available within SAP CFM. The SAP CFM eventually enabled the company to provide transparent, accurate, complete and useable information to all the relevant stakeholders within and related to Engen.

Story 5 – Project

Our business scenario primarily was comprised of several personal and shared libraries. The personal library's information was restricted to the individual owners, which leant towards duplication and most information was not available to the required audience. It was common for specific business units or the participants in specific business process to have reached a critical point in their document-processing environment where the need for integrated document management (IDM) was obvious, but none could justify the high cost of implementation of a document management solution, hence the need had arisen to consolidate requirements. Some of the reasons for this were that paper-based and non-automated processes that were slow, error prone and affected customer service negatively. The manual customer enquiry and response systems also needed to be replaced and tangible costs were seen to be possible.

The benefits of the Integrated Document Management architecture was seen to be growth in managerial span of control, a reduction in labour or elimination of low value work, a reduction in paper use and storage space required and controlled information availability through the organization etc. I was assigned as part of this project team which consisted of around 15 people. The scope of the project was to buy or build a document management system that would allow the storing and retrieval of electronically held documents. This had to be controlled access and not only restricted to Engen, but also had to cater for the International Business Divisions, extranet and other types of users, should this be required. I was assigned as part of the key project personnel. I was tasked in selecting, implementing an effective solution as well as training on the solution. My prior experience helped much within this project as I was able to complete all my deliverable in time. My suggestions did also go unnoticed as I deemed change management to play a great

role in this project and hence strongly recommended to get skilled communications team available to these types of projects were change and buy-in plays an important role in the success of the project. In the end the project was completed in time and within budget.

Story 6 - Project

There was also this time I worked on the eLearning project where the business requirements were to improve the quality of job performance of Engen staff and contractors and to better utilise the company's resources through the cost effective delivery of learning. The project team's target group consisted of refinery staff that used the computer based training (CBT) training material administered by the refinery training and development department. These were typically the process controllers and the maintenance staff. We did not look at other CBT material used in other parts of Engen as well as people other than the target group. I was assigned as the project principal as part of a team of around 12 individuals. To make a long story short the goal of the project was to persuade the refinery to run an eLearning pilot, and this was achieved. On account of my former familiarity in other projects, all the required knowledge was documented and transferred to the responsible parties and all envisaged requirements as documented was delivered satisfactorily.

Story 7 – Success

I remember when Engen's legacy desktop environment included a range of applications of differing version and this environment needed to be standardized for the purposes of improving support efficiency and to prepare for other Windows 2000 upgrade projects. As I recall this initiative served to script pc-based applications as was required by pc users and to transfer LAN ID's and PC's from around 11 regional domains to the single Windows 2000 Engenoinet domain. Based on the extent of this initiative to my recollection we decided to exclude the refinery and the depots and the administration and development of infrastructure. I remember wanting to add to this initiative the management of potential technical problems that could result from the changed "scripted" environment. Well we did experience some technical problems after the implementation and this is now handled by our business support team, which cater for ongoing support and future scripting of new pc's. In my view I can say that from a client perspective that this initiative was regarded as being successful.

Story 8 – Personal/Teaching

Engen has invested considerable time and resources in creating a world-class IT infrastructure that is aligned with business mission, vision and goals. Although there are controls in place to prevent unauthorized use of systems both from internal and external sources, a few there was no consolidated system within the Information Services Division to monitor and measure adherence to IT Security policies and procedures. Attacks may occur both from internally and externally either accidentally by a legitimate user with legitimate access or by a legitimate user through accidental access. Such attack may also be deliberate, using legitimate user access or otherwise. To protect ourselves against such attacks, an understanding had to be gained of what systems were vulnerable, the levels and

types of vulnerability and the impacts of intrusion. Based upon this understanding, appropriate prevention and monitoring processes and procedures was selected and implemented.

The short term goals of this initiative were to perform a risk assessment – corporate governance, to detect unauthorized access to data and to the infrastructure. It was decided to exclude the SAP Unix systems from phase 1 of this initiative, corporate policies and the refinery process control systems. I cannot recall the reasons for this decision. Anyway my responsibilities were around the implementation of the solution, which consisted of the development of IDS policies and procedures, the identification of IDS roles and responsibilities, identification of IDS related training. Other responsibilities consisted around the development of an IDS monitoring system in support of policies and procedures, the development of an IDS consequence plan in support of policies and procedures, the development of an IDS reporting plan in support of policies and procedures and of course the hardware and software implementation and configuration. Why I'm stating this is that with my extensive knowledge and time within the IS dept. I was able to free up team members to concentrate on other things within this initiative and also helped the team to complete its objectives within the project timeframe. The only constraint the team had faced was the Project Sirius, which was implemented around the time of the IDS implementation. At that time Sirius had taken priority and had delayed IDS implementation by a couple of weeks.

Respondent 6

Please answer the following details for purposes of the research study”.

1. What is your highest level of education?
B. Com (acc.) degree
2. How many years have you been with your current organization?
18 yrs
3. What is your present designation within the organization?
Supply & Optimisation Project Manager
4. What division within the organization do you form part of?
Supply and Optimisation
5. What in your view is your area of expertise?
Supply logistics

INTERVIEW GUIDE:

❖ What is your understanding of storytelling?

The art of relating certain events in an interesting manner to get the “message” across to the audience

- ❖ **What in your view would make a fine story?**
The story must be interesting, bring a message across without the message being said.
- ❖ **Where do you think storytelling has its best purpose?**
When you want to convey a difficult message to the audience and you need their support and understanding.
- ❖ **When do you believe storytelling should not be used?**
You should be able to story telling anywhere but too much of a good thing is not good.
- ❖ **Do you think storytelling can have a positive outcome for the organization? Please explain.**
Yes as most of us remember the story, we can relate and talk about it, we can agree on the message.
- ❖ **Do you think storytelling can have a negative outcome for the organization? Please explain.**
Yes, if the wrong message is conveyed or perceived, therefore clarity need to be given
- ❖ **According to you, would you prefer to be rewarded to tell your story? Please explain.**
Depends on who is asking and the purpose
- ❖ **Who would you consider to be your target audience should you share your stories?**
The youth, colleagues, etc.
- ❖ **Do you have any stories/experiences to tell i.e. projects/business ideas etc?**
Yes and share it regularly within the organisation

Story 1 – Teaching

The retail property project as I recall was stopped by the retail property management committee at the end of prototyping phase. It was however very disappointing to find that the relevant member of the retail property department chose not to attend the project post-implementation workshop. This resulted that it was impossible to provide a complete post implementation review, but I on other hand have developed some lessons on the project which can hopefully be used for future projects. Lessons from the project are that we should in future ensure that the sponsor has both sufficient authority and enthusiasm for the project to make it succeed and that people working on the project are familiar with Engen's style and methods of working and are well versed in the standards relevant to the project. Another lesson I've learnt from this experience as that we have to confirm as early as possible the practices and standards to be used to produce the deliverables and employ and retain an effective business analyst from the

company, and importantly that we ensure that the project manager has experience relevant to the task or failing this is given the relevant training and guidance. Also we should also not let bad situations linger, because when problems arise, particularly when people are involved, that we deal with this without delay.

Story 2 - Project

In order to install software on remote pc's, support personnel were required to physically travel to each site to perform this function. In addition to this support personnel found it extremely difficult to fix problems remotely as they could not see the problems on the users' screens. The objectives of this assignment was for our project team was to reduce support costs in the long term by centralizing and simplifying support through uniform systems and asset control i.e. hardware and software control and distribution including licensing management. As part of the windows 2000 upgrade program, it was decided to implement the SMS servers at the OLR sites (Witbank, Langlaagte, East London, Kroonstad and Isando) to manage the FAT clients pc's. So in order for Engen to manage the desktops and to conform to the service level agreements it was deemed feasible to install a sms server in the remote OLR sites because of the critical business nature of those sites. We also decided to modify the standards for sms to suit the site. The fact that there were too many IT projects on the go, hampered this one severely in that we ended up juggling hardware around and depended on hardware becoming free from other projects. At the end of the day the IS dept. as well as the Depot manager has viewed this task as being done soundly. In truth all Depot. Managers involved were satisfied with the response time to resolve problems on their desktops without someone coming to site, unless it was hardware related. The goals of this assignment were met in that we can now control the desktops at the site and also support costs were reduced.

Story 3 – Project

If I recall correctly the duty at source (DAS) project was initiated by the corporate tax department to address changes in government legislation affecting the payment of duty on bulk fuels. The project due date as I remembered it, was shifted out a few times due to legislation delays. Some of the goals to my recollection were that as a project team consisting of 9 individuals, we had to make certain that the duty accrual and recovery accounts were accurately state duty accruals and recoveries for any given period. We also had to ensure that the proper reporting and reconciliation procedures were in place so that Engen would neither over not under pay/recover duty. We also had to ensure that the company would comply with new government legislation. The business requirements were met by expanding the implementation of the IS-Oil sub module (TDP) which stands for Tariff Duties and Permits. This entailed the definition of the various from/to tax status by business scenario, and required extensive prototyping and testing of all account assignment rules. That objective was to ensure that the duty accounts are updated in real time and that the monthly DA160 report will confirm correctness of accounts. The bulk fuels could be sourced from our refinery, Sasol, Moss gas and any other oil company.

The solution implemented therefore had to accommodate the rules applicable to these different sources and not just movements out of our own refinery. The project also had to cater for the recover of duty from other oil companies in the case of exchange issues to them. New monthly DA160 reports had to be developed and a program was also developed to manage exports according to the acquittals procedure allowed. However I have identified a number of small problems, but these were addresses and rectified. There were some outstanding issues pertaining this project such as the movements into plant 3055 “tax-free” are not accruing duty payable to other oil companies. In my view the “tax-free” solution must be reviewed to ensure that both acclaim on SARS an accrual on other oil companies is posted. Another outstanding issue is the modification required to ensure that users always enter the correct handling type on movements. I believe the field exit must be developed to ensure correct handling types are entered at all times.

Story 4 – Project

The scope of the Strategic Enterprise Management – Business Consolidations (SEM-BCS) was to set up interfaces from the African affiliates and produce monthly packs for the business warehouse. The view was that the monthly financial reporting process was taking too long and there was too much manual intervention required to produce the packs or set of Excel spreadsheets. The business expressed a requirement to streamline their month end reporting. They needed to shorten the time it took to produce the month end packs. Eliminate manual intervention or capturing and needed to produce divisionalised income statements. The African affiliates which ran on either ACCPAC or PASTEL also had to be included into these packs and therefore we needed to cater for interfaces from these systems into SEM-BCS.

Therefore to provide the solution to this requirement, it was decided to implement SEM-BCS. I also felt that we had to include the PCA (Profit Centre Accounting) for our income statements and was also considered by the team to be added to the project scope. The system was set up to import files from the African affiliates and once all data was received , it then got loaded into business warehouse from where the month end packs are then produced The project was ran in accordance with the ASAP methodology. Some of my responsibilities within this project were that I had to provide support with issues and scope management, communication and training strategy. I was also responsible for resource coordination and management as well as integration management between the 3 initiatives SEM-BCS, PCA and business warehouse and participation in team meetings. I also had to liaise with the SAP development team where necessary. Overall the project was considered to be a success.

Story 5 – Personal/Project/Teaching

The 2011-2020 business plans indicated the introduction of various grades of Mogas and diesel. When reviewing this against the current supply chain infrastructure it indicated that constraints existed resulting in the inability to offer all of the proposed grades. A transition fuel task team was proposed and approved by the EFC steering committee to be constituted to review these challenges and

provided possible solutions. Some of the issue I encountered in my area of responsibility was that there was an immediate requirement to implement interventions to assist in the rollout of low sulphur diesel (LSD 50ppm S) as a niche grade into RSA. I then decided to find a short and medium term solution for 50ppm diesel, which would comprehend the overall transition fuels rollout plan. The constraint faced then was on tankage due to the introduction of additional grades applied to the period before CF-2 implementation. To manage this constraint I opted to have bilateral discussion with BP to supply LSD 50ppm in Kwazulu Natal and /or shipping into Cape Town together for a year, which would come into effect from May 2010. I also arranged for bilateral discussions with PetroSA to supply LSD 50ppm in Eastern and Western Cape by rail and ship for a minimum period of 1 year. This was in the end seen by the team as extremely valuable discussion and which had resulted in the team and Engen in gaining the necessary support from these other oil companies and also allowed us in completing our objectives ahead of time. Thinking outside of the box really helped the team here and hopefully this is something that future teams would employ when they embark on challenging tasks.

❖ **If you had to consider to publicize your experiences/”know-how” within the organization, what types of stories and media would you prefer? Why?**

Stories has a message to convey, I would try and share it in an interesting manner, perhaps use some tools to make it clear

Respondent 7

“Please answer the following details for purposes of the research study”.

1. What is your highest level of education?
B.A degree
2. How many years have you been with your current organization?
27 years
3. What is your present designation within the organization?
CHSEQ Capability Advisor
4. What division within the organization do you form part of?
Health Safety Environmental and Quality department (HSEQ)
5. What in your view is your area of expertise?
Safety

INTERVIEW GUIDE:

- ❖ What is your understanding of storytelling?
Relating an experience or events of oneself or of others.

- ❖ **What in your view would make a fine story?**
One that makes you remember it long after it was told. It must contain all the ingredients such attention-grabbing characters and storyline.
- ❖ **Where do you think storytelling has its best purpose?**
I think in the social domain like i.e. when you are around friends and family. It can also be used in the company to relate people's accounts of there time at the company.
- ❖ **When do you believe storytelling should not be used?**
When its aim is to share hurtful or false information about people and things.
- ❖ **Do you think storytelling can have a positive outcome for the organization? Please explain.**
Yes, it can be used to share people's ideas or accounts of the lives at the company.
- ❖ **Do you think storytelling can have a negative outcome for the organization? Please explain.**
Yes, if its aim it's to spread gossip or untrue or unsanctioned information around the people at the organization or the organization itself.
- ❖ **According to you, would you prefer to be rewarded to tell your story? Please explain.**
No, I enjoy telling stories. To me it's more a time for reflection and not a time for reward. The reward is to the listener who gets to hear perhaps a lesson in life.
- ❖ **Who would you consider to be your target audience should you share your stories?**
Anyone that is interested or wanting to learn from others experiences, be it good or bad.
- ❖ **Do you have any stories/experiences to tell i.e. projects/business ideas etc?**
Yes,

Respondent 8

“Please answer the following details for purposes of the research study”.

1. What is your highest level of education?
B.Science
2. How many years have you been with your current organization?
35 years

3. What is your present designation within the organization?
Special Studies Manager
4. What division within the organization do you form part of?
OPI
5. What in your view is your area of expertise?
Transportation i.e. shipping, pipeline & rail

INTERVIEW GUIDE:

- ❖ **What is your understanding of storytelling?**
It is an intrinsic and basic form of human communication.
- ❖ **What in your view would make a fine story?**
Super heroes and a villain or dragon to slay. No seriously one that can be educational and yet fun at the same time.
- ❖ **Where do you think storytelling has its best purpose?**
Business and social settings. I enjoy stories just as much as my kids do.
- ❖ **When do you believe storytelling should not be used?**
When it is stories about a friend/family member which supposed to be confidential/private.
- ❖ **Do you think storytelling can have a positive outcome for the organization? Please explain.**
Indeed the organization can benefit greatly from its staff's stories about their experiences at the company or assignments, training or other activities they have been part of.
- ❖ **Do you think storytelling can have a negative outcome for the organization? Please explain.**
Yes, if the stories is meant to harm the reputation of the company.
- ❖ **According to you, would you prefer to be rewarded to tell your story? Please explain.**
No, stories should come from the heart and should be genuine.
- ❖ **Who would you consider to be your target audience should you share your stories?**
At home my wife and kids and at work all in the company who is interested in listening to my tales.
- ❖ **Do you have any stories/experiences to tell i.e. projects/business ideas etc?**
Yes,

Story 1 - Teaching

The use of rail joints has diminished globally because advances in technology in the fifties and sixties have eliminated expansion joints on most modern day, surface railway systems except in the most extreme of tight curves in mountainous terrain. The rails are welded into long sections within calculated temperature envelopes on site by the special 'thermit' welding process. Expansion and contraction forces are overcome by the shear mass of the concrete sleepers or ties and the accompanying stone ballast.

However, in many cases expansion joints are still used. The rail ends are held in place with steel plates and bolts, called fishplates and fish bolts in railway vernacular. Due to expansion and contraction caused by temperature fluctuations, relative movement occurs between the rail ends and these fishplates.

An outdoor environment with extreme temperature and weather conditions, complete with dust and grime, sets the scene for a lubricant with special properties. Because the movement between the steel surfaces is slow and contained, no high technology lubricant was used in this application and most open gear lubricants would probably be successful in this application. A relatively thick No. 3 calcium soap-based grease with about 5% graphite, called "Fishplate and Axle Grease", was found to do the job perfectly well. The grease is applied by hand to the contact surfaces when the fishplates are tied to the rails, and the oil base simultaneously protects the joint from corrosion. Rail joints are eliminated and replaced by continuously welded rails because of high maintenance costs associated with the rail joints on both the track and rolling stock. In recent years Spoornet used very little Fishplate and Axle Grease. The price increased due to the low volume and it became uneconomical to buy. Another product, -a calcium based grease with about 10,5% graphite content of No. 1 or 2 consistency, used for rail flange lubrication, was found to work perfectly well despite the softer consistency.

We can say, however, that the grease application, despite being cumbersome to apply, is probably still the most economical. For trains to move from one line to another, switches or points and crossings are used. The moving parts (switch blades) on these move over steel slide chairs, and steel to steel contact and movement takes place in a hostile, outdoor environment under extreme weather conditions. In moist and coastal environments, oil or grease-based products are favoured due to the anti-corrosive action of the oils. In a relatively dry country like South Africa, dry film lubricants are favoured since dust and sand build-up occurs on the oil-based products. Locally the use of fine dry graphite mixed with water is painted onto these slide chairs. When a train rounds a curve the train is steered by the guiding flanges of the train wheels bearing tightly against the side of the rail crown. Due to this steering action, lateral and centrifugal forces of 3 to 5 ton at speeds of 80 - 120 km/h are usually measured in this area. As this is steel against steel contact, severe wear takes place on both the steel wheel and rail in this interface.

Lubricants that are applied to the contact faces are found to curb the wear with great success. Reduction in wear of the rail of as high as 8 000 % has been measured. In practice un-lubricated rail has been removed after as little as 21 MGT (Million Gross Tonne) rail life on the Richards Bay coal line, where properly lubricated rail is usually replaced due to metal fatigue and other defects. Modern high tensile rail under heavy haul (high axle loading) conditions such as experienced on the Richards Bay coal line has an expected life of between 2000 to 2500 MGT. Lubrication also greatly influences the wear on wheel flanges, where 2200% reduction in wear has been measured. Some 50% reduction in train resistance around curves has been measured. Locally 48% less energy was measured to be used to haul trucks around a lubricated curve, measured against a dry, un-lubricated curve. To apply the lubricant in the wear and contact area, special application apparatus had been developed over the years and a whole industry has now evolved around rail and wheel lubrication.

Story 2 - Teaching

Today the present grease is an economic lubricant costing less than R10/kg and any new product would have to be proved better by a ratio higher than the ratio of the increase in price, to be acceptable. Rail replacement is a costly business, and selling remedies to minimize rail wear is therefore also a lucrative market.

Corrosion of rails is generally not a big problem in a relatively dry country like South Africa. However, where railway lines run close to the sea, in tunnels or in industrial areas, corrosion can be a problem. Acidic corrosion from chemicals in coal ash and industrial environments as well as pitting corrosion play a significant role. Tracks with severe corrosion account for less than one percent of the total South African track distance, or between 25 and 120 kilometers. The biggest problems are encountered where wave action from the ocean causes saline spray to moisten the rail regularly. Another interesting corrosive situation is found in tunnels under agricultural land where the agricultural chemicals and fertilizer are dissolved by rain and irrigation. The water drips through fissures in the tunnel lining onto the rail below, causing localized corrosion.

Story 3 – Teaching

The sealing of the friction point of roller bearings against high water ingress is undoubtedly a major problem. To prevent the penetration of water into the friction area or to eliminate water from the friction area, over lubrication is carried out. In our opinion this practice is not a cost effective way of addressing the problem. In order to appropriately seal the bearings from water several steps must be taken. The lubricant developer has to provide a grease which allows the engineer to reduce the re-lubrication quantity to only that needed to lubricate the equipment. In order for a reduction in lubricant supply to be realised the grease must be modified to impart water resistance. How is this achieved and can this be achieved at the same lubricant cost?

These requirements exclude the use of classic high tech lubricants. How then does water affect the grease and what is the consequence of water on the lubricated area? The answer is that the grease has to be stable towards water. This leads to

the question how stability of grease towards water is defined. The so called wash off or wash out properties meaning the resistance of the grease to the wash off from surfaces of solids or against wash out from hollow spaces of solids is difficult to simulate with respect to the correlation of the results with practice.

The so called water wash out test is standardized in DIN 51807 part two, "Testing of the Behaviour of Lubricating Greases towards Water, Dynamic Test", ASTM D1264-87, "Standard Test Method for Water Washout Characteristics of Lubricating Greases" and IP215/85 "Water Washout Characteristics of Lubricating Greases" These tests do not provide good reproducible results. Moreover correlation with practice has to be questioned. Characteristics like adhesiveness and tackiness certainly play a role. They, however, are intuitive numbers which are not exactly defined and therefore cannot be measured, especially when considering correlation with practice. It is these characteristics that may be influenced by water which means that they are possibly not constant figures. Of utmost importance is the ability of the grease to absorb or not to absorb water. There are few if any tests convincing laboratory tests available to measure the tendency of grease to absorb water the results of relate to practical situations. In my experience before a test is developed it is important to assess what is expected of the grease being exposed to the water.

Story 4 - Teaching

Today, people are keeping their cars longer, driving them more and extending drain cycles. The South African passenger fleet is aging; the average age is nine years, the highest in more than 50 years. The average mileage for vehicles is also increasing.

These market forces are providing an opportunity for many oil marketers to increase the perceived value of their lubricants. Unlike any time in the past, there are also better tools than ever before to allow oil marketers to take advantage of this situation and improve their businesses. Many have already started taking advantage of this situation, and the value of niche products and specialty lubricants has never been better. New formulations for higher mileage vehicles, the increased use of Group 2 base oils, the gradual rise of synthetics and the soon-to-be adoption of the new GF-4 standard give consumers additional premium choices and better technology than ever before. You know interestingly, with all of this happening most of the market still fails to appreciate the value of the lubricants they are buying. To fully appreciate the value of lubricant technology, an integrated approach to marketing and sales is needed, one that delivers powerful messages to specific audiences with coordinated processes that get the messages distributed to end-users with the same impact we have in our R&D laboratories.

Story 5 – Teaching

Contamination to me is one of the leading causes of bearing damage that results in their premature failure and replacement. Consequently, even under normal field operating conditions, some roller-element bearings still do not reach their predicted fatigue limits. Although the clearances within these bearings can be as small as 4µm to 6µm, particles much larger than the gap can be forced into the critical zone and cause physical damage. The damage, often quite severe, occurs

because the forces exerted on both the bearing and the outer raceway when a particle bridges the gap between them may exceed material fatigue limit. When that happens, the rolling contact between these two metal surfaces transfers the entire load of the bearing to the particle trapped in the clearance, which leads to the formation of dents, scratches or cracks in the weaker surface (usually the raceway). Depending on the hardness ratio between the rolling element, the outer raceway and the invading particle, different forms of processes may take place. For example, the particle may be crushed into smaller pieces or an inelastic deformation of the raceway may occur. Although the damaging particle and the debris that is left behind are swept away by the lubricating oil, the damage to the metal surfaces remains. Subjecting the surface to repeated stress eventually results in the formation of a spall or a crack.

Story 6 – Teaching

Talking around contamination, I believe the rapid reduction in contaminant levels, especially during or immediately after upset conditions is of critical importance because it sets the pace for how quickly the system returns to and how well it is maintained at stable, equilibrium conditions. The efficiency of employed filter elements has a more dramatic effect on system stability, especially with high contaminant ingress or when large deviations from equilibrium occur in the course of an upset. Moreover, when an upset does occur, it is most beneficial to remove majority of the contaminants in the course of a single pass through the filter element as this affords the greatest protection to the system components downstream. It is generally assumed that machine bearings are adequately protected at oil contaminant levels of 16/14/12 or lower (ISO4406:1999) which can be readily achieved and maintained with filter elements rated at $\beta_1(c) \geq 1.000$ (ISO16889:1999) at normal operating conditions. However, the contaminant content can increase by several ISO ranges following an upset or a catastrophic upset condition. In response to these considerations, many paper mills have now adopted the use of finer filtration to achieve faster clean-up rates and restore the system to equilibrium operating conditions in less time. An added benefit of this approach is an overall lower equilibrium contaminant content, which offers greater protection to system components. Providing that the system is well maintained, the transition to finer filtration can usually be carried out without the economic penalty typically associated with shorter filter service life. On the other hand, increased fluid service life and reduced rate of deposit formation in the reservoirs often result in lower overall maintenance costs.

Story 7 - Strategy/Founder

I remember when Mobil chose Europe as the stage for a full-scale introduction of a new concept, all synthetic passenger-car engine oil that would improve the reliability of small cars being driven at high speeds on European highways. This concept rolled out in South Africa in 1983, Mobil SHC (Synthesized HydroCarbon) was an instant hit among car enthusiasts and owners of expensive, high-performance cars. It piqued the interest of engine builders, who were amazed that simply changing oil could deliver a significant leap in engine protection. It also proved to Mobil management there was a market segment that could readily see the benefits of synthetic lubricants, though just how big would take some time

to understand. Then came the energy crisis, and a national commitment to conserve energy. Mobil responded by applying its synthetic technology to produce the first successful energy-savings motor oil, a lubricant well outside the norm of the industry at that time. Mobil's leadership in this national crisis was unlike the response of any of its competitors. The new oil was Mobil 1, a unique SAE 5W-20 synthetic oil formulated to improve fuel efficiency. Mobil 1 reduced gasoline consumption by around 5% compared to all other oils. This extended the time before a driver had to get back in a petrol line.

Eventually premium mineral oils were developed that, with newer engine designs, would close the gap in fuel savings. But new generations of Mobil 1 would "raise the bar" in other key performance criteria- high temperature protection, cold starts, engine life, for example that no mineral oil has ever challenged. The success of Mobil 1 in passenger cars strengthened Mobil's belief that, with PAO/ester synthetic technology, it held the key to increasing the performance of almost anything needing lubrication. Acting on that belief, Mobil deliberately set out to establish a new "superior" category of lubricants. And it did! Mobil then developed and commercialized more than 175 synthetic lubricant products for virtually every business, engine and machine a feat in my view unequalled by any other company. Mobil's family of synthetic lubricants includes Mobil 1, Delvac 1 for diesel truck engines; Mobil SHC 600, Mobilgear SHC 600, Mobil SHC 500, and Gargoyle Arctic for industrial production; Mobil Jet Oils for jet aircraft, Pegasus 1 for gas engine driven hospital emergency power generators Mobil EAL Arctic for the new CFC-free refrigeration systems; Mobilube SHC for automotive rear axles; and numerous greases for automotive, industrial, and aviation uses. Today we still use these formulations but the product line does not seem to grow and herein lays the problem. We do not have the right people or technologies to grow the product range. We should invest more money into our lubricants by making this again one of our focal points to head into the future.

- ❖ **If you had to consider publicizing your experiences/"know-how" within the organization, what types of stories, media and methods (e.g. sketches or visual aids, verbal/written, teaching etc.) would you prefer? Why?**

I would consider using the internet or Facebook/Twitter to share my experiences. At least my kids tell me this is the new wave of communication. I would not know how secure this would be, but if it can secure company information then I would use this as a media type.

Respondent 9

"Please answer the following details for purposes of the research study".

1. What is your highest level of education?
B.Com
2. How many years have you been with your current organization?
28 years

3. What is your present designation within the organization?
Technical Manager
4. What division within the organization do you form part of?
Engen Chemicals
5. What in your view is your area of expertise?
Solvents technology, greases and lubricants

INTERVIEW GUIDE:

- ❖ **What is your understanding of storytelling?**
It's an account of something that happened.
- ❖ **What in your view would make a fine story?**
I think a story should consist of characters, a setting, dialogue, conflict and it must have some impact to make it memorable.
- ❖ **Where do you think storytelling has its best purpose?**
Where it can break down barriers in the workplace.
- ❖ **When do you believe storytelling should not be used?**
When they stir up the wrong emotions e.g. anger from those who read or listens to them.
- ❖ **Do you think storytelling can have a positive outcome for the organization? Please explain.**
Yes, stories can create a connection between staff of those who had similar experiences.
- ❖ **Do you think storytelling can have a negative outcome for the organization? Please explain.**
Yes, if the storytelling's aim is to do harm by telling false stories about people or things.
- ❖ **According to you, would you prefer to be rewarded to tell your story? Please explain.**
No, stories were told to me by my parents and they were not rewarded for telling them to me. I enjoy telling people about my past and don't feel money or favours should be attached to me sharing my experiences via storytelling.
- ❖ **Who would you consider to be your target audience should you share your stories?**
The young at heart and those wanting to increase their understanding in my field of proficiency in business, or those wanting to learn about my personal experiences.

❖ **Do you have any stories/experiences to tell i.e. projects/business ideas etc?**

Yes,

Story 1 - Teaching

I recall that on the 18th February 2003, after carrying out loading operations with the assistance of security officer, a driver proceeded to exit the Alrode depot. After driving for about 50 metres, driver was alerted by another motorist that product was coming out of the tanker. The latter immediately stopped the vehicle and noticed that the coupling was torn off at the manifold and product was oozing out of the compartment as the valve was in the open position. The valve was blocked off by the driver, with the help of another third party and another truck was called in to transfer product. However this caused a spillage of 3500 litres of heavy fuel oil. Due to the amount of product spilt and the nature of the product, road was temporarily closed until clean up was completed. What I found during my investigation that human error had a part to play as the guy forgot to unplug the hoses after the loading was completed. Also fatigue played a part and because he was not managing his working hours appropriately it resulted in poor concentration of the driver

There was also no check carried out on the vehicle after loading and prior to leaving the compound and there was absence of procedures for loading and offloading of HFO, as well as clear roles and responsibilities when it comes to loading and offloading of HFO. The root causes here was poor rest management, inadequate assessment of potential failure, inadequate procedures/absence of clearly defined roles and responsibilities. What was learnt out of this experience was that to ensure that rest management is in place and functions effectively and to ensure that clear procedures for loading/offloading of HFO is in place and are being followed and that visual checks must be carried out on vehicle prior to leave compound. This will ultimately save lives and save the company many rands and also preserve its obligation in being a responsible corporate citizen when it does its business.

Story 2 - Teaching

At Engen we value the health and safety of our employees and the natural environment in all operations across Africa. As you know we are committed to supplying high quality products to our customers. As we venture into the last stretch of the 2010 financial year, a look back at the year shows that we have made some strides in our HSEQ performance. We have made good progress in our HSE MS self assessments, scheduled training programmes, iHSE incident management, corrective action close-outs and HSEQ site visitations / inspections by CTO staff. However, the year has not been without its challenges and there still remain some challenges as reflected in our current incident trends, especially with regards to spills. A look at our HSEQ performance shows that spillage is amongst one of the major issues that remains a significant challenge - well over 50 000 litres in total based on spills in Botswana, Namibia and Tanzania for just January 2010. Are we taking the eye off the ball as all of these spills were preventable? This means that we need to doubly re-focus on and effectively implement the road

transport safety management system (RTSMS), as well as manage our contractors much more effectively! There have also been several incidents of product stock out that we have experienced and this has had a major negative impact on our organizational reputation and in most cases resulted in loss profit opportunities. This situation is being addressed by the Business Process improvement initiative. Crime incidents have been on the increase and are becoming more violent. Theft still contributes more than 50% of our crime incidents across IBD. Integrity related issues have surfaced as well - there have been numerous reported cases of product and company money thefts, these issues show that there is non-adherence to our organizational values. We must carry out proper investigation and implement appropriate corrective actions to prevent re-occurrences of these. Quality issues have continued to be around from wrong fuel being dispensed as well as contaminated fuel; these are the results of procedure not being followed. Again, a preventable incident! Fire incidents are still among us with the fires in Quick Shop kitchens still posing a significant number as reflected in our statistics trends. This reinforces the expectation that our employees at service stations need to be trained on fire fighting and first aid. I know this might sound alarm bells for understanding and following procedures, more engagement with and focus on managing our contractors and adherence to Engen values and proper and effective investigation of incidents, will go a long way to prevent re-occurrence of incidents.

The roll out of STOP Behaviour-based safety programme in my view will increase employee safety awareness and supplement our efforts to prevent all preventable incidents. You may ask: What is STOP? In short, STOP is a Stop Training Observation Programme that is introduced to eliminate incidents and injuries and is intended to provide people with the observation and communication skills that they need to modify behaviour, by reinforcing safe practices and attitudes, and dealing effectively with unsafe and "at risk" behaviour. It will all become very clear when it is rolled out in the areas. I believe you either do it safely or not at all as there is always time to do it right.

Story 3 – Factual/Teaching

At our retail sites, contractors are used for electrical and mechanical maintenance of pump, electrical integrity of building, cleaning of oil separators etc. Depots use contractors for housekeeping, equipment calibration, tank cleaning, electrical maintenance etc. Transport of product is contracted out to transporters. The issue here is that except for retail sites at Kenya & Botswana the other affiliates I audited did not have a preventive maintenance program for retail sites, depots and terminals. In many sites quality control of work completed was not carried out as evidenced by non-compliances observed during the assurance team site inspection. Affiliate also does not play a major role in the management of the transport contractors especially for the long haul deliveries e.g. trip management, emergency response, incident investigation etc. Where retail sites have been sub leased to other contractors e.g. car repair, car spraying/painting, is there a process in place to safeguard Engen's interest? My recommendations are that Engen should develop and implement a preventive maintenance program for all sites – retail, depots and terminals and also develop a mechanism to ensure quality of

work by contractors. Engen can also develop and implement road safety management system for transport contractor and customer owned truck.

Story 4 – Tragedy/Teaching

I think it was during March 2005 and I had to investigate an incident in Nelspruit, Mpumalanga Two technicians, one electrician and one pipe fitter, were working at a forecourt dispenser. They had been called to investigate continued faults with the operation of the unit ever since its installation a month previously. As work progressed, a colleague noticed the pipe fitter lying across the pump island, bleeding from the temple. On investigation, it was found that he was only partially conscious and, despite application of CPR and the later arrival of the paramedics, the fitter died. Although electrocution appeared to be the cause of his death, there was no immediately obvious physical evidence of the source of the electricity. The unit had been isolated at the contact breakers prior to commencement of the work. However, an autopsy confirmed that this was indeed the cause. So what went wrong?

In this incident, the source of the release of electrical energy was not obvious and, at my first inspection, neither installation appeared faulty. In both cases, the equipment had been operating prior to the incident. In the first case, there had been no reported problems and the light continued to work after the incident. In the second instance, reports of malfunctioning had been received and hence the maintenance work being carried out. Essentially the site showed evidence of sub-standard workmanship, which resulted in the incidents described. The corrective action I felt that was necessary at this site and perhaps everywhere else was that, Certificates of Compliance inspections should cover the entire service station (forecourt, signage, building, site, etc.) and be signed off by a master electrician. Also I maintain that special attention are to be paid to primary earth (cable core or separate wire) with all circuits and earth loop impedances of any structural/ chassis/equipment frames are not to be lower than 70% of the main circuit breaker rating. Circuit breakers to all equipment are to be individually isolatable for lock out and the live and neutral to have separate breakers in the case of circuits to hazardous locations. Also the return cables from dispensers are to be isolated using a single unitary bar and correctly looped to the dispenser terminals and all socket outlets in the building to be on earth leakage and trip tested. This will save lives if people can just adhere to these simple things.

Story 5 – Factual/Teaching

If greases are incompatible, the likelihood is high that significant hardening or softening of the grease mixture or oil separation would result after a short time in the application. Therefore I believe when changing from one type of grease to another, it is always best to clean and fully regrease the bearings or thoroughly purge out the old grease with the new grease. If this can not be done, mitigating actions should focus on reducing the amount of the grease being displaced remaining in the application, such as by increasing relubrication regularity to facilitate a purge of old grease in a timely manner. To avoid over-greasing which in my view is the most frequent cause of bearing failure when forcing grease out of bearings, always have relief plugs removed during the 1st hour of operation to

allow excess grease to freely flow out of the bearing housing. Regular monitoring of vibration and temperature, and visual checks for leaks will prompt for corrective actions if the mixture presents an incompatibility in application. Obviously, application of these best practices is even more strongly recommended if the greases are deemed not to be compatible.

Story 6 – Factual/Personal

I recall where I once serviced a customer which was one of the major medium plate producers in South Africa. The system in the finish medium plate rolling mill was used to control the form and thickness of the finished products. The hydraulic oil previously used at this client was changed every two months and two MOOG servo valves seized leading to unscheduled production shutdown. My proposal then was the Mobil premium hydraulic oil DTE 25 for use in the hydraulic system. This product in my view provided contamination control. The system has since been in good operating condition after the switchover to Mobil DTE 25, which is now called Engen Hydralube 25, in May 2000 and the seizure of the MOOG servo valve has been eliminated.

- ❖ **If you had to consider publicizing your experiences/”know-how” within the organization, what types of stories, media and methods (e.g. sketches or visual aids, verbal/written, teaching etc.) would you prefer? Why?**

I reckon I would use any type of technology that can assist in capturing one’s stories. I believe the best suited ones are the company’s intranet as it can reach out too many within the organization. I personally don’t know how this will be done with the guy that works mostly outside, such as the petrol attendants or truck drivers to name but a few...

Respondent 10

“Please answer the following details for purposes of the research study”.

1. What is your highest level of education?
B. Technology
2. How many years have you been with your current organization?
29 yrs
3. What is your present designation within the organization?
IT manager (Supply Chain)
4. What division within the organization do you form part of?
Information Services
5. What in your view is your area of expertise?
IT

INTERVIEW GUIDE:

- ❖ **What is your understanding of storytelling?**
Storytelling is the skill of describing in words, images and sounds what has occurred in actual or imagined experiences.
- ❖ **What in your view would make a fine story?**
The story must be captivating and must appeal to all ages and backgrounds.
- ❖ **Where do you think storytelling has its best purpose?**
When you want to persuade and illustrate in detail the message you wish to convey.
- ❖ **When do you believe storytelling should not be used?**
When it could lead to potential arguments or disagreements of a personal nature.
- ❖ **Do you think storytelling can have a positive outcome for the organization? Please explain.**
Yes, the company can benefit greatly by people telling their stories about their experiences as this could from the tellers' perspective show people who you are and people could then relate to your experiences.
- ❖ **Do you think storytelling can have a negative outcome for the organization? Please explain.**
I think so. People could use storytelling to relate unauthentic experiences.
- ❖ **According to you, would you prefer to be rewarded to tell your story? Please explain.**
No. A story is an experience and should not from my standpoint be used to generate personal profit, especially if the company has paid for you or permitted you to gain those experiences.
- ❖ **Who would you consider to be your target audience should you share your stories?**
Small group, possibly within a dept or close colleagues where a knowledge transfer is taking place. I don't see this to be used for large scale presentation type scenarios.
- ❖ **Do you have any stories/experiences to tell i.e. projects/business ideas etc?**
yes

Story 1 – Comedy/Personal/Teaching

I had joined the company in July 1981 and at that time they had the mix toilets. At that time they had the toilets for the whites and a separate toilet for the blacks and this was part of the Mobil days. Now the lab where I worked was a fun place and

was technology driven, and had people working their, that had great personalities. I think it is related to the caliber of the people that worked their then. People would come and visit the lab and those working in the offices would comment that it is a fun place to work. I think our success at this installation was that we as staff understood each other whereas the people working at our head office would only focus on the work they do and not pay much attention to the people working with them. These people would have the interests at heart. Yes, the lab was a fun place to work, but at the same time the work was done more efficiently and was done in a more structured manner. My boss back “Frank Adderson” was a very stern type of individual and conservative to boot. He was the typical collar and tie type of person. I remember one time when my immediate supervisor, who had installed high work benches to perform our testing, was performing a titration test and one of my colleagues came from behind him and pulled down his pants. Incidentally at that very moment my manager stepped into the room and was talking to the supervisor, whilst unknowing to him that his pants were down. I believe that this fun type of behaviour eased the pressure of the work being done at this installation and people felt eager to come to work the next day. Today we as an organization has become much more professional, but it has turned the company from my perspective into a rigid place, filled with bureaucracy and it seems that some people have lost their sense of “fun” along the way. We can as a company make an effort to restore this which could propel us as an organization into greater heights of success.

Story 2 - Strategy

The department I currently reside in, when we had a problem 10 years ago, you would report the problem in the daytime and at the evening a solution would have been found, and would go in production that very evening. This would result in the users being very happy. Nowadays we have all that bureaucracy in place where it literally takes between 1-2 weeks to get to a solution. The consequence is that it now takes it much longer for solutions to get into production. In my view it is more a case of a solution looking for a problem. Back in the day there was never a problem big enough to justify for the extent of the bureaucracy we see today and that is implemented now. Of course management needed this to ensure proper reporting in terms of how work management is done. I think that the organization should minimize its choke hold on its bureaucracy and this would significantly improve solution turnaround time.

Story 3 – Factual/Strategy

Generally when people get promoted you and looking back if you had to come in as a trainee programmer, then become a programmer and then when you continue down this stream you would become a consultant. Bu now the personality types for a programmer was very different e.g. they would fit the profile of being a “geek” type of person. Someone that was very bright but would only hung out in the room and did not like to socialize, was much focused. The other type would then be the extrovert, being very noisy and would talk about any topic e.g. soccer, rugby etc. But it is that progression stream that made you cross that line so that they would promote you to a point of incompetence. I do think that we as an organization are trying to change that as the company is now employing people

with degrees/diplomas into these positions who are also chirpy and can win people over whereas the people such as the configurators do not have those skills sets. The success rate in getting people who are introverted to come out of their shell and to land those sought after roles is not very good at present. This needs to change very rapidly, else we will loose out on some good hardworking, experienced and focused people.

Story 4 – Teaching/Strategy

Although I have much programming experience, I remember that when I started off as a programmer here at Engen, I would spend time late here at work just reading up on what is being used and then practiced those skills. To some extent I am self taught on some programming. Management of today in my view is there to tighten up on things but at the same time it also restricts the staff's creativity. It is a balance that needs to be struck, because in some places you need that bureaucracy for example in banks or insurance companies, because here might take longer to come up with a solution as you cannot afford to make mistakes and in other instances at other companies you should let people express their ideas. At Engen I can but how people's imaginations are choked up because of the bureaucracy. I do think the company is not reluctant to let its people think freely, but in my view it's the infrastructure or processes that are in place, and people are now reluctant to implement their own ideas. We as a company should cultivate these individuals to share their ideas within the company, and from my experience, we will continue to have to buy someone else's ideas outside the organization, and indefinitely costing the company money for e.g. consultation, resources etc.

Story 5 – Project/Personal

I have also worked extensively on the IS work management project which was initiated in October 2003 which has since undergone significant changes in scope, deliverables and timeframes in the period to date. The business goals within this project were to understand what type of work IS has performed and will perform, for whom, and how much IS staff effort was or is required. Another goal that comes to mind was to professionally manage IS staff workloads for the optimal utilization of limited resources, i.e. to ensure that work that is of high value to Engen is prioritized and efficiently addressed. The project's objectives if I remember this correctly, was to define and implement business processes to effectively take-on work from IS customers i.e. what must IS deliver and when vs. what will IS require of customers (cost, staff time, etc.).

Another objective was to define and implement business processes to effectively monitor work performed and to be performed, by IS staff and report progress to customers. The other objectives are somewhat fuzzy to me now. Anyway, in essence we had to implement a mechanism to record and categorize work requests from and commitments to our customers, record all work assigned to IS staff and estimates of effort and completion dates, report on IS staff capacity and time utilization and record in meaningful categories the actual utilization of all IS staff time for which Engen is paying.

I remember that at a later stage we excluded the time recording solution, the reason for this is now unknown to me. As the process owner I quickly realized that the automated transfer of data from SAP HR to SAP Core has failed to transfer certain transactions, which would then require the manual execution of an integration program and that the SAP transaction (CAT9) to transfer CATS data to PM orders produced an error when it was ran in “background” mode. I found that the transaction worked in “online” mode; however this was impractical as the volume of transactions resulted in a “time-out” error. Anyway these issues were eventually resolved at a much later stage but because we did not have all the necessary resources these things could have been resolved much sooner and with less hassle. At any rate the project has delivered business processes and a tool, integrated with SAP HR and SAP Financials to record and categorize the actual work performed by IS Staff. The original project scope and objectives have however excluded an integrated tool and focused on implementing processes to effectively take-on work from customers and assign work to IS Staff. The original business goals and project objectives was unfortunately not achieved, however the amended objectives was met and enabled the allocation of staff related costs to IS customers.

Story 6 – Project

A much larger scale project I worked on was the operations procedures. The reasons why this project was undertaken was because there were a number of users with standing instruction. The majority of the instructions were updated prior to project Discovery and consequently were outdated. There was also no consistent system in place for updating and maintaining the standing instructions and it was unclear who was responsible for ensuring that the standing instructions remained current. The standing instructions were at the time stored haphazardly on the network and therefore users could not easily access them. Also the distribution and communication of updates and changes was inconsistent and there were no clearly defined roles and responsibilities around this activity.

In a few cases the most up-to-date version was not available electronically on the network and the information and instructions contained within in the standing instructions was not updated in other formats but was not carried across to the “official” standing instructions which resulted in multiple variations of often contradictory information circulating. There was also no common template or standard way of presenting the standing instructions. Something that stood out was that the informational content varied, in terms of level of detail, the type of information conveyed and the usability of that information. The project team consisted of around 32 people. The objective of the Operations Procedures project was thus to provide current, consistent standing instructions or operations procedures, to be stored in a central repository, which would allow for easy updating and version control. The standing instructions would then be presented in a user-friendly format and be readily accessible.

The project had 2 main goals namely 1 to design a fresh approach to defining, managing and presenting world-class operational procedures and standards, and 2, to implement a complete and up-to-date set of the required operations procedures.

As this was an investigative project, no solution was implemented and consequently no support was required. What I learnt out of this experience was that the subject matter experts were dedicated to this project and the project sponsor was always available when needed. Much of this is missing in today's projects and this is costing the company money. Also the operational responsibilities from the IS resources were not an issue as this was an investigation type project and therefore no consequence management was put in place for non-delivery. Another thing was that one of the shortcomings of this project was there were delays in the project as a result of deliverables not being completed before hand over. This resulted in losing some of the buy-in from the business.

Story 7 – Project/Personal

It was decided during 2000 that Engen would implement Windows 2000 servers and to simplify the environment and migrate from netware directory services(NDS) to active directory services (ADS). This meant that all the NetWare file and print servers and printers needed to be migrated to Windows 2000 and the ADS environment. This would simplify the user logon procedure to one environment, ADS and not two i.e. NDS and ADS. The project looked at the current standards and modifications where required. It was decided that a laboratory environment would be set-up wherein the new standards as well as the migration procedures would be tested. Each site was treated as a mini-project and the procedures were fully tested in the laboratory by recreating an exact replica of the site. I think that this process worked well. The fact that the implementation team was outsourced worked very well as these resources had no operational responsibilities. This was highly recommended in a project of this nature. However, operational resources were involved to ensure that they own and therefore support the new environment.

In order for the project to proceed smoothly, it was essential that all workstations at the site were either managed by SMS or migrated to the Engenoinet domain. Unfortunately, this was not always the case and this caused a few problems for the project team, especially for the CTO migration. Approximately 90 machines were not on the domain and bringing them into the domain changed the scope of the project. Not only did the workstation issues negatively affect the project, the fact that three project managers were running with the project at different stages negatively affected the deliverables of this project. A shortcoming of the project definition workshop was that it did not identify the requirement for management tools for the support and management of the new environment. This has had a detrimental impact on the operational staff. It was clear that a single project manager would provide the needed continuity. It was also then highlighted that operational team leaders did not have the sufficient time to effectively project manage projects of this size. Ultimately the project was completed 5 months late due to operational pressures, hardware shortages, pre-requisites not being met and the fact that the project manager changed 3 times.

❖ **If you had to consider to publicize your experiences/”know-how” within the organization, what types of stories and media would you prefer? Why?**

For me a blog type of scenario would seem to work well where a particular area is brought as the topic and contribution is made with stories that relate to that topic. So it will be written format but open so that others contribution can also be made. Blog technology is the way of the future so younger generations will only be familiar with mechanisms that have a high technology component. To the younger group the concept of group meetings and presentations may become less of way of the future. Modern kids are anti-social and communicate via a PC e.g. Facebook and virtual friends. So this is how I think I would be effectively communicating my stories to the newer generations.



APPENDIX 6

Abstract

This paper addresses the problem of tacit knowledge loss due to employee turnover in today's highly competitive business world by analyzing ways to activate it and extract it effectively.

Title

Can stories captured from tacit knowledge be organized into a knowledge management framework?

Key words

Knowledge, Knowledge management, tacit knowledge, elicitation, tacit knowledge elicitation, organizational memory, storytelling, competitive advantage, retiring experts,

Aims of this research:

- To uncover ways in which the organization can use stories to stimulate employees to share their experiences and expertise for the purpose of eliciting their tacit knowledge.
- To demonstrate through the use of stories how organizations can elicit tacit knowledge.
- To exhibit how the activation of the tacit knowledge of employees, effectively facilitate the elicitation thereof.

Introduction

“Knowledge management” has become a trendy phrase in the terminology of management lately. Yet, despite the appealing potential of knowledge management, investment to acquire it has by and large had limited returns (Christian, 2001). Amid the rationale preventing the success, a lack of effective incentives for employees to share their knowledge has been identified as a decisive one (Alavi and Leidner, 2001; Ba et al., 2001; Kubo and Saka, 2002; Oltra, 2005; Ward, 2002).

For the past decade businesses have certainly been facing more challenges, including the need to change the way it does business. To sustain a competitive advantage business therefore not only relies on technology, patents or strategic position, but also on how they manage the knowledge entrenched in their workforce. Today, knowledge plays a principal role in the delivery of corporate performance (Bontis, 1998; Bontis et al. 2000) and enables an organization to differentiate itself from its competitors.

Research looking into explicit knowledge has been performed by quite a few academics including Watson and Hewett (2006), Kyriakos and De Ruyter (2004) and Goodman and Darr (1998). Their studies for the most part involved codification, storage and access to knowledge rooted in documents stored in organizational repositories. Such an approach has in a roundabout way promoted the use of information technology in the execution of information management strategies under the umbrella of knowledge management, ignoring the intricacies inherent to the human part of knowledge. Constrained by this context, elicitation of tacit knowledge in organizational environments is an area that has not been given a huge deal of attention. According to Cooke (1999), knowledge elicitation had its beginnings as a research area in the context of knowledge engineering for expert systems. Its methods were at the outset adapted from cognitive methods or other disciplines for instance ethnography and education. Researchers have then underlined the significance of eliciting knowledge of individuals and organizations as a method of improvement, of knowledge reuse, preservation of experience and knowledge and acceleration of processes such as organizational and individual learning. The knowledge elicitation methods include knowledge audits, data analysis, concept mapping, cognitive modeling procedure, critical decision method, client interviews and work patterns analysis. Nevertheless, according to Hoffman et al. (1995) one of the key approaches to knowledge elicitation is to use an assortment of existing methods according to the conditions of the organization being analyzed.

Background

Knowledge has become an important resource in many organisations. The success of an organisation depends greatly on its ability to transform tacit knowledge of employees within an organisation, into organisational knowledge. This knowledge can then be made widely available to the entire organisation and be reused when needed. So when long serving employees leave the organization (voluntary or involuntarily) because of i.e. retirement, downsizing, death, incapacity etc., they have a huge amount of intellectual property (especially tacit knowledge) that leaves with them. These exiting employees are at times subject-matter experts (SME's) and possess a level of know-how that is difficult to replace, thus lowering the overall organizational memory and in the long term this loss of talent can create a competitive disadvantage.

Research problem

Tacit knowledge is being lost to the organization as retiring knowledge experts leave.



Research question(s)

Can the organization employ the storytelling technique, to elicit tacit knowledge from its employees?

- What are the different types of tacit knowledge?
- What are the benefits of tacit knowledge to the organization?
- What are the barriers to acquiring tacit knowledge?
- How can the organization facilitate tacit knowledge acquisition?

Preliminary literature review

The knowledge of an organization is for the most part carried in the heads of the employees. This critical valuable resource of the organization often does not get abridged to a tangible form that an organization can manage. Yet, in today's setting an organization is in effect managing knowledge above anything else.

One of the most important practices related with knowledge management is the Organizational Memory (OM) that naturally can be categorized as the registration of valuable data, information and knowledge. According to Ackerman (1994), OM can be retained in the culture, external files, corporate manuals, databases, stories and the individuals within an organization. In effect, one cannot claim that the entire knowledge is registered in documents. The experience of the organization's employees, their ideas and decisions cannot be left out of the OM. Nonaka and Konno (1998) define these rudiments as tacit knowledge. The literature reviewed catalogues tacit knowledge as the counterpart to explicit knowledge within the knowledge dichotomy or as a component within the knowledge continuum (Polanyi 1996; Brown and Duguid 2001). Tacit knowledge is usually learned from prior experience or from observation and practice (Epstein 1999) and its transfer is facilitated by intensive interpersonal contact (Collins and Hitt 2006). As Michael Polanyi and many others have discovered, a good deal of what we know, predominantly in the area of things we know how to do, is tacit in nature (Polanyi, 1966). We cannot articulate very fully what we are doing, how or why, even though we are doing it successfully.

Experts are occasionally well aware that they are having difficulty expressing their knowledge. If the knowledge elicitation method provides proper scaffolding, subject matter experts can then verbalize their tacit knowledge and express concepts that they had never explicitly expressed before, including information about their strategies and procedures. Nonaka and Takeuchi (1995) in their influential book "The knowledge creation company" demonstrates that the main ways that tacit knowledge is made explicit is through analogies, metaphors, hypotheses, concepts and models.

The expression tacit knowledge has roots in works on the philosophy of science (Polanyi, 1966), organizational behaviour (Schön, 1983), and ecological psychology (Neisser, 1976) and has been used to characterize knowledge gained from everyday experience that has an implicit, unarticulated quality. Tacit knowledge is conceptualized by Sternberg and his colleagues (Sternberg et al.,

1995; Sternberg et al., 2000) according to three key features matching to the conditions under which it is acquired, its structural representation, and the conditions of its use. In other words, the person is not directly instructed as to what she or he should be taught, but rather must extract the important lesson from the experience even when learning is not the prime objective. Formal training environments facilitate certain knowledge-acquisition processes, which consist of selective encoding (sorting relevant from irrelevant information in the environment), selective combination (integrating information into a meaningful interpretation of the situation), and selective comparison (relating new information to existing knowledge) (Sternberg, 1988). When these processes are not well supported, as often is the case in learning from everyday experiences, the likelihood increases that some individuals will fail to acquire the knowledge.

The first study to explore tacit knowledge acquisition was an experiment conducted by Okagaki, Sternberg, and Wagner (cited in Sternberg et al., 1993), which focused on methods of facilitating the acquisition of tacit knowledge. The study scrutinized three key acquisition processes: selective encoding, selective combination, and selective comparison. An assortment of cues were presented to participants to help them (a) to differentiate relevant from irrelevant information (selective encoding), (b) to integrate information according to rules of thumb (selective combination), and (c) to relate the information to prior experience or knowledge (selective comparison).

Today many organizations are looking for quick fix solutions in eliciting tacit knowledge from its employees. Of those discovered in literature are the concept mapping process, which can create meaningful diagrams and is regarded to be highly efficient at scaffolding experts in eliciting their domain knowledge (Basque et al. 2004; Hoffman 2002). Methods such as critical decision method effectively elicit knowledge about procedures, processes and reasoning strategies. Other knowledge elicitation techniques include knowledge audits, cognitive modelling, storytelling, data analysis, interviews and work pattern analysis among many others.

For the purpose of this study, I will focus on the story telling method to uncover tacit knowledge held by the retiring experts, since stories create foundations of any type of human communication. Storytelling as a tool to elicit tacit knowledge, according to literature reviewed, will need to be activated by factors such as, the need to have a reward mechanism, trust, good leadership, corporate culture that promotes knowledge sharing, organizational structure, work practices borne out of organizational behaviours etc. (Nesan, 2005; Sharrat and Usoro, 2003; Mascitelli, 2000). Humans have been telling stories as not only a form of entertainment, but as a way to make sense of the world for a very long time, probably almost as long as they have had language. So it is not surprising that we continue to use this powerful medium in the corporate environment (Reamy, 2002). Stories give our world meaning and represent norms of behaviour, experience, explanation of reality and basic human values (Mládková, 2007). Stories influence what people accept and what they reject.

According to Mládková (2007) stories are an important part of social processes and store and help to share experience and knowledge. Stories can be told in many contexts. They are partial, structured memories of observed and articulated reality (Davenport et al., 2000). While stories can be considered a nice way to report past experiences, it can also be an essential part of the organization knowledge. The key for organizations to build competitive advantage from storytelling is for the organization to understand not only the activity and nature of storytelling, but also the stories that are being told. If an organization is oblivious to the stories being told within their enterprise, then it is clear that there is no support for transmission of tacit knowledge through stories.

Preliminary research design and methods

The approach taken to collect the data would be utilizing the storytelling method (Qualitative). Qualitative research is where the researcher is an instrument of data collection and gathers words or pictures, analyzes them inductively, focuses on meanings of participants and describes a process that is expressive and persuasive in language (Creswell, 1994). Qualitative research provide an empirical,

systematic strategy for answering questions about people in their own bounded social context, with the researcher interfering as little as “humanly” possible during the enquiry. According to Locke et al. (1993), in this circumstance people make sense of their own experiences and create their own reality.

Along with Eldabi et al., (2002), qualitative research methods are associated with “face-to-face” contact with people in the research setting, jointly with observations and verbal data. According to Powers et al. (1985) a sample is a subset of measurements drawn from a population in which we are interested. Since a qualitative approach will be used which according to Mason (2003) is rich in contextual and detailed data, the sample size will involve 7 participants, which will all be identified by the Human Capital Division as subject-matter experts in their respective divisions. In consideration of the aforementioned, I conclude that qualitative research is by its nature directed by an exploratory descriptive and contextual design. Burns and Grove (1999) verify this as they point out that qualitative research is intended to explore and describe the richness, depth and complexity of a phenomenon or issue.

Expected results

I expect to uncover using the storytelling method, in conjunction with the type of tacit knowledge (embodied, intuitive and social) I would want to acquire, how subject matter experts interpret information, by having them share their personal experience on projects i.e. trials and errors, decision-making, innovation, product launches etc.

I also expect to find ways such as the knowledge sharing culture of the organization, performance measurement and rewards, communication styles, decision making processes, motivation, commitment etc., which would make it possible for these retiring employees to share their dormant tacit knowledge with younger employees or with the entire organization. This could for example be done by means such as the intranet; mentoring, communities of practice etc., to convey their experiences on projects they may have worked on, critical decisions that have had to make for the organization and so forth.

Ethics statement

Consistent with McMillan and Schumacher (2001), ethics in research studies involve considerations of informed consent, confidentiality, anonymity, deception, privacy and harm to the subjects. In this study all attempts will be made to consider some of these ethical issues.

Chapter outline

Chapter 1 – Introduction

Introduction

Background to the problem

Problem statement

Research questions

Chapter 2 – Literature review

What is knowledge?

What is knowledge management?

Types of knowledge.

What are the different types of tacit knowledge?

Elements of tacit knowledge.

Knowledge elicitation.

What are the barriers to acquiring tacit knowledge?

What are the benefits of tacit knowledge to the organization?

How can the organization facilitate tacit knowledge acquisition?

Chapter 3 – Research design and methodology

Chapter 4 – Data presentation and discussion

Chapter 5 – Discussion, Conclusion and Recommendations

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Appendices



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