KNOWLEDGE MANAGEMENT PRACTICES AT THE DEPARTMENT OF DEFENCE IN SOUTH AFRICA

by

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DEDICATION

Thanks and glory be to God for giving me a chance to write this dissertation. To my supportive parents, my father Chippa Daniel Ramohlale and my mother Anna Selelo Ramohlale, it is through your love and care that i am who i am today, Modimo ale okeletse Ditlou. To my beautiful wife Tebogo Francina Ramohlale, thank you for being my pillar of strength, without your encouragement i would have not achieved this much. My kids Molemi, Khumo and Mapula, you guys get me going, i love you. This also goes to my mother-in-law Johanna Seipei Mogomotsi, your encouragement and support is immeasurable, thank you.

I also dedicate this work to all my siblings: Conny, Phillip, Sipho, Mokgadi and Malesela. I do hope it is something you can be proud about, for success means everything to us.

ABSTRACT

Defence organisations have now significantly developed and in the process they have applied various measures to sustain their progresses and encourage innovation. One of those measures is by embarking on KM programs. KM in military is seen as a strategic approach to achieving defense objectives by leveraging the value of collective knowledge through the process of creating, gathering, organizing, sharing and transferring knowledge into action. It is through proper knowledge management practices that an organisation embraces and manages its knowledge generation, knowledge acquisition, knowledge organisation, knowledge storage, transfer, knowledge sharing, and knowledge retention.

The purpose of this study was to investigate knowledge management practices in the Department of Defence (RSA). The objective of the study was to find out how the department appreciates, understands, interprets and handles its knowledge. This study employed triangulation method to present trustworthiness of both qualitative and quantitative research approaches using positivist research design. Questionnaires, interviews and document analysis were employed to collect data. In order to arrive at the number of participants who received the questionnaires, a probability sampling method called stratified random sampling was used as well as purposive sampling. When setting up a study, it was essential to review the research identified in the literature review and to determine whether there is anything relevant to the research design of the proposed study.

The study found that knowledge management was hardly understood generally in the department and was not an approach used and institutionalised for the benefit of the organisation. However there was embedded knowledge management appreciation from a few staff members in the department, only managing their own knowledge regarding learning, capturing and storage. Additionally there is a significant number of staff members who believe knowledge management is a way to go in the future and strongly believe their Defence Department needs to adopt a comprehensive and inclusive KM approach

KEY TERMS: Knowledge management, knowledge management practices, Department of Defence RSA, Knowledge Management Practitioner, triangulation research method, SANDF, types of knowledge, learning organisation, military organisations, knowledge expert, knowledge management strategy.

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DECLARATION

I declare that this study, knowledge management practices in the Department of Defence (RSA) is my own work and that all the sources used or quoted have been indicated and acknowledged by means of complete references. This dissertation does not incorporate, without acknowledgement, any material previously submitted for a degree or diploma in any university.

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Signature Date

Molatelo Paul Ramohlale

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LIST OF ABBREVIATIONS AND ACRONYMS

AKO	Army Knowledge Online
AKM	Army Knowledge Management
AMS	American Management Systems
APLA	Azanian Peoples Liberation Army
APQC	American Productivity and Quality Centre
BDF	Bophuthatswana Defence Force
CCS	Chief Corporate Staff
CDF	Ciskei Defence Force
CDI	Chief Defence Intelligence
CDS	Chief of the Defence Staff
CKO	Chief Knowledge Officer
CoP	Community of Practice
DHQ	Defence Head Quarters
DI	Defence Intelligence
DOD	Department of Defence
ICT	Information and Communication Technology
IT	Information Technology
JMCC	Joint Military Coordinating Council
KM	Knowledge management
KMP	Knowledge Management Practitioner

KPMG	Kleynveld Peat Marwick Goerdeler
LFC2IS	Land Force Command and Control Information Systems, coded
MAF	Malaysian Armed Forces
MEM	Mobility Exit Mechanism
MK	Mkhonto we Sizwe
MMR	Mixed methods research
MSD	Military Skills Development
NDF	National Defence Force
OECD	Organisation for Economic Co-operation and Development
RSA	Republic of South Africa
SADF	South African Defence Force
SAMHS	South African Military Health
SANDF	South African National Defence Force
SPSS	Statistical Package for the Social Sciences
TDF	Transkei Defence Force
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
VDF	Venda Defence Force
WHO	World Health Organisation

CHAPTER ONE

INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION AND BACKGROUND

It is always rewarding to provide evidence in a research and present it for development and education. Scholars and practitioners from all over the world are working to understand the value of knowledge management in various countries and organisations. Yet despite all the developments no specific research was conducted to assess or investigate the knowledge management practices in the Defence Department of the Republic of South Africa. This dissertation reports on an investigation into knowledge management practices at the Department of Defence (DOD) in South Africa. Of particular importance is presentation on a method used by DOD in managing its knowledge, taking into consideration that the research seeks to affirm the importance and relevance of knowledge management (KM) and its practices in the department particularly in response to change and continuous improvement and learning.

In an era where knowledge is increasingly seen as an organisation's most valuable asset, many firms have implemented knowledge-management systems in an effort to capture, store, and disseminate knowledge across the firm (Alavi and Leidner, 2001). Nagle, a knowledge manager at KPMG (McCall *et al*, 2008), noted that one of the biggest challenges facing the firm was how to capture, store, retain and share the knowledge possessed by the firm's professionals. There is a growing demand for knowledge-based products and services (Okunoye, 2002). Given the importance of such an asset, it is not surprising that organisations everywhere are paying attention to knowledge, exploring what it is and how to create, transfer, and use it more effectively. According to Mavodza and Ngulube (2011), it is important that an organisation has a clear understanding of what KM means to its operations if it has to consider using KM practices. KM practices include knowledge generation, knowledge acquisition, knowledge organisation, knowledge storage, knowledge transfer, knowledge sharing and knowledge retention (Mavodza and Ngulube, 2011). Knowledge has become the key to success. It is simply too valuable as a resource to be left to chance (Wenger 2002). Managing knowledge in general has become an important and valuable input in the management of sustainable development programs (Ngulube, 2002).

Knowledge is information combined with experience, context, interpretation and reflection. It is a high-value form of information that is ready to be used for decisions and actions (Davenport, 1998). Companies need to understand precisely which knowledge will give them a competitive advantage.

Wenger (2002) argues that it is knowledge or the know-how which will give the organisation an innovative and competitive edge. Knowledge has become the key to success. It is simply too valuable as a resource to be left to chance (Freeman 2001; Ngulube 2002; Wenger 2002).

Given the importance of knowledge and its management, many organisations are faced with challenges of sustaining themselves considering the demands of the knowledge driven economy. The topic on knowledge management is a buzzing topic today in many companies, academic institutions, and other sectors of the economy. Knowledge has been observed to have an important role among the traditional resources of land, labour, and capital in creating and sustaining economic value.

The Department of Defence RSA (DOD) like all organisations has a mission, and that mission is to provide, manage, prepare and employ Defence capabilities commensurate with the needs of South Africa, as regulated by the Constitution, National Legislation, Parliamentary and Executive Direction (Mpofu, 2011). In delivering the defence mission, the DOD will expect to be judged on its performance against the following principles: Service standards, excellence, ethics, openness and transparency, consultation rooted in effective and efficient partnership and collaboration, people, teamwork, accountability and discipline.

DOD may also find itself challenged by existence or non-existence of knowledge management practices. There are reasons why DOD acquired the assets that they have acquired or will acquire in future, and that includes the human capital and physical assets such as books, documents and computer systems. All these resources need to be managed, the same is with knowledge.

Not much research has been done on knowledge management practices, particularly in the Department of Defence in South Africa. KM practices encompass the capture and/or acquisition of knowledge, its retention and organisation, its dissemination and re-use (Mavodza, 2010). It is these practices that the study was interested in. In understanding what form of KM practices there are in the DOD it was also important to look at other external and historical factors such as post 1994 government dispensation and policies. Department of Defence is an important part of government structure. The 1994/95 year was heralded by unique events and processes, unique not only nationally but for the National Defence Force (NDF) as well. These events ranged from a process of negotiation, which culminated in a variety of decisions by the Joint Military Coordinating Council (JMCC) and the Sub-council on Defence. One of the decisions was integration of Non-statutory Forces and Statutory Forces to form a new NDF (Meiring, 1995). However the greatest personnel

challenge during 1994 was the integration process. That said it was equally important to get a snapshot view of the existing practices in relevance to the business position of the SANDF today.

1.2 HISTORICAL CONTEXT TO DOD

For every successful government it needs the right personnel with right capabilities and knowledge to share. In the 1960s it was becoming apparent that rather than the semi-skilled production work, the amount of knowledge held by groups of individual workers was becoming more important to organisational success (Gillingham and Roberts, 2006). This argument is supported by Drucker (1969) who stated that "knowledge is the central capital, the cost centre and the crucial resource of the economy." South Africa is a nation of over 47-million of diverse origins, cultures, languages and beliefs. Africans are in the majority at just at just over 38-million, making up 79.6% of the total population. The white population was estimated at 4.3-million (9.1%), the colored population at 4.2-million (8.9%) and the Indian /Asian population at just short of 1.2-million (2.5%) (South Africa.info 2009).

Post 1995 the South African National Defence Force (SANDF) still had a lot of challenges, more so after integration. This was the case because the society across racial, economic and social class was still not matching the composition of SANDF and was still largely dominated by the minority population. Since economy and production value depends on the human capital, it was interesting to see how the department integrates and maximises its skill capital to achieve its objectives, which is why this project sought to establish the knowledge management practices in the DOD and how it puts them to its advantage if they existed.

One of the government imperatives was to find a solution to the imbalances in composition and demographic representation in the governments departments and DOD was one of them. Another dimension could be used in asking that since the DOD had its challenges, what methods were they using to maintain and upgrade their winning formula as a government department or sustain themselves for that matter. Continuous improvement is deemed essential for organisations in achieving flexibility, responsiveness and the ability to adapt quickly to changes within the environment (Oliver, 2008). It is common knowledge that pre-1994 government was non-committal to equal opportunity to all races of the country, thus creating a situation of having predominantly white people gaining an advantage of being skilled and equipped with specialised knowledge of running departments and ultimately the government.

An organisation's capability to learn will be dependent on its ability to record organisational experience and, when needed, to retrieve this information. Some organisations have an archival system for this knowledge management practice (Oliver, 2008). Knowledge held by employees can be captured in formal reports, which suggests that for many organisations the organisation's memory is held by its employees and will be lost to the organisation if the employee departs or leaves the institution.

Some companies that have already embarked on a KM programs and have benefited in a number of ways including: enhanced collaboration, improved communication, improved employee skills, better decision making, and increased innovation (Albers, 1999).

1.3 STATEMENT OF THE PROBLEM

According to Carmichael (2009), research problem statement is the foundation of a research report. It is a clear, stand-alone statement that makes explicit what it is that the researcher aims to discover or establish. Following the question raised by Creswell (2007), "why is this study needed?", and the suggestions of Hernon and Schwartz (2007:307) that the statement of the problem should withstand a reviewer raising the "so what" question. The problem statement in this study would be Department of Defence inability to trace its knowledge and re-use it when needed. The required knowledge is often available somewhere in the organisation, but is not accessible when needed. This happens because knowledge in many organisations is often not structured and documented properly.

The Department of Defence relies heavily on the use of information and knowledge gained through experiences for it to advance and develop. There is a lot of logistical, technical and technological knowledge on a functional and strategic level that the DOD needs to have in order for it to be equipped in achieving its objectives/mandate. .

.Due to the ugly history and imbalances resulting from the apartheid past, the DOD also bared the brunt of having certain racial groups as custodians of skills and know-how while others were at disadvantage of such. What also could be of danger to the Department's goals is loss of valuable skills and knowledge due to various reasons i.e. retrenchments, downsizing, death, retirements, dismissals, resignations, change management, etc. Should there be no KM practices in this institution, then situation could become even worse, as there will be no knowledge reservoir to consult in the running of operations. It is well documented that post 1994 the department had an

urgent need to equip the integrated generation of South African soldiers with necessary knowledge and skills to be able to realise the national interest and goals. The solution to this phenomena could lie in knowledge management strategies that the DOD may apply to address the challenges of the modern knowledge economy and fast changing environment. KM has been implemented in commercial and business environments towards operational advantages and financial gains. DOD did not have policies or documentation on the existence of knowledge management. It has been documented that knowledge loss can result in high costs. Once abilities and expertise get acquired, they do not necessarily remain at the disposal of organisations forever without systems to capture and re-channel them. Knowledge collected over the years can be lost through business re-engineering or with merger of different divisions. According to Lepak (2009), the army needs to reaffirm knowledge management as the means to supporting their goals for 21st century and network-centric knowledge-based force. Manuri and Yacoob (2001) assets that knowledge in military organisations is available and embedded in the form of doctrines, policies, and procedures, operations and training manuals, information systems, work flow and databases. Unfortunately, those elements of KM were present in silos and not managed in concerted effort.

Gauvin, McIntyre, and Waruszki (2003) argue that military KM will play a valuable role in leveraging existing knowledge and converting new knowledge into action. The applications of KM strategy in military context is seen extensively applied in militaries of major countries, like United States of America, Britain, Canada, Australia, Japan, Korea and Singapore to name a few. As such the study would like to establish any link to knowledge management by the DOD.

Moreover not much research work has been published on knowledge management (KM) practices in the Department of Defence in South Africa. It is not known as to whether the department had knowledge management practices, formal or informal. This is the chief reason that prompted this research.

1.4 RESEARCH PURPOSE

The purpose of this research was to investigate KM practices in the DOD and its KM strategy. If there were any strategies and KM practices, it was going to be interesting to identify and document them and compare them in accordance to known and standardised KM practices in the literature, and possibly make recommendations where possible. It was also the intention of this project to find ways of developing a knowledge management strategy for the Department of Defence, with the aim of achieving organisational excellence. Another intention of this research was to sensitise the department of the risks associated with not managing fully or not managing that knowledge at all.

In going forward the research sought to provide a picture regarding progress made so far in the department with regards to knowledge management and its practices. This may include laying a foundation of investigating KM practices by identifying structures responsible to enhance KM in the divisions, knowledge practitioners, policy guiding knowledge management, budget allocated for KM, technical resources like IT, training venues and success stories on exercising knowledge management practices. The study also intended to learn what the department views as equivalent of KM if it is not instituted as knowledge management.

1.4.1 OBJECTIVES OF THE STUDY

The study was intended to investigate knowledge management practices in the Department of Defence, RSA. Specific objectives are:

a. To investigate supporting structures that will be/ are assigned to help manage knowledge practices at the Department of Defence.

b. To determine existence of formal and informal knowledge management practices in the department.

c. To investigate the existence and importance of knowledge practitioners

d. To determine the relevance of learning in the DOD

e. To establish challenges impeding the institution of knowledge management practices in the DOD if no formal practices exist.

f. To evaluate perceptions by members of the DOD on the department's ability to manage its knowledge.

g. To recommend an effective knowledge management model or strategy to be adopted or incorporated.

1.5 JUSTIFICATION FOR THE STUDY

Increasingly, organisations depend on the contributions of knowledge workers (Jain, 2011). Knowledge workers are people with high levels of expertise, education and experience, whose primary role involves the creation, distribution or application of knowledge (Wright, 2007). In recent years, organisations have increasingly realised that one of their most valuable assets is the knowledge that is developed internally and possessed by individuals within the organisation (McCall *et al,* 2008). The primary role of the SANDF is to ensure the sovereignty and defence of the Republic of South Africa.

The development of modern warfare is reflected by the rising importance of having knowledge advantage and information supremacy over adversaries. Leadership, sense-making, problem-solving and decision-making are more complex and more demanding in military situations (Manuri and Raja Yaacob, 2011). Command and control is taking on new dimensions, and the role of military personnel is evolving into that of 'knowledge force'.

(RSA). It is also involved in the maintenance of peace, security and internal political stability. Without stability there cannot be development, and vice versa (Meiring, 2005).

Magnitude of the integration process included forces from statutory forces from South African Defence Force (SADF), Transkei Defence Force (TDF), Bophuthatswana Defence Force (BDF), Venda Defence Force (VDF) and the Ciskei Defence Force (CDF) and the former Non-statutory Military forces of Mkondo we Sizwe (MK) and the Azanian Peoples Liberation Army (APLA). It becomes evident that the period 1994 was characterised by massive introduction of new personnel and even replacement of existing staff by then. As people migrate in and out of the system (DOD), there is all likelihood of specialised skills and knowledge being compromised. However history alone may not be the only contributing factor to loss of knowledge, but also relevant strategic and current plans carried by DOD may undermine the importance of knowledge. Mindful that there have been many programs implemented by SANDF and its reinforcement strategies to date. That is

why it was important for the researcher to investigate the current processes and strategies of managing knowledge in DOD, these being KM practices inherited and developed by the organisation.

One of the means in doing so was by determining the kind of knowledge which the old personnel possesses and investigate any action done to sharing it with the new Defence Department employees, that which will promote knowledge retention. Knowledge retention is about focusing on the critical knowledge that is at risk of loss, prioritising what is at risk based upon potential knowledge gaps and their impact upon overall organisational performance, and then developing actionable plans to return on investment effects on the organisation (Kirsch, 2008).

It was partly the purpose of the study to see how the organisation leverages its knowledge in addressing equal opportunities. The research sought to affirm the importance and relevance of knowledge management (KM) and its practices in the department particularly in response to change and continuous improvement and learning. Continuous improvement is deemed essential for organisations in achieving flexibility, responsiveness and the ability to adapt quickly to changes within the environment (Oliver, 2008).

Not much research has been done on the knowledge management practices in the Department of Defence in South Africa, let alone the Defence industry. This particular research may be a solution to possible knowledge management gaps and unavailability of related practices in the Department of Defence, an organisation which the researcher happened to be working for. Not only was the study aiming to break record in being first and formal research conducted on the fundamental asset being knowledge in the DOD, but aimed at raising awareness where possible of the importance of sustainable knowledge management practices, especially for the department.

There were more expected benefits that justified the study, which are the following:

- If there are formal knowledge management practices in the DOD, the study's findings will help in comparing those activities with academic and successful practices done in the growing economies.
- If there is none or informal knowledge sharing practices in the DOD for example, the study will come in to be handy in providing reasons both practically and theoretically of active knowledge management practices at a professional level.
- If the recommendations of the study are adopted, they will lead DOD to develop core knowledge management practices that are fundamental to the organisation as well as

drafting a knowledge management strategy which will ensure successful use of knowledge in the DOD.

It is expected also that the benefits of the research's findings will help other organisations in dealing with issues on knowledge management and their practices; like getting to know what to do next if a company needs best returns in its assets, its human capital. It is thus was the intention of the researcher to grab the opportunity in advancing the cause of knowledge management and development in helping South Africa become a better and progressive country.

There is a possibility that this study could serve as an instrument in identifying how far the DOD has come with knowledge management, and how can the department can use KM to improve and become innovative. One of the key aims was to see the department taking a step forward in re-engineering itself and becoming a successful department that fits its objective.

1.6 LIMITATIONS/ DEMARCATIONS OF STUDY

The Department of Defence as an organisation is broad in its arms of services and divisions; it is composed of the South African Military Health Services (SAMHS), Army, Air Force, Corporate Staff Division, Navy, Defence Intelligence, Joint Operations Division and Joint Support Division which all constitute the South African National Defence Force. You then also have a major arm of Defence Department in the form of, Ministry of Defence, Defence Secretariat, with Finance, Policy and Planning Division, Defence Inspectorate and so on. For the department to have so many office divisions and services and the fact that it has national offices and regional offices with locations stretched far apart and across the country, reaching all of them to gather comprehensive data from different valuable respondents was not possible.

The knowledge management phenomenon is hardly heard of in the circles of the Department of Defence and let alone the government departments in general, as such the topic of KM becomes a novelty to potential respondents. To this point it still has not come to the researcher's knowledge of any existence to a relevant section dedicated to dealing with knowledge management in the DOD. Cooperation in this regard has been limited in that the concept is not known which required the researcher to give more information on what it really is. There was some resistance by respondents participating from some quarters of the population as they felt that the information they would provide should be confidential due to the nature of the work being done in DOD, especially those in the intelligence division, though it was to a minimal scale. Researcher had to double efforts in making sure that there was a buy-in from all respondents and assure them that the project has

received official support and approval from top management and were assured that the information provided shall and will remain confidential publishing which shall be subjected to vetting processes.

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1.7 DEFINITION OF KEY CONCEPTS

The following definition of terms was required in order to clarify the context in which they have been used and to guide the researcher and future researchers for data collection purposes.

1.7.1 Department of Defence (RSA)

Department of Defence refers to government unit or governing institution that is accountable to all people of South Africa, capable both of defending the country's sovereignty and providing support to foreign policy initiative to ensure peace and security throughout the African continent (Masilela, 2004). The Department of Defence is a contingency-based organisation whose mandate is delivered from the basic right of every nation to defend itself from aggression and protect its sovereignty (Capegateway, 2003). The primary objective of the SANDF is to defend and protect the territory and people of South Africa in accordance with the Constitution and the principles of international law.

1.7.2 Knowledge

Knowledge is the appropriate collection of information or experience, such that it is intend to be useful (Bellinger *et al.*,2004). Davenport and Prusak (1998) defined knowledge as: "a fluid mix of framed experiences, values, contextual information, and expert insight that provide a framework for evaluating and incorporating new experience and information."

Knowledge is defined in the *Oxford English Dictionary* variously as expertise, and skills acquired by a person through experience or education. Knowledge is cognisance, the fact or condition of knowing something with familiarity gained through experience or association. Curley (2001) defines knowledge as acquaintance with or understanding of a science, art or techniques. Hunter (1999) focuses more on actionable knowledge and suggests rather "Knowledge is information in the mind, in a context which allows it to be transformed into actions".

According to Brooking (1999) knowledge is defined "as information in context with understanding to applying that knowledge".

Knowledge has become the key to success. It is simply too valuable as resource to be left to chance (Wenger, 2002). Companies need to understand precisely which knowledge will give them a competitive advantage. Wenger (2002) argue that it is knowledge or the know-how which will give the organisation an innovation and competitive edge. Although knowledge is the foundation of social life, the sociology of knowledge, and particularly its transmission between or among generations, remains a neglected field. This is extraordinary in view of the fundamental socio-cultural importance of the process (Inglis, 1993).

'Knowledge' is defined as what we know: knowledge involves the mental processes of comprehension, understanding and learning that go on in the mind and only in the mind, however much they involve interaction with the world outside the mind, and interaction with the world (Wilson, 2002). According to Martin (2000), knowledge is a whole set of insights, experiences and procedures that are considered correct and true and that therefore guide the thoughts, behaviors and communications of people. He further describes organisational knowledge as a collective sum of human-centered assets, intellectual property assets, infrastructure assets and market assets.

1.7.3 Types of Knowledge

There are two kinds of knowledge, namely explicit knowledge and tacit knowledge. Explicit knowledge is knowledge which can be expressed in words and numbers and shared in the form of data, scientific formulae, product specifications, manuals, universal principles, and so forth. This kind of knowledge can be readily transmitted across individuals formally and systematically. Explicit knowledge on the other hand can easily be "processed" by a computer, transmitted electronically, or stored in databases (Nonaka 1995; Blumentitt *et al*., 1999). The explicit knowledge approach believes that explicit knowledge assets can be disseminated within an organisation through documents, drawings, standard operating procedures, manuals of best practice, and the like (Sanchez, 2000:6).

Tacit knowledge is knowledge we have, and know we have, but nonetheless cannot put into words. Polanyi (2002) argues further that tacit knowledge is knowledge that is not captured by means of language or mathematics. Because of this elusive character, we can see it only by action. Tacit knowledge is knowledge that the actor knows he has (how to catch a ball, tie a knot, play soccer, singing etc.), but which he cannot, nonetheless, describe in terms other than its own (skillful) performance. So transfer of tacit knowledge consists in the imitation of physical gestures.

Workers who lack adequate education and training, or explicit knowledge, struggle to keep up. They rely on common sense and intuition, or tacit knowledge to get through the day. Many

companies are using tacit knowledge to augment a person's academic learning and experience (Wagner and Sternberg, 1987). Tacit knowledge is technical or cognitive and is made up of mental models, values, beliefs, perceptions insights and assumptions. Nearly two-thirds of work related information that is gradually transformed into tacit knowledge comes from face-to-face contacts, like casual conversations, stories, mentoring, internships and apprenticeships (Smith, 2001).

1.7.4 Knowledge management practices

Knowledge management includes processes that naturally exists in organisation (e.g. knowledge sharing or knowledge acquisition), and management practices which support the efficient and effective management of knowledge for organisational benefit (Lee and Choi, 2003).

A study by Chong and Choi (2005) identified 11 key KM components for successful KM implementation. These are training, involvement, teamwork, empowerment, top management leadership and commitment, information systems infrastructure, performance measurement, culture, benchmarking, knowledge structure and elimination of organisational constraints.

Managing knowledge in organisations requires managing several processes of knowledge such as creation, storage, sharing, and evaluation; generation, codification, transfer and application (Singh and Soltani, 2010).

Knowledge management practices are activities exercised to manage knowledge (Magnusson, 2003). According to Magnusson (2003) these KM activities can be identified in two categories: facilitating and intervening activities. The facilitating activities are activities acting to provide an arena for the management of knowledge, such as the acquisition and implementation of information and communication technology (ICT) and other structural investments for instance, the information structure as well as the creation of environments and cultures. The intervening activities were identified as activities acting to govern the management of knowledge in the arena. Intervening activities were identified as activities acting to govern the management of knowledge in the arena. Knowledge management practices include practical activities of governing knowledge (Skyrme, 2007). Those include auditing, creating, discovering, sharing, learning and organising knowledge.

1.8 RESEARCH METHODOLOGY

The study follows a scientific approach, as it aims to build knowledge obtained by use of a particular methodology to prove certain variables beyond reasonable doubt. This method of acquiring knowledge, also called scientific research, is a systematic investigation of a question, a phenomenon, or a problem using principles (Bless and Higson-Smith, 1995). Thus for this study, a mixed research approach (mixing both qualitative and quantitative research approaches) was employed. All these paradigm characteristics are mixed in one case study (Axinn and Pearce, 2006; Hunt 2007). The context of this study was Department of Defence, The rationale behind the use of this approach was mainly to assist the researcher in presenting trustworthiness of both qualitative and quantitative research approaches and for them to complement each other and corroborate findings better. Anderson and Arsenault (1998:119) underscores that qualitative research is a form of enquiry that explores phenomena in their natural settings and uses multiple methods to interpret, understand, explain and bring meaning to them. Qualitative research accepts that people know themselves best and can describe, interpret and talk about their own environment. Citing Cohen, Manion and Morison (2000), quantitative research is essentially about collecting numerical data to explain a particular phenomenon. For instance this study used survey method to solicit information on knowledge sharing and level of experts in the DOD which were necessary to verify statistically. A sample of the population was studied, and in this case was from Defence Intelligence and Corporate Staff Divisions. The population of this study was sampled through probability sampling known as stratified sampling as well as non-probability sampling thus the study employing a purposive sampling approach. Triangulation was used for data collection since this study employed focus group discussions, questionnaire and document analysis. Triangulation in social sciences is conceptualised as the mixing of multiple theories, methods, data sources and/or researchers with the aim of enhancing the validity of research findings (Modell, 2009). Triangulation refers to the use of more than one approach to investigation of a research question in order to enhance confidence in the ensuing findings (Bryman, 2001). Single research method may suffer from limitations associated with that method or from specific application of it, triangulation offers the prospect of enhanced confidence. Based on the triangle analogy, triangulation implies that a single point is considered from three different and independent sources (Fiske 1959; Denzin 1978; Decrop 1999).

1.8.1 ETHICAL CONSIDERATION

Ethics pertain to doing good and avoiding harm during research. Thus, the protection of human subjects or participants in any research study is imperative (Orb, Eisenhauer and Wynaden, 2001). Embedded in a qualitative research are the concepts of relationships and power between researchers and participants. The desire to participate in a research study depends upon a participant's willingness to share his or her experience. Researcher need to understand that it is the right of the participant to refuse to participate. It was important that this study respected this aspect fully to achieve its objective. The following ethical issues as taken from Bless and Higson-Smith (1995) were taken into consideration for the purpose of the study: confidentiality, informed consent, anonymity and honesty. Participants' right to change their minds or excuse themselves from the study, without being coerced to remain in the study was observed.

According to Esterberg (2002: 53-54), the researcher should make sure that participants in the study are duly protected in terms of confidentiality during the process of data collection, analysis and publishing of the dissertation or when disseminating the outcomes of the study. It is also advisable for the researcher to protect the names of the participants and the institution or community being researched. According to Field and Morse (1992) cited by Orb, Eisenhauer and Wynaden (2001) the purpose of qualitative studies is to describe a phenomenon from the participants' points of view through interviews and observations. The intention of the researcher is to listen to the voice of participants or observe them in their natural environments. The researcher should recognise that participants are autonomous people who will share information willingly. A balanced research relationship will encourage discloksure, trust, and awareness of potential ethical issues.

This study also sought and obtained permission from the sampled units heads to go ahead with the research (see Appendix II and III). The study also adhered to University of South Africa (UNISA)'s ethical clearance requirements. The University of South Africa's procedures for master's and doctor's degrees (2013) also outlined some ethical clearance requirements for UNISA research students to avoid plagiarism. The ethical clearance requires that students declare the contents of their dissertation/thesis as their "own work and that all the sources that they have used or quoted have been indicated and acknowledged by means of complete references" in submission for dissertation examination, and such declaration has been submitted.

1.9 CHAPTER OUTLINE

Figure 1.1. Chapter outline

Chapter 1: Introduction, background and Justification of the study/relevance of the study	Chapter 1 will introduce the study and set the scene. This chapter will also provide the background from which the study is based and the historical context of DOD in relation to KM.
Chapter 2: Literature review	Chapter 2 will include literature review on the topic. Some KM components will be defined as it is in literature. It will also discuss characteristics and nature of KM practice in organisations and case studies.
Chapter 3: Research design and methodology	Chapter 3 will discuss research design and methodology, methods of data collection comprising of focus groups interviews and questionnaires will be presented. It will also look at the sampling techniques and data analysis.
Chapter 4: Presentation of findings	Chapter 4 will focus on presentation of data.
Chapter 5: Discussion of results	Chapter 5 will discuss the findings.
Chapter 6: Summary, conclusion and recommendations	Chapter 6 will comprise of summary of findings, conclusions and recommendations.

1.10 SUMMARY OF CHAPTER ONE

Chapter one provided an overview of the dissertation. It set the scene of the research and context within which the study was determined. The chapter outlined the historical background of the DOD which the study was influenced by, and the importance and reasons of carrying this study. Research problem was discussed as well as clear objectives of the research (Aims of the study). Key terms were defined to provide more understanding of the subject in question. Research method employed was also presented. Limitations to the study and ethical considerations were also discussed to show where the study may be challenged in its findings. The chapter also provided an outline of the dissertation according to the chapters and described the content of each chapter.

The next chapter, Chapter Two, presents overview of related literature in knowledge management practices particularly the relevance of KM in the military. The chapter also highlights the organisations embracing knowledge management and the outcomes of doing so. Focus is also made on knowledge practices, knowledge experts and knowledge practitioners as well as knowledge management strategy and knowledge management success factors.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

Chapter One introduced the research problem that deals with DOD and knowledge management practices in the institution. The essence of this chapter is to highlight the importance of KM to organisations particularly military organisations. Different organisations' perspectives and value of KM is presented in this chapter, which will help indicate the KM application in other organisations including military organisations and principles used to guide organisations developing and engaging successful KM initiative/strategy (Manuri and Raja Yaacob 2001; Gauvin, McIntyre and Waruszki 2003; Pommier 2007; Girard 2008). It is this real life experiences that provides a real life situation on KM. The chapter also highlights the relation between knowledge management and organisational learning (Daneshgar 2007; Schank and Dimitry 2008). Knowledge audit also is discussed as a means of understanding the knowledge environment and its management system as a way of knowing what knowledge exists within an organisation (Vestal, 2005).

Chapter Two also details definitions to the main concepts of knowledge management and practices or mechanisms used to manage knowledge (Gould and Kolb 1964; Okunoye 2002). Mechanisms to share and disseminate knowledge are described in this chapter (Kippenberger, 1998). This chapter also emphasise in its discussion the knowledge practitioner, knowledge expert, knowledge repository methods as well as knowledge promotion, protection and retention (Davenport and Volpen 2001; De Giovanni 2009; Gottschalk 1999; Perez-Bustamante 1999).

This chapter also sought to give more understanding using literature review on knowledge management strategy and success factors which will help provide superior performance that yields good results to an organisation (MingYu 2002; Smith 1998; Srinivas 2008). While the aim of a literature review is to support one's argument, it also summarises and synthesises the ideas that others have already put forward. A literature review is an account of what has been published on a topic by accredited scholars and researchers. The discovery of gaps which have not yet been covered by previous research helps refine and shape the direction of the investigation (Wilkinson, 2000). There are various reasons for conducting a literature review. A literature review is an account of what has been published on a topic by accredited scholars and researchers. According to

Bourner (1996), there are good reasons for spending time and effort on a review of the literature before embarking on a research project. These reasons include:

- Avoiding reinventing the wheel
- Identify seminal works in your area
- Identify opposing views
- To carry on from where others have already reached (Reviewing the field allows you to build on the platform of existing knowledge and ideas)

Bless and Higson-Smith (1995: 23) stated that the purpose of a literature review is to sharpen and deepen the theoretical framework; to familiarise the researcher with the latest developments in the area of research; and to identify gaps in knowledge and weaknesses.

2.2 IMPORTANCE OF KNOWLEDGE MANAGEMENT

According to Milam (2001), knowledge has been identified as the ultimate competitive advantage for the modern organisations and therefore should be well managed. Managing knowledge within an organisation deals with both tacit and explicit knowledge with regards to knowledge creation and sharing, and how these activities promote learning and innovation.

American Productivity and Quality Centre (APQC) defines knowledge management as an emerging set of strategies and approaches to create, safeguard, and use knowledge assets (including people and information), which allows knowledge to flow to the right people at the right time so they can apply these assets to create more value for the enterprise (Hasanali, 2002).

Organisation's competitive potential rests almost wholly on how well that organisation manages and deploys its corporate assets (Smith, 1998). There has been a growing trend to treat knowledge management in a more systematic organisational sense to include the social as well as the technological implications of any attempt to manage an organisation's intangible assets.

Today organisations are fundamentally different as compared to organisations that existed in one or two decades ago in terms of their functions, structures and style of management (MingYu, 2002). The new organisations put more premium on understanding, adapting and managing changes and competing on the basis of capturing and utilising knowledge to better serve their customers,

improve the operations or to speed their products to markets. The emergence of these new organisations calls for a new way of management, which is generally known as “knowledge management” (MingYu, 2002). Knowledge management embodies organisational processes that seek balanced combination of data and information processing capacity of information technologies, the environment of using and sharing information and knowledge and the creative and innovative capacity of human beings.

MingYu (2002) asks, why knowledge management? The most common goals motivating a corporation to undertake an effort to manage knowledge better include retaining key talent, improving customer service, boosting innovation and promoting the development of unique market offerings. KM refers to a series of processes that manages the creation, dissemination, and utilisition of knowledge. The ultimate aim of knowledge management is to organise, share and put together knowledge to create substance value in knowledge.

Succinctly put, KM is the process through which organisations generate value from their intellectual and knowledge-based assets (Srinivas, 2008). Most often, generating value from such assets involves sharing them among employees, departments and even with other companies in an effort to devise best practices. It is important to note that the definition says nothing about technology; while KM is often facilitated by information technology (IT), technology by itself is not KM; it should include people, and knowledge content, or the kind and quality of knowledge required for the business. KM is the systematic leveraging of information and expertise to improve organisational and operational innovation, responsiveness, productivity and competency.

People in organisations have always sought, used, and valued knowledge, at least implicitly. Companies hire for experience more often than intelligence or education because they understand the value of knowledge that has been developed and proven over time (Davenport 1998: 12). Generally speaking, the term “knowledge management” represents a broader concept, and is thought of as a system for finding, understanding, and using knowledge to achieve organisational objectives. KM allows others to build upon a person’s life experience in a way that strengthens not only the employee, but the organisation as a whole (Dept of Civil Service, 2002).

There is a reason why Western observers tend not to address the issue of organisational knowledge creation; they take for granted a view of the organisation as a machine for “information processing.” Nonaka (1995) maintains that the world seem to be having a different take or approach on knowledge. He states that the Japanese recognise that the knowledge expressed in words and

numbers represents only the tip of the iceberg. They view knowledge as being primarily "tacit" – something not easily visible and expressible.

Knowledge management is the process by which the organisation generates resources from its intellectual or knowledge-based assets. These resources or "wealth", result when an organisation uses knowledge to create more efficient and effective processes (Barclay and Murray, 2007). As in the case of re-engineering, it has an outcome impact because it can decrease the organisation's costs and it also can help reduce the cycle time and workflows of operations, which may improve productivity of an organisation. In other words, it enables the organisation to produce more services and products using the same or less amount of time. This knowledge allows the organisation to develop new capabilities, design new products and services, and improve existing products and services.

Knowledge management comprises a range of practices used in an organisation to identify, create, represent, distribute and enable adoption of insights and experiences. Scholars and observers from disciplines as disparate as sociology, economics, and management sciences agree that a transformation has occurred, and knowledge is at centre stage (Davenport, De Long and Beers, 2000). Knowledge is information combined with experience, context, interpretation, and reflection. Given the importance of such an asset, it is not surprising that organisations everywhere are paying attention to knowledge – exploring what it is and how to create, transfer, and use it more effectively.

KM efforts have a long history, to include on-the-job discussions, formal apprenticeship, discussion forums, corporate libraries, professional training and mentoring programs. More recently, with increased use of computers in the second half of the 20th century, specific adaptations of technologies such as knowledge bases, expert systems, knowledge repositories, group discussion support systems, and computer supported cooperative work have been introduced to further enhance management of knowledge.

KM is a tool to achieve business objectives faster and better – through an integrated set of initiatives, systems and behavioral interventions to promote smooth flow and sharing of knowledge relevant to the business and to eliminate reinvention (Arun, 2005).

KM is not an end in itself. If effectively deployed KM can be a powerful enabler of:

- Consistent customer experience by reducing variation in performance across business units or across time.

- ❖ Speed in business results by eliminating reinvention.
- ❖ Converting individual knowledge into reusable organisational knowledge
- ❖ Empowering each employee to leverage the collective knowledge of the entire organisation to service customers.

Mulgan (2003) presents information on the importance of systematic knowledge to governments more so today in achieving success in their objectives and retaining the confidence of the public. Governments are bound up with the broader shift to a society and economy organised around the systematic creation and use of knowledge. Economic growth derives its strength from new knowledge and its application; so do most health gain, and most military might.

2.3 ENTERPRISES AND INSTITUTIONS EMBRACING KNOWLEDGE MANAGEMENT

Ngulube (2012:68) citing Griffiths (1998) avers that the evolution of knowledge management (KM) as one of the progressive organisational tools is an endorsement of the need to leverage knowledge as an important resource by ensuring that it is made accessible to the right people at the right time. Given the characteristics of the global economy, and the plummeting costs of communication and computing, the World Bank perceived that managing knowledge would enhance its organisational performance, and therefore, its global impact on poverty. This was a business decision anchored on the realisation that the new opportunities were worth the shock of cultural and technological transformations that the Bank was going to introduce. Knowledge management was not undertaken for its own good. It was motivated by a decision to increase the speed and quality of service delivery, lower the cost of operations by avoiding rework, accelerate innovation, and widen the Bank partnerships to fight poverty (Pommier, 2007).

The World Bank states that there are many reasons cited by organisations to explain why they have embarked on KM initiatives. Some of these reasons include:

- **Competition** – by drawing more attention to the value-added by an organisation's knowledge
- **Downsizing** – by putting into place systems for capturing the knowledge of experienced employees before it walks out the door
- **Innovation** – by initiating processes for creating new products and services
- **Speed** – by identifying smarter ways of working to save time, and reducing cycle times
- **Quality** – by applying lessons learned to improve service delivery

Cost savings – by not "re-inventing the wheel" and making less mistakes and eliminating unnecessary processes.

The capability of multinational corporations to create and efficiently combine knowledge from different locations around the world is becoming increasingly important as a determinant of competitive advantage. In 2004 Toyota Motor Corporation announced a break-through initiative called 'Innovative International Multi-purpose Vehicles Project', which aimed at increasing the self-reliance of overseas manufacturing facilities in order to optimise overall worldwide production, especially in emerging markets, by both understanding common needs and paying sufficient attention to unique local needs (Ichijo and Kohlbacher, 2006).

Initially, Toyota developed and produced cars only in Japan and exported them abroad in order to ensure high quality and to maintain customer trust in the brand. Faced with increasing overseas demand, the company started production globally to tailor production to local needs, and save shipping costs, tax breaks and other excessive costs, hence the need to develop the Innovative International Multipurpose vehicles Project. Today Toyota has production plants in Western Europe, US, Brazil, China, Russia, India, South Africa, Thailand, Argentina and other countries. This case shows how Toyota's knowledge creation in the automotive development has changed from creating new knowledge in Japan and transferring it to other parts of the world. Toyota proved successful in tapping rich local knowledge bases, thus ensuring its competitive edge and global lead in automotive industry.

Toyota Company benefits greatly on knowledge management as they enjoy:

- Reduced cost and risk
- Leveraging existing assets to reduce cost, risk and cycle time
- Improved decision making
- Improved strategic planning
- Faster development of new technical approaches
- Faster more robust problem solving
- Reduced cost of employee training
- Increased versatility of the workforce

United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) is implementing Knowledge Management under the initiative of the Executive Secretary to share vast amount of available knowledge that was collected and/or created by staff members, but not utilised

fully by other staff members and external stakeholders. The ultimate goal of UNESCAP with KM initiative is to create a knowledge sharing culture across all levels and to provide enabling processes and systems to facilitate this sharing that will help attaining UNESCAP's three-pronged objective of managing globalisation, reducing poverty and addressing emerging social issues (UNESCAP, 2010).

A survey of 132 departments and agencies from 20 countries conducted in 2002 by the Organisation for Economic Co-operation and Development (OECD) found the following additional arguments for KM, which more specifically apply to the public sector:

* It is critical determinant of competitiveness, as public sector organisations are competing for talent

* There is competition from the private sector in knowledge-intensive services to the public

* Civil servants are aging, considerable staff turnover

* Knowledgeable citizens have higher expectations of government

* There are more ambitious policy goals, with many cross-cutting initiatives (World Bank, 2008).

Durrant (2001) contents that Caribbean governments are today challenged to define and implement strategies to operate efficiently and develop. Knowledge management in the context of government requires technical, content and policy initiatives. Some governments have realised the value of increasing development of knowledge intensive services, and the manufacture and marketing of knowledge intensive products.

Governments have adopted the electronic and telecommunications facilities that have become available in the region, for example internet. There is however much further to go in meeting the demands of citizens the challenges of knowledge management. The Government of Jamaica has made some important advances in this area including posting the passport application forms on the website of the Ministry of National Security and Justice.

Johnson and Johnson, for example has 'Knowledge Fairs' and knowledge exchanges within their organisation to promote a culture that encourages knowledge sharing among its employees. Other companies, like AMS (American Management Systems), have created Corporate Knowledge Centers within their organisation (Liebowitz, 1999). Some people like Larry Prusak of IBM, believe that 70 to 80% of what is learned is through informal means versus formal methods like reading

books, brochures, documents, etc. in this manner, these knowledge fairs and corporate knowledge centres may be worthwhile approach in learning.

Organisations are realising that knowledge (KM) is a valuable instrument in improving performance. Through the connection of people, processes, and technology, knowledge management focuses on leveraging corporate knowledge and operations (Khalid and Elkhatib, 2009).

2.4 KNOWLEDGE MANAGEMENT PRACTICES

Practices refer to the way ideas are translated into action in the process of accomplishing job functions. Knowledge management practices include the understanding of knowledge management: knowledge generation, knowledge acquisition, knowledge organisation, knowledge storage, transfer, knowledge sharing, and knowledge retention (Nonaka and Takeuchi 1995; Davenport and Prusak 1998; Branin 2003; Lee 2005; Jain 2007; Mavodza 2010).

Knowledge management practices are based primarily in conceptual frameworks that are responsible for the design and development of methodologies and technologies that can provide some common ground in the way people use and manage knowledge in an organisation (Nifco, 2005).

Advantages of using KM practices include the fact that they help organisations to refocus on using their already existing knowledge, they create the environment for innovation rather than limiting themselves to best practices solutions only. They enable convergence towards knowledge portals rather than separate silos of knowledge in an organisation, and they promote interconnectedness among departments, employees, and systems in an organisation (Branin 2003; Rowley 2003; Mavodza 2010).

The use of knowledge management principles can provide organisations with capabilities to survive in the current knowledge society and give them an opportunity to remain relevant in a changing information environment (Johnson, Kidwell and Vander Linde 2000; Mavodza and Ngulube 2011).

A study by Chong and Choi (2005) identified 11 key KM components for successful KM implementation. These are training, involvement, teamwork, empowerment, top management leadership and commitment, information systems infrastructure, performance measurement, culture, benchmarking, knowledge structure and elimination of organisational constraints.

Managing knowledge in organisations requires managing several processes of knowledge such as creation, storage, sharing, and evaluation; generation, codification, transfer and application (Singh and Soltani, 2010).

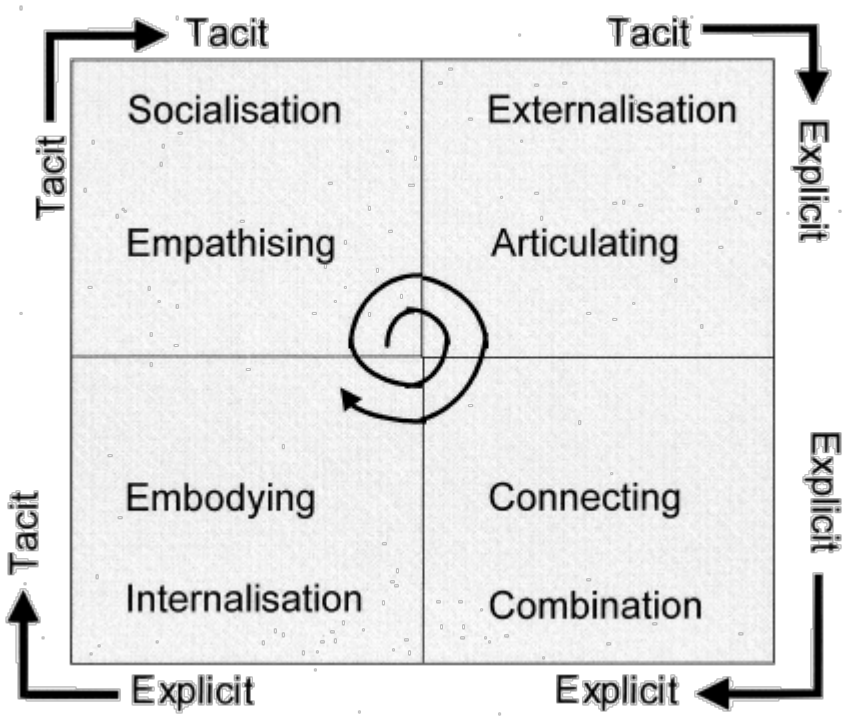
According to Magnusson (2003) knowledge management practices are activities exercised to manage knowledge. These KM activities can be identified in two categories: facilitating and intervening activities. The facilitating activities are activities acting to provide an arena for the management of knowledge, such as the acquisition and implementation of information and communication technology (ICT) and other structural investments for instance, the information structure as well as the creation of environments and cultures. The intervening activities were identified as activities acting to govern the management of knowledge in the arena. Intervening activities were identified as activities acting to govern the management of knowledge in the arena. Knowledge management practices include practical activities of governing knowledge (Skyrme, 2007). Those include creating, discovering, sharing, learning and organising knowledge.

These knowledge management practices include knowledge audit, transfer, storage, use/retrieval, dissemination/sharing, and retention.

2.4.1 Knowledge creation

Nonaka and Takeuchi (1995) called the knowledge conversion the process with which the organisations create knowledge. It is by means of this conversion that the tacit and explicit knowledge is qualitatively and quantitatively expanded. There are four modes of conversion: Socialisation (conversion of tacit knowledge into tacit knowledge); Externalisation (conversion of tacit knowledge into explicit knowledge); Combination (conversion of explicit knowledge into explicit knowledge); and Internalisation (conversion of explicit knowledge into tacit knowledge). To create new knowledge, firms must have knowledge creation capabilities (Wang, Su and Yang, 2010 cited Nahapiet and Ghoshal, 1998). Knowledge creation capability, which refers to an organisations' ability to exchange and combine knowledge to create new knowledge, plays a critical role in competitive advantage. Smith (2005) suggested that organisational routines have an important impact on knowledge creation capability in that they comprise a firm's climate that informally and tacitly defines how the firm develops and uses knowledge. An organisation's knowledge creation capability is defined as the extent to which its members have access to one another and other stake-holders.

Figure 2.1 : Knowledge Creation Spiral



By Nonaka & Takeuchi (1995).

Knowledge creation is akin to exploration, in which individuals and teams generate new ideas and concepts, by combining existing knowledge (Kogut and Zander 1992; Nahapiet and Ghoshal 1999). The creation of knowledge is closely tied to the innovation of products and services (Subramaniam and Youndt, 2005).

Japanese companies remain an enigma to most Westerners, argues Nonaka and Takeuchi (1995). They are not terribly efficient, entrepreneurial, or liberated. Yet, slowly but surely, they have advanced their position in international competition. The success of Japanese companies is not due to their manufacturing prowess or access to cheap capital but because of their skills and expertise at "organisational knowledge creation". According to Balestrine, Vargas and Fayard (2008), knowledge creation means the capability of a company as a whole to create new knowledge, disseminate it throughout the organisation, and embody it in products, services, and systems. Organisational knowledge creation is the key to the distinctive ways that companies innovate. They are especially good at bringing about innovation continuously, incrementally, and spirally.

Living in a world of uncertainty worked in favor of Japanese companies, since they were constantly forced to make their existing advantages obsolete. Times of uncertainty often force companies to seek knowledge held by those outside the organisation. Knowledge that is accumulated from the

outside is shared widely within the organisation, stored as part of the company's knowledge base, and utilised by those engaged in developing new technologies and products. *The knowledge creating company* might have succeeded in formalising the generic model of knowledge creation and demonstrating that Japanese companies had become successful, especially in the 1980s, because of their skills at organisational knowledge creation. Since then, Japanese companies have been faced with the longest and most severe recession in recent history. This would undermine the importance of knowledge creation.

Von Krogh, Ichijo and Nonaka (2000) suggest that enabling knowledge creation elaborates the reasons and practical ways to support knowledge creation so that firms can create organisational knowledge consistently. Creation of knowledge is not simply a compilation of facts but a uniquely human process that cannot be reduced or easily replicated. It involves feelings and belief systems of which one may not even be conscious of. Recognising the value of tacit knowledge and figuring out how to use it is the key challenge in a knowledge-creating company, one that requires extended conversations and good personal relationships-that is, knowledge enabling.

Organisational knowledge creation involves five main steps namely:

a. Sharing tacit knowledge

b. Creating concepts

c. Justifying concepts

d. Building a prototype

e. Cross leveling knowledge

The process starts when team members meet to share their knowledge of a given product area, much of which is tacit and can include insights into customer needs, information about new technologies, and personal skills required to perform complex tasks. Knowledge creation is a social as well as an individual process. Sharing tacit knowledge requires individuals to share their personal beliefs about a situation with other team members.

Nonaka and Teece (2001) points out that, the organisation is not merely an information processing machine, but an entity that creates knowledge by virtue of its actions and interactions with its environment and new synthesis of existing firm-specific capabilities. Knowledge is seen as humanistic and relational, not just abstract. Knowledge is created by means of a dynamic approach

that involves the interplay between the explicit and tacit knowledge – the knowledge conversion process. The creation process is self-transcending, you cannot do it without others or at least stimulus from outside. The process also requires a physical context. *'Ba'* offers such a context. 'Ba' is a Japanese word meaning a specific time and place. It is related to the concept of communities of practice, but is different as *ba* is a place where new knowledge is created, not just shared.

To create new knowledge, top management must create a vision and communicate it throughout the firm. This vision helps give direction to the knowledge-creating process.

2.4.1.1 Knowledge creation enablers

According to Ichijo (2006) "the creation of knowledge is not simply a compilation of facts but a uniquely human process, one that cannot be reduced or easily replicated", which among other reasons is why effective management of knowledge, that is, knowledge creation, sharing, protection, and discarding depend on an enabling context. Companies can generate such an enabling context for knowledge management and creation by using five knowledge enablers:

a. Instilling a knowledge vision

b. Managing conversations

c. Mobilising knowledge activists

d. Creating the right context

e. Globalising local knowledge

Instilling knowledge vision emphasises the necessity for moving the mechanics of business strategy to the importance of creating an overall vision of knowledge in any organisation. Toyota has clearly achieved this goal by implementing its 'learn local, act global' strategy, which serves as a knowledge vision at the same time (Ichijo, 2006). The second enabler, managing conversations, facilitates communication among members, a very important task since conversations are an 'arena' for creating and sharing social knowledge. Toyota has a strong culture of nurturing a listening attitude and building its listening capabilities. The third enabler is about mobilising knowledge activists. Knowledge activists are the knowledge proselytisers of the company, spreading the message to everyone and as such being essential for cross-leveling of knowledge, since they are the people responsible for energising and connecting knowledge-creation efforts throughout a

company. These are people or practitioners who are sent out to other parts of the company to teach and coordinate to their counterpart's way of doing business.

Forth enabler, creating the right context, examines the close connections among organisational structure, strategy and knowledge enabling involving organisational structures that foster solid relationships and effective collaboration (Ichijo, 2004). This collaboration relies on two infrastructure components: a shared pool of knowledge and universally available tools for moving knowledge around which includes processes that facilitates transfer of both explicit and tacit knowledge (Evans and Wolf, 2005).

The fifth enabler, globalising local knowledge, considers the complicated issue of knowledge dissemination globally (Von Krogh, Ichijo and Nonaka, 2000). Ichijo (2006) points out that it is crucial for the competitive advantage of a corporation operating globally that knowledge created in a certain local unit is disseminated to other local units effectively, efficiently and fast. This enabler does not work effectively without the other four enablers. Therefore, the development of leadership plays a crucial role in having all of the enablers to work together effectively.

2.4.2 Knowledge acquisition

From a firm's knowledge-based view, the uniqueness of knowledge plays an important role in maintaining a company's competitive advantage (Grant, 1996). Nevertheless, the essential dilemma within the firm is how to manage knowledge in a way that creates a competitive advantage (Barney, 1991). A company wishing to establish and maintain the knowledge needed for a competitive advantage must create and acquire new knowledge, transmit knowledge to appropriate parts of the company, interpret that knowledge and integrate it with existing knowledge, and use knowledge to achieve better performance (Cohen and Levinthal, 1990).

2.4.2.1 Sources of knowledge acquisition

Employees may obtain knowledge through a variety of learning activities within an organisation, such as training, formal education, experimentation, imitation, and self-directed learning (Reio & Wiswell, 2000). Individuals may rely on different learning channels to obtain explicit and tacit knowledge. Though organisations usually use a variety of mechanisms i.e., formal documents, training programs, group meetings to promote workplace learning, employees may not accumulate their knowledge merely through inside sources.

2.4.2.2 Knowledge elicitation methods

Many knowledge elicitation methods have been used to obtain the information/knowledge required to solve problems (Burge, 1998). These methods can be classified in many ways. One common way is by how directly they obtain information from the domain expert. Direct methods involve directly questioning a domain expert on how they do their job. In order for these methods to be successful, the domain expert has to be reasonably articulate and willing to share information. The information has to be easily expressed by the expert, which is often difficult when tasks frequently performed often become 'automatic'. Indirect methods are used in order to obtain information that cannot be easily expressed directly. These forms may be through the following:

a. Interviewing

Interviewing consists of asking the domain expert questions about the domain of interest and how they perform their tasks. Interviews can be unstructured, semi-structured, or structured. The success of an interview session is dependent on the questions asked (it is difficult to know which questions should be asked, particularly if the interviewer is not familiar with the domain) and the ability of the expert to articulate their knowledge. Interviews are direct method of acquiring knowledge (Burge, 1998).

b. Case study

In Case study methods, different examples of problems/tasks within a domain are discussed. The problems consist of specific cases that can be typical, difficult, or memorable. These cases are used as a context within which directed questions are asked. They may include procedures involved and reasons behind them and procedures used to solve past problems (Geiwitz, et al., 1990).

c. Protocol Analysis

Protocol analysis (Ericsson and Simon, 1984) involves asking the expert to perform a task while "thinking aloud." The intent is to capture both the actions performed and the mental process used to determine these actions. As with all the direct methods, the success of the protocol analysis depends on the ability of the expert to describe why they are making their decision. In some cases, the expert may not remember why they do things a certain way. In many cases, the verbalised thoughts will only be a subset of the actual knowledge used to perform the task.

d. Role playing

In Role playing, the expert adapts a role and acts out a scenario where their knowledge is used (Geiwitz, Kornel and McCloskey, 1990). The intent is that by viewing a situation from a different perspective, information will be revealed that which was not discussed when the expert was asked directly. This is an indirect form of acquiring knowledge or information.

e. Simulation

In simulation methods, the task is simulated using a computer system or other means. This is used when it is not possible to actually perform the task. It is another direct method of knowledge acquisition (Burge, 1998). According to the Business Dictionary (2010) simulation involves acting out or mimicking an actual or probable real life condition, event, or situation to find a cause of a past occurrence (such as accident), or to forecast future effects of assumed circumstances or factors. Whereas simulations are very useful tools that allow experimentation without exposure to risk, they are gross simplifications of reality because they include a few of the real-world factors. Examples are flying a plane, or driving military tank inside a lab building.

f. Observation

In observation methods, the knowledge engineer observes the expert performing a task. This prevents the knowledge engineer from inadvertently interfering in the process, but does not provide any insight into why decisions are made.

g. Document analysis

Document analysis involves gathering information from existing documentation. This may or may not involve interaction with a human expert to confirm or add to this information.

2.4.3 Knowledge transfer

According to Kumar and Ganesh (2009) knowledge transfer enables the exploitation and application of existing knowledge for the organisation’s purposes. In firms, variety of specialised knowledge is distributed among individuals, teams and units. In fulfilling its purpose of producing goods and services, a firm has to bring together specialised knowledge from different sources. For example, the capability of a product development team at the Ford Motor Company to design an improved engine depends on integrating the knowledge bases of automobile, mechanical, electronic and computer engineers, graphic artists, and several technicians.

Inside an organisation, learning involves the transfer of knowledge among different organisational units. Such knowledge transfer occurs in a shared social context in which different units are linked to one another (Tsai, 2001). Knowledge transfer among organisational units provides opportunities for mutual learning and inter-unit cooperation that stimulate the creation of new knowledge and, at the same time, contribute to organisational units' ability to innovate. Knowledge transfer is a process (not a one-time act) in which an organisation re-creates a complex, causally ambiguous set of routines in new settings and keeps it functioning (Szulanski, 1999).

According to van Wijk et al. (2008), inter-organisational knowledge transfer means the process through which organisational actors – teams, units, or organisations – exchange, applies and are influenced by the experience and knowledge of others. Successful inter-organisational knowledge transfers – including the three processes of the movement, assimilation, and application of knowledge are the processes through which the recipient exchanges and learns knowledge from the source to achieve internalisation and application. Inter-organisational knowledge transfer has become an attractive vehicle for creating value or developing competitive advantages as public organisations prepare for the potential mass departure of valuable staff, they are looking toward preserving the knowledge that these seasoned employees have amassed.

Organisations have been downsizing through hiring freezes, retirements, and other turnover. The employees left behind, meanwhile, are bombarded with more information, as well as rapid changes in processes and technology, compounded by having fewer people to handle the load. Another effect of a reduced workforce is a smaller pool of knowledge and expertise, thus managing and exploiting that knowledge becomes paramount (Fang, Yang and Hsu, 2002).

Knowledge management is one method for ensuring that years of accumulated wisdom do not leave the organisation once the employee retires and moves on. The challenge is to create an atmosphere that fosters knowledge sharing, while simultaneously underscoring that transferring knowledge is a way for employees to leave a legacy that will ultimately help the organisation long after they leave.

"Knowledge transfer" (KT) describes the actual movement of knowledge from one individual to another (Dept of Civil Service, 2002).

There is little consensus about the term "knowledge transfer". For example, it has been referred to as the process of transferring research results from knowledge producers to knowledge users (University of Victoria, 2006).

Some refer to knowledge transfer as turning knowledge into action – suggesting that it encompasses the process of both knowledge creation and knowledge application. Others use the terms knowledge mobilisation and knowledge exchange, which suggest a reciprocal co-creation of knowledge between university researchers and the community.

2.4.3.1 Transfer of best practice

Transfer of best practice is seen as dyadic exchange of organisational knowledge between a source and a recipient unit in which the characteristics of the source and the identity of each recipient both matter (Szulanski, 1999). The expression 'transfer of best practice' connotes the replication of a practice that is performed in a superior way somewhere within the organisation providing better results than known alternatives within or outside the company. 'Practice' refers to the organisation's routine use of knowledge.

The fastest, most effective and powerful way companies can manage knowledge assets is through the systematic transfer of best practices. It involves day-to-day, nitty-gritty, practical experiences of companies that have dared to put themselves at the forefront of this new management practice. Best practice takes info/data and put them in the context of real people and real experiences within the company. We learn by doing and watching others do. The transfer of best practice help others in the firm learn better, faster, and more effectively (O'Dell and Grayson, 1998).

Sie and Yakhlef (2009:176) also add that it is not easy to for knowledge to be transferred. Some reasoning is that most people have a natural desire to learn, to share what they know, and to make things better. So it's not something inherently wrong with human nature that is stopping the transfer of internal best practices. Rather this natural desire is thwarted by a variety of logistical, structural, and cultural hurdles and deterrents present in our organisation.

Research in the area of knowledge transfer has identified a set of factors that impact knowledge stickiness (Szulanski, 1996), or the difficulty of transferring it. As noted above, some of the factors that impact the KTP involve the nature of knowledge itself, the characteristics of cognising units (source and recipient), the social relationship between them and the organisational context (Argote *et al*., 2003). In these terms, absorptive capacity (Cohen and Levinthal, 1990), which is a property of the recipient unit, has proven to be central for it is related to an individual's prior knowledge and their experience. Experience is found to shape individuals' ability to absorb, learn and transfer knowledge. By associating new ideas with prior knowledge individuals can more easily internalise new knowledge.

2.4.4 Knowledge sharing

There is an old adage that knowledge is power. However, a more recent strong conviction is that the value of knowledge increases when it is shared (Ngulube, 2012). Knowledge sharing is seen as a dual process, a social interaction activity which involves someone providing guidance, sharing ideas and giving advice to someone who is learning-by-observation, listening and asking (Riege 2005; Janus-Hiekkarranta 2009; Ngulube 2012:69 cited Gurteen 1999).

According to Reid (2003) knowledge sharing creates opportunities to maximise organisation ability to meet those needs and generates solutions and efficiencies that provide a business with a competitive advantage. Hogel *et al*., (2003) suggests that knowledge sharing can define as a social interaction culture, involving the exchange of employee knowledge, experiences, and skills through the whole department or organisation. Knowledge sharing comprises a set of shared understandings related to providing employees access to relevant information and building and using knowledge networks within organisations.

By sharing people of one or more organisation or community share and exchange understandings, norms, values, attitudes, beliefs, ideas and expertise (best practices). To create a knowledge sharing culture one needs to encourage people to work together more effectively, to collaborate and to share – ultimately to make organisational knowledge more productive (Gurteen, 1999).

The organisation of today increasingly recognises the need to support, in one way or the other knowledge-sharing among its members. Employees and specifically managers are searching, testing and using various proactive interventions to facilitate knowledge-sharing (Hysman and de Wit, 2002:1). Knowledge-sharing is supported with different goals in mind: to acquire knowledge, to reuse knowledge, and to develop new knowledge. The state-of-the-art of today's information and communication technology (ICT) makes it possible. Tsui (2006) argues that knowledge sharing is becoming increasingly important to ensure that practice and policy are based on sound evidence. Knowledge sharing include:

- Any activity that aims to share knowledge and expertise among researchers, policymakers, service providers, and other stakeholders to promote evidence-based practice and decision making.

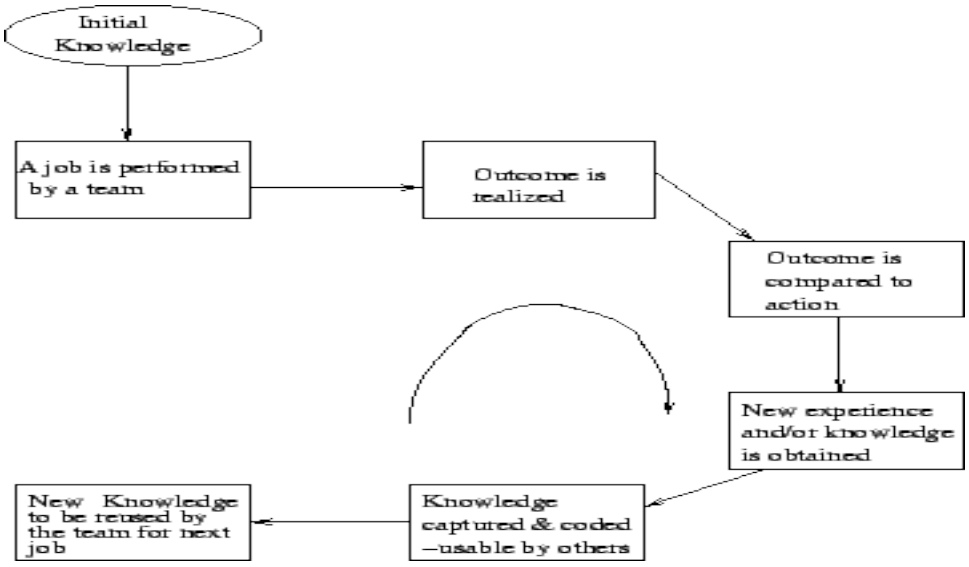
- Situations in which knowledge sharing may not be an explicit goal, but knowledge and expertise are shared nonetheless.

Disability Services Queensland (2007) acknowledges two types of knowledge sharing:

Internal: where knowledge is shared within individual organisations through, for example, team meetings, intranets, coaching, information bulletins and mentoring.

External: where knowledge is shared across organisations through, for example, regionally based networks like conferences, seminars and special chat rooms.

Figure 2.2. **Nonaka's Model of Knowledge Sharing (2004)**



Knowledge creation/knowledge sharing via teams

Adapted from Chaudhry (2005)

Knowledge sharing is central to the success of all knowledge management strategies. Effective knowledge sharing practices enable reuse and regeneration of knowledge at individual and organisational level. Organisations worldwide have been trying to undertake initiatives for introducing effective knowledge management by embedding knowledge sharing practices in their work processes (Chaudhry, 2005). There is a considerable duplication of efforts in knowledge capturing because of lack of knowledge sharing practices in a large multinational company operating in Singapore. In a series of focus group discussions with the managers in the company, they found that 30 databases of information related to products and customers were maintained in the company without interconnection. The study recommended implementing a corporate taxonomy to facilitate knowledge sharing in the intranet and other infrastructure services in the company.

Gurteen (1999) articulates that today creation and sharing of new knowledge is essential to the survival of almost all businesses. There are many reasons. They include:

- Competitive advantage
- Increasing turnover of staff. When someone leaves an organisation their knowledge walks out of the door with them
- Leveraged expertise not highly regarded in an organisation.
- Accelerating change – technology, business and social

According to Huysman and De Wit (2002) it is still debatable whether knowledge-sharing in a specific situation will bring real benefits. Success depends on a myriad of factors, such as the added advantage for an individual to share knowledge with others, collective involvement within the organisation and the correct application of ICT. Ultimately, the most important success factor for knowledge-sharing is the degree to which it is bound up in the day-to-day operations of an organisation. When knowledge-sharing process becomes institutionalised it suggests that all those involved in the organisation consider knowledge-sharing to be a crucial part of their daily work. At that point, knowledge-sharing becomes routine instead of just another task.

2.4.4.1 Mechanisms to share knowledge

Petrescu *et al*., (2010) underscores that knowledge sharing has been identified as a major focus area for knowledge management. Efforts are made with a view to identify the most effective ways to share knowledge, as a step towards improving organisational performance. In this striving, various factors have been identified as mechanisms to sharing of knowledge.

2.4.4.1.1 People-based mechanisms

By sharing people of one or more organisation or community share and exchange understandings, norms, values, attitudes, beliefs, ideas and expertise (best practices). To create a knowledge sharing culture one need to encourage people to work together more effectively, to collaborate and to share – ultimately to make organisational knowledge more productive (Gurteen, 1999).

a. Communities of practice

The communities of practice concept was pioneered by the Institute for Research on Learning, a spin-off of the Xerox Corporation in Palo Alto, CA. Communities of practice is based on the following assumptions:

Learning is fundamentally a social phenomenon. People organise their learning around the social communities to which they belong. Therefore, schools are only powerful learning environments for students whose social communities coincide with that school.

Knowledge is integrated in the life of communities that share values, beliefs, languages, and ways of doing things. These are called ***communities of practice*** (CoP) (Kimble and Hildreth, 2008). Real knowledge is integrated in the doing, social relations, and expertise of these communities. Knowledge is inseparable from practice. It is not possible to know without doing. By doing we learn.

A Community of Practice (CoP) is a group of people who have worked with each other for a period of time with a common sense of purpose and a real need to know what each other knows (Mitchell, 2003).

More precisely, a Community of Practice is a group of individuals who shares their interests and problems with a specific topic, and gains a greater degree of knowledge and expertise on a topic through their regular interaction (Wenger *et al.*, 2002). CoPs that are not effectively supported by the organisation will still exist, but they will never achieve their full potential and will tend to organise along friendship lines or within local, geographical contexts and not include the whole organisational context.

Today collaboration and information exchange and sharing are critical in driving both individual and organisational success. A CoP is a community whose main goal is learning. CoP is a concept derived from Lave and Wenger (1991), showing that learning means to participate in order to gain expertise. According to Wenger *et al*., (2002) CoPs are groups of people who share a passion for something that they know how to do, and who interact regularly in order to learn to do it better. CoPs are more often virtual (VCoPs). Therefore they require information technologies to support, improve, and develop the learning process and practices.

b. Face to face meetings

Face to face meetings give us the chance to talk with and listen to each other. Too often we waste this precious time simply disseminating information in speeches, where few talk and many listen. From a knowledge sharing perspective, there are many other options to enhance knowledge sharing every time we get together, from regular team meetings to infrequent, large global gatherings.

c. Knowledge fairs

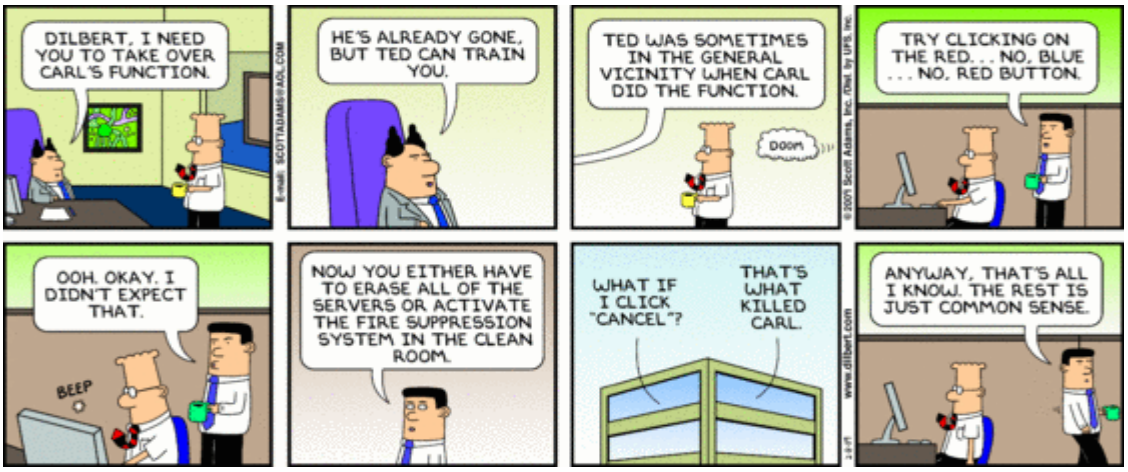
Knowledge fairs are face to face events in which participants set up displays to share their undertakings. Knowledge fairs can be internal to an organisation or open to partners and the public. They are free-flowing, open, flexible, and non-hierarchical…people can see what is happening, can interact with each other, and can see what others are doing. Knowledge Fairs aims to provide opportunities for multiple parties to broadcast their achievements, exhibit their products, and market new programs to donors, policymakers, other institutes and potential partners. They help people benefit from each other's experiences (Denning, 2010).

d. Mentoring

Mentoring is a powerful personal development and empowerment tool. It is an effective way of helping people progress in their careers. A mentor is a guide who can help the mentee to find the right direction and who can help them to develop solutions to career issues. Mentoring is a fundamental form of human development where one person (Usually senior, advisor, wise, teacher), invests time, energy, and personal know-how assisting the growth and ability of another person (Shea, 2002).

Mentoring is an organisational practice whose time has come. In today's competitive business climate, the need for continuous learning has never been greater. Mentoring has evolved from transfer of knowledge to knowledge acquisition, application, and critical reflection. Organisations engage in mentoring for a number of business reasons, many of which relate to the need to cultivate or manage knowledge and relationships. Mentoring is best described as a reciprocal and collaborative learning relationship between two (or more) individuals who share mutual responsibility and accountability for helping a mentee work towards achievement of clear and mutually defined learning goals. Learning is the fundamental process, purpose and product of mentoring (Zachary, 2005).

Figure 2.3: Creating a Mentoring Culture



[As illustrated from Zachary, 2005]

2.4.4.1.2 Technology-based mechanisms

Knowledge management requires technologies to support the new strategies, processes, methods and techniques to better create, disseminate, share and apply the best knowledge, anytime and anyplace, across the team and organisation, including its customers, partners and other key stakeholders. The key technologies are communication and collaboration technologies that are web based for internet and intranet usage as well as mobile technologies (Marwick, 2001).

a. Intranet

Baines (1996) describes Intranet as IT tool with which companies use to bring high, productivity, improved communication and team-working to workgroups who at last can be provided with the information they need – in a timely, accurate and convenient way. As the basis of corporate information service, an Internet has some major advantages over other media/technologies. An Intranet:

- Can deliver information on demand;
- Can guarantee that the information is latest and most accurate available;
- Ensures that information can be distributed from a single source (although, there is no need for that source to be the source of all information;
- Allows the information to be “owned”, contributed and maintained by the individuals who would normally maintain and prepare the original information;

- Can act as a central document delivery server.

In a world where things change as fast as the World Wide Web and the Internet, it is often hard to get a grasp on the exact meanings of buzz-words that suddenly spring up all the time (Monks, 1998). So what is the Intranet? If you had asked that question in 1995, if you got any answer at all, it would probably be different to the one you would get now. At that time, the word "Intranet" would refer to any network within an organisation.

According to Monks (1998) an intranet is service making use of the technologies of the World Wide Web (Usually HTML over HTTP) to distribute information within a single organisation over its internal network. Many Universities have (or had) an intranet for years and never knew it, because it was called a "Campus wide information service" or CWIS. The CWIS services used/are using a variety of technologies, mostly Gopher or Telnet Internet protocols. Other institutions may have called their local information service a bulletin board, but with the same aim, moving information around within an organisation. Only the people within the company to which it belongs gets to see it.

Thus Intranet enables people to pass whatever information they have to other colleagues in the company at no communication costs.

There is also Extranets, which are simply extension of an intranet for the purpose of providing company–specific information to selected other companies or individuals.

The concept of knowledge management (KM), the aspects of information communication technology (ICT), intellectual capital and people management have received wide attention from academics and practitioners in the past 10 years (Natarajan, 2008). Knowledge sharing (KS) is of vital importance, enabling to develop skills and competencies, increase value and sustain their competitive advantage. The ability to share knowledge between units contributes significantly to the performance of the organisations. Intranets are often cited as one of the pragmatic routes to promoting KS, as an essential part of KM strategy.

Intranet can be defined as a network that uses Internet concepts and technologies within an organisation in order to be accessed by employees to share knowledge. Such knowledge is stored electronically and access is usually controlled by password.

Companies/organisations may have the following objectives for the intranet (Natarajan, 2008):

- Providing repository for documents
- Obtaining reports, policies, procedures and forms
- Finding out about current projects, conferences, and training opportunities
- Domain of interest i.e. transportation, deployment, selling
- Publishing news, staff directory, events calendar etc.
- Links
- Discussions
- Messages from top management can be made available on the intranet

b. Groupware

Groupware is 'Software designed to help people involved in a common task achieve their goals,' according to Wikipedia. Groupware is a suite of applications that can be put together for the convenience of the collaborative team (Hastins, 2009). This means that groupware includes calendaring, link/bookmark management, document storage and/or creation, communication tools, and usually wiki-like component. Each of these separate parts can be used on its own, but groupware gives you a common look and feel and a common sign-on to keep the number of usernames and passwords that your team has to remember to a minimum.

As the name implies, groupware facilitates collaboration within an organisation through e-mail, calendaring, contacts, project management, and scheduling capabilities: It's about information sharing (Roberts, 2005). Some common groupware products are Microsoft's Exchange Server, Lotus Notes, and GroupWise. Another way to see if your e-mail system is groupware-enabled is to ask yourself, "Can I share my e-mail with other users in a real time?" If your answer "yes," you are probably using groupware. If the answer is "No," then you are probably using a traditional e-mail system.

c. E-mail

Freeman (2009) defines e-mail as an electronic mailing system, a method of exchanging digital messages across Internet or other computer networks. Originally, e-mail was transmitted directly from one user to another user of a computer. This required both computers to be online at the same time. An e-mail message consists of two components, the message header, and the message body, which is the e-mail's content. The message header contains control information, including an originator's e-mail address and recipient address. Electronic communication is vital to accessibility, quality, and quality of information. PCs and carriers (Internet) alike are identified with effectiveness and improved organisational performance of which e-mail is considered the most satisfactory tool (Davenport and Prusak, 1998).

The need for efficient but inexpensive modes of communication, for sharing information and knowledge generates increased electronic interaction and can, for example, improve management process by enhancing inter-departmental relations (Weick 1995; Figallo and Rhine 2002). E-mail is similarly an important communication mode when it is necessary to cover large geographic areas within a minimum increase in physical working space such as when organisations adopt virtual functioning operations and organise on increased electronic interaction (Gupta, Karimi and Somers, 2000).

Electronic mail has become the dominant method of communication for people in the workplace. Even those of us who seldom wrote on the job must write every day (Chan, 2005). We use e-mail to communicate with team members, clients, customers, clients, customers, and vendors; we even use it when we have a question for a colleague down the hall. Our e-mail is only likely to increase. Eighty per cent of the people who responded to a 2003 META Group survey of 387 organisations believed that e-mail is more useful than the phone.

According to Chan (2005) when used appropriately, e-mail lets us do the following:

- Reduce "phone tag" when communicating with people who are hard to reach on the telephone.
- Convey information and get responses to questions more quickly, easily, and informally than by e-mailing a letter or sending a standard interoffice memo.
- By using attachments, send documents over long distances in moments rather than days, and at a lower cost.

- Keep a lot of people informed by providing an easy means of getting the same message across to many people at once.
- Reduce the need for meetings where the only purpose is to share information.
- Communicate efficiently with people who work in other locations, especially those on other time zones.
- Maintain a written record of discussions, decisions, agreements, and the dissemination of information.

d. Wireless technology

Wireless communication has been long used in industry. The use of walkie-talkies is an obvious example. There are a number of examples of wireless used in industrial activities that can give us an idea of the role they have played so far (Egea-Lopez *et al*., 2005). Other examples include cellular phones and laptop computers with 3G. Also satellite communications have been long used to share information to isolated and remote facilities. More recently, Global Positioning System (GPS) is widely employed by a number of companies. Wireless though is often seen as a threat to communication security due to the broadcast media, therefore there needs to be a security policy developed.

Wireless technology has many practical applications in business and society. Its mobility allows users to access information any time and from any location. Today's most successful digital mobile cellular system is Global System for Mobile communications (GSM) with users in more than 174 countries.

As Firestome (2009) relates; It's a beautiful day in the park, and you're enjoying the sunshine and the company of your friends. Then you remember, you have to do research for your science project. Hey, no problem. Your laptop is right next to you. There in the grass, you begin searching the Internet for ideas as birds chirp in the background. Wireless technology puts information at your fingertips from practically anywhere in the world. It allows you to connect with friends, family colleagues and business partners, even if there isn't a telephone line for miles around.

Modern technology has given us easy, convenient ways to transfer information, communicate, and entertain ourselves. With wireless technology, we can do all these things on devices that work without wires or cables (Ibrani, *et al*., 2014).

e. Weblogs

The term *weblog* was first used by John Barger (1997), and was defined as "a web page where a blogger 'logs' all other web pages she finds interesting".

Weblogs can be anything from a journal to a stream of consciousness commentary or even a full-blown news sites. Weblogs tend to be simple, personal and immediate (Aker and Krieger, 2002). People can publish their thoughts, even for the first time, with almost no training. Example is Slashdot. The power of weblog is to spread a message, to start discussions, and to build communities around the world.

Weblogs have recently gained considerable media attention. Leading weblog sites are already attracting millions of visitors. Weblogs (or blogs) are becoming a 'new form of mainstream personal communication' for people to publish and exchange knowledge/information, and to establish networks or build relationships in the world of blogs, the so called "blogosphere" (Resenbloom, 2004).

As suggested by Wagner and Bolloju (2005), weblogs are ideal for experts who wish to broadcast their expertise to a large audience, and are also suitable for average persons who wish to share their stories/ diaries with a small group of others. They are community-supported in that they can link to other weblogs and websites, enabling the linkage of ideas, and hence stimulating knowledge generation and sharing between bloggers.

2.4.5 Knowledge repository/storage

A lot of the energy in knowledge management has been spent on treating knowledge as an "it"-an entity separate from the people who create and use it (Davenport, 1999). The typical goal is to take documents with knowledge embedded in them – which may include memos, reports, presentations, articles – and store them in a repository where they can be retrieved easily. Three basic types of repositories were found; namely of: (1) external knowledge, for example, competitive intelligence; (2) structured internal knowledge, such as research reports, product-oriented marketing materials. Techniques and methods; and (3) informal internal knowledge, like discussion databases full of know-how, sometimes referred to as "lessons learned".

According to Coakes (2006) transnational organisations have specific issues relating to space and time, and increasingly virtuality, in their working practices. Technology can assist to alleviate these issues and can provide the organisations with ways to share and distribute knowledge throughout their processes, sites and workplaces. Successful KM however, continues to need a socio-technological approach where the social aspects of knowledge storage need to be considered alongside the technical.

Intranets have been embraced by many organisations to support their knowledge management. The use of knowledge resources available through intranets, however, seems to be fairly low chiefly due to employees' difficulties in finding relevant information (Abadi, Ali, Chaudhry and Wee, 2008). Today, intranet also prevails as an organisational knowledge base. The crux of the issue for almost every aspect of the intranet, however, is the core consideration that knowledge is made readily accessible. Everything in it should serve with a goal of enabling users to find what they need. There have been very few specific studies on how knowledge should be organised and content should be managed on the intranet.

An organisation's capability to learn will be dependent on its ability to record organisational experience and, when needed, to retrieve this information. Some organisations have an archival system for this knowledge management practice (Oliver, 2008). Knowledge held by employees can be captured in formal reports, which suggests that for many organisations the organisation's memory is held by its employees and will be lost to the organisation if the employee departs.

Knowledge may be gathered, created or converted, but if it is not assimilated, the organisation will not be able to take action on that knowledge or actualise all of its potential value (O'Leary, 2013).

O'Leary (1999) argues that knowledge management requires among other practices the following:

- Conversion of data and text into knowledge
- Conversion of individual's and group's knowledge into accessible knowledge

2.4.6 Knowledge protection and retention

Wamundila (2008) citing (Choo 1995; Delong 2004; Musana 2006; Roos and Roos 1997:413) argues that most organisations are faced with the problem of knowledge loss, and proactive responses such as knowledge retention are being implemented to retain both tacit and explicit knowledge. Madsen *et al.*,(2003) state that firms often bring in personnel from rivals to gain tacit knowledge and skills. Knowledge retention deals with ways to capture knowledge "before it walks out the door" and avoid "reinventing the wheel." The need for knowledge retention is driven by trends in outsourcing and retirement. The loss of critical knowledge hits organisations twice: by the growing number of managers and executives retiring and exiting from the workforce, and by the shrinking pool of qualified younger workers.

Knowledge retention is about focusing on the critical knowledge that is at risk of loss, prioritising what is at risk based upon potential knowledge gaps and their impact upon overall organisational performance, and then developing actionable plans to return on investment effects on the organisation (Kirsch, 2008).

Organisations are faced with challenges of keeping their best assets (knowledge) and are battling to minimise the loss of important knowledge while experiencing high levels of retirees. Once abilities and expertise are acquired it does not necessarily remain at the disposal of organisations for all the times to come. Knowledge collected over the years can be lost through mere reorganisation or with merger of different companies (Levy, 2011). Employee transfers can also lead to inefficiency and knowledge loss. Other circumstances, such as job cuts or attrition, force the organisations to respond to impending reduction in knowledge. Otherwise it could lead to a collective loss of knowledge.

Martins and Meyer (2012) argue that an ageing workforce nearing retirement would lead to an enormous loss of Know-How in organisations. Regaining this knowledge can be very costly. Leading experts believe that it costs, on average, up to two years' salaries of an employee to regain lost knowledge, this making top management of many organisations very sensitive to this issue.

Knowledge retention has won in stature and meaning in recent past. It is leading to concrete projects in different organisations.

The required knowledge is often available somewhere in the organisation, but is not accessible when needed. This happens because knowledge in an organisation is often not structured and documented properly thus making knowledge retention a difficult objective.

Knowledge retention is key knowledge management (KM) requisite for 21st century organisations, according to leading KM practitioners who gathered in San Francisco for the Braintrust 2003 Practitioners Forum hosted by the Institute for International Research (Madanmohan, 2003). The four key drivers of KM today are the speed of global competition, rapid technological change, downsizing and the need to manage decentralised organisations, said Andrew Michuda, CEO of Sopheon.

APQC (American Productivity and Quality Centre) is coping with knowledge loss while dealing with a shifting work force. Knowledge loss takes place due retirement, downsizing, mergers, turnover and shifting jobs. “Knowledge retention gives a compelling business reason for doing KM,” said Bob Newhouse (2002) of APQC. Organisations face a looming wave of knowledge attrition. Some industries and sectors are at great risk. If present trends continue, America will experience a labor shortage of 4.8 million workers over the next 10 years and 19.7 million over the next 20 years. “Knowledge retention requires KM and HR groups to coordinate,” advises Newhouse. The World Bank identifies people who are retiring after decades of work.

Ngorima (2008) underscores that staff retention has grown to be a common and vexatious challenge to organisations both large and small. The challenge for many leaders is how to keep the employee motivated and committed in light of the lure of greener pastures, and income erosion. Employees will naturally look outside their organisations in order to confirm their worth. Organisations also ought to actively solicit the employee’s voice on ‘Reward Management’ through feedback surveys and incorporate the results in decision making in order to show care towards employees and their perceptions. This will ensure employees’ commitment and expending of discretionary effort which in turn translates into improved business performance.

According to McKee (2003) the cost of employee turnover is from 40-100% of an employee’s annual salary, when you consider lost productivity and knowledge, recruiting costs, reduced efficiency in transition and time Employee attrition is running wild in today’s tight labor market; however, the companies that keep their employees have found that what matters most is the not the pay, benefits, or perks, but the quality of the relationship between employees and their direct

supervisors. The bottom line is that people leave managers, not companies. MacKee (2003) adds that to retain employees one needs to give control and ownership in operations, give value of recognition to employees, trust in crew and consistent feedback is also important.

Kirsch (2008) says that there are three specific questions that must be asked when considering knowledge retention and any potential risk of loss of knowledge:

1. What knowledge may be lost?

2. What are the organisational consequences of losing that knowledge?

3. What actions can be taken to retain that knowledge?

One of the most significant challenges for any organisation is to get the "front edge" of any potential knowledge retention challenge. Rather than waiting until organisational knowledge "walks out the door" (or is walking toward the door – such as in typical "exit interview" efforts to retain knowledge) the organisation should focus knowledge harvesting efforts on obtaining as much information about its projects and processes – including the implicit knowledge that is often not directly documented. KM techniques that will improve knowledge harvesting and therefore knowledge retention on projects include Peer Assists, Action Reviews and Retrospect.

2.4.7 Knowledge audit

Leung *et al.,* (2010) argues that the aim of KM is not to manage all knowledge, just that which is most important to the organisation. It is about providing members of the organisation with the right knowledge, in the right place, at the right time. KM practice is usually implemented in phases. Tiwana (2002) lists a ten-step road map for KM practice consisting of four phases, and one of them involves evaluation of existing organisational knowledge infrastructures, particularly the existing ICT systems. The knowledge audit process involves a thorough investigation, examination and analysis of the entire 'life-cycle' of corporate knowledge: what knowledge exists and where it is, where and how it is being created and who owns it.

Knowledge audit is considered a necessary first step in designing a proper road map and implementation plan from a KM program (Hylton, 2002). It is believed that before major construction and project, there has to be there a plan to provide a guide on what to build on and measure of that project. The same is with knowledge, before any knowledge project there has to be

a study of what knowledge is available in that company with which a knowledge project needs to take place. As a knowledge management methodology it will be important to study knowledge audit in this research.

Bell (2001) argues that measuring is often not necessarily what we need to measure. An example of dollars; traditional accounting techniques have found it easy to count dollars, as if that calculation alone proved valuable as a predictor of company fortunes. There is a belief however, that existing accounting measures will not fill the bill for the new knowledge economy. Performance is increasingly influenced by the information and knowledge assets, held, built and leveraged by companies. Investors, management, customers, and regulators have a need for information and knowledge matrix or evaluation program that are reliable and acceptable for productive organisational performance.

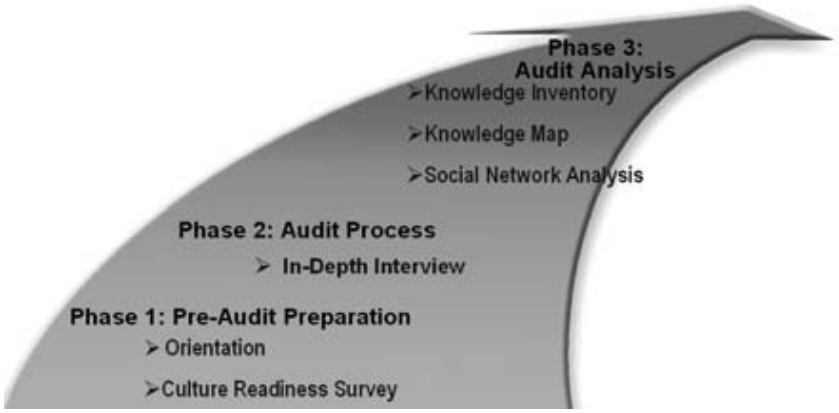
Vestal (2005) says that if organisations do not fully leverage their existing expertise, then they risk losing a valuable asset: internal know-how. Organisations capture, transfer, and use knowledge in order to attain strategic goals in a more efficient and innovative manner prior to 1995. Few tools existed to understand what knowledge was embedded in organisations or analyse the flow of knowledge in organisations, and any methodologies for improving flow and use were miles away from materialization (Mearns and Du Toit, 2008). In other words, knowledge management was a theory struggling to find application in reality. Today, most large organisations have caught on to the importance of managing knowledge and have begun to embed explicit knowledge management activities into their operations.

Hylton (2002) states that the knowledge audit also known as the ‘K-Audit’, and even the ‘Knowledge Management Audit’ should always be the first major stage of a knowledge management initiative. A knowledge management program or system should never be implemented without a knowledge audit having been conducted.

It is of vital importance that an organisation’s knowledge management initiators or practitioners always seek to assess the company’s current knowledge management health, before proceeding to implement knowledge management. Management and exploitation of corporate knowledge is intrinsically intertwined in the corporate knowledge culture, which is in turn determined by the corporate knowledge people. This is why a knowledge audit must be people-focused.

According to Choy, Lee and Cheung (2004) knowledge audit lays a concrete foundation for any knowledge management program. Knowledge plays a strategically important role to the success and continuous growth of an organisation. In order to design a proper roadmap for implementing KM programs and determine the strategy for implementing such program in a particular organisation, an understanding of the organisation including its culture, relationships as well as communication networks is critical. In order to gain such kind of understanding, knowledge audit is important. Most organisations launch KM initiatives without firstly measuring whether the organisation is ready for doing so or not. Such initiatives often end up with failure or not up to the initiative expectation.

Figure 2.4 Knowledge Audit Roadmap or Approach



Taken from Choy, Lee and Cheung (2004)

2.5 KNOWLEDGE EXPERT

Barley and Hunda (2004) suggest that knowledge experts are professionals, practitioners or experienced persons in communities of practice with critical skill and know-how providing specialised knowledge or task in a community or company. In fact, the more esoterically skilled the practitioner, the more important they become to the community they serve.

Every person can simultaneously be a novice and an expert in different fields of knowledge. Novices and experts need organisational leeway which allows time for creating “knowledge nuggets”(providing knowledge) and for learning (obtaining knowledge). The operating core organisations consist to a great extent of specialists and their expert knowledge. Knowledge transfer among the members of an organisation is a basic necessity. The longer a person works in a field, the more expertise that person develops in that field (Wilkesmann and Wilkesmann, 2011).

In the beginning, novices conform to rules. They have more or less “textbook knowledge” without connecting this knowledge directly with practice. At the expert stage, persons use an intuitive mode of reasoning because they have authoritative knowledge across their area of practice. The intuitive mode of reasoning is also known as tacit knowing (Polanyi, 1967). This circumstance makes experts autonomous, reflexive, and evaluative in their daily action.

2.6 KNOWLEDGE PRACTITIONER/MANAGER

Ward and Wooler, (2010) suggest that knowledge is the lifeblood of an organisation and therefore knowledge and information managers have a key role to play in keeping knowledge flowing, used and retained in their organisations. It is critical that when we talk about knowledge management and its practices we also look into the driving factors behind these practices as to who is accountable to make or break successful knowledge practices (Pascale, Milleman and Gioja, 2000). The role of knowledge and information managers in organisations is in part, to ensure that all forms of knowledge – tacit, implicit and explicit flow freely and quickly. This means treating knowledge as an organisational asset and having in place the appropriate approaches, tools and techniques enabled by supportive leadership (Sunassee and Sewry, 2002).

Knowledge management is no more an activity to support the business. Its function is to develop organisations’ value (Border, 2006). There is no knowledge without someone being able to manage it (De Giovanni, 2009; Gottschalk, 1999). However, no clear strategic information regarding the creation, collection, and use of knowledge is available, and the question about the professional figure possessing the above measures.

The knowledge management practitioner (KMP) is responsible for the creation, distribution, and use of knowledge (Davenport and Volpen, 2001). He or she provides guidance, insight, and feedback to the entire organisation. KMP plan, organise, and coordinate a mix of knowledge, information, data, and people or knowledge workers who own the expertise. They develop strategies, policies and practices that optimise the knowledge resources.

Many different activities are undertaken under the banner of “knowledge management” (KM): intranets, communities of practice, networking, patent management, etc (Perrin, 2012). To better understand how knowledge management had matured it is important to look at those who are in charge of implementing projects or initiatives related to KM: knowledge managers. A knowledge

manager/practitioner has a responsibility towards the knowledge assets of the organisation. He initiates, drives and coordinates knowledge management programs (Earl and Scott, 1999).

According to Perez-Bustamante (1999), KMP executes several roles including:

- Ascertaining the knowledge existing between firm boundries;
- Deciding the investments in communication infrastructure and the human-resource policy to be developed;
- Controlling the flows of information to be exchanged with external entities and those that need to remain internalised;
- Traveling freely around the organisation boundries and levels, developing knowledge creation.

Moreover, the KMP possesses an integrative educational background of human resources, business strategy, and information technology (Perez-Bustamate, 1999). There are several tasks that KMPs should execute, in particular:

- Develop knowledge and obtain the consensus of the top management for considering knowledge management as a weapon of competitive advantage;
- Monitor policies related to human resources;
- Provide communication infrastructure within and between the different departments of an organisation and control the correctness of its use;
- Individualise the people responsible for inflows and outflows of knowledge management;
- Exploit and create opportunities for the internal dissemination of knowledge;
- Determine clear knowledge-management policy;
- Develop knowledge reservoirs and facilitate their access.

2.7 KNOWLEDGE MANAGEMENT IN MILITARY ORGANISATIONS

According to Lambe (2003) the development of KM in military has been accepted and used extensively for thousands of years, the military have been leaders in adopting and advancing KM practices as applied in the military "intelligence". KM, intelligence applications, and decision-making skills have been at the forefront of military doctrine over the past decades. In today's modern military management, for example, the U.S. military has launched the Army Knowledge Online (AKO), which enables the army personnel to gain quick online access to important army information, news, education and training opportunities, as well as knowledge centres and e-mail. The AKO is the army's integrated enterprise portal for accessing information, conducting business, and managing operations. Integral to Army transformation, AKO crosses the war-fighting, business, and intelligence mission areas to support the current and future force (Lord, 2010). For effective KM implementation, the army had produced the Army Knowledge Management (AKM) as the strategy to transform itself into a network centric, knowledge-based force with KM methods and successfully applied them in its workplace (Santamaria and Keslar, 2002).

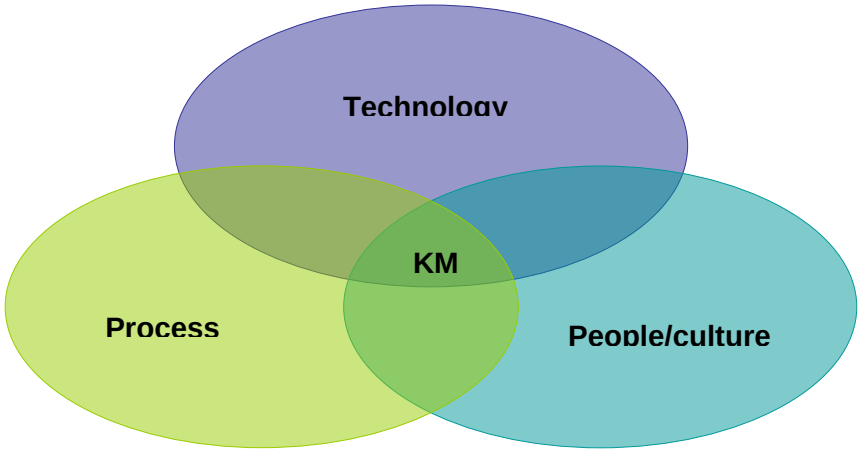
KM application within military environment requires knowledge processes that are robust and reliable within operational contexts. The knowledge creation and conversion processes must match the pace of the military operations. McIntyre, Gauvin and Waruszynski (2003) defined military KM as "a strategic approach to achieving defense objectives by leveraging the value of collective knowledge through the process of creating, gathering, organising, sharing and transferring knowledge into action". Neilson (2008) defined KM as a discipline that promotes an integrated approach to identifying, retrieving, evaluation, and sharing an enterprise's tacit and explicit knowledge assets to meet mission objectives. Military KM will play a valuable role in leveraging existing knowledge and converting new knowledge into action (Gauvin, McIntyre, and Waruszki, 2003). The applications of KM strategy in military context is seen extensively applied in military of major countries, like United states of America, Britain, Canada, Australia and several countries within this region such as Japan, Korea, and Singapore to name a few.

KM is demonstrated also in military intelligence. Similarly, battlefield intelligence requires KM that is accurate and timely to "determine enemy or potential enemy force composition, position, capabilities and intentions; while reducing the potential for strategic, operational, tactical, or technological surprise" the intelligence cycle is a four-step process for obtaining, assembling and evaluating information, converting it into intelligence and disseminating it.

Conceptually, the KM in military is about connecting those who know with those who need to know (know-why, know-what, know-who, and know-how) and leveraging that knowledge across the military organisation (Neilson, 2008).

The principles are organised around the main tenets of KM: people/culture, process, and technology working together to facilitate knowledge sharing as shown in figure 2.5.

Figure 2.5: Main Tenets of Knowledge Management (Source: Neilson, 2008)



The AKM principles could be applied to military organisation that will help preserve tacit and explicit knowledge and accelerate learning as units and personnel rotate in and out of organisations. The principles provide authoritative guidance to military commands and organisations developing or engaging in knowledge management efforts. By adhering to and applying the following principles, the military, as an enterprise, will accelerate individual, team, and organisation learning to meet mission objectives. Three main tenets of AKM principle dimensions are explained as follows:

a) People,/Culture dimension

- Principle 1: Train and educate KM leaders, managers, and champions.
- Principle 2: Reward knowledge sharing and make KM career rewarding.
- Principle 3: Establish a doctrine of collaboration.

- Principle 4: Use every interaction whether face-to-face or virtual as an opportunity to acquire and share knowledge.

- Principle 5: Prevent knowledge loss.

b) Process dimension

- Principle 6: Protect and secure information and knowledge assets.

- Principle 7: Embed knowledge assets (e.g. Links, podcast, videos, documents) in standard business processes and provide access to those who need to know.

- Principle 8: Use standard business rules and processes across the organisation.

c) Technology dimension

- Principle 9: Use standardised collaborative tools assets.

- Principle 10: Use Open Architectures to permit access and searching across boundaries.

- Principle 11: Use a robust search capability to access contextual knowledge and store content for discovery.

- Principle 12: Army Knowledge Online (AKO) or Defense Knowledge Online (DKO) is the preferred portal and access point to all Army enterprise knowledge assets.

Next generation warfare will continue to rely heavily on information from many sources that must be assessed and compiled for immediate use. The “information superiority” becomes the determinant of the future war management and requires drastic improvement in information management, assurance, exchanging and sharing of superior knowledge. Information superiority is a state that is achieved when a competitive advantage is derived from the ability to exploit a superior information position (Alberts, Garstka and Stein, 2000). In order to achieve information superiority, knowledge is seen to be the most important strategic resource for capitalising the conduct of battle space management. The awareness of managing knowledge effectively could be achieved through the application of knowledge management (KM)

2.7.1 Existing pro-knowledge management Defence Departments globally

Most of the following countries military documents are confidential thus not readily available to general public, however what is presented is papers referenced herewith attesting of existing strategies on knowledge management in their militaries.

The **U.S. military** has launched the Army Knowledge Online (AKO), which enables the Army personnel to gain quick online access to important Army information, news, education and training opportunities, as well as knowledge centres and e-mail. The AKO is the Army's integrated enterprise portal for accessing information, conducting business, and managing operations. Integral to Army transformation, AKO crosses the war-fighting, business, and intelligence mission areas to support the current and future force (Lord 2010). For effective KM implementation, the Army had produced the Army Knowledge Management (AKM) as the strategy to transform itself into a network centric, knowledge-based force with KM methods and successfully applied them in its workplace (Santamaria, 2002). The US Secretary of the Army and Army Chief of Staff signed the *Army Knowledge Management Principles* that recognises KM as a tool that connects those who know with those who need to know, and leveraging that knowledge across the institutional army personnel, contractors, non-governmental organisations, other military services and coalition partners. KM goals support an army that automatically shares intellectual capital with no structural or technical barriers; an army that values good ideas regardless of their source; and an army that really collaborates and values collaboration as a means to mission success (Neilson, 2008).

Consistently, the U.S. Air Force has developed the Air Force Knowledge Now (AFKN) with features that include customisable discussion forums for fostering worldwide communication among staff members, alert notifications to receive e-mail, notification regarding additions and changes to specific documents, forums and calendars, and links administration for providing access to relevant resources and items of interest. Likewise, the Navy Knowledge Online (NKO), gives sailors instant access to all training and educational information related to their chosen occupational fields. KM portal assists in identifying career paths, milestones, and educational tools and opportunities, which provides greater operational efficiency and eliminates organisational redundancies (Walter ,2002).

According to US Colonel, Lepak (2009), the Army needs to reaffirm knowledge management as the means to supporting its Army's Strategy for the 21st Century of transforming itself into a network – centric knowledge-based force. The best way to do this is for the army to write an Army Knowledge

Management Strategy that lays out a vision to shape the entire army into knowledge-based force for the next twenty or thirty years. The strategy would provide a unity of effort for the army enterprise, which is currently operating piece meal.

 A study on military officers of the **Malaysian Armed Forces** (MAF) found that for most organisations without exception to the military like MAF, the application of KM is regarded as inevitable. Hence, KM involves the management of knowledge assets, that has to do with the creation of explicit process that enhance knowledge and learning throughout the organisation (Manuri and Yacoob, 2011).

Based on the authors observation, it was found that the existence of knowledge in the MAF does not have any prominent KM practices and applications. However, it was found that the existence of knowledge in the MAF organisation is available and embedded in the form of doctrines, policies and procedures, operations and training manuals, information systems, work flow and databases. Unfortunately, those elements of KM were present in silos and not managed in concerted effort. The lack of KM practices and applications in the MAF was perceived as the lack of awareness and understanding and exposure about KM in the organisational context among the MAF personnel. .

The MAF perception towards knowledge Management (KM) which incorporates knowledge creation, KM processes, technology and applications was conducted in the military environment. Current challenges faced by the MAF on the threat of globalisation and the advance of information and communication technology (ICT) has been shifted and identified as more complex in nature. As a result, the MAF now needs thinking soldiers; that is, people who are innovative and creative to fight digital warfare, which present and future wars will be all about. A balanced and credible force guided by sound operational strategies and concepts, equipped with high-tech weapons and manned by competent professionals will be direction of MAF in developing its forces (Manuri and Yacoob, 2011).

In 2002 joint letter entitled: *Future Directions For Information Management in DND/CF*, the Chief of the Defence Staff (CDS) and the Deputy Minister of National Defence stated that knowledge management was: “An environment that facilitates knowledge discovery, creation and innovation, and which fosters the development of a learning organisation.”

 People in the Department of Defence in Canada including senior officers believed that knowledge management was just another passing fad with little understanding of what knowledge management is and why it should be a priority in the Defence Department (Girard, 2008). The author further articulates why knowledge management is important and also to stimulate debate on the subject and challenge the naysayers to explain their views. Defence is a complex, high consequence of error, capital-intensive, knowledge-dependent and also national security instrument. Today a document exists on the **Canadian** Knowledge Management System (KMS) within the Land Force Command and Control Information Systems, coded (LFC2IS) by Dr Champoux. The paper presents an overview of the Knowledge Management System (KMS) project history and the system funtionalities. It shows how KMS permits the Canadian Forces to synchronise lessons learned, doctrine and system help and to manage its knowledge and exploit it, either as a knowledge management process or as assets that can be used independently.

 **The Australian Army** is investing in a substantial knowledge management initiative as part of its Adaptive Army Strategy. The Australian have invested on a “learning organisation” approach. It is a robust start to formalise and institutionalise knowledge sharing and learning culture.

 Paper by Dahanayake (2012) on learning organisation dimensions of the Sri Lanka Army, gives information on the extent to which **Sri Lanka Army** can be described as a pro-knowledge management institution. Citing McCausland and Martin (2001), Dahanayake (2012) points out that the main task of a military is to safeguard a nation against aggression from other countries or from within the country and to achieve national goals. The ultimate aim of a military is victory. According to Reimer (1999), it is expected that the military can adapt to any environment. The study shows how even a non-profit-oriented organisation like the Sri Lanka Army can be informed from a concept like the learning organisation, and indeed emphasises the overarching need for a military organisation to operate as a learning organisation. A learning organisation creates, acquires, transfers and modifies behavior while absorbing new knowledge (Garvin, 1993, 1994). In the modern context, the speed at which warfare could erupt and the complexity of technology involved makes it imperative that militaries learn and adapt quickly (Demchak, 1995). Whether war

or peace prevails, the speed of military learning determines how well equipped the organisation is when facing combat surprises.

A paper by SLTC Ramanathan (2012) conceptualises the issues and possible enhancements to shift existing systems, processes and practices in order to address operations learning within the **Singapore Armed Forces** (SAF). It discusses the fact that new relevancy for KM in the SAF as an operationa. This paper further state that one of the identified challenges for the SAF is for commanders to consciously establish rapid operations learning cycles and to inculcate operational imagination in their decisions and planning processes. The author continues to attest that "If we still cannot identify who-knows-what within our organisation, the problem might not only be with knowledge sharing, but with the design and implementation of KM transfer systems, processes and practices in the SAF". Through its partnership efforts with the services, the SAF Center for Leadership Development (CLD) is beginning to grow these skills into sustainable action on the ground. When developed into ops, these skills strengthen insight formulation and generate lessons learnt. These skills form the true bedrock of operational learning.

2.8 KNOWLEDGE MANAGEMENT STRATEGY

There is no one-size-fits-all way to effectively tap a firm's intellectual capital. To create value, companies must focus on how knowledge is used to build critical capabilities (Donoghue, Harris and Weitzman, 1999). The following section discusses a knowledge management strategy which can help organisations channel their knowledge to maximise their intellectual capital.

2.8.1 What is KM strategy

Business organisations are coming to view knowledge as their most valuable and strategic resource. Many executives are struggling to articulate the relationship between their organisation's competitive strategy and its intellectual resources and capabilities. They do not have well-developed strategic models that help them to link knowledge-oriented processes, technologies, and organisational forms to business strategy, and they are unsure of how to translate the goal of making their organisations more intelligent into a strategic course of action. They need a pragmatic, yet theoretically sound model of what Zack (2002) calls knowledge strategy. The most important context for guiding knowledge management in a company is the firm's strategy itself (Zack, 2002).

An organisation's strategic context helps to identify knowledge management initiatives that support its mission, strengthen its competitive position, and create shareholder value.

A firm that had invested millions of dollars in a state-of-the-art intranet intended to improve knowledge sharing got some bad news: Employees were using it most often to retrieve the daily menu from the company cafeteria. The system was barely used in a day-to-day business activities. In helping the situation executives need to develop framework that associates specific knowledge-management strategies with specific challenges that the company faces (Donoghue, Harris and Weitzman, 1999).

Firms need to perform a knowledge-based SWOT analysis, mapping their knowledge resources and capabilities against their strategic opportunities and threats to better understand their points of advantage and weaknesses. They can use this map to strategically guide their knowledge management efforts, bolstering their knowledge advantages and reducing their knowledge weaknesses.

According to World Health Organisation (WHO) today's era is challenging time for the global public health of populations in developing countries. Many of the solutions to health problems of the poor exist, but are not applied, leading to what is called the "know-do" gap: the gap between what is known and what is done in practice. The mission of the Global WHO Knowledge Management (KM) team is to bridge the know-do gap in global health by fostering an environment that encourages the creation, sharing, and effective application of knowledge to improve health (WHO, 2010). The following strategic directions are followed in managing knowledge:

a. Improving access to the world's health information

b. Translating knowledge into policy and action

c. Sharing and reapplying experimental knowledge

d. Leveraging e-health in countries

e. Fostering an enabling environment

2.8.2 Examples of problems addressed by KM in an organisation:

- ❖ Aging workforce

The aging or retiring workforce is a problem faced by several industry sectors. Often times, a workforce was hired during a period of growth and as such, there is a large cycle of retirement facing the business at a certain point in future. Most of these employees have critical knowledge which unless properly captured can impact the business negatively in responding to its activities (Smith, 2005).

- ❖ Merger results in a loss of valued knowledge

Mergers and acquisitions result in overlapping resources and often times people are reassigned or let go. As a result knowledge of the existing corporate resources is lost; this knowledge may be about corporate assets, infrastructure, and operations.

- ❖ Unavailability of experts

During major events, it is critical to have access to knowledgeable individuals and have access to their systems. Often if this information is not stored so others can determine problems and solutions, the knowledge is locked up with the individual. Have you ever made a phone call and gotten the response, you'll have to wait until next week when 'Modise' is back to be sure.

Any knowledge program must first lay out a strategy and objectives as to what the program is designed to do. The first step in setting a strategy is to define the problem that the program is to solve and address. Is it to avoid the loss of knowledge for an aging workforce? To better aid decision making and collaboration? Etc. Once this idea is developed, a clearer approach and strategy can be developed.

2.8.3 Elements of the strategic plan

A KM strategic plan should have the following elements:

- Objectives, problems that will be addressed
- Approach
- Plan
- Budget

- Cost benefit analysis
- People, process, data, and technology assessments
- Measurements

The first step in developing a knowledge management strategy will be to identify who is going to lead on KM within the organisation. In many organisations someone is appointed at a board level as a Chief Knowledge Officer (CKO). This is a role that already exists in many commercial organisations (Skinner, 2008). The CKO would be responsible for guiding the strategy and helping develop a culture of knowledge sharing throughout the staff. Once knowledge has been captured, networks have been formed, and lessons learned, there needs to be some way of storing the resulting information, so that it is easily accessible for all staff. Owing to the quantity of information, and the massive advantages to be gained from fully cross-referencing the information, this store is usually electronic, and may be web-based.

A knowledge management strategy should encompass the need to ensure availability of personal computers (PCs), which have been, for some time, the key tool in terms of information storage and transfer. In many cases intranets are used to connect people and people with information (Skinner, 2008).

2.8.4 Knowledge management success factors

It is widely accepted that knowledge management is a critical success factor for enterprises. Not yet known sufficiently are the factors, which influence the success of knowledge management in order to measure the effectiveness of knowledge management (Lehner and Haas 2009; Helm, Meckl and Sodeik, 2007). The concept of critical success factors imply that in each branch and in each area, a limited number of dimensions/factors exist which definitely determines the success of companies (Klotz and Strauch, 1990). These dimensions may be: human beings, organisation and technology.

Under the dimension “human being” is the individual attitude of each staff member facing knowledge management and also that of leadership, which means the support of knowledge management through the executive staff. The dimension “organisation” subsumes the factors which are operated and designed by the organisation itself. To name them, at this point, personnel development, meta-communication about knowledge management, the goals of knowledge management, the responsibility for knowledge management, available stimulation system, existing social net and a knowledge promoting corporate culture.

The dimension ‘technology’ includes factors, which are related to the goods and arrangement of the supporting knowledge management systems

An elementary success factor of knowledge management (KM) is to have a common understanding of the terms ‘knowledge management’ and ‘knowledge sharing’ and how they apply to your situation and needs (Hasanali, 2002). Some inherent critical success factors are built into the definition. The success of a KM initiative depends on many factors, some within our control, some not. Typically, critical success factors can be categorised into five primary categories:

1. Leadership;
2. Culture;
3. Structure, roles, and responsibilities;
4. Information technology infrastructure; and
5. measurement

Leadership plays a key role in ensuring success in almost any initiative within an organisation. Its impact on KM is even more pronounced because this is a relatively new discipline. Nothing makes greater impact on an organisation than when leaders model the behaviour they are trying to promote among employees. The CEO at Buckman Laboratories, a chemicals company, champions the cause for KM within the organisation and personally reviews submissions to its knowledge bank. When he notices that a particular employee has not been active within the system, he sends a message that reads: “Dear associate, you haven’t been sharing knowledge. How can we help you? All the best, Bob.”

At the World Bank, the president’s support led to the creation of an infrastructure that promoted and supported the growth of communities of practice (CoPs) not only throughout the organisation, but also around globe.

Bartczak (2002) identifies the crucial elements that act as barriers to the KM innovation such as the elements of managerial, resources and environmental influences in the military. It was also suggested that, to implement KM there must be a continuous leadership guidance, support, reinforcement of KM systems, and technology support (Semmel, 2002).

Culture according to Hasanali (2002) is the combination of shared history, expectations, unwritten rules, and social customs that compel behaviours. It is the set of underlying beliefs that while rarely exactly articulated, are always there to influence the perception of actions and communications of all employees. There need to be more time given to enable employees to work effectively. Processes, technologies, and roles designed during a KM initiative must save employees' time, not burden them. There also needs to be connected reward systems. People share because they want to, they like to see their expertise being used, and they like being respected by their peers. As such rewards need to be in order to encourage knowledge sharing.

Structure, roles, and responsibilities is organisational structure that govern the KM initiatives, for example; APQC has found common elements among best-practice partner organisations: a steering committee, a central KM support group, and stewards/owners throughout the organisation who are going to be responsible for KM. The steering committee usually consists of executives at the top level. They promote the concept and provide guidance, direction, and support. The central KM group is typically made up of three to four people who provide the initial support for projects or initiatives, which are usually handed over to the business owners once they are implemented. The central group usually consists of people with advanced project management, facilitation, and communications skills. The stewards, or owners, are responsible for knowledge sharing and acquisition within the business units. They model and teach employees the principles of knowledge sharing using a common vocabulary (Hasanali, 2002).

Information technology (IT) infrastructure

Without a solid IT infrastructure, an organisation cannot enable its employees to share information on a large scale. Yet the trap that most organisations fall into is not a lack of IT, but rather too much focus on IT. This IT facility must be standardised and updated to ensure sustainability and scalability of KM efforts. Adequate training must accompany the technology in place (Hasanali 2002).

2.9 SUMMARY OF CHAPTER TWO

A growing number of organisations are embracing knowledge management as a key strategic initiative. By introducing knowledge management techniques, many organisations have been able to improve the flows of knowledge around their organisation, make it accessible when and where needed to use it to add value, such as through increased productivity, better customer service, improved business processes or new products and services. This factor was discussed in Chapter Two by mentioning some of those existing and successful organisations embracing knowledge management including military organisations.

This chapter has identified and presented through literature important aspects of knowledge management practices. Knowledge management practices are based primarily in conceptual frameworks that are responsible for the design and development of methodologies and technologies that can provide some common ground in the way people use and manage knowledge in an organisation. These knowledge management practices include knowledge audit, creation, transfer, storage, use/retrieval, dissemination/sharing, and retention. Chapter Two also discussed mechanisms to sharing knowledge, knowledge protection and retention, as well as a focus on a KM Practitioner.

It was also critical that above the literature on KM and practices, this chapter discusses also knowledge management strategy as a supporting component to KM practices. An organisation's strategic context helps to identify knowledge management initiatives that support its mission, strengthen its competitive position, and create shareholder value. Like any resource and project in an organisation KM will need vision, plan or strategy to be able to deliver the goods based on the objectives and mission of the organisation. This chapter tries to show those factors that contribute to KM being a success in an organisation through case studies.

The next chapter, Chapter Three gives the reader an overview of how this study was conducted. Detailed presentation of the research design and methodology is outlined.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

Chapter Two presented and discussed literature on knowledge management (KM) practices, importance of KM in organisations and private sectors, KM in military institutions including enterprises and other institutions. Knowledge expert and knowledge practitioner as well as KM strategy are also discussed in Chapter Two.

Chapter Three describes in detail the research design and approach that the researcher used in this study. Research is key to extending the frontiers of knowledge and assisting decision makers. The production of valid knowledge hinges upon the method of research used. The consumers of the research products have a right to know how the study was conducted (Ngulube, 2005).

The purpose of the research approach and design section is to describe how the research was carried out. This section is critical for demonstrating that the researcher has developed a clear, organised and thoughtful study design (Kothari 1990; AHRQ 2005). One of the reasons for embarking on a research project, among others, is to systematically find a solution to a problem about which more information is needed, so that future occurrences can be predicted and policy decided upon (Dane 1990; Magazi 2007; Ngulube 2003; Peil 1982).

The following paradigms were used in describing the style that this research undertook.

3.2 RESEARCH APPROACH

Research is the process of undertaking or carrying out original investigation in all its forms: analysis, innovation, experiment, observation, intellectual enquiry, survey, scholarship, creativity, measurement, development, hypothesis, modeling and evaluating with a view to generating new knowledge or novel comprehension (Bushaway 2003; Mavodza 2010). It is important to first indicate that the study followed scientific approach, as it aims to build knowledge obtained by use of a particular methodology to prove certain variables beyond reasonable doubt. This method of acquiring knowledge, also called scientific research, is a systematic investigation of a question, a phenomenon, or a problem using principles (Bless and Higson-Smith, 1995).

As already observed in Chapter One, research approaches can be distinguished in different ways not common. One such feature used to distinguish research is by classifying it as either quantitative or qualitative (Myers 2007; Wamundila 2007).

This study employed a mixed research approach (mixing both qualitative and quantitative research approaches) was employed (Cresswell 2003; Johnson and Cristensen 2004). All these paradigm characteristics are mixed in one case study (Hunt 2007; Axinn and Pearce 2006). The rationale behind the use of this approach was mainly in cognisance of the fact that both qualitative and quantitative researches have their own shortcomings. However if combined the two approaches could yield more credible results (Abowitz and Toole, 2009). Mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g. use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purpose of breadth and depth of understanding and corroboration (Johnson, Onwuegbuzie and Turner, 2007:123). According to Tashakkori & Creswell 2007 mixed method improved the quality of the research by minimising biases, limitations and weaknesses. This is because the disadvantages of one method was closed by advantages of the other and vice versa (Marutha, 2011) cited (Johnson and Christensen 2004; Matveev 2002; Creswell 2003).

The utilisation of MMR provides a possibility of bringing the ontological, epistemological, axiological, rhetorical and methodological divides between qualitative and quantitative paradigms. The qualitative or quantitative approach may be inadequate to investigate in full the complex issues facing researchers. The assumption is that mixing or integrating methods can add insights and understanding that might be missed when mono-method (qualitative or quantitative) strategy is used (Ngulube, Ndwandwe and Mokwatlo, 2009).

Anderson and Arsenault (1998:119) underscores that qualitative research is a form of enquiry that explores phenomena in their natural settings and uses multiple methods to interpret, understand, explain and bring meaning to them. Qualitative research accepts that people know themselves best and can describe, interpret and talk about their own environment. The rationale behind the use of qualitative research is also described by Strauss and Corbin (1990:17) as any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification. It can refer to research about persons' lives, stories, behavior, but also about organisational functioning, social movements, or interactional relationships. The qualitative research approach in

this study allowed the participants to give their own views, stories, and understanding as far as KM practices in the Department is concerned.

Cohen, Manion and Morison (2002) suggest that quantitative research is essentially about collecting numerical data to explain a particular phenomenon. For instance this study used survey method to solicit information on knowledge sharing and level of knowledge experts available in the DOD which were necessary to verify statistically. Quantitative approach collects quantitative data based on exact measurement applying structured as well as validated information collection. For instance, rating scales, closed-ended items and responses. With quantitative methods such as surveys and questionnaires, for example, researchers ask all participants identical questions in the same order. The advantage of this inflexibility is that it allows for meaningful comparison of responses across participants and study sites (Creswell and Plano Clark, 2006; Fidel 2008; Pope and Mays 2000).

3.3 RESEARCH DESIGN

Research design is a scheme of action for answering the research questions. It directs the researcher to the necessary information needed for a chosen study thereby making research as efficient as possible (Kothari 1990; Ngulube 2005). Research design has two meanings; it can be understood as the planning of any scientific research from the first to the last step. In this sense it is a programme to guide the researcher in collecting, analysing and interpreting observed facts. Secondly it can refer to specification of the most adequate operations to be performed in order to test specific hypothesis under given conditions (Bless and Higson-Smith, 1995). According to Johnson and Christensen (2004) research design is an outline, plan or strategy used to arrive at findings for a research question.

When setting up a study, it is essential to review the research identified in the literature review and to determine whether there is anything relevant to the research design of the proposed study (Hernon and Schwartz, 2009). The research design is an action plan that covers:

- Who is studied – the population or a sample.
- Design considerations. There are different types of designs (e.g., experimental, exploratory, descriptive, and correctional)
- The time frame for data collection

- Threats to reliability and validity

Social researchers ask two fundamental types of research questions:

a. What is going on? (descriptive research)

b. Why is it going on? (explanatory research)

The study follows a descriptive and explanatory paradigm, as the researchers seeks to investigate knowledge management practices in the Department of Defence.

3.3.1 CASE STUDY RESEARCH METHOD

Case study method is used for investigative purposes where a researcher is utilising more in-depth methods to answer exploratory questions and to provide interpretive outcomes (Leedy and Ormrod 2005; Powell 1997). Yin (1994) suggests that a case study is an: empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and context are not clearly evident". Case study is a powerful methodology that allows researchers as well as practitioners to study information systems in natural settings, learn about the state of the art, and generate theories from practice (Benbasat *et al.*, 1987; Cao and Hoffman 2011). In addition, a case study is used for studying new phenomena where quantitative research methodologies are not possible or appropriate.

The case study method has become increasingly popular in management studies. The concept of the "case study" implies the detailed examination of a single example of a class of phenomena. A case study cannot provide reliable information about a broader class, but it may be useful in the preliminary stages of an investigation (Guba and Lincoln 1981; Pihlanto 1994). Case studies should be thought-provoking by design. Often they can be based on individual personal experiences or derived from an amalgam of differing experiences (Macrina and Munro, 1995).

According to Creswell *et al.,* (2011) the case study approach is particularly useful to employ when there is a need to obtain an in-depth appreciation of an issue, event or phenomenon of interest, in its natural real life context. A case study was relevant to this study because knowledge management practices in the Department would be influenced by the environment and regulatory space in which the employees found themselves in.

The case study design is particularly useful to employ when there is a need to obtain an in-depth appreciation of an issue, event or phenomenon of interest, in its natural real-life context (Crowe *et*

al,. 2011). The case study allows in-depth, multi-faceted explorations of complex issues in their real life settings.

According to Yin (1999), case studies can be used to *explain*, *describe* or *explore* events or phenomena in the everyday contexts in which they occur. The case study lends itself well to capturing information on more explanatory '*how*', '*what*' and '*why*' questions such as '*how*' is the intervention being implemented and received on the ground.

Given the importance of this research design and for the purpose of this research using positivist approach (Yin, 1999), especially because the researcher is also a member of the Department, as such case study design was used in this project. The reason is that, it is within the objectives of this research project to help investigate knowledge management practices in the Department of Defence in a true sense and real-life context.

Yin (1984) defines case study research method as an empirical inquiry that investigates a contemporary phenomenon within its real-life context, when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used. The multiple case study design was chosen because generalisation from multiple case studies are compelling and convincing and they offer more analytic benefits (Magazi 2001; Yin 2003).

3.4 SAMPLING PROCEDURES

By studying the sample it is hoped that valid conclusions will be drawn about the larger group (Ngulube, 2005:132). A sample is some part of a larger body selected to represent the whole. It is the taking of a portion of a population as being representative of that population. A very important issue in sampling is to determine the most adequate size of sample. A large sample size is representative but costly, and a small sample is less accurate but convenient (Bless and Higson-Smith 1995: 96; Esbensen, Minkkinen and Petersen 2005). Sampling is both a technique and a science. Sampling is fundamentally a mass reduction achieved by the appropriate technical means and can selection of a certain number of constituents (Gy, 2004). There are two types of sampling techniques, namely probability sampling and non-probability sampling. This study used the probability sampling technique as well as non-probability sampling because of mixed methods applied in the reaserch. Probability sampling procedures comprise simple random sampling, systematic random sampling, stratified random sampling, proportional stratified random sampling, and cluster sampling (Ngulube, 2005:132 cited Leedy & Ormrod, 2001). Non-probability samples

depend on judgment selection of “typical” or “representative” elements. Hence this study also considered the importance of the executives as part of population because of their knowledge capacity.

The first sample frame comprised participants in the survey while the second sample frame constituted participants who were interviewed. The researcher drew two distinct samples from the two sample frames indicated above in order to comply with the need for a well-executed study (Marshall and Rossman 1995; Wamundila 2008). Since this study employed mixed methods research, purposive sampling and stratified random sampling methods were used in this research.

3.4.1 STRATIFIED RANDOM SAMPLING

In order to arrive at the number of participants who received the questionnaires, a probability sampling method called stratified random sampling was used for this study. Each layer of a rock is a stratum, and the layers are the strata. These analogies are used in survey sampling to describe the subdivisions or partitions of a population. It is usually convenient to sample separately from the strata rather than from the entire population, especially if the population is large (Rao, 2000: 83). A stratified sample is a probability sampling technique in which the researcher divides the entire target population into different subgroups, or strata, and then randomly selects the final subjects proportionally from different strata (Crossman, 2013). This type of sampling is used when the researcher wants to highlight specific subgroups within the population. Stratified is a variant on simple random and systematic methods and is used when there are a number of distinct subgroups, within each it is required that there is full representation (Birchall, 2009). A stratified sample is constructed by classifying the population in sub-populations (or strata), based on some well-known characteristics of the population, such as age, gender or socio-economic status. The principle of stratified random sampling is to divide a population into different groups, called strata, so that each element of the population belongs to one and only one stratum (Bless and Higson-Smith, 1995: 91).

3.4.2 PURPOSIVE SAMPLING

Creswell (2002) notes that ‘the idea behind qualitative research is to purposively select participants or sites (or documents or visual materials) that will best help the researcher understand the principles and research questions’. Apart from stratified random sampling used to identify participants in the survey, sampling for the participants in the interviews was achieved through non-probability sampling technique called purposive sampling.

In purposive sampling, we sample with a purpose in mind. We usually would have one or more specific predefined groups we are seeking. One of the first things a researcher is likely to do is verify that the respondent does in fact meet the criteria for being in the sample (Trochim, 2006). Purposive sampling can be very useful for situations where one need to reach a targeted sample quickly.

Purposive sampling is a non-parametric sampling technique in which the researcher purposefully identifies respondents as sources of data. The rationale for using purposive sampling was to select key informants deemed to have information on what the study is trying to address.

Department of Defence (DOD) is the main entity or area of study where real facts on their experience in knowledge practice were gathered. Because the Department is big and had a lot of divisions and offices across South Africa, using stratified random sampling was helpful for the study to work with Defence Intelligence division and Corporate Staff Division-DOD HQ Unit as respondents. For purposive sampling, information workers, desk analysts and senior members (Majors, Colonels and Generals) were interviewed.

3.4.3 SAMPLE FRAME

One of the major steps in survey design is to define the population according to the survey objectives. It is important that the investigator carefully and completely defines the population before collecting the sample, including a description of the elements to be included (Ngulube, 2005). The sampling frame or list is the foundation on which the selection process is designed (Williams, 2003).

According to Morgan (2008) a sampling frame defines the members of the population who are eligible to be included in a given sample – in the sense of drawing a boundary or frame around those cases that are acceptable for inclusion in the sample. DiGaetano (2014) defines sample frame as a listing of the units from which sample is to be selected. This because population representatives differ in terms of the knowledge or capacity when providing information about the problem being investigated (Welman and Kruger, 2001).

The researcher arranged a list of all categories of the identified population of the study to facilitate a random selection of individual participants. Two divisions within DOD were chosen to represent the population to be used for this survey namely: Defence Intelligence Division (Staff) and Corporate Staff Division DOD HQ (Staff) where military staff and civilian staff/professionals

combined were used as case studies for this research. The two divisions were chosen based on the influence they have in DOD strategy and other related work for the whole of SANDF.

Microsoft Excel was used to list all employees of the divisions according to their services and position/level. This MS application was then used to randomly select the individuals according to their stratum/ranks. This takes into consideration members of the Navy, Airforce, SAMHS and Army.

Because the sampling frame is a device or material used to have access to the target population in the Department units, this study took into consideration exposing or revealing the force structure or component or protection of units, names and number of ranks which as part of DOD statutes may not be revealed as this will infringe on the secrecy and confidentiality of the participating population and for mere fact that this study is taking place in an environment which is secretive on its force structure or Orbat (Order of battle). According to section 50 of Chapter 8 of the Defence Act, 2002 (Act No.42) to the extent necessary for security and the protection of information, members of the Defence Force and employees may be subjected to restrictions in communicating any kind of information, and where appropriate, may be subjected to prohibition of communication of information. As such the researcher could not divulge the list or the sample frame to concerned divisions used in this study. Lists that contain every member of the population are an exception rather than a norm (Ngulube, 2005).

3.4.4 SAMPLE SIZE

By studying the sample it is possible to draw valid conclusions about the larger group (Ngulube 2005:132). Sample size entails the number of participants chosen from the entire population. By studying the sample it is hoped to draw valid conclusions about the larger group (Bless and Higson-Smith, 2000). Usually social science researchers assume that if the population is large, the sample also has to be large – but that is not necessarily accurate (Ngulube 2005; O'Sullivan *et al.* 2008). Another "misconception about sample size is that a sample must include some minimum proportion of the population" (Mavodza and Ngulube cited verbatim from O'Sullivan *et al*. 2008:155). Ngulube (2005) further attests that while researchers such as Leedy and Ormrod (2005) propose a sample size of 50% of the population, Grinnell (1997) suggests 10%. Seaberg (1988) and Grinnel and Williams (1990) stated that a 10% sample should be fine in most cases. Neuman (2000: 217) argued more or less along the same lines, perspectives on the ideal sample size vary. Taking into consideration the department is big and has a lot of divisions and office across South Africa. Taking

the latter into consideration it was helpful for the study to work with a selected group of divisions within DOD to avoid trying to extract responses to the entire Department which would have been almost impossible. Those divisions were Defence Intelligence division and Corporate Staff Division-DOD HQ Unit. What this means is that a sample was studied instead of the whole population. Taking the above mentioned notion and expertise this study worked on a 10% sample taking into consideration the lack of sufficient cooperation from the respondents although valid reasons were registered to this effect, (example is continued deployment and lack of knowledge in the field of knowledge management)

The number of the sample was guided by the representation of each division selected out of a total number of staff members which was 1015. The difference in sample per category resulted from the fact that DI members were of greater number with 649 (64%) compared to mebers of Corporate Staff Division which had 366 (36%) of population. The sample size was determined at a 95% level of confidence (Dunham and Smith 1979). The sample was drawn using Raosoft sample size calculator accessible at the following website: (http://www.raosoft.com/samplesize.html) to calculate the margin of error and confidence level.

Table 3 summarizes the characteristics of the population and the size of the sample per strata.

Table 3.1: Population and size of sample per strata

DOD Division	**No. Full-time employees**	**% of population**	**Sample size**
Defence Intelligence Division	649	64%	242
Corporate Staff Division – DOD HQ Unit	366	36%	186
Total	**1015**	**100%**	**428**

3.5 DATA COLLECTION METHODS

This section details sources used to collect data for this study. The data collection methods, as well as data collection instruments used in the study are discussed in detail. Data collection method refers to the systematic approach, techniques and tools used in data collection, (Voce, 2005). This study used multiple methods (Triangulation) and measure of an empirical phenomenon in order to reduce bias and to improve convergent validity, which is the substantiation of an empirical phenomenon through the use of multiple sources of evidence. Combination of qualitative as well as quantitative research method was utilised (Yauch and Steudel, 2003). Triangulation method is followed in collecting data from the sample, which is aimed at corroborating data and reducing bias (Cox, 2008). Based on Rossman and Rallis (2003) this research made use of some of the most commonly used qualitative methods for collecting data which are: literature review, quesionnaires, in-depth interviews and document analysis. Triangulation has come to mean a multi-method approach to data collection and data analysis. The basic idea underpinning the concept of triangulation is that the phenomena under study can be understood best when approached with a variety or combination of research methods (Rothbauer, 2008).

The term triangulation refers to the practice of using multiple sources of data or multiple approaches to analysing data to enhance the credibility of a research study (Hastings, 2010). Triangulation aligns multiple perspectives and leads to a more comprehensive understanding of the phenomenon of interest. Particularly associated with qualitative research methods, triangulation typically involves examining data from interviews, focus groups, written archives, or other sources. Triangulation is often used in studies that combine both quantitative and qualitative approaches, and it is sometimes referred to as mixed methods and multi-method research.

Triangulation in social sciences is conceptualised as mixing of multiple theories, methods, data sources and/or researchers with the aim of enhancing the validity of research findings (Modell, 2009). Based on the triangle analogy, triangulation implies that a single point is considered from three different and independent sources (Denzin 1978; Decrop 1999). Thus for this study different data collection methods were used depending on the sources of data.

3.5.1 Primary sources of data

Primary source of data refers to document or record containing first-hand information or original data on a topic (Univ of Victoria Libraries 2011; Babbie and Mouton 2001; Magazi 2007). Primary sources can include:

- Interviews, diaries, letters, journals, speeches, autobiographies, and witness statements
- Articles containing original research, data, or findings never before shared
- Original hand-written manuscripts
- Government documents and public records
- Art, photographs, films, maps, fiction, and music
- Newspaper and magazine clippings

3.5.1.1 Questionnaires

The questionnaire (also called survey) is a set of questions given to a sample of people. The purpose is to gather information about people's attitudes, thoughts, behaviors, and so forth (Lanthier, 2002). Questionnaires are another data collection tool in both qualitative and quantitative research (Johnson and Christensen, 2004). This study used self-administered questionnaires to collect data. To have information about what practices are being carried to manage knowledge in the DOD from the employees and stakeholders, questionnaire method was administered.

Questionnaires are widely used for conducting surveys when collecting data from large, geographically dispersed populations in both cross-sectional and cohort studies. Questionnaires are considered to have a relatively low cost compared with other research methods, and are simpler to distribute to participants (Stenhammar *et al.,* 2011).

The purpose of the study was to investigate knowledge management practices in the Department of Defence (RSA). In designing questions on the questionnaire, a reference to literature review as presented in Chapter Two was done so as to provide relevance to the responses in relation to the aims of the study. In order to avoid ambiguity in language and to enhance clarity of what was required from respondents, the questionnaire was compiled to be short and simple, with clear instructions as suggested by Leedy and Ormrod (2005). In paragraph one of the questionnaires the researcher introduces himself, while paragraph two outlines the aims and objectives of the study

(See appendix I). Paragraph three addresses the ethical considerations mentioned in Chapter One, further the section is assuring the respondents of their information's confidentiality and their right to terminate their participation at time convenient to them if they so wish. Section A of the questionnaire was on personal details of the respondents, while Section B was on the closed and open ended questions probing answers on organisational knowledge commodity, learning, knowledge creation, knowledge sharing and audit, communities of practice, mentoring. Furthermore a brief description of the terms was provided to help respondents understand the topic at hand.

3.5.1.2 Pre-testing of data collection tools

A very important part of the questionnaire construction process is its piloting, known as pretesting. This involves testing research instrument in conditions as similar as possible to research, but not in order to report results but rather to check for glitches in wording of questions, lack of clarity of instructions etc (Synodinos, 2003).

The data collection used in this research, that is questionnaire and the interview schedule were pre-tested before the study was conducted. Pre-testing the survey instruments was important because the validity of the results of the study depends on whether the instrument measures what it is intended to measure (Magazi, 2007). At some points some questions were edited in language that is well understood, so as to allow respondents to answer at ease without ambiguity. Comments from few respondents were allowed to validate the relevancy and comprehensibility or difficulties of the questions. Majority of officers in the department use medium of English to do their work, thus English was used to allow people of all races to be able to answer to a questionnaire that is standard.

As suggested by Johnson (2007) and Fink (1995) there are several things that the researcher considered when designing a survey so as to increase the likelihood of obtaining reliable and valid measures like question wording, response categories, question ordering and questionnaire layout.

A pre-test of the questionnaire was also administered so as to make sure that there is consistency and reliability in questions to achieve the goals that the research aims to achieve. In simple terms before it was given formally to respondents to solicit responses, the questionnaire was first given to colleagues and key decision makers to see if the questions and responses are valid and reliable. Also important was to check and see if they are appropriate, necessary and sufficient.

Pre-testing is critical for identifying questionnaire problems. Problems with question content include confusion with the overall meaning of the question, as well as misinterpretation of

individual terms or concepts. Such problems may result in missing data and vital information as well as frustration for both interviewers and respondents (Shelley, 2006).

Questionnaire pre-testing should also address other question and questionnaire issues. For example, do the sections of the questionnaire and the questions have a logical flow? Do the skip patterns make sense and are they correct? (Czaja, 1998).

3.5.1.3 Interviews

According to McCracken (1988), interviews can take a researcher into the mental world of the individual, to glimpse the categories and logic by which he or she sees the world. Structured interview as a data collection instrument, involves "evaluators asking the same questions in a precise manner". The purpose of qualitative, interview-based research is to describe and clarify people's experiential life "as it is lived, felt, undergone, made sense of and accomplished by human beings" (Schwandt 2001; Schultze and Avital 2010).

A qualitative interview-based study seeks to establish an in-depth understanding of the experiences of the respondents and the meanings within their accounts of a particular action, process or event. A qualitative project aims to explore a *central research question* rather than prove or disprove a preconceived idea (Broom, 2005). Advantages of a focus groups are that they allow the researcher to gain access to information about shares experiences of a community of people, they are cheap and they save time (Payne and Payne 2004:105; Magazi 2007).

The researcher observed and interviewed 15 participants, 5 as group discussion at the Defence Intelligence (DI) taking advantage of the gathering scheduled for training related exercise in the Liberty Life Building on the 23 May 2012, and 10 individually interviewed at the Corporate Service DHQ (CS DHQ) regarding the knowledge management practices in their environment. Focus groups are an efficient tool in determining the dimensions that make up each domain because a relatively small number of groups can generate a large number of ideas about the items that are needed to cover each question area (Morgan 1997; Barret and Kirk 2000). For this study to be able to identify the knowledge management practices in DOD, it was crucial for this project/research to make use of both structured and open-ended interviews for data collection, and also to ensure that there is consistency in the data collected.

An interview guide document was designed to help access information from respondents in a consistent manner. The first part contained salutation of the interviewees and introduction of the research topic, objectives, rules of engagement as well as ensuring participants of their right to

confidentiality (See Appendix V). The first part also consisted of two sections with one aiming to determine personal details of the respondents and the second section seeking to educate the respondent on the importance of knowledge as an organisational commodity as a means to sensitise and bring the respondent closer to the topic that the research aims to investigate on. This was done so as to get a buy-in first from the respondent so that he/she can grow at least some interest in the topic so as to encourage them to participate in the survey. The second part consisted of the very knowledge practices that the research wants to investigate in the DOD, those being: Knowledge as a commodity, Knowledge creation, knowledge transfer, knowledge sharing, knowledge audit and influence of knowledge expert and knowledge practitioner.

3.5.2 Secondary sources of data

Secondary sources of data refers to published or unpublished work that is one step removed from the original source, usually describing, summarising, analysing, evaluating, derived from, or based on primary source materials (University of Victoria 2011; Babbie and Mouton 2001; Magazi 2007). These can include:

- Textbooks
- Review articles and critical analysis essays
- Biographies
- Historical films, music, and art
- Articles about people and events from the past.

Taking the above facts into consideration it was prudent for this project to also make a review of both published and unpublished literature taking into consideration the research objectives.

3.5.2.1 Document analysis/review

According to Hurworth (2005) document analysis is required to inform all types of evaluation. Document analysis appears more credible than other forms of data, as there is less evaluator bias in the production of such data. One can use existing records, maps, plans, diagrams, minutes of meetings, correspondence, journals, biographies, annual reports, handbooks, guidelines, artifacts, articles, files, policies, legal documents, and prior evaluation reports. Although documents often serve as key sources of social scientific data, their role in social research is rarely highlighted. Prior

(2008) attests that the standard approach to the analysis of documents focuses primarily on what is contained within them. Although documents invariably contain information, it is also quite clear that each and every document enters into human activity in a dual relation (Rapley, 2007). First, documents enter the social field as receptacles (of instructions, obligations, contracts, wishes, reports, etc.). Second, they enter the field as agents in their own right, and as agents documents have effects long after their human creators are gone.

Document analysis is a form of qualitative research in which documents are interpreted by the researcher to give voice and meaning around an assessment topic. According to Duignan (2008) there are three primary types of documents:

- Public records: the official, ongoing records of an organisation's activities. Examples include student transcripts, mission statements, annual reports, policy manuals, strategic plans, events calendar and lessons learned.

- Personal documents: first-person accounts of an individual's actions, experiences, and beliefs. Examples include calendars, e-mail, duty logs, Facebook posts, incident reports, etc.

- Physical evidence: physical objects found within the study setting (often called artifacts). Examples include flyers, posters …

Thus in this study document analysis was important in serving the following objectives:

i. To determine the relevance of KM practices in response to change and continuous improvement and learning in the DOD

ii. To establish the contributing components to knowledge management practices at the Department of Defence.

iii. To analyse theoretical models or strategies of knowledge management practices.

iv. To recommend an effective knowledge management model or strategy to be adopted or incorporated

Documents were reviewed to shed light on the importance of managing knowledge and how best KM practices were handled if at all they existed. It was a bonus to have literature written on the subject from a military background. Given the above objectives, document analysis was important in providing reference in comparing the level of knowledge management in the Defence Department, and to measure existing knowledge practices as related from literature.

3.6 DATA ANALYSIS

Data analysis is a body of methods that help to describe facts, detect patterns, develop explanations, and test hypotheses. It is used in all of the sciences. It is used in business, in administration and in policy (Macintosh, 1997). Data analysis refers to the process of generating value from the raw data (Johnson and Christensen 2004; Wamundila 2004). Data analysis is a practice in which raw data is ordered and organised so that useful information can be extracted from it. Raw data can take a variety of forms, including measurements, survey responses, and observations. In its raw form, this information can be incredibly useful, but also overwhelming. Over the course of the data analysis process, the raw data are ordered in way which will be useful (Hardy and Bryman, 2004). For example, survey results may be tallied, so that people can see at a glance how many people answered the survey, and how people responded to specific questions.

According to van den Hoonaard & van den Hoonhaard (2008), data analysis is an integral part of qualitative research and constitutes an essential stepping-stone toward both gathering data and linking one's findings with higher order concepts. There are many variants of qualitative research involving many forms of data analysis, including interview transcripts, field notes, conversational analysis, and visual data, whether photographs, film, or observations of internet occurrences (Pampel, 2004). Since this study employed a triangulation method to data collections, both the survey and the interviews data were analysed using appropriate data analysis techniques. Qualitative data analysis was represented through analytic text or narratives, explanations and descriptions. As Tylor-Powell and Renner (2003) explains, this requires creativity, discipline and a systematic approach.

Quantitative research techniques generate a mass of numbers that need to be summarised, described and analysed. Characteristics of the data may be described and explored by drawing graphs and charts, doing cross tabulations and calculating means and standard deviations (Lacey and Luff, 2001). So it is with qualitative data analysis. The mass of words generated by interviews or observational data needs to be described and summarised. The question may require the researchers to seek relationships between various themes that have been identified, or to relate behavior or ideas to biographical characteristics of respondents such as age or gender.

There are no 'quick fix' techniques in quantitative analysis. Just as a software package such as the Statistical Package for the Social Sciences (SPSS) won't tell you which of the myriad statistical tests available to use to analyse numerical data, so there are probably as many different ways of

analysing qualitative data as there are qualitative researchers doing it (Pope and Mays, 1996). “For Taylor–Powell and Renner (2003), the analysis process involves the following steps:

- Get to know your data;
- Focus the analysis;
- Categorise information;
- Identify patterns and connections within and between categories; and
- Interpretation-bring it all together

In essence there are a number of specialised qualitative data analysis softwares that researchers can use to analyse data (Hodson, 1999). Among them includes ATLAS, NUDIST, The Ethnograph, and NVivo. Computerised qualitative data analysis programs do not transform qualitative data for statistical analysis; instead they leave the data in their original qualitative form. The programs allow the marking of passages in the original textual data as representative of certain concepts or ideas. Researchers can the pull these passages together for easy comparison and analysis (Hodson, 1999).

Because quantitative data is usually voluminous, application of computer software that aids the analysis process has been in the use for a long time. The most commonly employed software is the SPSS. The great advantage of using a package like SPSS® is that it enables the researcher to score and to analyse quantitative data very quickly. In other words, it will help researcher eliminate those long hours spent working out scores, carrying out involved calculations, and making those inevitable mistakes that so frequently occur while doing this (Bryman and Cramer, 2005). There is, of course, what may seem to be a strong initial disadvantage in using computer programs to analyse data and that is the researcher will have to learn how to run these programs. The time spent doing this however, will be much less than doing these same calculations by hand.

Having considered the above mentioned reasons and challenges associated using computerised methods of analysing data, the researcher chose to analyse data at hand manually in this study. What inspired the manual process was the simplicity of tally sheet which drew its design from the questionnaire content design (Laws, Harper and Marcus, 2003). This process allowed the researcher to read in data provided for each question in the questionnaire (Desai and Potter, 2006). Tally sheet, also called a check sheet, is used as a form for collecting information through observation and counting. Tally sheets can be simple as using a sheet of paper and pencil, they are simple and efficient way to collect, organise and analyse data (VanBaren, 2013). However the researcher was

tempted to conduct the data analysis using the computerised software, as it was equally easier and accurate to read in data to the tally sheet. The process was a bit tiresome to read in considering the high number of questionnaires and interview responses received. But it would have not helped as the researcher did not have enough time to enroll to classes in pursuit of learning how to use the SPSS software program. Fearing errors experienced as a result of the method being a novelty to researcher that's why the project embarked on the simple data tally sheet for analysis.

Interview data was recorded through field notes to ensure complete capture of discussions and members were asked to relate views and answers as relaxed as possible for the researcher to capture the correct inputs as narrated by the respondent. Thus after such a process data was recorded onto tally sheet.

After tally completion, and verifying that each category's data was included to the sheet, calculations for average to each question were made. The calculated figures were then captured on to MS Excel® spread-sheet database for average figures as depicted from tally sheet. In short tally sheet helped extract important qualitative data indicating the patterns of knowledge existence in DOD and extent of knowledge held by DOD personnel about knowledge management. Graphic representation of the patterns was established and was then transferred or copied to Chapter Four using MS Word® document for proper analysis. Quantitative data analysis was depicted by use of graphs and tables to support text analysis with visual reading (Laws, Harper and Marcus 2003; Desai and Potter 2006; van den Hoonaard & van den Hoonhaard 2008). Easley and Kleinberg (2010) alludes that graphs are useful because they serve as mathematical models for specifying relationships among a collection of items. They further state that graphs are simple in describing data. After analysing submitted data, complex results were given, as such the use of graphs and tables made it easier to make such data readable. The researcher then followed the process by giving meaning to the presentations.

3.7 RESEARCH ETHICAL CONSIDERATIONS

Ethics pertain to doing good and avoiding harm during research. Thus, the protection of human subjects or participants in any research study is imperative (Orb, Eisenhauer and Wynaden, 2001). Embedded in a qualitative research are the concepts of relationships and power between researchers and participants. The desire to participate in a research study depends upon a participant's willingness to share his or her experience. Researcher need to understand that it is the right of the participant to refuse to participate. It was important that this study respected this aspect fully to achieve its objective. The following ethical issues as taken from Bless and Higson-Smith (1995) were taken into consideration for the purpose of the study: confidentiality, informed consent, anonymity and honesty. Participants' right to change their minds or excuse themselves from the study, without being coerced to remain in the study was observed.

According to Esterberg (2002: 53-54), the researcher should make sure that participants in the study are duly protected in terms of confidentiality during the process of data collection, analysis and publishing of the dissertation or when disseminating the outcomes of the study. It is also advisable for the researcher to protect the names of the participants and the institution or community being researched. According to Field and Morse (1992) cited by Orb, Eisenhauer and Wynaden (2001) the purpose of qualitative studies is to describe a phenomenon from the participants' points of view through interviews and observations. The intention of the researcher is to listen to the voice of participants or observe them in their natural environments. The researcher should recognise that participants are autonomous people who will share information willingly. A balanced research relationship will encourage discloksure, trust, and awareness of potential ethical issues.

This study also sought and obtained permission from the sampled units heads to go ahead with the research (see Appendix II and III). The study also adhered to University of South Africa (UNISA)'s ethical clearance requirements. The University of South Africa's procedures for master's and doctor's degrees (2013) also outlined some ethical clearance requirements for UNISA research students to avoid plagiarism. The ethical clearance requires that students declare the contents of their dissertation/thesis as their "own work and that all the sources that they have used or quoted have been indicated and acknowledged by means of complete references" in submission for dissertation examination, and such declaration has been submitted.

3.8 EVALUATION OF THE RESEARCH METHODOLOGY

No research method is perfect and the researcher is well aware of that fact. For this research project, evaluation of research methods is required. Evaluating research refers to reliability and validity of a research design. Research investigates ideas and uncovers useful knowledge. It is personally rewarding and socially beneficial. But distorted research causes real harm and deserves strong censure (Litman, 2012). Good research reflects a sincere desire to determine what overall truth is. A good research document empowers readers to reach their own conclusions.

It should be noted that the researcher used content validity to support the validity of this study, where research instruments were given to relevant people, including researcher's supervisor to know where the shortfall may be in terms of the instruments variables in achieving what it aims to measure (Maponya 2004; Litwin 1995:33; Heath 2005). As suggested by Maponya (2004) and Yin (2003), to enhance constructive validity, multiple sources of data such as the questionnaire and the focus group interviews were used in the study.

The extent to which results are consistent over time and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable (Golafshani 2003; Joppe 2000). In order to enhance reliability on this study, the researcher recorded every step that was taken during data collection enough to justify similar results should another researcher embark on same study.

Having noted the above, this study had its fair share of challenges and shortcomings when conducting research. Ngulube (2005) notes that response rate is a concern for most surveys, however ability to report on it reflects the quality of the survey. As mentioned under sample size the area of study which is the Department of Defence is consisted of a number of divisions and offices across South Africa. With Defence Intelligence division and Corporate Staff Division as the study subjects for this research, it was difficult on researcher to deal with more than one directorate not to mention division. While the researcher battled to convince the population on the importance of their participation within DI of which the researcher is employed at, it was also difficult to travel across to DOD HQ Unit and Directorate Geospatial Information, a directorate under DI both which are about 10 km apart from one another and from DI. This impacted on the distribution of questionnaires and execution of interviews as well.

It is worth mentioning also the time spent on waiting for authority to carry the research using survey and interview was a bit longer because the executive members involved and responsible for the

divisions and subdivisions were constantly out of the office due to official responsibilities. Thus the target time of which the researcher expected to reach was always a challenge to meet. This affected the time span of this project. Many respondents were not too used to the research methods such as questionnaires hence they were wary of participating. This to an extent made up for reasons why some respondents never returned their questionnaires. This challenge was experienced more at the Defence Corporate Services where surveys were distributed through the Director Corporate Communications.

However many employees had other reasons not to respond to the surveys. Senior staff members were at the centre of targeted respondents in this regard; however it proved futile to most of them as they were forever engaged or on official trips outside their work stations. Some respondents abstained from answering certain questions and this proved difficult for researcher to make a comprehensive analysis on the answers. Investigation revealed that this effect was as a result of paranoia from respondents about participation in subject that is close to home, fear that what they say will later be used against them, that the deep rooted racial fears and misconceptions will be revealed especially in as far as sharing knowledge is concerned. All these problems exposed the deep manifested individual egos and class entitlement that lies in the Department of Defence. What was also evident was lack of knowledge in the knowledge management field. Though some were not so well educationally advanced, many respondents misjudged knowledge management for information management.

Thus leading to lack of interest and will to participate in the study was eminent to some respondents. However researcher has come to realise that Librarians and Information Managers are more familiar to the topic and its practices, hence their direct and clear answers. One of the challenges experienced was that distribution of questionnaires through e-mail was impossible as it is against security policy to have military designated addresses for each employee. Most of the employees who are active on e-mail are either subscribed to private and personal e-mail systems like google.com and webmail. It would have been easier if there was an electronic system to trace all employees for electronic communication.

Importantly this study employed the mixed and triangulation techniques in conducting this research and data collection. The emphasis was to reduce bias by integrating theories, methods, data sources and researchers with complementary strengths and non-overlapping weaknesses. And indeed it did help as the method provided a leeway for balance, reliability and trustworthiness of the findings. On a general level, the motivation to mix methods in research is the belief that the quality of a study can be improved when the biases, limitations and weaknesses of a method following one approach are counterbalanced, or compensated for, by mixing with a method belonging the other approach (Tashakkori & Cresswell 2007; Ngulube *et al*., 2009).

3.9 SUMMARY OF CHAPTER THREE

Chapter Three detailed the research design and methodology that was implemented in the study. The approach used for selection of respondents and interviewees has also been explained. Justification for the choice in the data collection methodology and sources was given and evaluation of the methodology has been provided. The next Chapter, Chapter Four will present findings of the study based on data collected interviews, questionnaire and document review.

CHAPTER FOUR

PRESENTATION OF RESEARCH FINDINGS

4.1 INTRODUCTION

Chapter Three presented and described the research design and approach that the study used to collect data. The mixed method used for this study was also related in detail. Sampling procedures were also explained in context. Data collection methods, data analysis and ethical considerations for this study were also presented in Chapter Three. Since this study used a mixed method, quantitative data and qualitative data were collected and analysed using mixed data collection and analysis techniques. Acknowledgements were also made of the use of the triangulation method, where document review, interviews and questionnaires were conducted to draw data from the population of this study.

This chapter presents findings of the data collected for the study. Data was collected based on the objectives of the study as described in Chapter One, which are:

a. To investigate supporting structures that will be/ are assigned to help manage knowledge practices at the Department of Defence.

b. To determine existence of formal and informal knowledge management practices in the Department.

c. To investigate the existence and importance of knowledge practitioners

d. To determine the relevance of learning in DOD

e. To establish challenges impeding the instituting of formal knowledge management practices in DOD if no formal practices are there.

f. To evaluate perceptions by members of DOD on the department's ability to manage its knowledge.

g. To recommend an effective knowledge management model or strategy to be adopted or incorporated.

The first part presents findings from the document analysis, followed by findings from questionnaire and lastly from interviews. As suggested by Lacey and Luff (2001), this chapter is characterised by data described and explored by graphs, figures and charts.

4.2 FINDINGS FROM REVIEWED DOCUMENTS

Numerous documents on knowledge management in the military were reviewed. Because this study aimed to investigate knowledge management practices in Department of Defence (RSA), it was imperative that published documents addressing skills management and knowledge were reviewed for the decisions or resolutions made and pronouncements on knowledge management as taken by DOD. The researcher made use of the Defence Intelligence (DI) Library, Internet and HR office for policy documents and various documents that were deemed relevant to the study. Documents including annual reports, policies and legislations were reviewed. The researcher also made use of DI Library and internet to access unclassified documents that reveal details about RSA Department of Defence stance towards knowledge development, management and skill retention.

4.2.1 Supporting structures that will be/are assigned to help manage knowledge practices at the Department of Defence

A review to such institutionalised structures in the department was made to find out if there is any guiding policy followed by institutionalised structure to support knowledge management initiatives in Department.

A number of documents were analysed/reviewed, but these were in majority the public records authored on behalf of the Department of Defence (DOD) which includes mission statements, annual reports, policy manuals, strategic plans and lessons learned. Sources of such documents are DOD website, Media and direct units (Policy and Planning) in the Defence Secretariat (SANDF). The documents analysed were instrumental in helping the researcher understand the problem under investigation as well as share information to the objectives in this study.

The researcher referenced the Defence Act 24 of 2002. Conspicuous in the act and structure of DOD is the absence of knowledge capability supporting directorate/agency. However looking close at the structure of DOD, under the Secretariat there is an agency called Defence Enterprise Information Systems Management Division, while under SA National Defence Force is Command and Management Information System Division. There is also a Military Policy Strategy and Planning division under SANDF. All these divisions trigger interest, in that should there be any form of knowledge management strategy/policy which leads to pattern of knowledge practices, then one would be able to find a lead in the investigation to knowledge management practices if not

policy. Unfortunately it was not to be. The latter divisions did not have in them any structures nor plans to support KM. They did not have documentation published to demonstrate their input to departmental strategy on knowledge management and subsequently the knowledge management practices in DOD.

4.2.2 Existence and implementation of formal and informal knowledge management practices in the Department.

It was the intent of the researcher to review any documents that were related to KM and its practices in the department. What caught the attention of the researcher was the knowledge sharing and retention practice capability that the department claimed in its strategy of Mobility Exit Mechanism (MEM) would deliver as documented in the Annual Report of 2008.

According to MEM document, articles as published in the internet and SANDF Annual Report 2011, MEM is a strategy that forms part of the Human Resources Strategy of 2006. According to former Chief of the South African National Defence Force, General G.N. Ngwenya, MEM was approved and implemented to provide military members who wished to leave the service with a viable way to follow alternative careers outside the military and also safeguard skills retention. Rightsizing of the SANDF was given momentum with the approval of the voluntary Mobility/ Exit Mechanism for the SANDF members. As at 31 March 2006, ministerial authority had been granted for the voluntary exit of 533 SANDF members, addressing representivity imbalances at middle and senior management levels through succession planning. What was also critical for this study to establish was the pool of different expertise exiting the doors of DOD through members leaving either through retirement, death, resignation, dismissal or deployment. This pool is what is called critical occupation which includes:

- Airspace Control
- Aircrew
- Anti-aircraft
- Artillery
- Combat Navy
- Engineer
- Medical Professional

- Technical

The above list is an example of occupational bands that includes skilled technical and academic workers, supervisors, foremen, professionally qualified and experienced specialists, senior and junior management.

MEM becomes a very important investigation tool to knowledge management practices in that as the Department loses people it also loses skills, but it was claimed that MEM acts as a strategy to manage skills retention. The researcher is of firm belief that there should be handing and taking over process, especially in as far as skill transfer and knowledge sharing is concerned. According to stats average of 900 members are registered annually who request to exit through the MEM yet handing and taking over procedures are not clear.

Findings to the review of MEM document received through DI HR office revealed that though the strategy means well for improving personnel flow, especially at middle and senior command levels as well as to address representivity imbalances and allow intake of young members; succession planning and guarding against exodus of scarce skills and advise members on career progress it doesn't however talk to the strategy of retaining knowledge and using existing acquired knowledge for generations to come in taking the organisation forward. Such combination is not evident to the available published documents at all.

According to 2005/6 DOD Annual Report SA Army continued to manage its exit mechanism with necessary sensitivity and responsibility. The SA Army is committed to rejuvenating its human resources to meet the future requirements of a young, healthy, modern, disciplined and well-trained Army. The recruitment through the Military Skills Development (MSD) has greatly contributed to this objective. However, the outflow of skilled personnel in all spheres, particularly in the SA Army Engineer Corps, remains a critical challenge.

According to the researcher the above statement indicates a huge challenge of knowledge management gap or strategy or lack of.

Although there is effort to re-skill new members and Military Veterans through the Service Corps, challenge still remained on how to maximise existing knowledge from exiting members especially the highly skilled ones. Monetary implications may not be of concern, however the value of skill and knowledge acquired over the employment period goes beyond measure and it can be problematic if knowledge is not captured before it departs the doors of DOD.

4.2.3 Relevance of learning in DOD

A learning organisation is one in which people at all levels; individuals and collectively, are increasing their capacity to produce results they really care about. They bring new ideas to change dysfunctional behavior of the organisation through mindset and attitude change in individuals within the organisation (Mitleton-Kelly, 2003). Internet was extensively utilised to find out the importance of learning as a means of developing the know-how of Defence Force staff. The South African News Agency (2013) reported and quoted Defence and Military Veterans Minister Nosiviwe Mapisa-Nqakula saying learning formed a key part of bolstering South Africa's defence capabilities, as the country continues to carry out its commitment to building peace and security on the continent.

According to SA Army website (2000), speaking to the Press Club following the presentation of her Department's Budget Vote in Parliament, Minister of Defence and Military Veterans, Mapisa-Nqakula said equipping the South African National Defence Force (SANDF) was a priority for maintaining the country's own security and to helping fellow African countries. "One way to improve is training, training and retraining to meet the challenges," Mapisa-Nqakula said. To this end, South Africa was expected to develop capable leaders within its defence ranks, leaders with a high level of discipline and sense of duty (SA Army, 2000).

In her budget vote, the Minister said the defence force was actively recruiting young people through the Military Skills Development System and University Reserve Training Programme. "We seek to increase partnerships with tertiary institutions to train defence force members and recruit talented students, especially in technical fields" she said.

South Africa had also recently concluded a training contract for its defence members with the Russian Federation as part of efforts to expand the country's international training partnership. This will cover some of the essential skills, particularly the training of pilots. The minister underscored the importance of the country investing prudently and nurturing the human capital of its defence force.

On the other hand, the website of the army (SA Army) contains information about Defence Force learning capability. In particular the website gives account to SA Combat Training Centre. It gives emphasis to the centre and states that the development of the SA Army Combat Training Centre originated due to a need by the Department of Defence for a military training facility where conventional and integrated training on divisional level could be executed. Combined practical training is a requisite to all armies worldwide. The development of such a training facility presented

the South African Government with the ability to ensure a well-trained South African National Defence Force (SANDF).

As such document review has confirmed that indeed the SANDF and Defence Department at large is a learning institution, a practice which is relevant in capacitating and developing its intellectual capital.

4.3 FINDINGS FROM THE QUESTIONNAIRE

The section presents findings from a survey conducted among the Defence Intelligence and DHQ employees. The questionnaire was designed in accordance with the objectives of the study. As per the sample, the researcher distributed 242 questionnaires to staff members in the Defence Intelligence (DI) unit and further 186 questionnaires were distributed to DHQ Corporate Staff Division. Only 60 (25%) were received back from DI. Subsequently, 24 (13%) of questionnaires were returned from DHQ Corporate Staff Division. Total of the returned questionnaires was 84 which means only 20% were returned for researcher to work with.

4.3.1 Characteristics of the respondents

The researcher was keen to know the characteristics of his respondents through rank, ethnic group, duration in service, age group, and academic qualifications.

The reason the researcher chose the categories was to show the profile of respondent for the objectivity and validity in the responses provided.

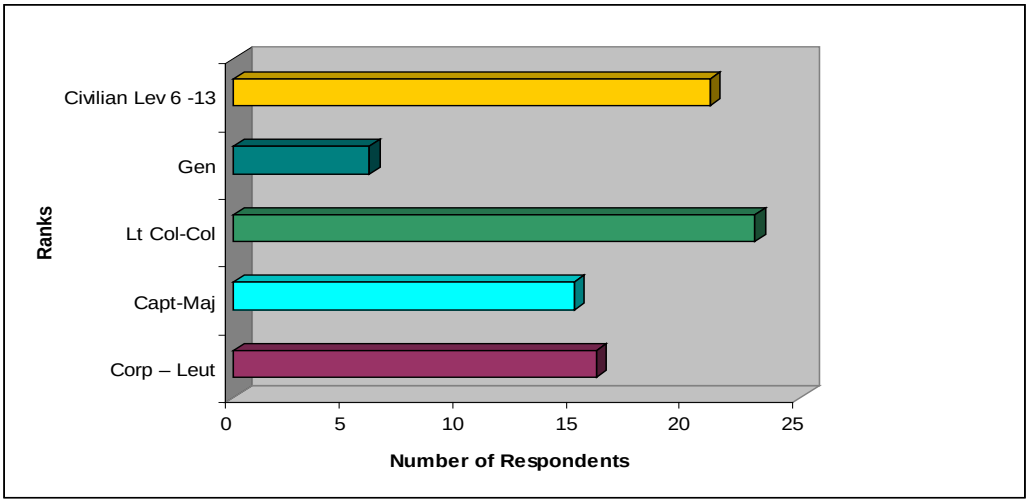
4.3.1.1 Respondents per rank

This study took into consideration staff members from DI and DHQ Corporate Staff Division combined. In this regard working from total returned questionnaires percentage in respondents ranks are as follows:

With regard to rank composition of respondents, twenty-one (25%) were staff members of Public Service Administration Personnel (PSAP) category who are also referred to as civilians. This category comprise of non-military staff that works in the Department of Defence. Their salary or rank levels are from 6 to 12. These include among others secretaries to information managers and researchers, Assistant Directors and Deputy Directors. Six (7.1%) of the respondents were Brigadier Generals and Major Generals some of whom at the time of publish would be promoted to either Lieutenant Generals or higher ranks similar. 23 (27.4%) of the respondents were Colonels

and Lt Colonels, while 15 (18%) were Captains and Majors. The last category was from Corporals to Lieutenants and 16 (19%) of them participated in this survey. Figure 4.1 indicates graphical representation of participants per rank in DOD.

Figure 4.1 Respondents per rank

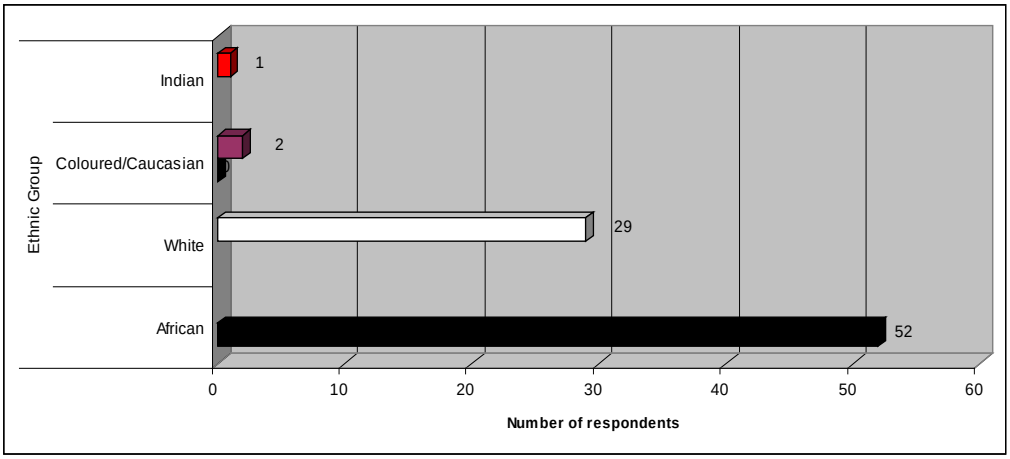


4.3.1.2 Respondents per race group

In terms of race groups the survey managed to capture information as follows:

Africans made 52 (62%) of the respondents, while Europeans or Whites made 29 (35%) of the population. Coloureds/Caucasians made 2 (2.3%) of population, and finally only 1 (1.2%) was of Indian race. Figure 4.2 illustrates respondents per race group.

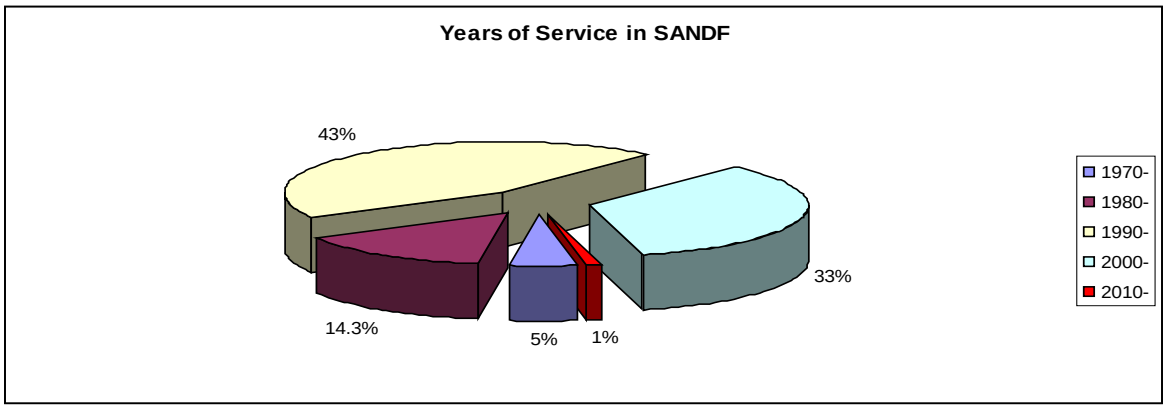
Figure 4.2 Respondents per race group



4.3.1.3 Respondents' length in service

Regarding the length of service since joining the Defence Department the survey found as indicated in figure 4.3 that 4 (5%) had been in the system since 1970s, while on the other hand a measure was found of 12 (14.3%) respondents who have been working in the Defence Force since 1980s. Out of all respondents 36 (43%) had plied their trade in the Defence since 1990s while 28 (33%) of respondents had been working in Defence since 2000. One respondent (1.2%) represented new generation to join the Defence Force after 2010.

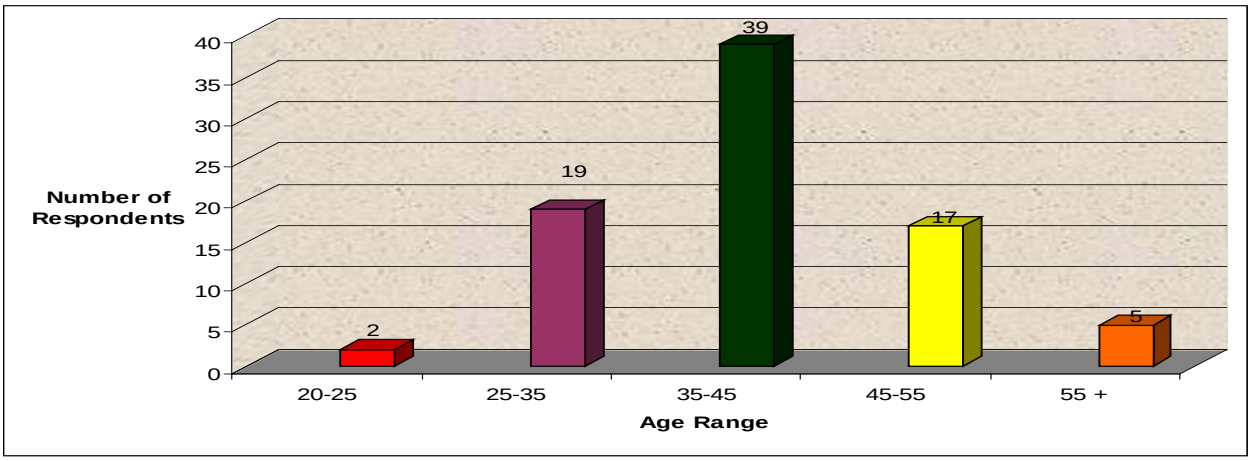
Figure 4.3 Respondents' length in service



4.3.1.4 Respondents' age groups

The age groups of the participants were as follows: Two (2.4%) were between the age of 20-25 years, 19 (23%) were between the ages of 25-35, 39 (46.4%) were between 35-45. At the same time 17 (20.2%) were between age of 45-55 years and lastly 5 (6%) were of the age group from 55 years up to pensioners elect. Figure 4.4 illustrates respondent's age groups.

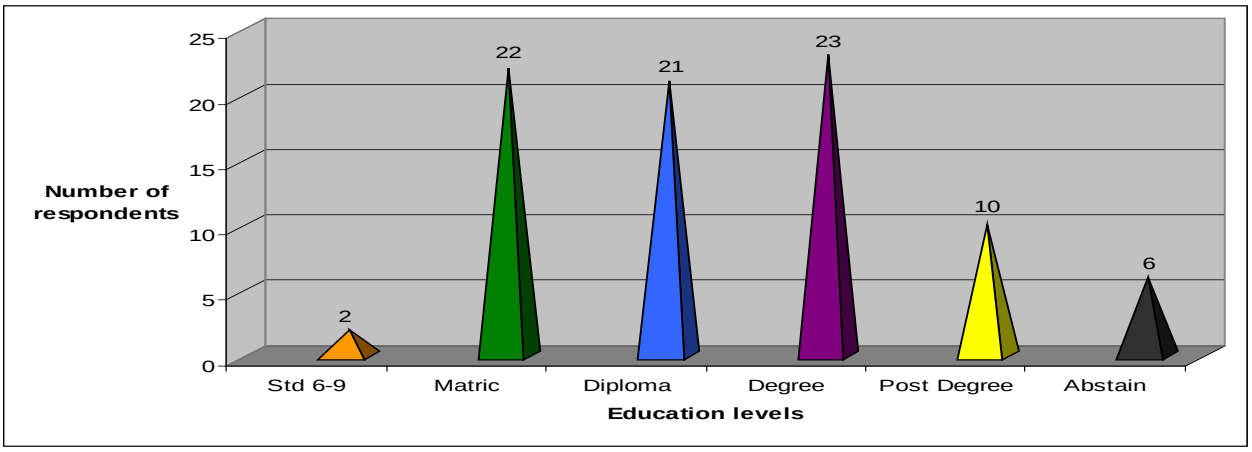
Figure 4.4 Respondents' age groups



4.3.1.5 Respondents educational levels

The survey was also interested in education levels of the respondents. Ten respondents (12%) were post graduates, 23 (27.3%) have attained degree qualifications and 21 (25%) have diploma qualifications while 22 (26.2%) have passed Matric. Furthermore 2 (2.4%) had qualification lower than Matric certificate and 6 (7.1%) abstained from this question. Figure 4.5 shows respondent's educational levels.

Figure 4.5 Respondents educational level



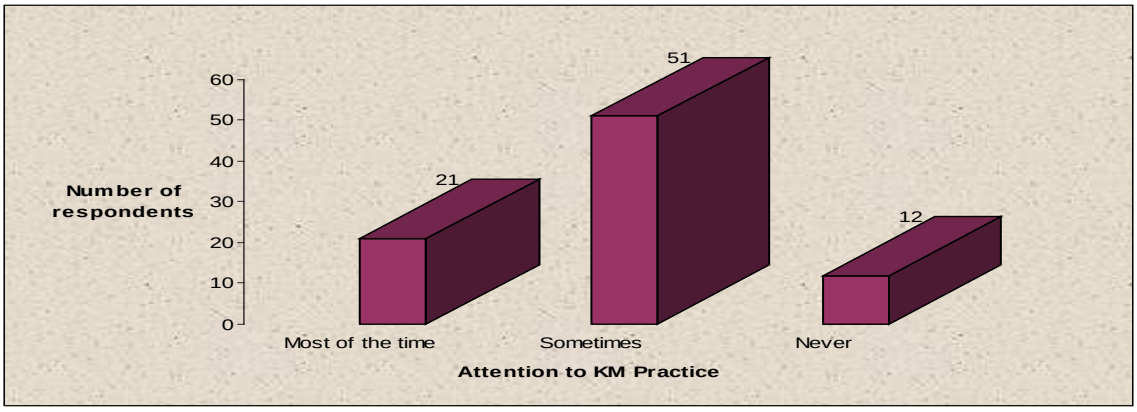
4.3.2 SUPPORTING STRUCTURES THAT WILL BE/ ARE ASSIGNED TO HELP MANAGE KNOWLEDGE PRACTICES AT THE DEPARTMENT OF DEFENCE.

In order to examine the knowledge management practices in DOD it was important to see first the structures involved and the degree at which knowledge management as a commodity was dealt with in DOD and thus practices involved and the understanding of such practices if there was any.

4.3.2.1 Attention given to knowledge management in DOD

When the respondents were asked how often is knowledge management as a practice given attention or spoken about in their sections they answered as follows: 21 (25%) said most of the time, 51 (61%) answered sometimes while 12 (14.2%) said they never talk or gave attention to knowledge management. Figure 4.6 illustrates the views of respondents on this matter.

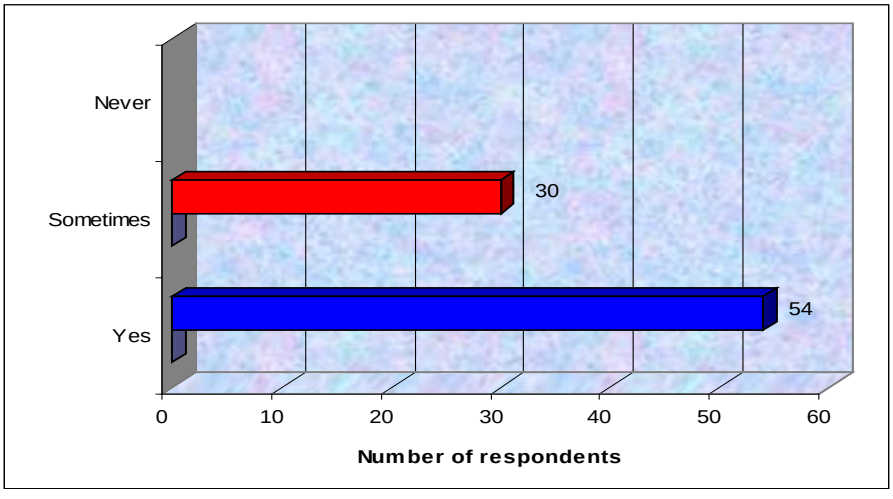
Figure 4.6 Attention given to KM in DOD



4.3.2.2 Application of knowledge in performing tasks

The researcher felt it important to assess the relevance and importance of knowledge in performing day-to-day tasks by DOD staff members. In order to recommend a proper KM model where there is none, it is important to assess if there is a need to apply one. In short there is no need to manage knowledge if it does not exist. Respondents were asked if they applied specialised knowledge in undertaking their responsibilities and other work related matters. They answered as follows: 54 (64%) said they applied specialised knowledge in doing their work, 30 (36%) said only did that sometimes. Figure 4.7 indicates in summary the respondent's views on this matter.

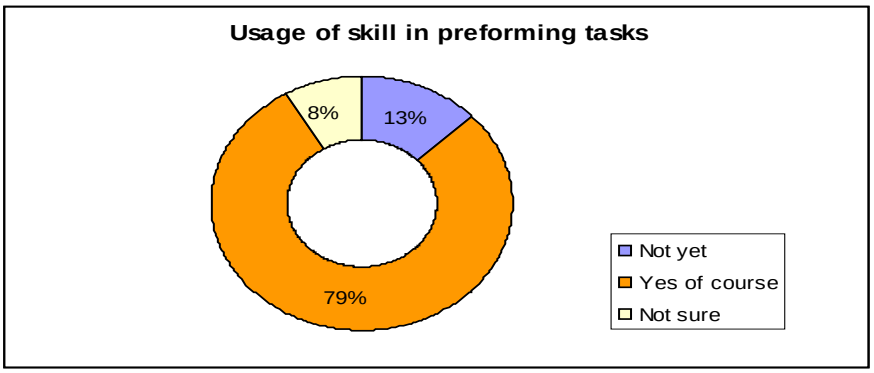
Figure 4.7: Application of knowledge in performing tasks



4.3.2.3 Usage of skill and competencies in DOD

The study wanted to know if the employees consider themselves knowledgeable to perform their duties and the following was revealed. Of all respondents 11 (13%) revealed not yet, 66 (79%) said yes they used their skill to do their tasks, and 7 (8.3%) said they were not sure. Figure 4.8 indicates in summary the views of respondents to this matter.

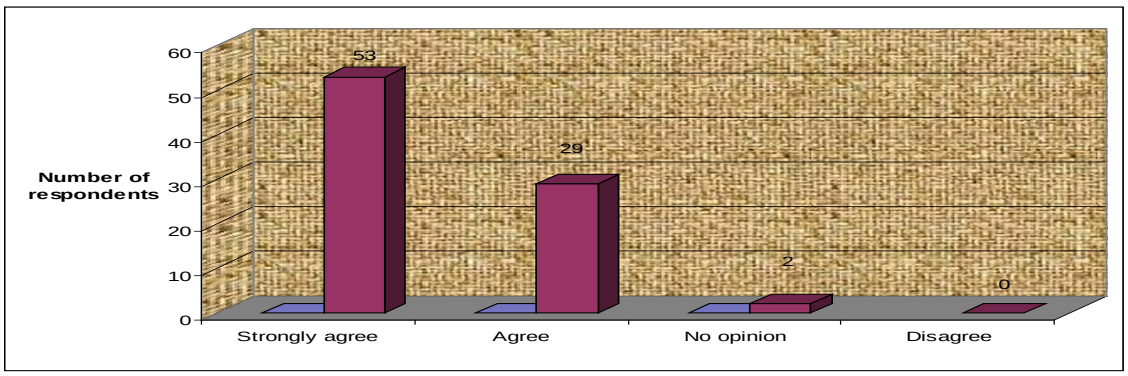
Figure 4.8: Usage of skill in performing tasks



4.3.2.4 Importance of employee as knowledge asset

The researcher was of firm belief that knowledge can only be taken care of if there is a conscious believe that it exists. In order to establish the existence and importance of objective one which is to establish KM structure in DOD and whether the organisation viewed human capital as an asset, respondents were asked to give views on the importance of employees as knowledge assets and this is how they felt. From all respondents 53 (63%) said they agreed strongly, 29 (35%) agreed, 2 (2.3%) had no opinion, while none disagreed. Figure 4.9 illustrates in brief the opinions of respondents on the importance of employees as knowledge assets.

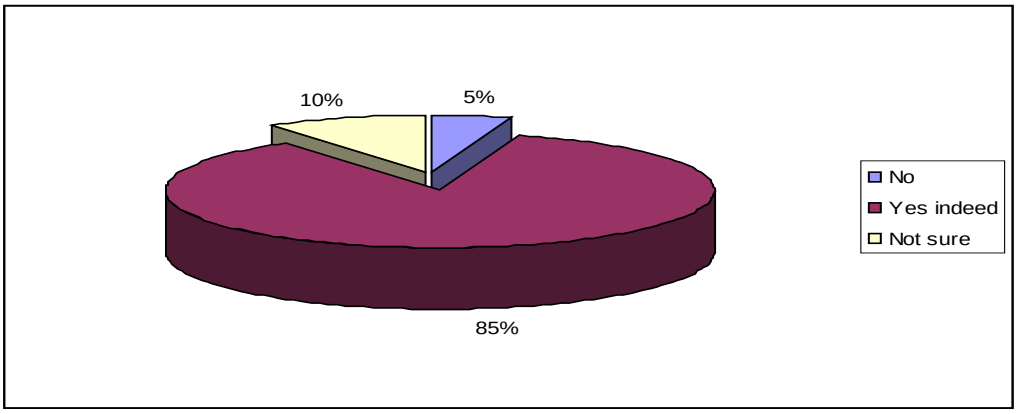
Figure 4.9 Importance of employee as knowledge asset



4.3.2.5 Importance of KM policy

The aim of this question was to assess the level of understanding and approval of knowledge management policy, available or not available in a defence environment as viewed by respondents/staff. Asked if managing knowledge can be/is a priority and made to have a policy; as it is illustrated in Figure 4.10 the respondents answered as follows: 4 (5%) answered no, 72 (86%) said yes indeed, while 8 (10%) were undecided.

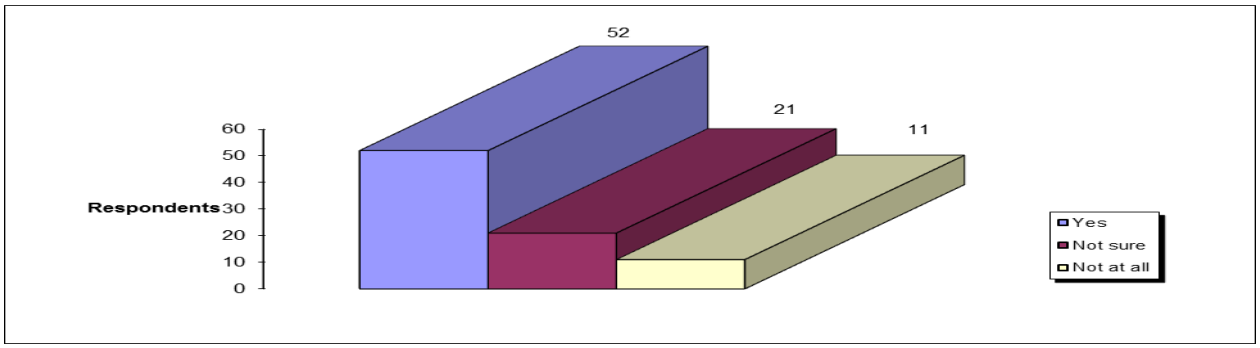
Figure 4.10: Importance of KM Policy



4.3.2.6 Environment suitability

The environment suitability question sought to establish the ability and suitability of the DOD space or environment in supporting sharing of knowledge. Asked if they thought their working environment was conducive to sharing of information and knowledge as illustrated in figure 4.11, respondents answered as following: 52 (61.9%) said yes, 21 (25%) were unsure and 11 (13%) revealed not at all.

Figure 4.11: Knowledge sharing environment suitability



4.3.3 EXISTENCE OF FORMAL AND INFORMAL KNOWLEDGE MANAGEMENT PRACTICES IN THE DEPARTMENT AND AWARENESS OF SUCH BY EMPLOYEES

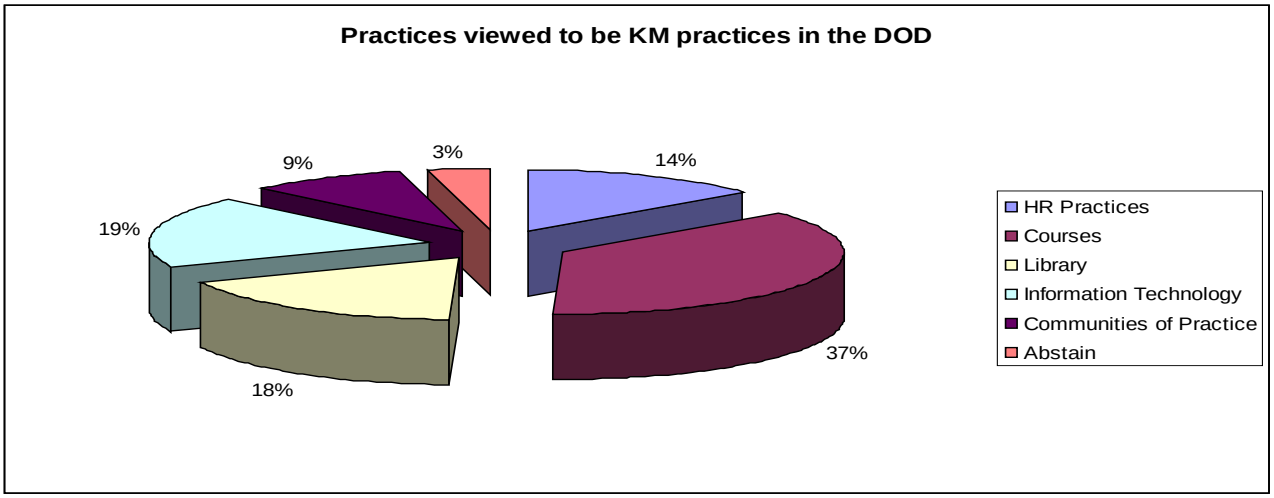
This section aimed at determining the existence of formal and informal knowledge management practices in the department and awareness by employees to such practices. The researcher wanted to establish if the Department of Defence RSA was embracing knowledge management as a business tool, and if they did in which method was the department using to manage its knowledge. Whether it was formal or informal it was all important for the researcher to establish, so as to give an idea where the department was in its knowledge management capability. McIntyre, Gauvin and Waruszynski (2003:38) defined military KM as "a strategic approach to achieving defense objectives by leveraging the value of collective knowledge through the process of creating, gathering, organising, sharing and transferring knowledge into action".

Based on various functions and operations involved in the business of the defence the respondents were asked to indicate their knowledge and awareness level of knowledge management as a concept, what activities they performed they deemed as KM, the existence and importance of knowledge expert, knowledge capture and its influence, knowledge creation and its influence, knowledge sharing and its influence, as well as knowledge audit.

4.3.3.1 KM activities or practices performed in DOD

Respondents were asked to deliberate and indicate which practices performed in their section they thought could help manage knowledge efficiently and to specify how. Respondents were allowed to mention more than one if there were more than one activities they deemed were practiced to manage knowledge in their sections, and they answered as follows: 24 (29%) stated human resource practices such as inductions, 63 (75%) stated courses, 31 (37%) went with library, 32 (38.1%) went with information technology. 16 (19%) chose communities of practices in the form of morning meetings, daily tasks, consultations; while 6 (7.1%) did not respond to this question. Figure 4.12 further illustrates summary of the views expressed on activities or practices performed in DOD to manage their knowledge.

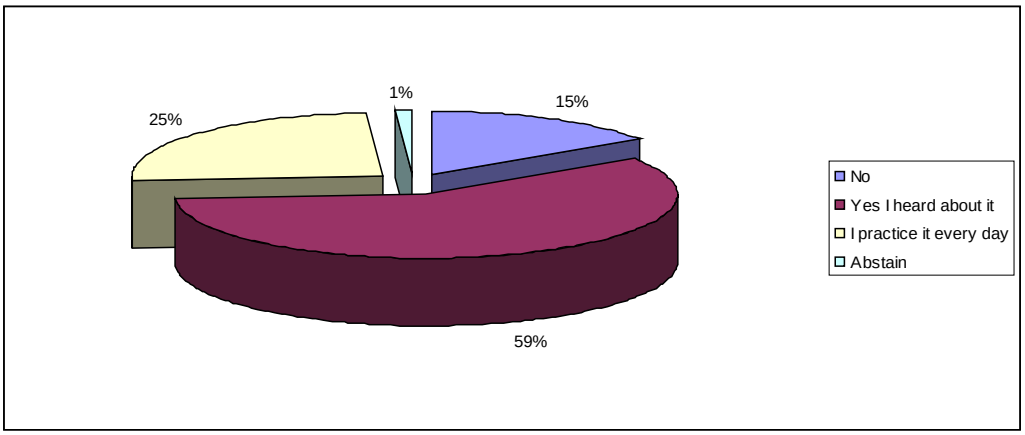
Figure 4.12 Practices/methods used in DOD in view of knowledge management



4.3.3.2 Familiarity with knowledge management concept

Asked if they were familiar with the term knowledge management respondents answered as follows: 13 (16.4%) said "No", 49 (58.3%) answered that they have heard about it, while 21 (25%) said that they practice it every day. Only 1 (1.2%) abstained from this question. Figure 4.13 below illustrates the extent to which respondents are familiar to KM in DOD.

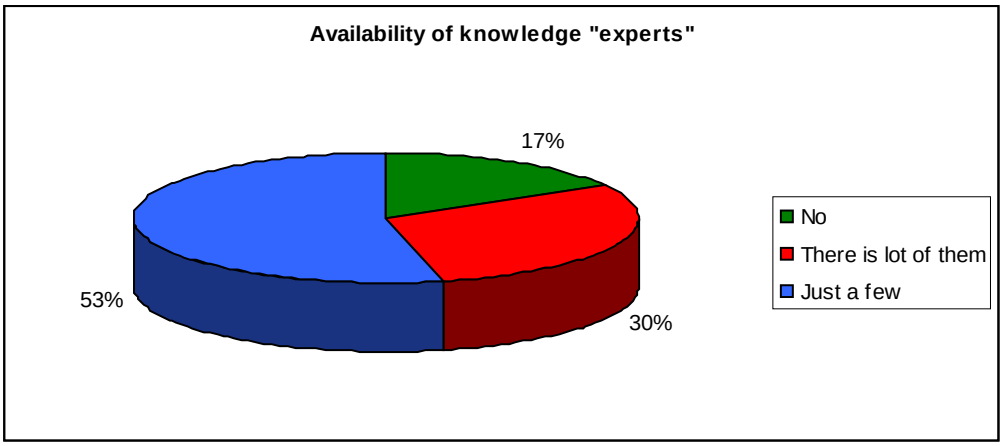
Figure 4.13 Familiarity with Knowledge Management concept



4.3.3.3 Knowledge expert

Figure 4.14 shows that. 14 (17%) respondents said there were no knowledge experts, 25 (30%) indicated that there is a lot of them in the department, and 45 (54%) reported just a few. This was used by the study to investigate the existence of knowledge experts or people that are highly knowledgeable in a particular field in Department with certain expertise.

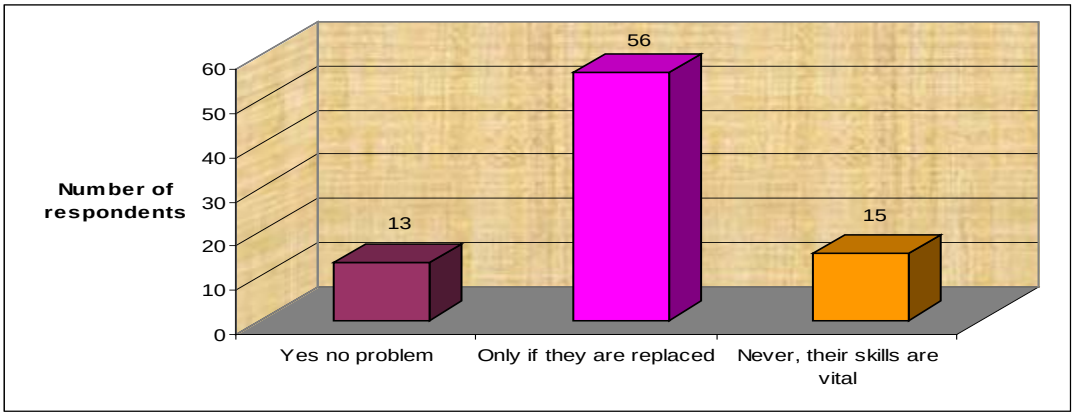
Figure 4.14: Availability of knowledge "experts"



4.3.3.3.1 Importance of knowledge experts to organisation

This question aimed at understanding the impact of knowledge "experts" to the organisation particularly after they exited the organisation. Asked if the organisation can survive to function as normal without their expertise or after their departure, the respondents answered as follows: 13 (15.4%) said yes no problem, 56 (66.6%) said yes only if they are replaced, and 15 (18%) said never, their skill is vital. Figure 4.15 illustrates the views of respondents in summary to whether the organisation can operate normal with departure of knowledge experts

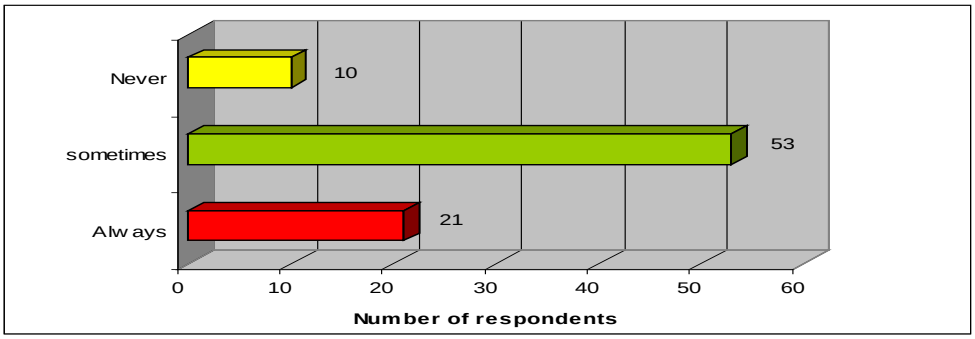
Figure 4.15: Impact of knowledge experts exit to organisation



4.3.3.4 Knowledge capturing

The survey also wanted to establish if the respondents captured/recorded knowledge as they gain it in their environment. Quarter of them 21 (25%) revealed that always, 53 (63%) said sometimes, while 10 (12%) said they never recorded the knowledge they acquire. Figure 4.16 indicates in summary how respondents behave towards recording of their knowledge as they acquire it.

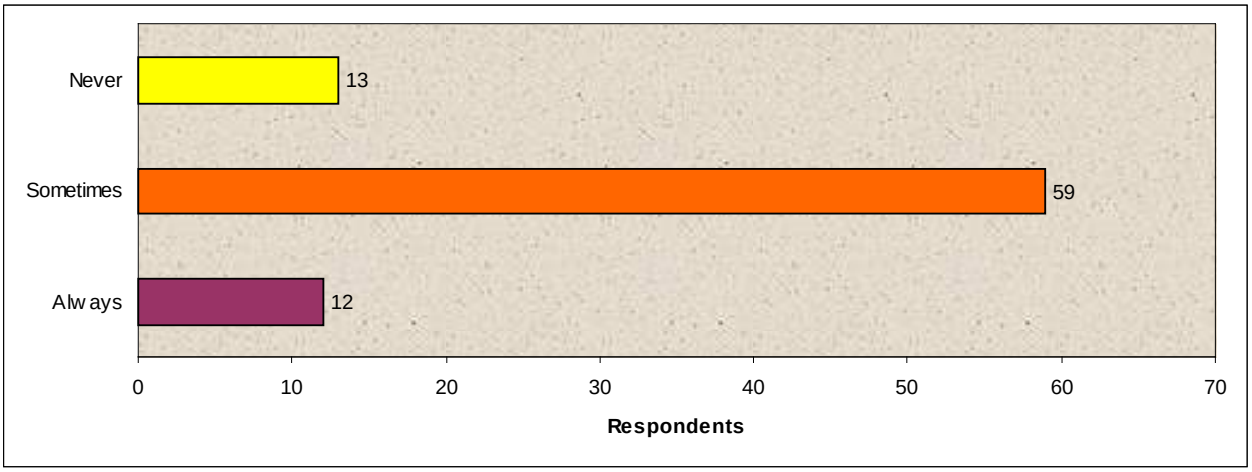
Figure 4.16 Knowledge recording



4.3.3.4.1 Recording of lessons learned

It was equally important for the survey to capture views as to whether the employees in DOD were recording knowledge they gain and lessons learned consistently and used in real working situation. 12 (14.2%) said always records, 59 (70.2%) reported sometimes records, and 13 (15.4%) revealed that they never recorded lessons learned. This information is graphically illustrated in figure 4.17.

Figure 4.17: Recording of lessons learned



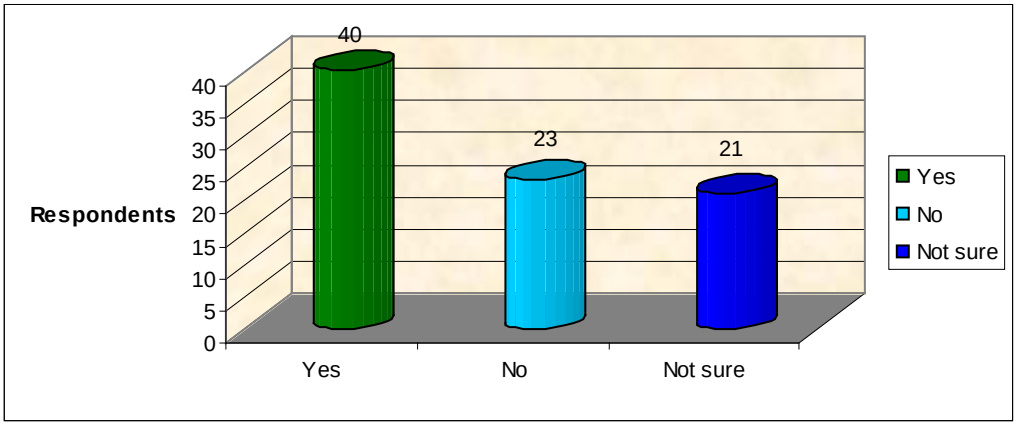
4.3.3.5 Knowledge creation

Creation of knowledge also received attention in establishing whether there was any form of knowledge creation in DOD, and to what extend it was handled or practiced. Organisational knowledge creation is the key to the distinctive ways that Japanese companies innovate. They are especially good at bringing about innovation continuously, incrementally, and spirally (Nonaka and Takeuchi, 1995).

4.3.3.5.1 Knowledge creation system

Asked if they had a process or system where new knowledge was created significantly for future use and for the benefit of the organisation, respondents had this to say: 40 (47.6%) said yes there is such process, 23 (27.3%) said no, and 21 (25%) said they not sure. Summary of responses are illustrated here in figure 4.18.

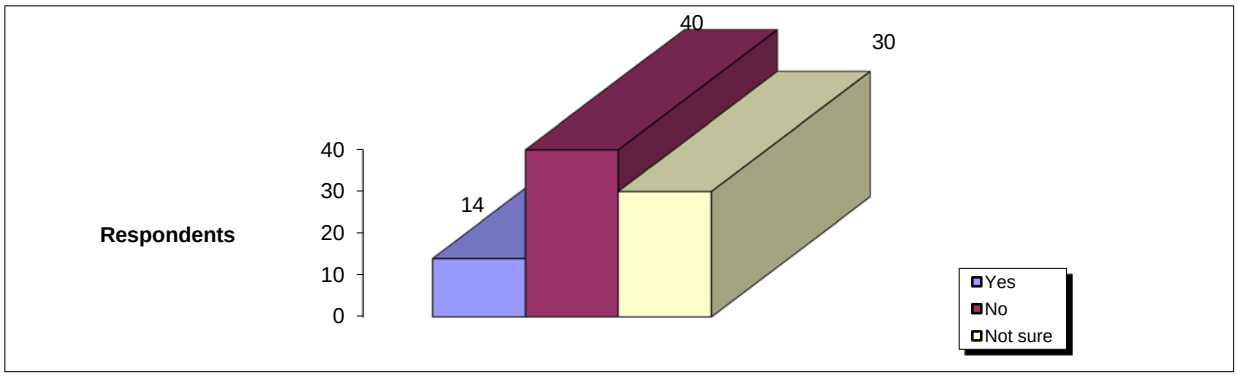
Figure 4.18 Knowledge creation system



4.3.3.5.2 Knowledge appreciation

Asked if there were formal mechanisms to keep created knowledge intact and developed, the following information was revealed: 14 (16.6%) registered yes, 40 (47.6%) indicated no, 30 (35.7%) were not sure. Figure 4.19 illustrates in brief the knowledge appreciation levels as revealed by respondents in this regard.

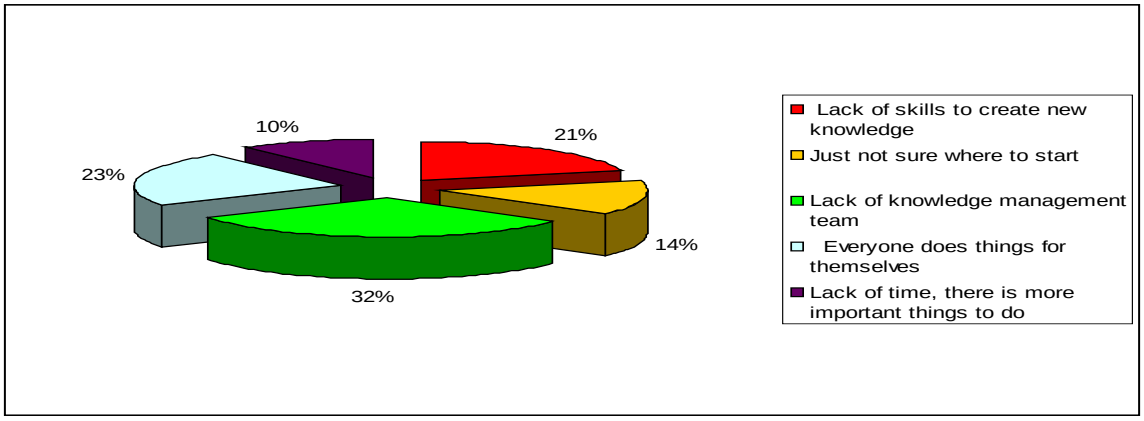
Figure 4.19 Knowledge appreciation



4.3.3.5.3 Knowledge creation challenges

It was the aim of this study to establish challenges experienced in DOD in creating new knowledge. As such when asked what kind of challenges were hindering proper creation of knowledge in their sections. On this question respondents could chose more than one reason contributing as challenge to this effect. 22 mentioned lack of skills, 15 indicated not sure where to start, 33 mentioned lack of KM team, 24 indicated that everyone does things for themselves and 11 stated lack of time. Figure 4.20 indicates through percentages the scale of challenges faced by employees in creating new knowledge.

Figure 4.20 Knowledge creation challenges



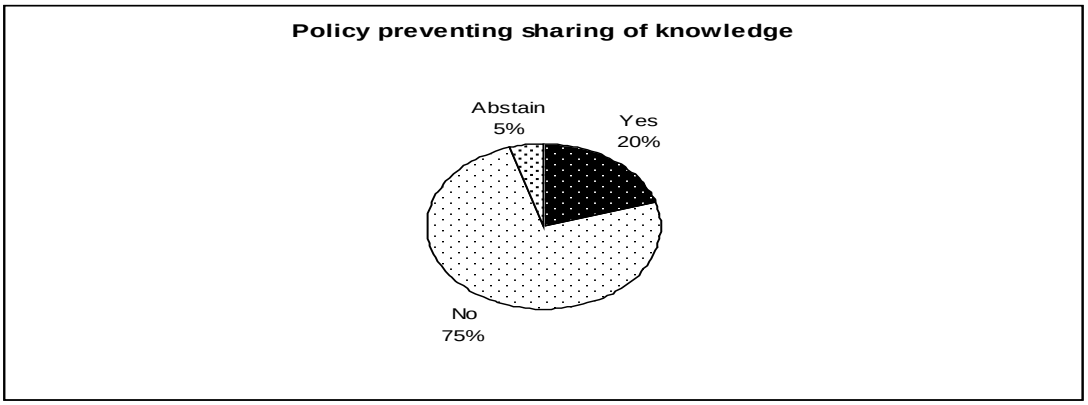
4.3.3.6 Knowledge sharing culture

The researcher also wanted to establish the dynamics involved in DOD as far as knowledge sharing is concerned. It was also empirical to understand the length and the breadth of knowledge sharing culture and its drivers and challenges.

4.3.3.6.1 Policy preventing sharing of knowledge

Researcher wanted to establish due to the business of the military nature of the organisation whether there was a policy that discourages sharing of knowledge amongst colleagues or staff members, this perhaps as a result of classification regulation to information. Figure 4.21 shows respondents views on whether there was any policy that prevents or discourages them from sharing knowledge respondents with 17 (20.3%) said yes there were such policies, 63 (75%) said no there was no such, while 4 (4.7%) abstained.

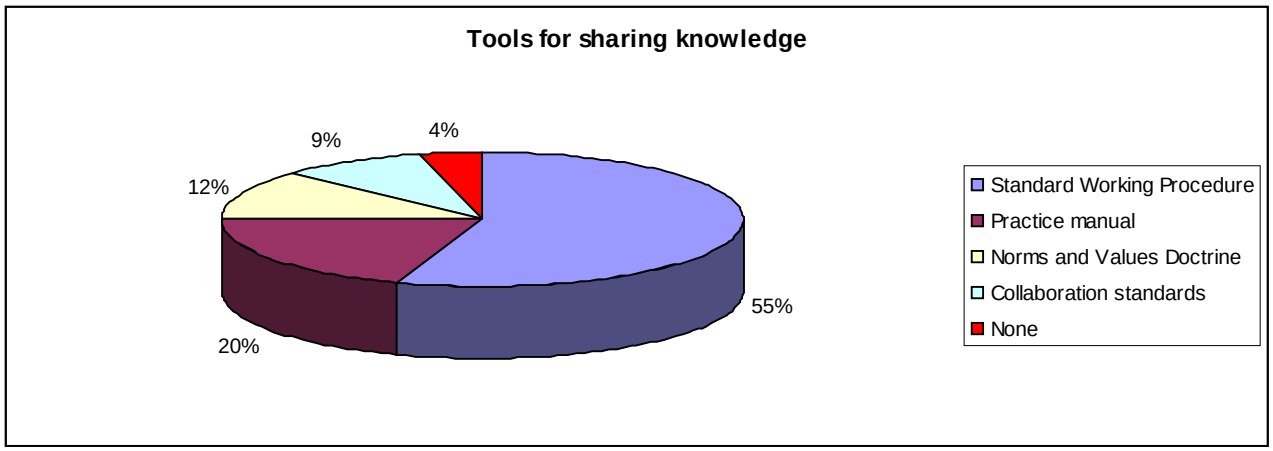
Figure 4.21: Policy preventing sharing of knowledge



4.3.3.6.2 Tools used in sharing knowledge

The survey also wanted to know more about the tools used in DOD to share knowledge, and what supported this KM practice. Asked what tools amongst different options the respondents were using to share knowledge, they indicated as follows: 72 went for standard working procedure, 26 mentioned practice manual, 15 reported norms and value doctrine, 12 said collaboration standards, 5 said none. Figure 4.22 depicts the summary of responses regarding tools used to share knowledge or gain knowledge from.

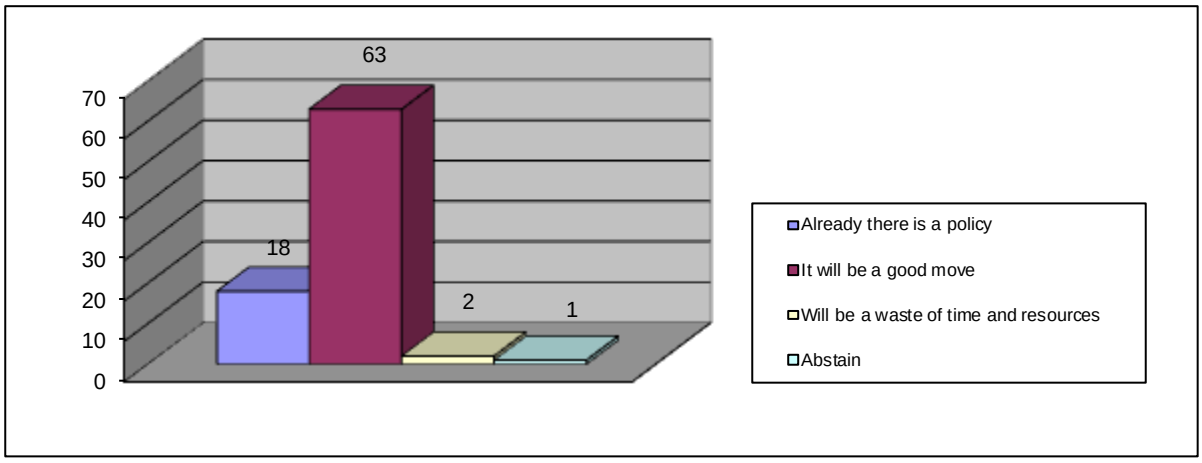
Figure 4.22 Tools used in sharing knowledge



4.3.3.6.3 Adoption of knowledge sharing policy

The study was keen to find out how staff members felt regarding adoption of knowledge management policy if not yet adopted. This was going to help establish if staff members in DOD do embrace knowledge management and if so to what degree. The question sought to establish if it was necessary to regulate sharing of knowledge in DOD, and the following was revealed: 18 (21.4%) reveled that already there was such policy, 63 (75%) said such policy will be a good move, 2 (2.3%) noted that it will be a waste of time and 1 (1.1%) abstained. Figure 4.23 displays in summary graphic representation of views from respondents regarding adoption of knowledge sharing policy.

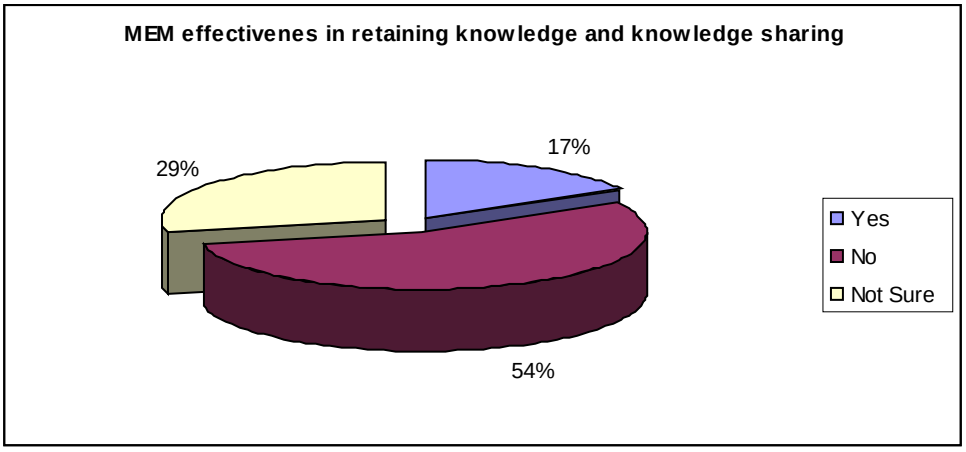
Figure 4.23 Adoption of knowledge sharing policy



4.3.3.6.4 Relevance of MEM in knowledge sharing

Member Exit Mechanism (MEM) aims to address transition of employees and while it is a downsizing tool for aging personnel it aims to maintain skill capital in Defence Department for effective business objectives. The survey wanted to know if this measure was effective in preserving the knowledge and skills when the employees do choose to exit the systems of DOD. Asked if MEM was sufficient enough to encourage members who exit the organisation to leave behind or document their valuable knowledge and expertise for the benefit of the Department, the following was revealed: 14 (16.6%) says yes, 46 (54.7%) said no, and 24 (28.5%) are not sure. Figure 4.24 illustrates such information in summary.

Figure 4.24 Relevance of MEM in knowledge sharing



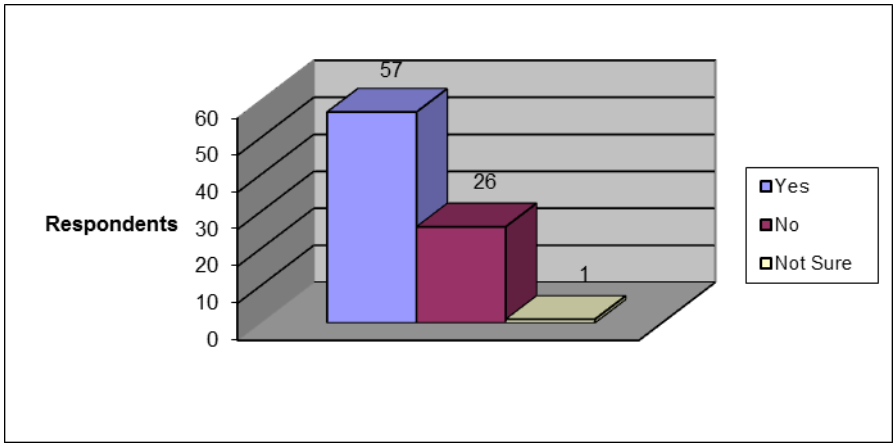
4.3.3.6.5 Communities of Practice

A Community of Practice (CoP) is a group of people who have worked with each other for a period of time with a common sense of purpose and a real need to know what each other knows (Mitchell 2003). Researcher wanted to establish the extent and manner in which DOD exploited its forums in sharing knowledge, hence investigation into communities of practice in DOD and its ability as people-based knowledge sharing and dissemination mechanism.

4.3.3.6.6 Existence of informal forums to share ideas and insights

Asked if there were informal forums (For example, during work-sessions, in corridors, or even during tea breaks) within the organisation where individuals share ideas and insights, respondents had this to say: 57 (67.8%) said yes, 26 (30.9%) said no, while 1 (1.1%) were not sure. Figure 4.25 illustrates the extent at which the communities of practice exist.

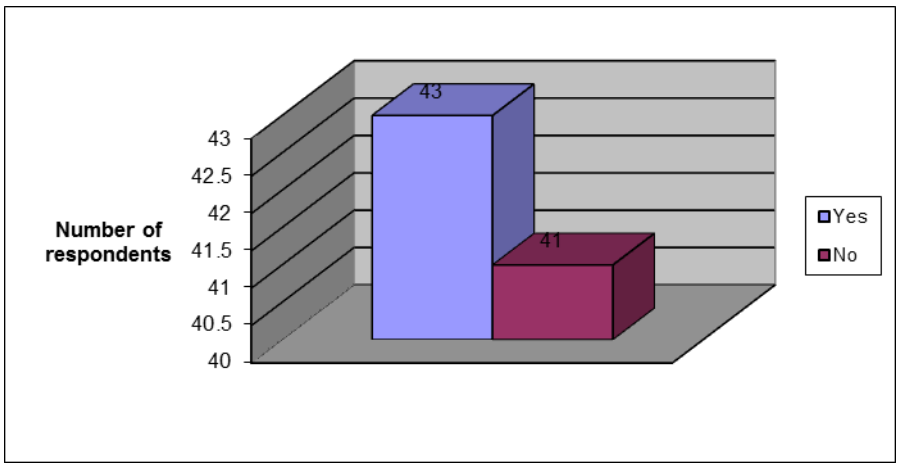
Figure 4.25: Existence of informal forums to share ideas and insights



4.3.3.6.7 Importance of official meetings in sharing knowledge

Researcher wanted to establish the importance of self-organised and formal meetings as a space for knowledge sharing. As such respondents were asked if there are formal gatherings with intent to share insights and ideas in DOD. Figure 4.26 shows that 43 (51.1%) said yes and 41 (48.8%) said no.

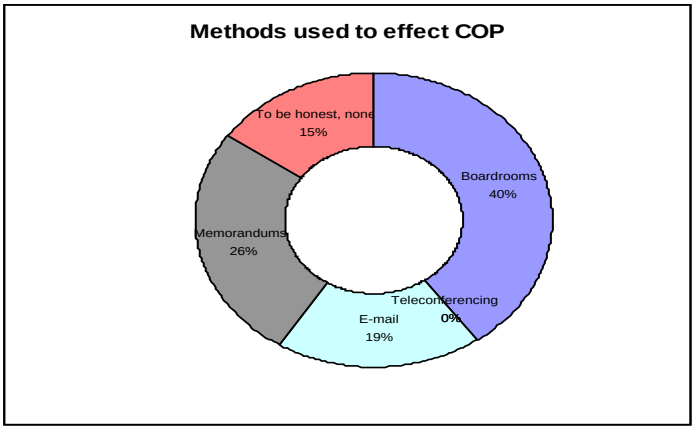
Figure 4.26: Importance of official meetings in sharing knowledge



4.3.3.6.8 Methods used to drive COPs

Meetings can take place in different forms, as such the survey deemed it necessary to establish what method does personnel in DOD use to gather and discuss their action plans. Asked if there was a means used by employees to discuss amongst themselves of which through the options the respondents could choose more than one, they had the following to say: 45 indicated boardrooms, 0 was for teleconferencing, 21 were using e-mail, 29 were using memorandums, while 17 stated none whatsoever. The above information is illustrated briefly in figure 4.27.

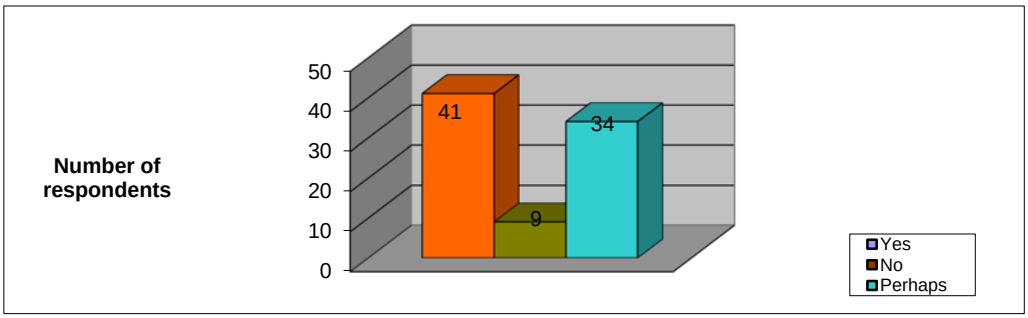
Figure 4.27: Methods used to effect COP



4.3.3.6.9 Impact of COP methods/tools in knowledge sharing

Asked whether the tools or forums they were using to discuss matters could possibly be used to yield substantial knowledge the respondents answered as follows: 41 (48.8%) said yes, 9 (10.7%) said no and 34 (40.4%) reported that perhaps it could work. Below is figure 4.28 illustrates in summary whether there is hope in the used forums to share substantial knowledge that will help the organisation.

Figure 4.28: Impact of COP methods/tools in knowledge sharing



4.3.3.6.10 Technology-based knowledge sharing mechanisms

The survey wanted to establish the viability of available infrastructure in support of knowledge sharing and ultimately knowledge management in DOD as a broader goal of investigating knowledge management practices in DOD. Literature review has indicated that there are technologies and computer based software that enables knowledge-sharing and dissemination. In this section respondents were required to identify the technology based mechanisms that they use to share and disseminate knowledge in DI/Corporate Staff Division DOD HQ Division.

With choice of Internet, Lotus Notes/Groupware, Weblogs, Wireless Technology and Intranet, respondents were asked to indicate amongst those mechanisms which mechanism they were using to share knowledge/information and which ones were not in use. The following information was revealed. One respondent indicated to not having any of the mentioned mechanisms to communicate or share knowledge. The rest of respondents have indicated as illustrated in table 4.1 their choices.

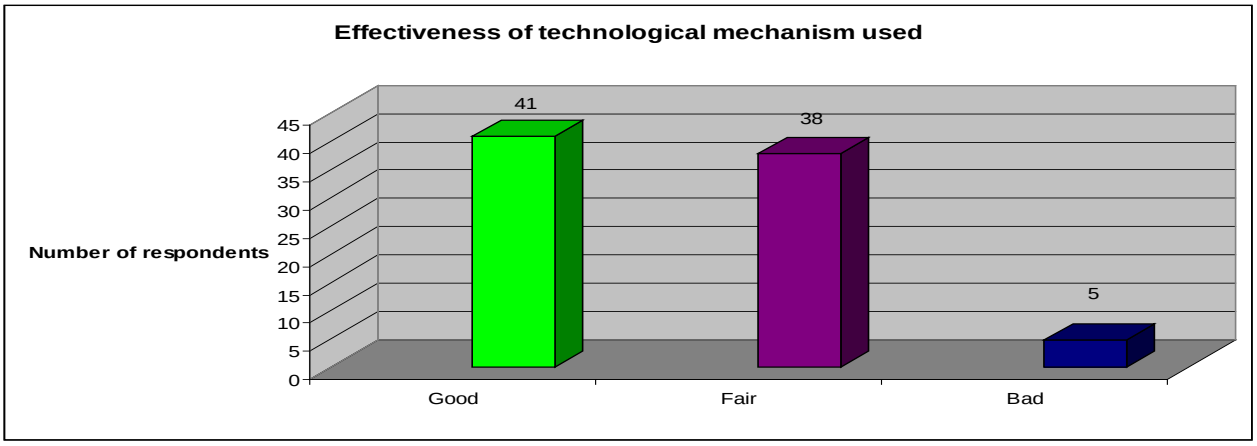
Table 4.1 Technological Mechanisms used to share knowledge

Mechanism	In use	Not in use
Internet/email	63 (75%)	21 (25%)
Groupware/Lotus	68 (80.9%)	16 (19%)
Weblogs	4 (4.7%)	80 (95.2%)
Wireless Technology	8 (9.5%)	76 (90.4%)
Intranet	54 (64.2%)	30 (35.7%)

4.3.3.6.11 Effectiveness of technology to knowledge sharing

Respondents were asked to indicate how effective the mechanisms they used were in relation to knowledge sharing and information dissemination. As illustrated in figure 4.29 responses show 41 (48.8%) of respondents indicating they were good, 38 (45.2%) said they were fair, 5 (5.9%) said they were bad.

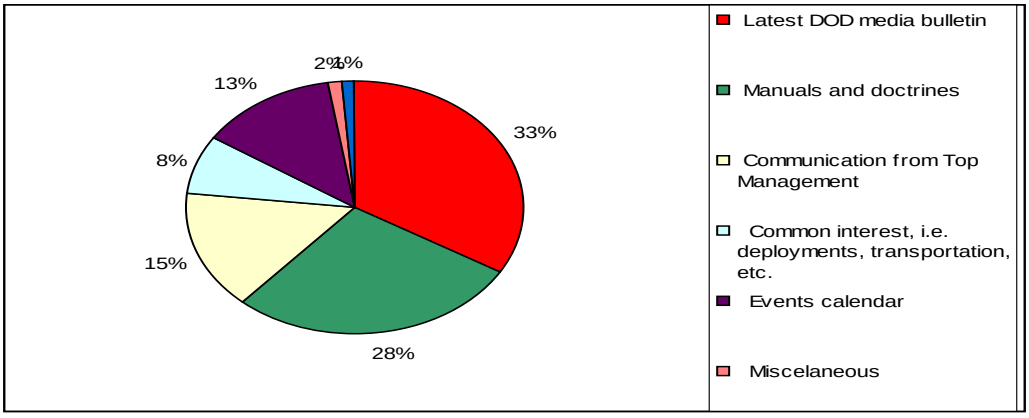
Figure 4.29 Effectiveness of technological mechanisms used



4.3.3.6.12 Purpose of intranet in future

In trying to find the intensity or level of knowledge being shared or consumed using Intranet as an example of methods of communication, researcher asked the respondents to indicate reasons why members of the Defence community in RSA would want to use intranet. This was based on current and future knowledge needs to gage the level of knowledge DOD is/will be engaging in. Respondents were allowed to choose more than one knowledge need. Figure 4.30 indicates that accessing latest DOD media bulletin was an option indicated by 33% of respondents which was majority compared to 28% that indicated the need to access manuals and doctrines, 15% preferred communication from top management, 13% wanted to access events calendar while 8% were for common interests like deployments, transportations or logistics and announcements, and 2% chose miscellaneous, i.e. vacancies, newspaper clippings, policies.

Figure 4.30 Future expectations for intranet.



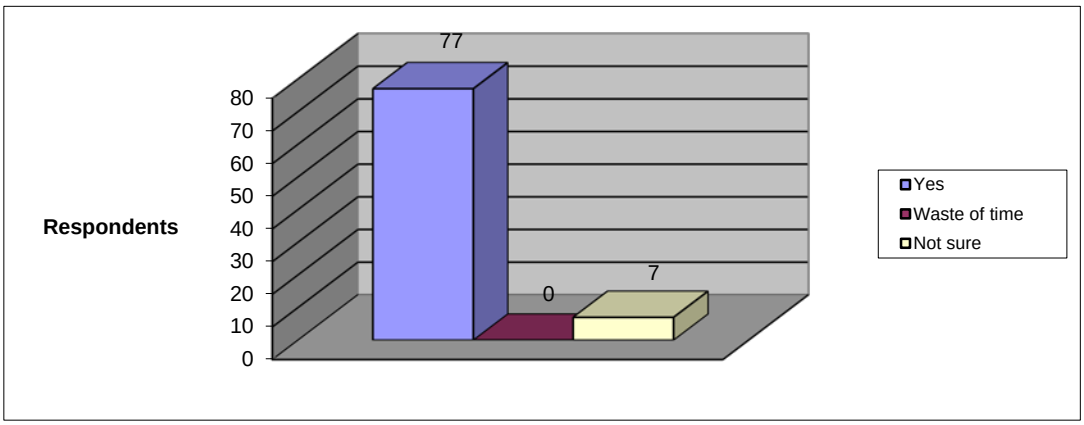
4.3.3.7 Mentoring

Mentoring is an important practice for sharing knowledge and is a very important exercise for empowering subjects/new staff or recruits with skills enough to carry specific technical tasks demanded by the organisation. Mentoring is a fundamental form of human development where one person (Usually senior, advisor, wise, teacher), invests time, energy, and personal know-how assisting the growth and ability of another person (Shea, 2002).

4.3.3.7.1 Views on mentoring in organisation

The researcher wanted to establish if views were positive or negative regarding perceptions on mentoring in the organisation. Through the survey respondents were asked if they believed mentoring can help them be knowledgeable and develop to deliver better services in the organisation. The majority (91.7%) said yes, while 8.3% of respondents were not sure. Figure 4.31 illustrates views on mentoring in an organisation.

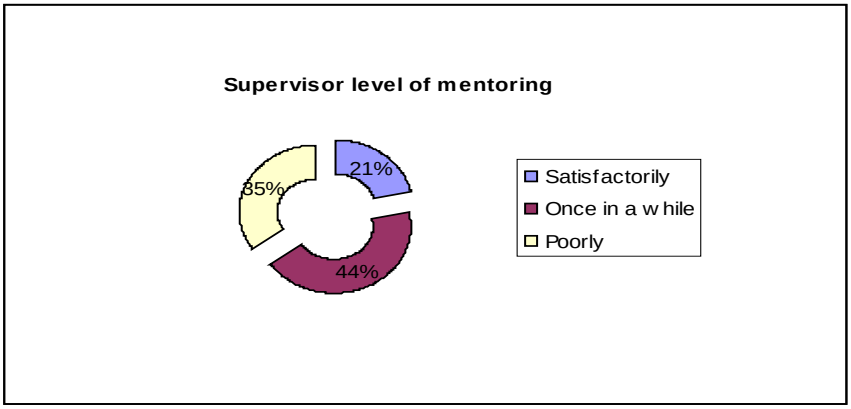
Figure 4.31: Views on mentoring in organisation



4.3.3.7.2 Level of mentoring by supervisor

Researcher also wanted to know the level of contribution from supervisors as mentors. Asked how often their mentor/supervisor intervenes in developing their career, respondents revealed the following: 18 (21.4%) reported satisfactorily, 37 (44%) reported once in a while, while 29 (36%) reported poorly. Figure 4.32 indicates in summary levels of mentoring by supervisor in DOD.

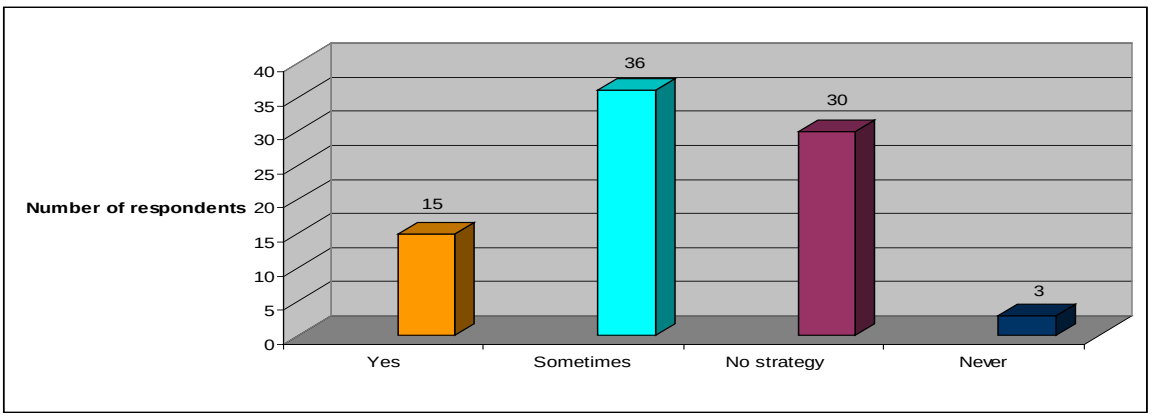
Fig 4.32 Level of mentoring by supervisor



4.3.3.7.3 Prospects of grooming by knowledge experts

In the light of mentoring the researcher wanted to establish the prospects of available knowledge expert in grooming new staff members or subject if not subordinates to render service of the same quality with the skills similar to theirs. Respondents were asked if there was a practice or culture where knowledge experts groomed new or promising prospects in their organisation and the following was revealed: 15 (17.8%) revealed yes, 36 (42.8%), said sometimes, 30 (35.7%) revealed there is no strategy, while 3 (3.5%) said never. Graphic representation of prospects for grooming through knowledge experts is illustrated in figure 4.33.

Figure 4.33: Prospects of grooming by knowledge experts



4.3.3.8 Knowledge audit

In order to examine the knowledge management practices in DOD it was important to also see if there was any exercises of auditing knowledge or evaluation of available knowledge within the Department. The researcher wanted to establish whether the management or Department knew what knowledge was available at its disposal in the first place.

4.3.3.8.1 Existence of knowledge audit

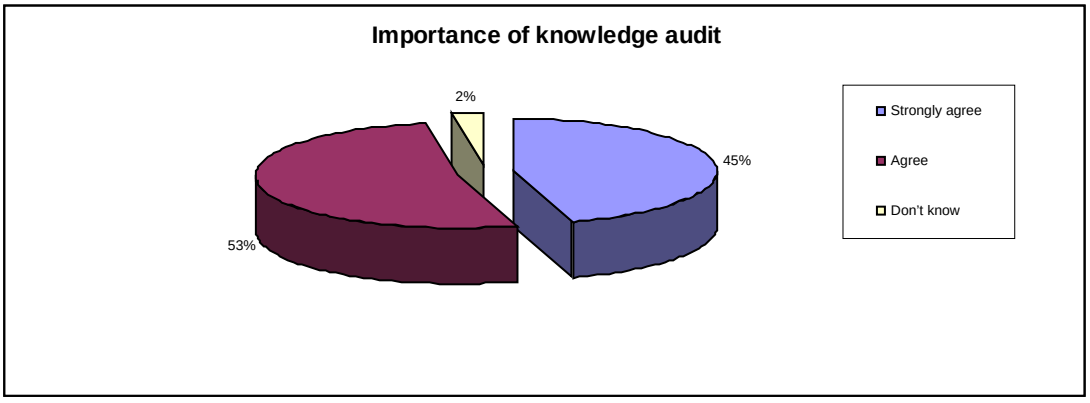
Asked whether a knowledge management audit in the organisation was conducted, the respondents had this to say: 3 (4%) strongly agreed, 20 (24%) agreed, 27 (32%) said they don't know, 30 (36%) disagrees while 4 (5%) strongly disagrees. Figure 4.34 illustrates in summary views of respondents on existence of knowledge audit in the Department.

Figure 4.34: Existence of knowledge audit in DOD

4.3.3.8.2 Importance of knowledge audit

The survey also wanted to get respondents opinions if they are in favour or not of knowledge audit done in their working environment. Asked if it is important to examine and investigate the level of knowledge the organisation has, they had this to say: 34 (40.4%) strongly agreed, 44 (52.3%) agreed while 2 (2.3%) don't know. Figure 4.35 shows in summary the views from respondents regarding importance of a knowledge audit.

Figure 4.35: Importance of knowledge audit



4.3.4 EXISTENCE AND IMPORTANCE OF KNOWLEDGE PRACTITIONER.

As part of investigating knowledge management practices in the Defence Department this section aimed at establishing the existence of knowledge management practitioners, professionals responsible for the proper management of knowledge. It is critical that when we talk about knowledge management and its practices we also look into the driving factors behind these successful KM practices and who is accountable to running of the policy and implementation, clearly this cannot be some machines.

Knowledge management is no more an activity to support the business. Its function is to develop organisations' value (Border, 2006). There is no knowledge without someone being able to manage it (De Giovanni 2009; Gottschalk 1999). Based on the business of the Defence Department, respondents were asked to indicate what they thought will be the best method of managing their knowledge, and whether there was any knowledge managers in their sections or division.

4.3.4.1 KM assignment/ responsibility

On how best respondents thought knowledge can be managed, Figure 4.36 shows in summary the views of respondents to how knowledge management should be handled in the organisation with 52 (62%) indicating structured means, while 21 (25%) answered by individual, 10 (12%) said when necessary and 1 (1.2%) said no need.

Figure 4.36: KM assignment

4.3.4.2 Existence of KM professionals in DOD

Asked if they had specially tasked professionals who manage their knowledge, respondents had this to say: 12 (14.2%) answered yes, referring to SITA, Information managers and Librarians. 56 (67%) said no they don't have, while 16 (19%) revealed that they are not sure. Figure 4.37 illustrates the availability of KM professionals in DOD.

Figure 4.37: Existence of KM professionals in DOD

4.3.4.3 Method of managing knowledge

Respondents were asked what methods they thought would best be used or applied in managing knowledge in relation to their working environment and figure 4.38 shows 55 (65%) of respondents indicated it must be managed through dedicated team, 6 (7%) said it can be managed through ad-hoc task team, 21 (25%) revealed that it can be self-driven/managed, while 2 (2.3%) stated none at all.

Figure 4.38: Method of managing knowledge

4.3.5 RELEVANCE OF LEARNING IN DOD

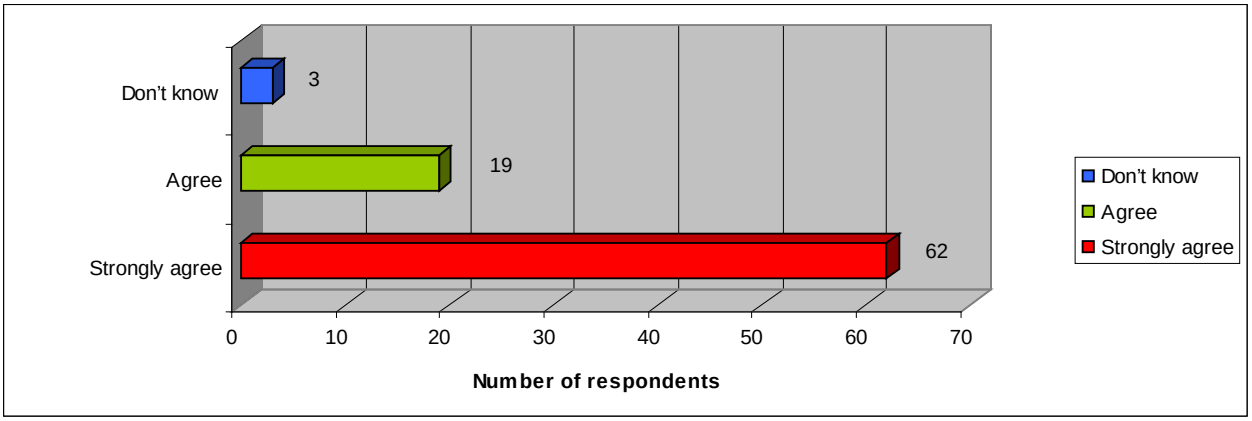
This section aimed at establishing whether DOD was a learning organisation, and what DOD was doing to manage its knowledge in order to continuously improve their learning capability. The survey wanted to capture a general feeling towards learning from the staff members and establish if DOD is a learning organisation and establish whether the organisation plans towards training its staff on new skills in the future.

The practice of organisational learning involves developing tangible activities: new governing ideas, innovation in infrastructure, and new management methods and tools for changing the way people conduct their work. Given the opportunity to take part in these new activities, people will develop an enduring capacity for change. The process will pay back the organisation with far greater levels of diversity, commitment, innovation and talent (Senge *et al*, 1999*)*. As part of understanding the knowledge management practices in DOD it was imperative to understand if DOD was/is a learning organisation, if it an institution that embraced change, and what did it do to enhance and preserve its knowledge commodity as it evolves and grows.

4.3.5.1 Importance of learning in DOD

On the importance of learning respondents were asked if it was important to continue to learn and acquire new knowledge as individuals and organisation as a whole. They answered as follows: 62 (74%) strongly agreed, 19 (23%) agreed, while 3 (4%) said they did not know. Figure 4.39 indicates in brief the views of respondents towards learning.

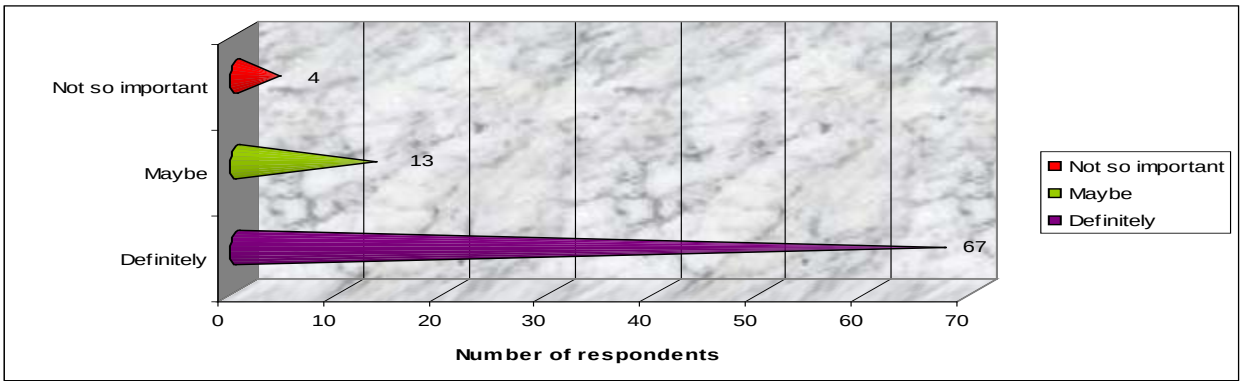
Figure 4.39 Importance of learning in DOD



4.3.5.2 Knowledge acceleration for benefit of organisation

Asked if they could still do more in furthering their knowledge to help the organisation function better, respondents had this to say: 67 (79.7%) said definitely, 13 (15.4%) revealed maybe, and 4 (4.7%) said it not so important. Summary of responses regarding the matter above are displayed in figure 4.40.

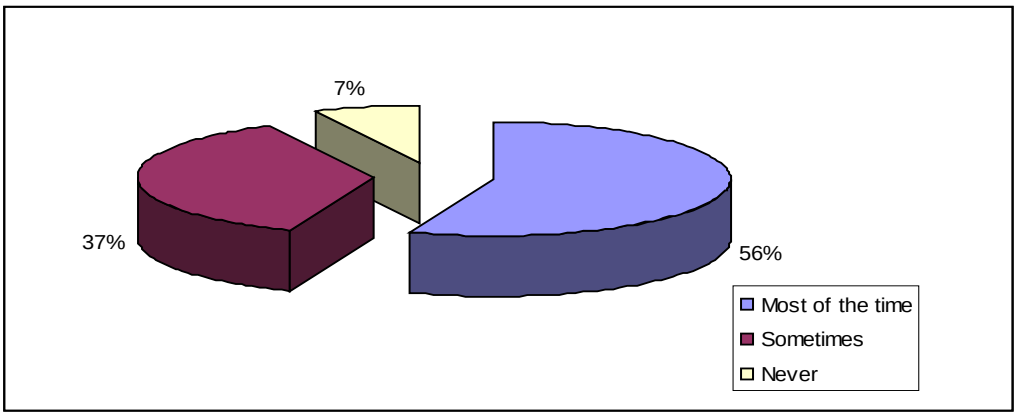
Figure 4.40: Knowledge acceleration for benefit of organisation



4.3.5.3 Organisation's influence in learning new skill or knowledge

Organisation's influence on employees acquiring new knowledge and gaining new skills was another aspect the researcher wanted to understand. The survey wanted to know the level at which organisation encourages its employees to learn and the following was revealed. 47 (55.9%) said most of the time, 31 (36.9%) revealed sometimes while 6 (7.14%) declared never. Figure 4.41 illustrates in brief of the organisation's influence as per views of respondents on learning new practices and means.

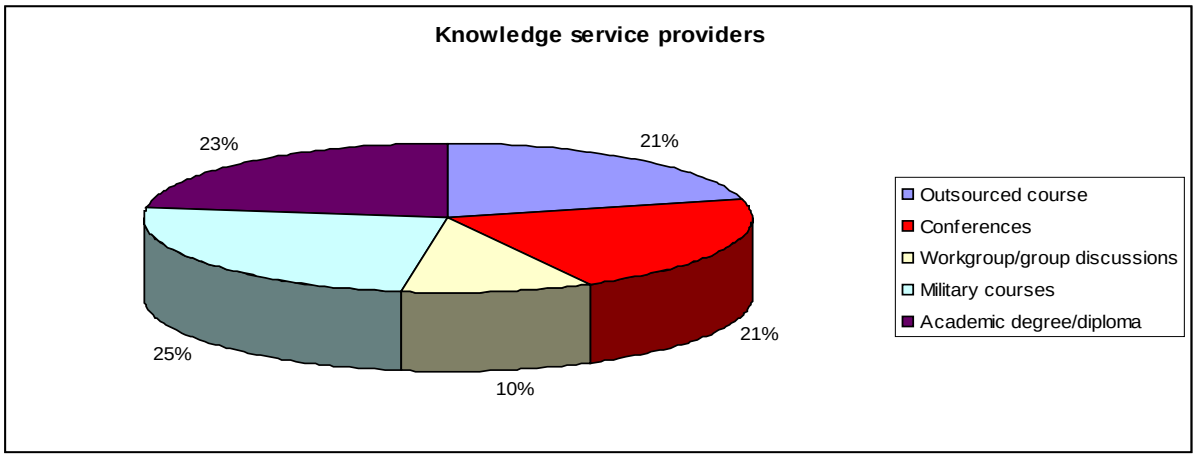
Figure 4.41 Organisation's influence in learning new skill or knowledge



4.3.5.4 Learning projects used by SANDF/DOD

It was also important for the survey to understand learning projects/methods used by DOD to capacitate their staff if there was any. Of importance also is to note that in this category respondents were allowed to make as many indications of knowledge provision or method they are using. Examples of outsourced courses, conferences, workgroup discussions, military courses, academic degrees and diplomas were given. As multiple-choice was presented. Asked what form of learning projects they were exposed to, respondents had this to say: 21% were for outsourced courses, 21% conferences, 10% workgroups and group discussions, 25% military courses, while 23% were for academic degrees and diplomas. Figure 4.42 illustrates in summary methods used to acquire knowledge used in DOD.

Figure 4.42 Learning projects used by SANDF/DOD



4.3.6 CHALLENGES IMPEDING THE EXECUTION OF FORMAL KNOWLEDGE MANAGEMENT PRACTICES IN THE DOD.

As mentioned in Chapter Two there are problems that can be addressed by KM in an organisation, owing to KM strategy. At a same time Chapter Two discusses knowledge management success stories. There are challenges that an organisation may face in its day-to-day running of operations, the same will be to its knowledge management capability and practices like knowledge sharing. For that reason this section wanted to determine the kind of challenges and factors in DOD that were obstructing the running of successful knowledge management and its practices.

4.3.6.1 Knowledge entitlement and selfishness

Researcher wanted to establish if there was any culture amongst the employees in the organisation that made them feel entitled to their knowledge, making it their own and stamping authority on whether to release it or not. Asked if it was correct that a lot of knowledge is kept tacitly with members and thus making them selfish with information or knowledge, respondents had this to say: 39 (46.4%) reported always the case, 34 (40.4%) were not sure and 11 (13%) reported that the above statement is not true. Figure 4.43 illustrates opinions on whether members were selfish with knowledge or not.

Figure 4.43: Knowledge entitlement and selfishness

4.3.6.2 Behavior related challenges to share knowledge

Part of investigating knowledge management practices was to establish reasons why staff members find it behaviorally difficult to share their knowledge, especially work related and organisation related knowledge if at all there is such a challenge. A question was tentatively phrased in this way, it is not easy to communicate the knowledge i have because…,and the following is how the respondents answered: 12 (14.2%) reported that their colleagues are lazy to acquire their own knowledge, 14 (16.6%) said they don't have time to share, 48 (57.1%) said because of lack of knowledge sharing structure, 1 (1.1%) said it is against organisational policy, 3 (3.5%) said their colleagues won't understand anyway, while 6 (7.1%) abstained. Figure 4.44 illustrates the reasons why behaviorally respondents find it difficult to share their knowledge

Figure 4.44 Behavior related challenges to share knowledge

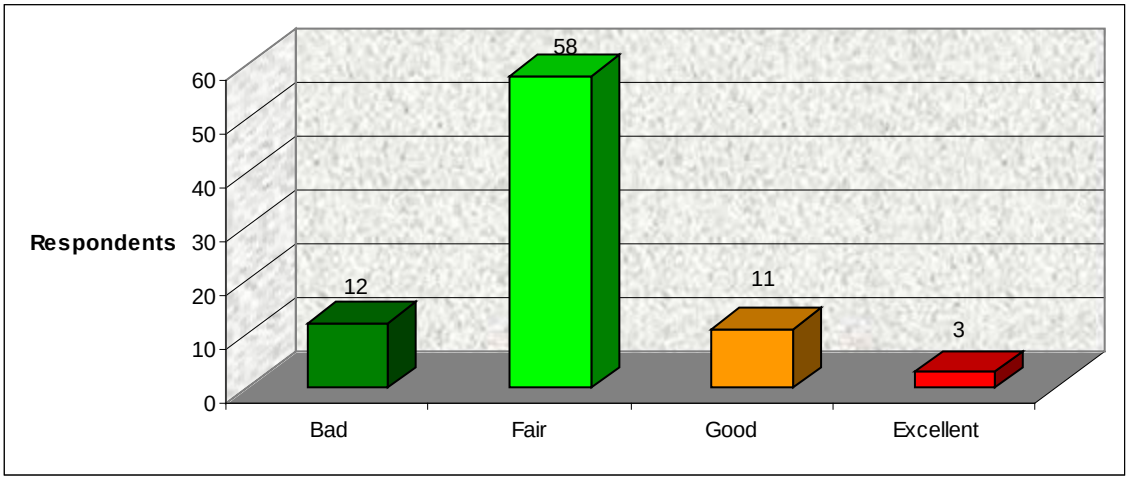
4.3.7 PERCEPTIONS BY MEMBERS OF THE DOD ON THE DEPARTMENT'S ABILITY TO MANAGE ITS KNOWLEDGE.

This section aimed at establishing employees' perceptions on Department of Defence's ability to manage its knowledge. The researcher wanted to know how the employees rated their organisation's ability to control its knowledge capital. This was also done to see how far the organisation was ready in managing knowledge and coordinating its practices.

4.3.7.1 Rating of DOD ability to manage its knowledge

Respondents were asked to be frank in their views as far as their organisation's ability and position to manage its knowledge, and the following information was revealed. Figure 4.45 shows that 12 (14.2%) respondents revealed it was bad, 58 (69%) noted fair, 11 (13%) indicated it was good, while 3 (3.5%) revealed it to be excellent.

Figure 4.45 DOD's ability to manage its own knowledge.



4.4 FINDINGS FROM THE INTERVIEWS

This section presents findings from the interviewed participants and focus group. The interview findings are presented mostly in narrative form with use of direct quotes.

The researcher observed and interviewed 15 participants, 5 as group discussion at the Defence Intelligence (DI) taking advantage of the gathering scheduled for training related exercise in the Liberty Life Building on the 23 May 2012, and 10 individually interviewed at the Corporate Service DHQ (CS DHQ). This was done because it was extremely difficult to have all team members in one place at a time, due to taxing duties particularly of those in management.

4.4.1 Characteristics of the respondents

Fifteen interviewees were interviewed and the following is the breakdown of the composition of the interviewed persons in the Defence Intelligence unit as well as at the Corporate Service DHQ.

DI:

Rank: Three Colonels and two full Colonels.

Race: Two whites and three blacks.

Education: Three were degree graduates and one with Diploma while one was Matric qualified.

CS DHQ

Rank: 3 Captains, 3 Majors, 3 Colonels and 1 Brigadier General.

Race: 7 blacks and 3 whites.

Education: 2 Matriculants, 2 diploma graduates and 6 degree graduates.

4.4.2 Knowledge management concept in DOD

Advantages of using KM practices include the fact that they help organisations to refocus on using their already existing knowledge, they create the environment for innovation rather than limiting themselves to best practices solutions only, they enable convergence towards knowledge portals rather than separate silos of knowledge in an organisation, and they promote interconnectedness among departments, employees, and systems in an organisation. There is no doubt that knowledge

management as a concept takes centre stage in the knowledge economy due to loss of knowledge capital that is essential in achieving organisational objectives.

On the issue of knowledge concept respondents were given brief background of the meaning to knowledge management and ten (66%) indicated that indeed they have heard of KM and have to some extend read about it. This group is aware of the difference between knowledge management and information management. However they say they are not privy to how the concept is practiced on a full scale, though they have practiced it informally themselves in managing their own knowledge and that of the business or organisation from current and previous lives. They confirm that indeed they know the importance of skills management, learning, sharing of knowledge and mentoring as expressed here: *…it is important that the organisation knows what it knows so that we can use the skills to betterment of the organisation's objectives….today we operate in an information era we have to be on par with other organisations in managing our knowledge…Yes I have heard of the term knowledge management at the university and it is a good exercise in channelling our skills.*

This group reports that indeed there is knowledge management practices in the organisation although they are embedded. They have mentioned meetings, reports, Conventional Service Writing (CSW) Standard Working Procedures (SWP) and sharing of information on Lotus Notes as some of the practices they can associate with knowledge management:…*I do believe we have our own knowledge management here in the organisation although may not be similar to formal and professional methods used in private companies, but yes there are always means we manage our own knowledge like saving documents in our H:Drive and sharing it on the S:Drive.*

All in group of ten however admits that in their organisation and sections knowledge management is not institutionalised, or structured in a professional manner.

The second group of respondents which was five participants (33%) admitted to not knowing anything about knowledge management and that the concept was new to them although they have heard and have practiced some form of information management. Additionally this group know of information managers' duties since they have information managers assisting them with the management of their information requirements or organisational information they need to do their tasks. As such no knowledge practices were being practiced in their organisation or sections according to them.

They mentioned institutionalising of knowledge as a non-starter since they do not even practice knowledge management and since their knowledge is tacit and explicit to their own advantage.

4.4.3 Knowledge assessment

A knowledge assessment should include an examination of organisation's strategy, leadership, collaborative, learning culture, technology infrastructure in its various knowledge processes. In order to transform an organisation into a learning organisation and ensure an effective knowledge management strategy, a knowledge assessment should be conducted, which will provide a current state of knowledge capability of the organisation and a direction of where and how to improve that capability in order to be competitive in this fast changing knowledge era.

In as far as knowing what other fellow colleagues know 13 (86%) respondents stated that they are completely not aware of the knowledge possessed by their fellow staff member, particularly on the issues of day to day working procedure, and further revealed and suggested that it would be difficult to make immediate replacement if that member was to vacate their position. They also claimed that their skills are not the same as theirs. Some of the views are as follows:

… The organisation does not know who possessed what knowledge. That is why it is so difficult to make direct substitution incase a knowledgeable staff member passes on or resigns, because there is no that coordination of integrating knowledge and skills.

There is a degree of uncertainty in the process of knowledge audit because of fear, and fear of discrediting that member who is knowledgeable.

Of the remaining 3 (20%) out of 15 said they are fully aware of the skills and know-how of the fellow staff member they are working with. They say this is a result of the job rotation and substitution they undertake as part and parcel of their job description and requirement.

Asked whether their management has a way to auditing their knowledge available, all (100%) participants indicated that there was no measure from management to audit knowledge they have as possessed by their subordinates. However they retorted to a skills audit done in the form of qualification audit that is done in line with SAQA.

…My section is required to have a procedure manual with which my skills on how to operate the mainframe can be documented so that the next person who has no knowledge of mainframe can immediately adjust to the work as soon after their training.

All (100%) interviewees were of the opinion that indeed an exercise such as knowledge audit is critical for the success of the organisation; particularly in as far as knowledge development is concerned. Sentiments expressed include the following:

…It is important that the organisation examines the depth of knowledge it has as possessed by its staff employed in the Defence Department so that it knows who has what knowledge and how to reengineer its staff deployment…there is times when we want to work in different sections but are not able to do so due to lack of that understanding from supervisors on our capabilities and limitations. I wish my section will do such exercise so that we empower those that are less advantaged with knowledge to elevate them to proper positions gradually. It will be progressive if our organisation can embark on a professional strategy to know all that its staff knows, maybe HR would not have the enormous challenges we have today, we will be able to respond quickly to skill shortage in or Defence, especially with the old generation leaving the organisation in their numbers.

4.4.4 Knowledge creation capability

Organisational knowledge creation is the key to the distinctive ways companies innovate. They are especially good at bringing about innovation continuously, incrementally, and spirally. Recognizing the value of tacit knowledge and figuring out how to use it is the key challenge in a knowledge-creating company, one that requires extended conversations and good personal relationships that is knowledge enabling.

On the question of knowledge creation 9 (60%) interviewees asserted that indeed there was a knowledge creation process and the organisation as a whole and that this knowledge was as a result of continued training that they received in the organisation. The following were some of the narrations expressed by the interviewees:

…Yes there is knowledge creation process and that knowledge is created when we learn new methods and tactics as part and parcel of training requirements. We continue to create knowledge with different philosophy or approaches and programs from foreign countries…there is continued research done by other sister units like DENEL who are mandate with manufacturing warfare technology and reconnaissance means.

Six (40%) of the respondents did however state that there was no clear knowledge creation means in the organisation and therefore would not say there was any means of creating knowledge. They

claim that the knowledge they have its only explicit that has been there before their generations which they cannot ever claim to be theirs to have created.

… There is no way we have come to make substantial contribution to creation of new knowledge that will assist our organisation move forward. We are still doing things and using same technology that has been there before many of our predecessors

On whether there were any follow-up mechanisms regarding created knowledge to have it developed and intact, 12 (80%) interviewees mentioned that there was none.

We do not have mechanisms in place to make follow-up on the created knowledge to have it developed or guarded. There are no specific guidelines to that issue and that is why we do not have organised knowledge…individuals develop for themselves means of developing the knowledge they have created. I think that is the reason why our precious knowledge always finds exit through the door because it is never developed to help the organisation but only individuals. We always go back to seek same intelligence for instance which was gathered long ago, this makes the process of knowledge creation appear to be something new because we do not have mean of following and growing what we already have.

Three (20%) of the interviewees revealed that yes indeed there were available means of safe-guarding created knowledge that could be of value in the future. They revealed these mechanisms:

i. Ops deployments

ii. Normal filing, collection worksheet, sita databases, library

iii. Complete in-post training program for specific functions where members are also evaluated

iv. T-drive product summaries by DID and new system to be introduced (symphony never lived to its expectation, it was cancelled)

v. We use DSN for signals and it is updated daily.

vii. Completion of a course is followed by training others of what you have learned

viii. Giving feedback to supervisor and implementing the knowledge gained

ix. Continuous assessments

x. SOPs, SWP, In-house training, in post training, systems upgrade for data capturing

xi. Libraries, archives and research and development in DI
xii. Feedback form on all knowledge products disseminated

xiii. Lessons learned and lessons identified

All interviewees (100%) mentioned lack of proper planning and policy on proper knowledge creation as a challenge to creating top-class knowledge that can sustain the development and growth of the South African National Defence Force. …*First of all there is no policy on creation of knowledge in our department and this creates a problem because then anyone can just randomly do as they like with regard to knowledge creation. Only individuals create knowledge and one of the reasons is that they do it for individual gain and empowerment, because they know that once they are regarded knowledgeable they are in good position for promotion.*

4.4.5 Knowledge sharing

Knowledge sharing is central to the success of all knowledge management strategies. Effective knowledge sharing practices enable reuse and regeneration of knowledge at individual and organisational level. By sharing people of one or more organisation or community share and exchange understandings, norms, values, attitudes, beliefs, ideas and expertise (best practices).

On knowledge sharing 11 (73%) interviewees stated that they share knowledge by means of available organisational procedures and forums.

We have standard-working procedures, norms and value doctrine that guides and shares valuable pointers on how to do or handle situations. We also have Lotus notes with which we share valuable information when situation dictates. We have also in our fold opportunities in the form of meetings and intranet to share information.

However 4 (27%) interviewees stated that they were not aware of any means of sharing knowledge and that if anything the organisational set-up makes it difficult to share knowledge, that sharing information is not a problem but sharing expertise is. They also assert that there is no policy that deals with sharing of knowledge. The following were some of the views expressed by interviewees on knowledge sharing in the DOD.

People are not prepared to make communities of practices where we can tap into other colleagues knowledge and develop what we know…sharing is non-existent in our organisation since no one is

encouraged or forced to share their expertise, it is one man for himself…a lot of people are scared to share knowledge because they are scared they will become redundant…there is no sharing means for knowledge even the intranet we have is almost not for all in the Defence Intelligence, only for a specific unit or building which also is empty on expertise programs.

All interviewees mentioned that there was no policy they are aware of that oversees regulation of knowledge and expertise interchange or sharing.

On the question of motivation for knowledge sharing, interviewees gave different versions to reasons that will motivate them to share their knowledge or organisational related knowledge. Some views were expressed as follows:

…for me it has to start with appreciation from my supervisor, I do not have a problem with sharing my knowledge and skills I just need that recognition from my superiors that I am doing a good job.

…we all know that sharing of knowledge is like departing with your most precious treasure which you have worked so hard for and therefore for one to share knowledge one will need some compensation in the form of credit, monetary or verbal. Others expressed that they can only share if they also receive knowledge from their counterparts, they acknowledge that there is some part of knowledge in the organisation which they would really appreciate to be knowledgeable of. There were some interviewees who mentioned that it starts with culture of sharing knowledge.

… if there is no culture of sharing knowledge as it is with our organisation it turns to be difficult to gain courage to share. We would be sharing everyday if all employees were trusting of one another, as it is there is still a divide both in terms of ranks and race, and that i think is the reason why we do not share

On the question of challenges associated with sharing knowledge respondents gave interesting inputs to reasons why sharing of knowledge was not easy in the Department. The following were some of the views expressed by interviewees on the challenges associated with sharing of knowledge:

a. *Interest to share and gain, there is no driving factor, not interested.*
b. *Lack of skills/knowledge.*
c. *People keeping skills/knowledge for themselves.*
d. *Professional jealousy, hard earned knowledge is hard to part with.*

e. *Manager without skills, lack of delegation.*

f. *Different units.*

g. *Most people are selfish with knowledge.*

h. *Professional jealousy.*

i. *Members are selfish and do not want to share their knowledge when they exit the system, it leaves a huge gap.*

j. *People only want recognition for themselves and therefore would like to be regarded as expertise/assets thereby not sharing knowledge/information.*

k. *Secrecy of knowledge (security clearance related) or want to keep it for oneself.*

l. *There is no time to share because people are always thinking targets dates, too much work, pressure.*

m. *Coordination, forgotten experiences.*

n. *Threat to individuals.*

o. *Lack of motivating factor and lack of time.*

p. *The type of information (classified) makes it difficult to share, people are forbidden to share certain knowledge.*

q. *There is no dedicated KM team.*

r. *Knowledge not anywhere on the system.*

s. *Selfishness, people want to be recognised for their own thoughts and skills.*

t. *Selfishness.*

u. *Stubborn and arrogance.*

v. *There is no interest to share by members.*

w. *Lack of sufficient databases.*

x. It is not difficult; it is just non-existent period!.

y. Low morale among personnel.

z. People like to do things individually, lack of support by management and people hiding what they know.

aa. Inferiority complex and lack of KM structures.

bb. Lack of vision to groom subordinates, replacements come after long.

cc. Management does not create favorable environment for sharing of knowledge.

dd. Trust, we do not trust each other for security reasons.

ee. Sense of entitlement, lack of training strategy.

ff. Lack of cooperation by those with knowledge, inability to delegate, time.

gg. No measures or plans to harness our knowledge.

hh. Sense of ownership.

ii. People in my section are too reserved that it is difficult to share, some are scared and others intimidating to approach and ask simple knowledge.

jj. Not enough opportunities and lack of interest for people to learn.

kk. Lack of personnel.

ll. Fear of competition.

mm. People want credit/reward to themselves hence they don't want to share.

nn. No difficulty frankly, it flows freely.

oo. Rank plays a negative factor.

pp. Most people are selfish to share information and the slot to impart knowledge is non-existent.

4.4.6 Knowledge storage

An organisation's capability to learn will be dependent on its ability to record organisational experience and, when needed, to retrieve this information. Some organisations have an archival system for this knowledge management practice (Oliver, 2008). Knowledge held by employees can be captured in formal reports, which suggests that for many organisations the organisation's memory is held by its employees and will be lost to the organisation if the employee departs.

Most respondents (75%) alluded to the fact there was no facility or method if not system for capturing knowledge or storing knowledge, the most they do with for information access is the drives that are available, i.e. S-Drive, H-Drive, V-Drive etc which people can access individually, some which needs IT administrator authorization for people to access.

We need such capability to store or procedure manuals incase others depart from this organisation….as it is we do not have such consolidated means of storing knowledge.

Others though (25%) have mentioned that there are means of storing knowledge and those include conference and visits reports as well as the many intelligence reports, SOPs, meeting minutes and library.

Interviewees mentioned the importance of their stored knowledge in that it helps them with records of individuals in human resource (HR) and profiles of leaders and personnel in general for reference. They add that the stored information and knowledge is used for future reference and helps their organisation plan and decide accordingly. The following were some of the sentiments made on the importance of storing data or knowledge.

I need the recorded knowledge for better training on new personnel and to be able to substitute my subordinates easily. There is a need for proper deployment and with stored knowledge we can easily make reference and build from what has been gathered in the areas we want to deploy to…I think the organisation needs that storage to observe certain protocol involved in executing duties.

4.4.7 Skill development and knowledge retention

The loss of critical knowledge hits organisations twice: by the growing number of managers and executives retiring and exiting from the workforce, and by the shrinking pool of qualified younger workers.

All interviewees (100%) were of the view that skills development is critical for the development of their organization. Expressions on succession planning were made as follows:

what is the use of having unskilled personnel in this modern era, militaries are competing amongst themselves, not only in terms of budgets, but through acquisitions either by means of software or hardware. Behind technology use is people, and those people will have to be skilled to carry out effective service and do justice to what has been acquired…at a same time we need thinkers who will transform our organisation into a force to be feared, both in terms of strategy and execution…

Much as it is critical to develop our skills which I believe our organisation is good at, we also need to see to it that we safeguard tightly the skills capacity or intellectual capital we have at our disposal…a lot of our skilled personnel has gone out the organisation without attempt to persuade them to leave…in fact we must not wait till they leave we must attract them while they are still members by means of promotions or strategized incentive bonuses which is non-existent at the moment. We have Education and Training Directorate (ETD) that is responsible for training and skilling of our people and this directorate has been effective in advertising and running training programs.

On the question of Mobility Exit Mechanism (MEM) as a knowledge retention strategy, 12 (80%) of the respondents stated lack of confidence on the policy or strategy in capturing knowledge as members exit the organisation. The following were some of the expressions made by the interviewees.

There is nowhere in the policy where members are supposed to go through debriefing and handing-over to remaining staff or new personnel, we just see them go and take massive money packages without them sharing any vast capability they have as professionals…this is one useless exercise because we have not heard of anyone who was subjected to intensive knowledge draining process.

…if there is such documentation it is not visible to us…

On the other hand 3 of the participants stated the importance of MEM as knowledge retention plan rather than member retention in that the policy aims to capacitate new members through existing knowledge and skills held by the exiting member. *Not only was this policy meant for rightsizing, but a voluntary exercise for members who have been in the Defence for long and succession plan.*

…the intent is to enable the organisation to make tangible progress in right-sizing its human resources composition through a process of realistic succession planning….at the same time, the force will guard against an exodus of scarce skills and specialist knowledge.

As far as profiling of skills is concerned all participants agreed that there was a great deal of profiling done to members in their sections, for various reasons, and one important reason is the job profile purpose. Representivity was another reason why profiling of skills was done in the sections to create balance in demographics. *Human resource also takes responsibility in evaluating qualifications of the members as part of policy*, but what they do with that we do not know.

On the question of debriefing retiring, dismissed and resigning members interviewees asserted that there was no strategy so far of recording the know-how of the members who leave the organisation, besides MEM. Sentiments were expressed as follows:

…no standardised method exists where the rich knowledge of members is left behind for consumption by remaining staff members…I guess we cannot make people present(share) their skills and know-how and disarm them of that knowledge, you cannot train a soldier and drain them of those capabilities and know-how, they will remain with those skills forever.

…Maybe if we had a structured knowledge management team that would be happening, but as it is we are all caught up in our businesses unable capture this valuable capital as it exits.

4.4.8 Knowledge management strategy

Business organisations are coming to view knowledge as their most valuable and strategic resource. Many executives are struggling to articulate the relationship between their organisation's competitive strategy and its intellectual resources and capabilities

The interviews also wanted to assess the existing strategy if at all available and strength of its effectiveness in developing knowledge management capability in the Defence Department.

All interviewees (100%) noted that there was impeccable evidence that there is no knowledge management strategy in DOD, atleast not that they know of. They asserted that for that strategy to

exist there would have been substantial amount of plans and programs in line with knowledge management as a responsibility to DOD. There is no tangible and clear-cut policies that seek to guide the management of knowledge and skills. Knowledge is tacit in its existence as far as the staff members is concerned, thus a challenge to share it and access it.

Some of the views expressed on this question were as follows:

…most of us have not heard of the term knowledge management, how do we then commit to it if it is not introduced to us as a form tool to do our work efficiently…i think there is knowledge management however it is not institutionalised in our case, it's an individually organised thing.

…I wish I could show you the office that deals with knowledge management in our building but I can't because there is none, is there?

Because by nature the department deals with classified information and for the nature of their business some of the operations remain classified from public, the participants mentioned that instead the strategy available is with regard to knowledge or information protection. Sentiments expressed include the following:

The need to know basis as principle in my area of responsibility is one policy, Information security If the info is secret or top secret you can't share it with your colleagues, security clearances and DOD Edition 4 are some but guidelines on handling knowledge and information…

4.4.9 Knowledge management practitioner

It is critical that when we talk about knowledge management and its practices we also look into the driving factors behind these practices and who can make or break successful knowledge practices.

It was also the aim of the interview in investigating KM practices in DOD to gain knowledge to the existence of knowledge practitioners or professionals in DOD who specifically deal with knowledge management. One of the goals to this question was to see the extent of their work and relevance to the organisational strategy. Most interviewees (65%) mentioned the existence of information managers and when probed they said they think information specialist and librarians were also referred to as knowledge managers or practitioners. However related questions on knowledge management and strategy addressed this issue as well and gave in valuable input to the matter. Participants also stated that they received fair amount of assistance from their information managers

and librarians in providing them with information and documents that they need to execute their responsibilities.

…we have State Information and Technology Agency personnel (SITA), yes we do have knowledge practitioners…I hear that term for the first time…all I know is that we have professionals who manage our information, personal and operational information which we need to do our work.

Though the name knowledge practitioner is relatively not famous to many people researcher was expecting a degree of agreement to the existence of officers who work with knowledge if not manage it.

4.4.10 Use of information technology for KM practices

Knowledge management practices have close relations with information technology, example is Intranet. The interview aimed at establishing the use and strength of technology assembled by DOD, especially on enhancing knowledge management practices. In other words the researcher wanted to establish if there was any technology to support knowledge management practices in DOD. Though knowledge management does not depend entirely on technology there is an impact and role IT plays in managing the know-how of people. To note importantly is that IT can work if there is tangible knowledge to be fed into systems for transfer, sharing and storage amongst others.

On the question of IT for KM practices 11 (73%) participants acknowledged lack of or non-existence of proper technology or hardware to help enhance knowledge management practices. The interviewees mentioned that they have computers but do not have sufficient secure communication tools mail their correspondence, even the one they have (*Lotus Notes*) does not have sufficient space to send big sized electronic documents. The interviewees alluded to the disappointing Intranet which to them is virtually non-existent due to its inability to meet their expectations and demands. The following were some of the narrations expressed by the interviewees:

…it is only administrators of technology who use the Intranet, we have no relevance to Intranet usage and have not received interesting knowledge on our Intranet, it is only newsletters that are put there, it is boring anyway. There is not even one teleconferencing capability that we have in our section and it makes knowledge to be transferred a very difficult task, for example we were in DRC and wanted to communicate with our colleagues back at our head-quarters through live-feed broadcast but it was impossible because such capability is not there.

Four interviewees though said there is a degree of technology available and they are able to be of help in transferring, receiving and storing knowledge for the execution of their responsibilities. Amongst these they say they have I-Pads, Laptops, Personal Computers, and Intranet.

I think the systems we are using at the moment to distribute knowledge are equal to the task, we are able to receive correspondences no problem…we do use weblogs but these are done to gain knowledge from outside the department, maybe people of same expertise in Vietnam or Canada.

When asked what needs to be done to improve knowledge management practices as far as technology is concerned all participants gave following suggestions in their own words:

i. *Put library system/catalogue on Intranet for access to all at desktops.*

ii. *Better support software and structure are needed.*

iii. *Most people do not use technology; teach culture of tech use to lowest and up levels of employees in organisation. Establish KM forums to preach these messages.*

iv. *Make use of notice boards and face to face approach because not everyone can access intranet or the internet or lotus.*

v. *Have subsection meetings to discuss the messages communicated it will also instill the importance of sharing and reading the mails.*

vi. *Change in attitude and behavior.*

vii. *Leaders need to meet regularly with subordinates to impart knowledge.*

viii. *Lack of understanding of the organisational objectives, only till then, knowledge can be shared and maximise output.*

ix. *Top and line managers needs to communicate effectively and implement structured methods of communication especially using intranet.*

x. *Please activate lotus notes to all.*

xi. *We need another form of communication because not everyone uses the Intranet or Lotus.*

xii. *Introduce new knowledge sharing technologies.*

xiii. The DOD intranet does not have enough info I want, there is no link for policies and the page is not user friendly.

xiv. If people would not only have access to technology but also know how to use them effectively.

xv. The department needs to be more Technology based and do away with old systems. Intranet use should be a norm to all members as it is important communication tool.

xvi. I think Lotus Notes should be for everyone in the DOD with computers coupled to that, for DOD members to communicate with other members at the units and to e-mail documents than to deliver by hand.

4.5 SUMMARY OF CHAPTER FOUR

This chapter presented the reader with collected data obtained from document review, survey and interviews. The main trends and patterns in the data were discussed with reference to the research questions. The next chapter, Chapter Five, interprets and discusses the study findings as presented in Chapter Four. The interpretation and discussion is based on the study objectives.

CHAPTER FIVE

INTERPRETATION AND DISCUSSION OF RESEARCH FINDINGS

5.1 INTRODUCTION

The previous chapter presented findings of the study. The results of the previous chapter came about using document analysis, questionnaires and interviews conducted with the members of the Department of Defence (RSA). The presented results were in accordance to stipulated objectives as mentioned in Chapter One which are:

h. To investigate supporting structures that will be/ are assigned to help manage knowledge practices at the Department of Defence.

i. To determine existence of formal and informal knowledge management practices in the department.

j. To investigate the existence and importance of knowledge practitioners

k. To determine the relevance of learning in the DOD

l. To establish challenges impeding the institution of knowledge management practices in the DOD if no formal practices exist.

m. To evaluate perceptions by members of the DOD on the department's ability to manage its knowledge.

n. To recommend an effective knowledge management model or strategy to be adopted or incorporated.

Those findings are interpreted and discussed in this chapter (Chapter Five). The interpretation and discussions provide the meaning of the findings with reference to the study objectives. This chapter also includes a synopsis for the interpretation and a summary for the chapter.

5.2 SUPPORTING STRUCTURES ASSIGNED TO HELP MANAGE KNOWLEDGE MANAGEMENT PRACTICES AT THE DEPARTMENT OF DEFENCE

The reviewed literature as depicted in Chapter Two indicated that Defence Departments globally have developed structures assigned to managing their knowledge (Girard, 2008). Literature further articulate why knowledge management is critical to Defence Department, for instance in Canada. In the literature also discussed is the institutions complexity, high consequence of error, capital-intensive, and how knowledge dependant and also national security orientated are the defence departments; and also how critical is for having structures to manage their knowledge capital.

Malaysian military has invested lot of money in standards and framework that will help incorporate knowledge creation, KM processes, technology and applications conducted in the military environment (Manuri and Yacoob, 2011). Their Defence Department was faced by challenges and threat of globalisation and the advance of information and communication technology (ICT). As a result, the Malaysian Armed Forces saw the need to have thinking soldiers; that is, people who are innovative and creative to fight digital warfare, which present and future wars will be all about.

Not only has literature review exposed the importance of knowledge management structures in military by playing a valuable role in leveraging existing knowledge but also exposed the importance of converting new knowledge into action (Gauvin, McIntyre and Waruszki 2003; Alberts, Garstka and Stein 2000; US Army 2008; Walter 2002). Literature has equally revealed the value of KM in the private sector, business and NGOs (Ichijo and Kohlbacher, 2006).

Although it is clear through literature that other progressive military institutions invest greatly in knowledge management and have supporting KM structures in place, the findings established that the Department of Defence (RSA) does not have KM strategy and thus lacking supporting structures to manage its knowledge management and practices. This fact is further elaborated and testified in the following sub topics following investigation into supporting structures assigned to help manage knowledge practices at the Department of Defence.

5.2.1 Attention to knowledge management practices in DOD

In as far as the importance of knowledge management practices in DOD is concerned and the efforts taken to implementing KM practices, literature review as well as reviewed documents has identified the necessity of military organisations to focus their attention on knowledge management practices and strategise on channeling their knowledge to maximise their intellectual capital (Lord 2010; Santamaria 2002; Lepak 2009; Manuri and Yacoob, 2011). Among progressive military organisations as depicted in document review that reaffirm knowledge management as the means to supporting their Army's Strategy and have effective KM implementation are US military, the biggest military in the world, Malaysian Armed Forces, Canadian Military, Australian Army, Sri Lanka Army, and Singapore Armed Forces; and this extends to Japan Armed Forces. This is a clear indication that indeed international military community is taking seriously its knowledge capital (Alberts, Garstka and Stein 2000; Dahanayake 2012).

Knowledge management in the Department of Defence RSA is not structured, developed or supported. The department does not have a structure to manage its knowledge. There is no professional unit mandated to manage the intellectual capital of the organisation since knowledge management practices and KM as phenomenon are not that well known, understood or given attention to, and this is proven by the survey. The survey indicated 25% of the respondents stating that yes KM as a phenomenon is being spoken about most of the time in their sections while 61% revealed that only sometimes KM is spoken or given attention if anything in their sections. And then there was 16% that revealed that they have never ever heard of such a practice. If at all DOD RSA was robust in KM most respondents would have no problem in understanding or talking about it. To further prove the above opening statement 51% of the respondents were saying they do not practice knowledge management practices but have heard about it and it is known to them, while 21% of respondents stated that they practice knowledge management on their own.

Furthermore document analysis and interviews also indicated the lack of structured framework in the Department of Defence in dealing with knowledge management. On the issue of knowledge concept, interviewees were given brief background of the meaning of knowledge management and 66% indicated that indeed they have heard of knowledge management and have to some extend read about it. This group was aware of the difference between knowledge management and information management. However they said they are not privy to how the concept is practiced on a full scale, though they have practiced it informally themselves in managing their own knowledge and that of the business or organisation from current and previous lives. They confirmed that indeed they knew the importance of skills management, learning, sharing of knowledge and mentoring.

Participants reported that indeed there were isolated knowledge management practices in the organisation although they were embedded. They have mentioned meetings, reports, Conventional Service Writing (CSW) Standard Working Procedures (SWP) and sharing of information on Lotus Notes as some of the practices they can associate with knowledge management.

34% of participants in interviews admitted to not knowing anything about knowledge management and that the concept was new to them although they have heard and have practiced some form of information management; and that they knew of information managers duties since they have information managers assisting them with the management of their business or organisational information they need to do their tasks. As such no knowledge practices were run according to them in their organisation or sections.

They mentioned institutionalising of knowledge as a non-starter since they do not even practice knowledge management and since their knowledge is tacit and explicit to their own advantage and will.

Document analysis from published documents, annual reports, articles, papers, and acts was made to establish Defence decisions or resolutions that addresses skills management and knowledge management in particular. The document analysis revealed that there was no existence of knowledge management framework in the DOD. There were embedded efforts from some policies in the Department of Defence to have some form of KM practices and those include creation of knowledge, retention and skill development. Although there are no policies to enhancing the general knowledge capacity of the department, this meaning that there are no sustainable and reliable means to developing intellectual capital in the Department. This also compromises the executive intent to developing the human resource capability and achieving excellence on organisational goals.

5.2.2 Method of managing knowledge in the Department

There is no knowledge without someone being able to manage it (De Giovanni 2009; Gottschalk 1999). Perrin (2012) argues that to better understand how knowledge management matures it is important to look at those who are in charge of implementing projects or initiatives related to KM, the knowledge managers. According to Gurteen (1999) to create knowledge sharing culture a specialist or dedicated team needs drive idea and encourage people to work together more effectively.

The survey revealed opinions from staff indicating what they thought would be an ideal point of responsibility in as far as managing their knowledge is concerned. 65% of the respondents indicated that they would prefer that a dedicated team or professional structure is involved in managing their hard earned intellectual capital. Of all respondents 7% said it can be managed through ad-hoc task team. Twenty-five percent revealed that it can be self-driven/managed, while 2.3% stated none at all. As such the survey showed that majority of staff wanted a dedicated team to manage their knowledge.

5.2.3 Importance of knowledge management policy and its adoption in DOD

Greater organisational effectiveness, problem solving, decision-making, and innovation are contingent on the quality of knowledge available for formulating prudent organisational policies (Tongchuay and Praneetpolgrang, 2008). Organisations commonly receive criticism for their ineffective policy formulation to improve the quality of knowledge, partly because they operate within challenging and highly complex dynamic environments (Labedz, Cavaleri and Berry, 2011). NASA (2009) has come with the Initiative Roadmap calling for uniform knowledge management policies and standards to be implemented across the Federal Government. These policies will define under what circumstances, with whom, and how Federal workers should share knowledge.

According to the survey and interviews there was no formal knowledge management policy in the department since majority (86%) of the officials in the department believed knowledge management policy needs to be a priority. Furthermore because respondents said yes indeed managing knowledge needs to be prioritised and necessary policy should be in place to guide such practice, while 5% of the respondents said no it is not necessary to make legal framework and neither is it important to manage knowledge. Some respondents (9%) were undecided on the matter.

Document analysis through published annual reports, articles, and acts also revealed that there was no documentation or resolution in the Department of Defence that addresses the question of knowledge management policy. As such this indicates that knowledge management policy was not in the current plans of the department since it is not institutionalised. If not in the plans then it means this important policy is overlooked in the department if not bypassed. These developments give many answers to existence of knowledge management in the department.

5.2.4 Environment suitability

By environment suitability the researcher is referring to supporting systems or space to successful knowledge management practices. The question sought to establish the ability, suitability and sustainability of the space or environment, people, and culture which will support sharing of knowledge. Reference is made to the office or physical space that the organisation provides to do its business. Human capital is the main asset of software organisations. Knowledge has to be preserved and leveraged from individuals to the organisation. Knowledge management has various components and multiple aspects such as socio-cultural, organisational, and technological aspects (Lindvall, Rus and Sinha, 2002).

Both survey and interview established that majority of staff members in DOD thought their working environment was conducive to sharing of information and knowledge and its management, this indicated by response from 61.9% of respondents, and there was 25% of respondents who were not sure whether their environment was suitable to manage or even share knowledge. It was also interesting see through interviews and surveys a 13% of response revealing that the management of knowledge was completely impossible with the kind of space they do business in.

5.3 EXISTENCE OF FORMAL AND INFORMAL KNOWLEDGE MANAGEMENT PRACTICES IN THE DEPARTMENT

Literature advises that advantages of using KM practices include the fact that they help organisations to refocus on using their already existing knowledge, they create the environment for innovation rather than limiting themselves to best practices solutions only, they enable convergence towards knowledge portals rather than separate silos of knowledge in an organisation, and they promote interconnectedness among departments, employees, and systems in an organisation (Branin, 2003; Mavodza, 2010; Rowley, 2003).

Magnusson (2003) explains that knowledge management practices are activities exercised to manage knowledge. Nifco (2005) adds that knowledge management practices are based primarily in conceptual frameworks that are responsible for the design and development of methodologies and technologies that can provide some common ground in the way people use and manage knowledge in an organisation. The use of knowledge management principles can provide organisations with capabilities to survive in the current knowledge society and give them an opportunity to remain

relevant in a changing information environment (Johnson, Kidwell and Vander Linde and 2000; Mavodza and Ngulube 2011)

5.3.1 KM activities or practices performed in DOD

According to Skyrme (2007) knowledge management practices include practical activities of governing knowledge. Those include creating, discovering, sharing, learning and organising knowledge.

These knowledge management practices include knowledge audit, creation, transfer, storage, use/retrieval, dissemination/sharing, and retention.

Survey and interviews established that there was a level of knowledge management although informal and embedded in the activities already available in the organisation as well as lack of full understanding by both organisation and employees since the findings from a survey indicated 37% of respondents indicating that courses were among practices which they believed were helping manage their knowledge. Among the respondents 18% pointed to the contribution of library as a driving factor to knowledge management. Nineteen percent of respondents revealed that information technology (IT) was their best option available to sustain or help manage their knowledge, while 14% of the participants said they were relying on human resources practices like inductions to keep tap with their knowledge. Communities of practice were common amongst only 9% of the respondents as part of knowledge management related exercise in DOD, and it also was done on a very limited scale and informal and unstructured method of sharing information.

5.3.2 Familiarity with knowledge management concept

The researcher also wanted to verify whether the employees in DOD were familiar with the concept of knowledge management, because it is something talking to people on how they manage their knowledge management activities and they know them and practice them, and it is another if they don’t know what the researcher is talking about and are not even practicing it. As such the researcher asked if the participants were familiar to the term knowledge management.

The survey and interviews have established that indeed the majority of the staff in DOD have heard and read to some extent about KM and thus are knowledgeable about the concept and its meaning since 66% of interviewees agreed that they know about knowledge management while the same was the case in survey with 58% of respondents agreeing to the above. That being the case there are still

employees in DOD who do not know what KM is all about and that the term is a novelty to them, since the survey indicated such with 16% respondents saying they have never heard of the term. There was however a quarter of staff members (25%) that practices knowledge management according to the survey albeit informal, since they indicated they did so in their personal capacity and also using IT.

5.3.3 Knowledge expert

Every person can be simultaneously a novice and an expert in different fields of knowledge. Novices and experts need organisational leeway which allows time for creating what Wilkensmann and Wilkensmann (2011:96) calls “knowledge nuggets” (providing knowledge) and for learning (obtaining knowledge). The operating organisations consist to a great extent of specialists and their expert knowledge. Knowledge transfer among the members of an organisation is a basic necessity. The longer a person works in a field, the more expertise that person develops in that field (Wilkesmann and Wilkesmann, 2011)

The findings of this study on knowledge experts in DOD as indicated in the survey, is that there is significant number of experts in the Department of Defence. These are people with greater level of knowledge in executing their day-to-day duties as mandated by the organisation, and their skills and expertise are highly valued by the executive authority. There were a few knowledgeable experts in the organisation according to 54% of respondents, while 30% of the respondents indicated that there were a lot of knowledgeable experts in the department. It was only 17% of the respondents who indicated that there was no such thing in the department, meaning all employees were equal in expertise and no one individual was exceptional with know-how might.

5.3.4 Knowledge acquisition and capture

Employees may obtain knowledge through a variety of learning activities within an organisation, such as training, formal education, experimentation, imitation, and self-directed learning (Reio & Wiswell, 2000). Individuals may rely on different learning channels to obtain explicit and tacit knowledge. Though organisations usually use a variety of mechanisms i.e., formal documents, training programs, group meetings to promote workplace learning, employees may not accumulate their knowledge merely through inside sources.

Many knowledge elicitation methods have been used to obtain the information/knowledge required to solve problems (Burge, 1998). These methods can be classified in many ways. One common way is by how directly they obtain information from the domain expert. Though tacit knowledge is not easily accessible to consciousness, the use of appropriate interviewing techniques may allow stories told to act as the carriers of the tacit knowledge by experts to be expressed and recorded (Hedlund, Antonakis and Sternberg, 2002).

Bonaventura (1997) claims that in making an individual's tacit knowledge explicit, knowledge needs to be embodied in order to be disseminated to the organisation as a whole. If selective capture of tacit knowledge can be facilitated by its recording it becomes part of the corporate memory, safeguarding it as an intellectual asset and making it available for sharing across the wider organisation and over time, with a potential benefit to innovation.

It became evident that the Department of Defence did not have solid measures to make sure that knowledge is captured for future reference. This may be knowledge on experiences they undergo on their missions and lessons learned since the survey indicated that 63% noted that they only capture or record their knowledge sometimes which shows there is no standing framework to mandate officers to record knowledge. Some employees did capture and record their experiences or knowledge as it was indicated by 25% of respondents in the survey, while 12% said they never recorded the knowledge they acquire.

The interviews also indicated a lack of knowledge storage capability in the department since 80% of interviewees alluded to the fact that facility or method if not system of capturing knowledge or storing knowledge is non-existent. The most they do with for information access is the drives that are available, for example: S-Drive, H-Drive, V-Drive, which people can access individually, some which needs IT administrator authorisation for people to access. Some of the views expressed were as follows: *We need such capability to store or procedure manuals incase others depart from this organisation.…as it is we do not have such consolidated means of storing knowledge*.

There were however some few respondents (20%) who mentioned that there are means of storing knowledge and those include conference and visits reports as well as the many intelligence reports, SOPs, meeting minutes and library.

Interviews also revealed that staff members saw the importance of their stored knowledge and also indicated that it helped them with records of individuals for example in Human Resource (HR) and profiles of leaders. This also was an indication that the meaning of knowledge management was not

so clear to respondents and also indicates the unavailability of KM initiatives and structures to the awareness of staff members in the department.

5.3.5 Knowledge creation

The literature reviewed in Chapter Two stated that companies remain an enigma. They are not terribly efficient, entrepreneurial, or liberated. Yet, slowly but surely, they have advanced their position in international competition. Nonaka (1995) argues that the success of Japanese companies is not due to their manufacturing prowess or access to cheap capital but because of their skills and expertise at "organisational knowledge creation". Knowledge creation is the key to the distinctive ways that Japanese companies innovate. They are especially good at bringing about innovation continuously, incrementally, and spirally. Japanese companies have been faced with the longest and most severe recession in recent history. This would undermine the importance of knowledge creation. Von Krogh and Nonaka (2000) contend that enabling knowledge creation elaborates the reasons and practical ways to support knowledge creation so that firms can create organisational knowledge consistently.

The process starts when team members meet to share their knowledge of a given product area, much of which is tacit and can include insights into customer needs, information about new technologies, and personal skills required to perform complex tasks. Knowledge creation is a social as well as an individual process. Sharing tacit knowledge requires individuals to share their personal beliefs about a situation with other team members.

The department does have standing knowledge creation system though it is embedded in the day-to-day activities of the organisation as was indicated through 47% of the respondents, saying they had a process or system of creating knowledge. However 27% of the respondents said they did not have any form of creating knowledge in the organisation, while 25% of respondents attested that they were not even aware there is anything like creation of knowledge, this group was unsure whether knowledge was created in the department or not. As such it makes those who are not creating knowledge to 52%, which tells that indeed majority of respondents are not participants of knowledge creation, thus safe to say there is no proper system or approach of creating knowledge in the organisation.

Moreover the survey revealed that there were no formal mechanisms to keep created knowledge intact and developed, and this was revealed through 47% of the respondents who said no there was no mechanism to keep created knowledge intact, meaning each time knowledge was slightly created, it was also greatly lost in a long run, and that it was difficult to make reference to that

knowledge for future use. Some staff members were not sure whether there were any mechanisms to keep created knowledge intact and developed for the organisation as indicated by 35% respondents. It then makes 83% of respondents, non-participants in keeping created knowledge intact and developed for future use. This is an indication beyond reasonable doubt that DOD does not have mechanisms to document knowledge created and to develop it to benefit the organisation. It was only 16% of respondents that registered that they had systems in place to keep knowledge intact.

That being said the survey also revealed that there were differing challenges that the organisation had that hinders proper creation of knowledge to take place since 32% of respondents reported lack of knowledge management team as the main factor hindering knowledge creation. Some respondents (23%) revealed that everyone in the organisation operates in silos and does things for themselves hence lack of proper knowledge creation. There was a group of respondents (14%) that indicated that they were not sure where to start in creating knowledge, meaning there is no guidance from management on how to create new knowledge and therefore no new knowledge created. Some staff (21%) lacked skills of creating new knowledge which shows a gap in skills capacity for innovation, while 10% of respondents indicated they lacked time to create knowledge and that there were far important things to do, this showed that staff in broader DOD was not compelled to creating new knowledge.

5.3.6 Knowledge sharing in DOD

As revealed by literature in Chapter Two knowledge sharing is central to the success of all knowledge management strategies. Effective knowledge sharing practices enable reuse and regeneration of knowledge at individual and organisational level. Organisations worldwide have been trying to undertake initiatives for introducing effective knowledge management by embedding knowledge sharing practices in their work processes (Chaudhry, 2005). Gurteen (1999) articulates that today creation and sharing of new knowledge is essential to the survival of almost all businesses. There are many reasons and they include the following:

- Competitive advantage
- Increasing turnover of staff. When someone leaves an organisation their knowledge walks out of the door with them
- Leveraged expertise not highly regarded in an organisation.

- Accelerating change – technology, business and social

By sharing people of one or more organisation or community share and exchange understandings, norms, values, attitudes, beliefs, ideas and expertise (best practices).

Kimble and Hildreth (2008) underscores that knowledge is integrated in the life of communities that share values, beliefs, languages, and ways of doing things. These are called ***communities of practice*** (CoP). Real knowledge is integrated in the doing, social relations, and expertise of these communities. Knowledge is inseparable from practice. It is not possible to know without doing, by doing we learn.

5.3.6.1 Policy preventing sharing of knowledge

The department does not to have regulations suppressing the sharing of knowledge, which makes it highly possible to share knowledge, since some officers (75%) indicated there were no policies that discourage sharing of knowledge amongst colleagues or staff members amid the nature of the business in military with the confidentiality clause. However others (20%) differed because they said yes there were policies or regulation discouraging sharing of knowledge. Amid all the opinions and facts all participants showed that there is not a policy in the organisation encouraging sharing of knowledge as well, which means sharing of knowledge was not a practice that was explicitly embraced and encouraged in the Department .

In the interviews all interviewees mentioned that there was no policy they are aware of that oversees regulation of knowledge and expertise interchange or sharing.

In essence the department has no policy for sharing of knowledge, making the institutionalising sharing of knowledge impossible and non-existent, although there were means used in the department to share skills and information as embedded in their day-to-day activities. These will be activities which are not formal knowledge-sharing means, but rather default means while performing functions of the business. Those were use of standard working procedure (SWP) as revealed by 55% of respondents, while 20% of respondents indicated practice manuals, and with 12% of respondents using doctrine while 9% were sharing knowledge when they were collaborating with other military organisations, for example US/RSA military exercise.

Amid all the above facts the Department of Defence’s working environment proved an effective space or environment for sharing of knowledge, in other words the space in DOD was conducive and has great potential to becoming a fertile ground for knowledge sharing given the opportunity. This is proved through survey results with 62% of respondents saying they think their environment

is good enough to foster sharing of knowledge, others (13%) said they are do not think the environment is conducive to sharing of knowledge, while 25% were unsure whether their environment is right and ready enough to act as platform to share knowledge.

Document analysis through published annual reports, articles, and acts also revealed that there was no documentation or resolution in the Department of Defence that addresses the question of knowledge sharing. As such this indicates that knowledge sharing is not in the plans of the department since it is not institutionalised. As such it means this important knowledge management practice is overlooked in the department if not bypassed. These developments give many answers to existence of knowledge management in the department.

5.3.6.2 Adoption of knowledge sharing policy in DOD

The research through document review identified that knowledge sharing policy was and should be framework with which expectations of staff and managers regarding knowledge sharing is communicated. This framework is essential in identifying, capturing, sharing and implementing best practices and lessons learned so that they can be applied in order to improve efficiency and effectiveness of the organisation goals (UN: Department of Peacekeeping Operations, 2009).

It is the policy that will guide the form and implementations of knowledge sharing tools and resources, i.e. End of Assignment Report, Handover Notes, After Action Reviews, Lessons Learned Studies and Communities of Practice.

Tsui (2006) argues that adoption of knowledge sharing policy will be a tool that can be used to promote evidence-based practice and decision making, and also to promote exchange and dialogue among researchers, policymakers, and service providers. However, little is known about knowledge-sharing strategies and their effectiveness. A policy for knowledge sharing should be a strategy for overcoming common obstacles in knowledge sharing.

Regarding adoption of knowledge management policy in the department the survey established that indeed staff members in DOD do embrace knowledge management and deemed it necessary to regulate sharing of knowledge in DOD since majority of respondents (75%) indicated that such a policy would be helpful to the organisation, while 21% claimed there was such a policy already. That being the case there were few respondents (2.3%) who noted that such a policy was a waste of time.

5.3.6.3 Relevance of MEM in knowledge sharing

The research through document review found that rightsizing of the SANDF was given momentum with the approval of the voluntary Mobility/ Exit Mechanism (MEM) for the SANDF members. As at 31 March 2006, ministerial authority had been granted for the voluntary exit of 533 SANDF members, addressing Representivity imbalances at middle and senior management levels through succession planning. What is also critical to note is the pool of different expertise that the members exiting are equipped with.

Department had MEM strategy and running well but did not deal with the question of knowledge sharing and retaining as members exit the system. MEM is not sufficient enough to encourage members who exit the organisation to leave their valuable knowledge and expertise for the benefit of the department. This is corroborated by survey conducted with 54% saying MEM is not sufficient for knowledge sharing, while 28% of respondents indicated they were unsure if it was any significant. It was 16% of the respondents who indicated that MEM still has relevance as far as knowledge sharing is concerned.

5.3.6.4 Communities of practice

A Community of Practice is a group of individuals who shares their interests and problems with a specific topic, and gains a greater degree of knowledge and expertise on a topic through their regular interaction (Wenger, McDermott, and Snyder 2002). By sharing people of one or more organisation or community share and exchange understandings, norms, values, attitudes, beliefs, ideas and expertise (best practices).

The DOD does have a significant presence of forums embedded in the day-to-day activities of the organisation. There is existence of formal and self organised forums to share ideas and insights since 67% of respondents reported that such forums exist, and 31% saying there is no formal or informal forums where people share the know-how, it is only through meetings where announcements and instructions are given. The survey established that communities of practice as it is defined in the knowledge management strategy, is not existent in the organisation, although respondents gave account to existing forums where they share insights and information.

Based on the interviews however, participants gave a different account to the situation of CoP. 26% of participants stated that they were not aware of any means of sharing knowledge and that if anything the organisational set-up makes it difficult to share knowledge, that sharing information is not a problem but sharing expertise is. They also asserted that there was no policy that deals with

sharing of knowledge. The following sentiments were shared: *People are not prepared to make Communities of Practices where we can tap into other colleagues knowledge and develop what we know…sharing is non-existent in our organisation since no one is encouraged or forced to share their expertise, it is one man for himself…a lot of people are scared to share knowledge because they are scared they will become redundant…there is no sharing means for knowledge even the intranet we have is almost not for all in the Defence Intelligence, only for a specific unit or building which also is empty on expertise programs.*

Participants also said that if there is no culture of sharing knowledge as it is with our organisation it turns to be difficult to be courageous to share. They claim they would be sharing everyday only if all employees were trusting of one another, as it is; there is still a divide both in terms of ranks and race and hence why they do not share knowledge.

Of all participants 73% said they were holding forums and meetings as staff members but were not necessarily guided to share knowledge, but rather share information and clarify instructions and get progress on the projects which they are involved in. Taking the question of meetings as means of staff members gathering to talk to each other, researcher also wanted to know the effectiveness of these official meetings to transmit knowledge. The survey revealed 51% of the respondents saying they believed meetings were relevant vehicles to transmit knowledge, while 48% said it has never happened and they don't believe their meetings can be a space for sharing of knowledge especially in communities. As such it became evident that Communities of Practice only exist by default and that there are no measures to make sure such communities exist with a purpose of only sharing knowledge.

5.3.6.5 Technology-based knowledge sharing mechanisms

In Chapter Two, it was established that knowledge management requires technologies to support the new strategies, processes, methods and techniques to better create, disseminate, share and apply the best knowledge, anytime and anyplace, across the team and organisation, including its customers, partners and other key stakeholders. The key technologies are communication and collaboration technologies that are web based for internet and intranet usage as well as mobile technologies (Marwick, 2001).

In a world where things change as fast as the World Wide Web and the Internet, it is often hard to get a grasp on the exact meanings of buzz-words that suddenly spring up all the time (Monks, 1998). According to Natarajan (2008) the ability to share knowledge between units contributes

significantly to the performance of the organisations. Intranets are often cited as one of the pragmatic routes to promoting knowledge sharing, as an essential part of KM strategy.

Based on this understanding this research sought to establish the viability of available IT infrastructure in support of knowledge sharing and ultimately knowledge management in DOD as a broader goal of investigating knowledge management practices in DOD. Both survey and interview findings established existence of technological means capable of sharing knowledge in DOD. The survey indicated that most of the staff members were using Lotus Notes to share information although not knowledge per se, with 80% of respondents showing faith in the mailing system. The same number was using internet with open line mailing system as a second option whilst intranet was given lesser attention since only 64% of respondents indicated it as a communication method available to them. It was clear that other communication means like weblogs and wireless technologies were strange tools to the staff in the department.

Interviews indicated that knowledge management practices were difficult to render or carry since 73% of the participants acknowledged lack or non-existence of proper technology or hardware to help enhance knowledge management practices. The interviewees mentioned that they had computers but did not have sufficient secure communication tools to mail their correspondence. Even the one they had (*Lotus Notes*) did not have sufficient space to send big sized electronic documents. The respondents alluded to the disappointing Intranet which to them is virtually non-existent due to its inability to live to expectations.

They attested that it is only administrators of technology who use the Intranet, “we have no relevance to Intranet usage and have not received interesting knowledge on our Intranet, it is only newsletters that are put there, and that it is boring anyway”.

Some participants (26%) though indicated there is a degree of technology available and it was able to be of help in transferring, receiving and storing knowledge for the execution of their responsibilities. Amongst these they say they have I-Pads, Laptops, Personal Computers, and Intranet.

It is clear that in the Department of Defence technology is available but it is not concentrated to help accelerate knowledge management practices particularly knowledge sharing.

5.3.7 Mentorship

Mentoring involves investment of an experienced individual's time, commitment and efforts to nurture, develop and guide the less experienced individual (Rekha and Ganesh, 2012). Traditionally, mentoring has been defined as a process wherein the older experienced individual acts as a guide, counselor and a friend of the younger, and as intense interpersonal exchange between a more senior, experienced, and knowledgeable employee who provides advice, feedback, and support related to career and personal development and less experienced employees (Noe, Greenberger and Wang, 2002). Learning plays a vital role in everyone's life, not least in learning to mentor and be mentored. Learning is a process whereby knowledge is created through transformation of experiences. More often learning occurs when individuals have an interactional experience with the environment. Mentoring has been recognised as a key developmental resource in organisational settings.

Ng (2012) argues that mentoring is more concerned with learning for professional growth and takes medium to long term perspective. The skills, techniques and tools are similar. When one professional helps another, he or she may play the role of coach and mentor at the same time.

Considering the impact of mentoring on knowledge capacity and above statements it was also the aim of the survey and interviews to establish whether staff in the Department of Defence believes mentoring can help them be knowledgeable and develop to deliver better services in the organisation. Staff at the department believes mentoring ought to be one of the departmental strategies since majority of respondents in survey were in favour of this phenomenon represented by 91% of respondents. It was only 8% of respondents who were not sure if mentoring will make any difference in their professional lives.

Researcher also wanted to know the level of contribution from supervisors as mentors. The survey wanted to establish how often mentor or supervisor intervenes in developing respondent's career. Supervisors as leaders to the staff do not generally have good and consistent mentoring and coaching effect on their subordinates in the department. This is revealed by the survey since 44% of the respondents reported that their supervisors intervened once in a while in developing their career. Some respondents (36%) said the intervention or help from supervisors was poor, in as far as developing and coaching them is concerned. It was a handful of 21% who were satisfied with their supervisor's mentorship.

5.3.8 Knowledge audit

The research through document review in Chapter Two identifies that performance is increasingly influenced by the information and knowledge assets, held, built and leveraged by companies. Investors, management, customers, and regulators have a need for information and knowledge matrix or evaluation program that are reliable and acceptable for productive organisational performance (Bell 2001).

Vestal (2005) underscores that if organisations do not fully leverage their existing expertise, then they risk losing a valuable asset: internal know-how. Organisations capture, transfer, and use knowledge in order to attain strategic goals in a more efficient and innovative manner.

Hylton (2002) states that the knowledge audit also known as the 'K-Audit', and even the 'Knowledge Management Audit' should always be the first major stage of a knowledge management initiative. A knowledge management program or system should never be implemented without a knowledge audit having been conducted.

According to Choy, Lee and Cheung (2004) knowledge audit lays a concrete foundation for any knowledge management programs. Knowledge plays a strategically important role to the success and continuous growth of an organisation. In order to design a proper roadmap for implementing KM programs and determine the strategy for implementing such program in a particular organisation, an understanding of the organisation including its culture, relationships as well as communication networks is critical. In order to gain such kind of understanding, knowledge audit is important.

Both survey and interviews have established that knowledge auditing in the department is non-existent, this because 41% of the respondents mentioned that there was no audit knowledge they have heard of or experienced in their working environment. Moreover there were those officials (32%) who have registered that they had no knowledge or awareness of any activity that involves examination of available knowledge capital. This makes the total percentage of respondents who dispute existence of knowledge audit by (73%). However there was a level of knowledge audit embedded in the processes of the business in DOD and this is supported by 35% of the respondents in the survey. The survey also revealed the value that the officials had on knowledge audit as an activity in their organisation, and they indeed saw the necessity to invest in knowledge audit considering the implications it has on organisation's productivity as indicated by 92% of respondents saying they are in favour of knowledge audit done in their working environment. Only

2.3% of respondents said they do not know if it is important to carry out knowledge audit in their organisation.

In as far as interviews are concerned findings indicated that there was no knowledge audit practice in the Department of Defence since 13 interviewees indicated that they were completely not aware of the knowledge possessed by their fellow staff member, particularly on the issues of day to day working procedure, and further revealed and suggested that it would be difficult to make immediate replacement if that member was to vacate their position. They also claimed that their skills were not the same as theirs. They also claimed that the organisation did not know who possessed what knowledge. That is why it is so difficult to make direct substitution incase a knowledgeable staff member passes on or resigns, because there is no coordination of integrating knowledge and skills.

There is a degree of uncertainty in the process of knowledge audit because of fear, and fear of discrediting that member who is knowledgeable. Of the remaining three out of fifteen interviewees said they were fully aware of the skills and know-how of the fellow staff member they were working with. They said this is a result of the job rotation and substitution they undertook as part and parcel of their job description and requirement.

All 15 participants indicated that there was no measure from management to audit knowledge they have as possessed by their subordinates. However they retorted to a skills audit done in the form of qualification audit that is done in line with South African Qualifications Authority (SAQA).

5.4 EXISTENCE AND IMPORTANCE OF KNOWLEDGE MANAGEMENT PRACTITIONERS IN DOD

It is proved in literature in Chapter Two that there is no knowledge without someone being able to manage it (De Giovanni, 2009; Gottschalk, 1999). However, no clear strategic information regarding the creation, collection, and use of knowledge is available, and the question about the professional figure possessing the above measures.

Davenport and Volpen (2001), underscores that the knowledge management practitioner (KMP) is responsible for the creation, distribution, and use of knowledge. They argue that he or she provides guidance, insight, and feedback to the entire organisation. KMP plan, organise, and coordinate a mix of knowledge, information, data, and people or knowledge workers who own the expertise. They develop strategies, policies and practices that optimize the knowledge resources

Perez-Bustamate (1999) states that there are several tasks that KMPs should execute, in particular:

- Develop knowledge and obtain the consensus of the top management for considering knowledge management as a weapon of competitive advantage;
- Monitor policies related to human resources;
- Provide communication infrastructure within and between the different departments of an organisation and control the correctness of its use;
- Individualize the people responsible for inflows and outflows of knowledge management;
- Exploit and create opportunities for the internal dissemination of knowledge;
- Determine clear knowledge-management policy;
- Develop knowledge reservoirs and facilitate their access

A knowledge manager/practitioner has a responsibility towards the knowledge assets of the organisation. He initiates, drives and coordinates knowledge management programs (Earl and Scott, 1999).

5.4.1 KM assignment/responsibility

The researcher wanted to establish what preference the staff members in DOD had on who should be tasked with responsibility of managing their knowledge. As such the survey and interviews findings revealed that many staff members felt that KM would be better off managed in a structured and professional manner this as indicated by 62% of respondents. More over this group believe it will be important that a structured method is introduced to manage their knowledge in the whole DOD. Twenty-five percent of the respondents believed it is not necessary to have knowledge management unit or structure since knowledge can be managed individually. Knowledge can only be managed when necessary according to 12% of the respondents, while 1.2% said there is no need to manage knowledge, according to these respondents it is fruitless to manage knowledge.

5.4.2 Existence of KM professionals in DOD

On the question of availability of knowledge management practitioners the survey and interviews established there was serious lack of knowledge management professionals or practitioners in DOD. The Department had no knowledge managers since the survey results showed 67% of the respondents revealing that they had no knowledge practitioners or managers whose specific tasks was to manage their knowledge. They stated that such professionals do not exist in their organisation. Only 14% of the respondents reported, yes there was availability of knowledge managers, and asked to elaborate they mentioned the likes of SITA personnel who assist with IT calls, Information Managers and Librarians, whom they have at their disposal. Some 19% of the respondents were not sure whether knowledge practitioners existed in their organisation because they had never heard of such professionals.

Document analysis also revealed that there was no documentation or resolution in the Department of Defence that addresses the question of knowledge manager. As such this indicates that knowledge managers are not in the current, short-term to medium plans of the department since they are not institutionalised as part of force strength or in their structures. It is not documented anywhere in the documents of the Defence Department that knowledge practitioners are part of the working force or human resource employed by the department. These developments may give away indicators in as far as existence of knowledge management in the department.

5.5 RELEVANCE OF LEARNING IN DOD

The fourth objective of this study was to establish the relevance of organisational learning by the Department of Defence. Organisational learning is a process of increasing capacity for effective organisational action through knowledge and understanding. The learning process is a cycle of action and reflection, which is doing and thinking, performing and conversing. Routines evolve over time as individuals get experience with tasks, people come and go, technologies change, priorities and policies shift, and best practices are shared (Carroll and Edmondson 2002; Andreu and Coborra 1996).

Organisations learn by creating opportunities for information flow and knowledge creation using a wide range of learning mechanisms such as after action reviews, audits, problem investigations, performance appraisals, simulations, and benchmarking (Mulford and Silins, 2003).

Taking the above information the survey established that DOD was a learning organisation, and it was an institution that embraces change to enhance and preserve its knowledge commodity as it changes. When it comes to the value and importance of learning to organisation the staff members were in agreement that it is imperative that their organisation is a learning organisation since 96% of the respondents agreed that it was important to continue to learn and acquire new knowledge as individuals and organisation as a whole. This showed that the staff had high expectations over management to continue and press on new learning programs for betterment of the organisation.

5.5.1 Organisation's influence in learning new skill or knowledge

The survey wanted to establish the level at which organisation encourages its employees to learn and it was revealed that indeed the department did have programs and plans to which its members are empowered in learning since 55% of the respondents indicated that the organisation always encouraged its members to learn and train in capacitating them with new skills and know-how. However 36% of the respondents indicated that only sometimes did the organisation care about the development of its members as far as learning and training is concerned. It was worrisome to find that 7% of the respondents were not receiving any support from management to acquire new knowledge. This means there were some quarters in the organisation which felt were neglected when it comes to learning or that the organisation was not doing enough as far as incapacitating them training-wise is concerned.

5.5.2 Recording of lessons learned

The department was not consistent in capturing its lessons learned and there was no proper system to capture and make follow-up steps on those lessons. This is revealed in the survey where 70% of the respondents reported that only sometimes did they record knowledge they gain and lessons learned through various official and operational experiences and used those lessons in their real working situation. However there were some who said they always record their experiences and knowledge acquired who amount to 14% of the respondents. There were those however who revealed that they never recorded their lessons learned and were constituting 15% to overall population.

5.6 CHALLENGES EXPERIENCED IN INSTITUTING KNOWLEDGE MANAGEMENT PRACTICES IN DOD

The literature review established that to create a knowledge sharing culture one need to encourage people to work together more effectively, to collaborate and to share – ultimately to make organisational knowledge more productive (Gurteen, 1999). Communities of Practice (CoPs) represent an environment in which individuals, experts and novices, learn together to develop and improve their professional practices and skills (Chikh, 2009). Bruce (2008) argues that there is power in an understanding of information behavior and in an understanding of the construction of shared knowledge and how it is affected by the social identity of a group. In order to harness knowledge and deal with challenges knowledge managers will have to work out how to convince others that their role could assist in improving the sharing and management of knowledge.

5.6.1 Knowledge entitlement and selfishness

Researcher wanted to establish if there was any culture amongst the employees in the Department that made them feel entitled to their knowledge making it their own and stemming authority on whether to release it or not. The survey revealed that it was correct that a lot of knowledge is kept tacitly with members and thus making them selfish with information or knowledge since 46% of the respondents agreed to the statement that members were more prone to being selfish with their know-how and were reluctant to make their knowledge explicit. Some respondents (40%) were not sure of the statement, while 13% did not agree with the statement, because for them a lot of people were unselfish with their knowledge.

5.6.2 Behavior related challenges to share knowledge

Part of investigating knowledge management practices was to examine the reasons why staff members find it behaviorally difficult to share their knowledge especially work and organisation related knowledge if at all there is such a challenge. Survey established that members of the Defence Department found it difficult to communicate the knowledge they have because 57% of the respondents indicated lack of knowledge sharing structure as reason, 14% of respondents indicated that their colleagues were lazy to acquire their own knowledge. Lack of time to share is also another impediment that contribute to challenges of sharing knowledge, this as indicated by 16% of the respondents. On their part, the luxury to sit and share does not exist, while 1% of the respondents revealed that it was against organisational policy. Some respondents (3%) indicated that their colleagues will not understand anyway, and 7% abstained. As such majority of the staff members

believed that major reason why Department of Defence found it difficult to share knowledge was due to lack of knowledge sharing structure.

Interviews revealed through 100% of respondents that there was no policy in the department they are aware of that oversees regulation of knowledge and expertise interchange or sharing.

Employees in the department were bound to be motivated by different aspects to share their knowledge. They stated that for them it has to start with appreciation from their supervisors and principals, they indicated that they did not have a problem with sharing of knowledge and skills they just needed some form of recognition and appreciation from their superiors. Some expressed a lack of knowledge sharing culture in the organisation, therefore they said it tends to be difficult for them to courageously share. Some respondents indicated the question of trust, as a stumbling block. There was some significant level of mistrust by members of DOD that makes sharing of knowledge non-existent. There was still that divide both in terms of ranks, race and culture hence why they found it difficult to share knowledge. Some mentioned jealousy, lack of delegation, low morale, lack of KM structure, personality difference, rank, confidentiality clause, and long distance between units.

5.7 PERCEPTIONS ON THE DEPARTMENT'S ABILITY TO MANAGE ITS KNOWLEDGE

The study also aimed at establishing from the staff member's point of view their evaluation of the current status of the department's ability to manage its own knowledge. The survey established that the staff at the Department of Defence did not necessarily have confidence in their organisation's ability to manage its own intellectual capital since 69% of the respondents ranked it as fair to that regard, and 14% of respondents rated it as bad, while 16% rated it to be doing well as far as managing its knowledge is concerned.

5.8 SUMMARY OF CHAPTER FIVE

The primary objective of this chapter was to interpret the results of the study. In summary this chapter presented the interpretation and discussion of the research findings. The researcher established according to the interpretation, that the Department of Defence was faced with serious knowledge management challenges that will have negative impact on the progress of the organisational goals and risk of losing its intellectual capital cheaply because its knowledge management practices are almost non-existent due to lack of KM structure and KM practitioners that will oversee the implementation of effective KM practices. The organisation seriously lacks awareness to the importance of knowledge management as a management tool and strategy. The Department lacks also clear corporate KM policy to manage the knowledge capital and practices. A few positives were noted, there were embedded knowledge management related activities; although they were not structured to achieve organisational excellence by means of institutionalised management framework. The researcher also noted with interest that although the staff members rate their organisation's ability to manage its knowledge capital lowly, the environment stood a very good chance to becoming an effective ground or space for progressive knowledge management and its practices.

CHAPTER SIX

SUMMARY OF MAJOR FINDINGS, CONCLUSION AND RECOMMENDATIONS

6.1 INTRODUCTION

The preceding chapter presented interpretation and discussion of the findings in relation to objectives of the study as per data presented in Chapter Four and literature reviewed in Chapter Two. Chapter Six restates the purpose and research questions of the study, and provides a summary of the findings. It also provides conclusions and recommendations based on the findings of the study. The project aimed at conducting investigation into knowledge management practices at the Department of Defence (DOD) in South Africa. Of particular importance is presentation on a method used by the DOD in managing its knowledge, taking into consideration that the research seeks to affirm the importance and relevance of knowledge management (KM) and its practices in the organisation particularly in response to change and continuous improvement and learning. As the interpretation of findings indicates, the Department of Defence has serious knowledge management practice challenges.

6.2 SUMMARY OF MAJOR FINDINGS

Major findings to this study are summarised based on the objectives of the study which are:

6.2.1 To investigate supporting structures that will be/ are assigned to help manage knowledge practices at the Department of Defence.

- Knowledge management in the Department of Defence RSA is not structured, developed or supported.
- The department did not have a structure to manage its knowledge, thus making it difficult for knowledge management practices to be accounted form including the embedded and informal practices.
- There was no professional unit mandated to manage the intellectual capital of the organisation since knowledge management practices and KM is not that well known, understood or given attention to and this is proven by the survey.

- Knowledge management as an entity was almost a new phenomenon since a culture of knowledge management is non-existent. Staff members only knew of knowledge management as another phenomenon which they talk about sometimes as opposed to practice.

- The DOD lacked structured framework to manage knowledge.

- The organisation did not have clear policy to deal with management of intellectual capital.

- The DOD has knowledge practices embedded in the organisation and are isolated and lacks management.

- There was confusion among the staff between knowledge management and information management. There are those members in the department who still believed knowledge management could be managed by every single member of the department for themselves.

- Employees in the department strongly believed there was a need for consolidated and structured knowledge management strategy tailored for the Defence Force to manage their hard earned intellectual capital.

- There was no knowledge management policy in the DOD.

6.2.2 To determine existence of formal and informal knowledge management practices in the Department.

- As far as formal knowledge management practices were concerned, the department had no formal KM practices rendered.

- The KM practices were not institutionalised in the department.

- The organisation had training measures such as courses for learning purposes.

- The department had libraries with which the DOD personnel would use for research and to advance their knowledge; and also managed their information records for reference.

- The department also had IT infrastructure to deal with information demand and transmission.

- There were other knowledge related exercises that the department engaged on and those included human resources practices like inductions to keep tap with their knowledge. An example is the Public Service Induction Course.

- There are groups, committees, or forums organised within the department which have a similar purpose as communities of practice, but are not co-coordinated to transmit knowledge that is managed for future use, meaning there are no follow-up mechanisms on transmitted knowledge and they do not account their efforts to knowledge management strategy because it does not exist.

6.2.2.1 Knowledge expert

- The organisation did consist to a great extent specialists and knowledgeable experts who allow time for creating "knowledge nuggets" (providing knowledge) and for learning. These are people with greater level of knowledge in executing their day-to-day duties as mandated by the organisation, and their skills and expertise are highly valued by the executive authority.

6.2.2.2 *Knowledge acquisition and capture*

- Department of Defence did not have solid measures to make sure that knowledge is captured for future reference. This may be knowledge on experiences they undergo on their missions and lessons learned. 70% of the staff reported that only sometimes do they record knowledge they gain and lessons learned through various official and operational experiences and used those lessons in their real working situation.

- There was serious lack of efficient methods of knowledge storage capability in the department, systems used include Mainframe system that is old capable only of keeping minimal text data. This system was only used by very few members of the organisation and the reason they use it is because of administration purposes. The most that the staff can do with for information access is the drives that are available, i.e. S-Drive, H-Drive, V-Drive etc which people can access individually, some which needs IT administrator authorization for people to access.

6.2.2.3 Knowledge creation

- The department had standing knowledge creation system though it is embedded in the day-to-day activities of the organisation.

- There are concerted efforts in the organisation where divisional team members meet to share their knowledge of a given product area, much of which is tacit and can include insights into customer needs, information about new technologies, and personal skills required to perform complex tasks.

- Most of the staff members at the department were not involved in creating knowledge, it is only left to a few to create and transfer knowledge.

- Formal mechanisms to keep created knowledge intact and developed were non-existent.

- The department had challenges in creating new knowledge and administrating comprehensive knowledge creation because there is no mechanism to keep created knowledge intact. Each time knowledge was created, it was also greatly lost in a long run, and it was difficult to make reference to that knowledge for future use. This happens as a result of lack in knowledge management team, and the fact that the organisation operates more in silos than a team as well as lack of skills to create the important knowledge.

6.2.2.4 *Knowledge sharing*

- The Department of Defence's working environment was proving an effective suitable space or environment for sharing of knowledge. Staff members in the organisation think their environment is good enough to foster sharing of knowledge.

- At the same time the DOD did not to have regulations suppressing the sharing of knowledge, which makes it highly possible to share knowledge, although there are some officers who differ. Some staff members reported that there were policies or regulation discouraging sharing of knowledge sharing such as need to know bases/policy.

- Considering the above factors, according to the findings, DOD did not have a policy encouraging sharing of knowledge as well.

- In essence DOD had no policy for sharing of knowledge, making institutionalising sharing of knowledge impossible and non-existent.

- As such this indicates that knowledge sharing was not in the plans of the Department since it is not institutionalised.

6.2.2.4.1 *Adoption of knowledge sharing policy in DOD*

- Staff members in the Department of Defence were in favour of adoption of new policy that will help regulate sharing of knowledge. They added that adoption of knowledge sharing policy will be enough tool that can be used to promote evidence-based practice and decision making, and also to promote exchange and dialogue among all stake-holders in the organisation.

6.2.2.4.2 Relevance of MEM in knowledge sharing

- Department had MEM strategy and running well but did not deal with the question of knowledge sharing and retaining as members exit the system.

- Mobility/Exit Mechanism (MEM) was not sufficient enough to encourage members who exit the organisation to leave their valuable knowledge and expertise for the benefit of DOD.

6.2.2.4.3 Communities of practice

- The DOD had significant presence of forums embedded in the day-to-day activities of the organisation.

- There was existence of formal and self organised forums to share ideas and insights.

- Communities of practice as it is defined in the knowledge management strategy were not existent in the organisation although forums exist where DOD officials share insights and information not necessarily their know-how and skills sharing.

- The above points are also compounded by the fact that there was no framework or policy that encourages and embraces the sharing of knowledge in the Department.

- There was no culture of sharing knowledge in the organisation as such it is difficult for the officials in the department to have courage to share.

- People were scared to share knowledge because they fear becoming redundant and also there is no sharing means for knowledge even the intranet the staff members have is almost not accessible to all in the Defence.

6.2.2.4.4 Technology-based knowledge sharing mechanisms

- The department had technological means capable of sharing knowledge in the DOD. Most of the staff members were using Lotus Notes to share information although not knowledge per se with majority of staff showing faith in the mailing system.

- The officials in the organisation were using internet with open line mailing system as a second option whilst intranet was given less attention.

- Communication means like weblogs and wireless technologies were tools with which staff in the department was not used to and some learn of them for the first time only now via study.

Knowledge management practices were difficult to render or carry due to lack or non-existence of proper technology or hardware. Staff members did have computers but did not have sufficient secure communication tools to mail their correspondences to and fro, even the one they had (*Lotus Notes*) does not have sufficient space to send big sized electronic documents.

6.2.2.5 Mentorship

- Staff at the department believed mentoring ought to be one of the departmental strategies since majority of respondents said it is a good practice. They believed mentoring could help them be knowledgeable and develop to deliver better services in the organisation.

- Mentoring in the organisation was only embedded on ad hoc bases where no clear strategy is present to guide the exercise of mentoring.

6.2.2.6 *Knowledge auditing*

- Proper and professional knowledge audit did not exist in order to design a proper roadmap for implementing KM programs and determine the strategy for implementing such program in the organisation.

- Knowledge audit was only embedded in the processes involved of daily business of individual sections and on isolated bases, not as a concerted exercise of the organisation.

- Staff in the DOD believed valued knowledge audit as a potential strategy in their organisation, and saw the necessity to invest in knowledge audit considering the implications it has on organisation's productivity.

6.2.3 To investigate the existence and importance of Knowledge Management Practitioners

- The DOD did not have in its inventory tasked knowledge management practitioners (KMP) or knowledge managers. Thus there was no one official in the determined divisions representing DOD that:

  a. Develop knowledge and obtain the consensus of the top management for considering knowledge management as a weapon of competitive advantage;
  b. Monitor policies related to human resources;

c. Provide communication infrastructure within and between the different departments of an organisation and control the correctness of its use;
d. Individualise the people responsible for inflows and outflows of knowledge management;
e. Exploit and create opportunities for the internal dissemination of knowledge;
f. Determine clear knowledge-management policy;
g. Develop knowledge reservoirs and facilitate their access.

- There was no one taking responsibility towards the knowledge assets of the organisation and initiating, driving and coordinating knowledge management programs.
- However the department had professionals in the form of SITA personnel who assist with IT calls, Information Managers who help with overt information and Librarians, whom they have at their disposal. However the professionals mentioned above are confused to be knowledge managers amongst staff members, that is people capable of managing knowledge.
- Significant number of staff members wanted to see knowledge managers existing within the structures of Defence Department.
- A small number of staff members believed it is not necessary to have knowledge managers as a component to human resource of the organisation.

6.2.4 To determine the relevance of learning in DOD

- DOD is a learning organisation, and it is an institution that embraces change to enhance and preserve its knowledge commodity as it changes.

- When it comes to the value and importance of learning to organisation the staff members were in agreement that it is imperative that their organisation is a learning organisation. They also agreed that it is important to continue to learn and acquire new knowledge as individuals and organisation as a whole, although more can be done to make sure that all employees benefit from this initiative and strategy.

6.2.4.1 Organisation's influence in learning new skill or knowledge

- The organisation does to a certain extend encourage its employees to learn as indeed the department does have programs and plans to which its members are empowered in learning.

- However there was a sector of staff members who did not agree to the above statement, some indicating that only sometimes does the organisation care about the development of its members as far as learning and training is concerned. It was worrisome to find that some members of the organisation were against the fact that they got any support from management to acquire new

knowledge. This means there were some quarters in the organisation which felt were neglected when it comes to learning or that the organisation did not do enough as far as learning is concerned.

6.2.5 To establish challenges impeding the institution of knowledge management practices in DOD if no formal practices exist.

Bruce (2008) argues that there is power in an understanding of information behavior and in an understanding of the construction of shared knowledge and how it is affected by the social identity of a group. In order to harness knowledge and deal with challenges knowledge managers will have to work out how to convince others that their role could assist improve the sharing and management of knowledge. Literature findings established that to create a knowledge sharing culture one needs to encourage people to work together more effectively, to collaborate and to share – ultimately to make organisational knowledge more productive (Gurteen, 1999).

6.2.5.1 Knowledge entitlement and selfishness

- There was a culture amongst the employees in the department that made them feel entitled to their knowledge making it their own and stemming authority on whether to release it or not.
- A lot of knowledge was being kept tacitly with members and thus making them selfish with information or knowledge.
- Members of the staff were more prone to being selfish with their know-how.

6.2.5.2 Behavior related challenges to share knowledge

- Members of the Defence Department found it difficult to communicate the knowledge they have due to various factors. Majority of them indicated lack of knowledge sharing structure as reason. Some indicated that their colleagues were lazy to acquire their own knowledge. 16% of the staff said they did not have the luxury of time to share.
- Employees in the Department were bound to be motivated by different aspects to share their knowledge. They stated that for them it has to start with appreciation from my supervisor, they did not have a problem with sharing knowledge and skills; they just needed that recognition from their superiors that they are doing a good job. Some said if there was no culture of sharing knowledge in the organisation, as such it turns to be difficult to gain courage to share.
- Other factors that posed challenges to sharing of knowledge in the Department included,

a. Lack of KM sharing strategy and KM team
b. Lack of reward factor
c. Lack of skills
d. Geographical distance
e. Professional jealousy
f. Recognition
g. Lack of cutting-edge IT.
h. Trust
i. Sense of entitlement

6.2.6 To evaluate perceptions by members of DOD on the Department's ability to manage its knowledge

The survey established that the staff at the Department of Defence did not necessarily have confidence in their organisation's ability to manage its own intellectual capital since 69% of the respondents ranked it as fair to that regard, and 14% of respondents rated it as bad, while 16% rated it to be doing well as far as managing its knowledge is concerned.

6.3 CONCLUSION

The established state of affairs regarding knowledge management practices in the Department of Defence is in line with the research problem stated in Chapter One. The investigation on those practices opened a window of uncertainty and challenges glaring that the organisation faced regarding knowledge management and its practices. This not only being the case but the risks or threats that the organisation stand facing to becoming a progressive organisation and its ability and capacity to perform operations efficiently and effectively.

Following the comprehensive investigation as depicted in the research objective, the research results have established the following state of affairs in the Department of Defence's knowledge management practices and its ability to mobilise its knowledge.

6.3.1 Supporting structures assigned to help manage knowledge practices at the Department of Defence

From the time of concluding this research the Department of Defence had serious knowledge management practice challenges in general. The DOD did not have supporting structures that will be/ are assigned to help manage knowledge practices at the Department of Defence thus exposing the organisation to multiple knowledge management deficiencies to maximizing knowledge capital for the benefit of the organisation. Girard (2008) argues that KM supporting structures particularly in the defence environment where there is high consequence for error, are capital-intensive and knowledge dependant were paramount. There was no professional unit to run knowledge management practices, and KM as a strategy is virtually not known in the Department. This could be as a result to priority on management regarding KM strategy receiving little attention or just an oversight, thus resulting in number of the executive plans like equity policy in working environment not materialising.

The staff in DOD did talk about knowledge management as a phenomenon and are aware of it and what it can do. To them practices of KM was a novelty as far as their organisation is concerned as such they did not have professional knowledge management practices according to survey and interview results.

As far as method of managing knowledge in the department was concerned, 65% of the respondents indicated that they would prefer that a dedicated team or professional structure is involved in managing their hard earned intellectual capital. Of all respondents 7% said it could be managed through ad-hoc task team. Twenty-five percent revealed that it can be self-driven/managed, while 2.3% stated none at all. Although it became clear that majority would rather have a professionally dedicated team there were members in DOD who did not fully comprehend KM and its intentions, or the value it brings to the organisation since some members thought KM can only be managed by ad-hoc team or by individuals themselves without any structure whatsoever. Perrin (2012) argues that to better understand how knowledge management matures it is important to look at those who are in charge of implementing projects or initiatives related to KM, the knowledge managers.

The DOD according to the survey and interviews did not have formal knowledge management policy since majority (86%) of the officials in the department believed it would be fruitless to continue invest in knowledge capital if there was no guiding framework to help manage it. It is the respondents who represented the Department who also affirmed the importance of knowledge management policy in the organisation. The bereft of KM policy in the organisation is also

supported by document analysis where it has no evidence was found of resolutions support this framework. As such it makes it difficult if not impossible to manage knowledge as no executive direction is provided to help steer knowledge in the right direction.

The organisation in question has proved to be a good working environment to stage an effective knowledge management strategy and its practices. There were supporting systems or space to enable successful knowledge management practices. The above was further corroborated by the fact that the organisation has the ability, suitability and sustainability in the space or environment it has and people to supporting sharing of knowledge. Human capital is the main asset of software organisations. Knowledge has to be preserved and leveraged from individuals to the organisation. Knowledge management has various components and multiple aspects such as socio-cultural, organisational, and technological (Lindvall, Rus and Sinha, 2002).

Both survey and interview established that majority of staff members in DOD thought their working environment was conducive to sharing of information and knowledge and its management, this indicated by response from 61.9%. As such it is up to the organisation to lay a foundation to this effect for a progressive strategy to manage its intellectual capital.

6.3.2 Existence of formal and informal knowledge management practices in the DOD

As discussed briefly in the previous section in support of the conclusion in this objective, the department had been found wanting as far as its knowledge management practices is concerned. To put it in short the DOD did not have progressive KM practices. According to survey and interview there were no formal KM practices that the department rendered. This means these practices were nothing but a novelty to many employees. In other words KM practices were not institutionalised in the department. If there was any knowledge creation for example it was simply by means of default as embedded in the day to day demands of the job in hand, and not because there is a KM strategy.

First of all there was confusion among employees as far as understanding of knowledge management concept. As such some respondents thought some responsibilities and task or practices they were doing as day-to-day functions were knowledge management practices. For example, some believed they were attending to courses for development purposes while some pointed to their information technology (IT) and Library as sources of their existing knowledge management practices. Added to the confusion is human resource practices like inductions which some believe

is knowledge management practices. An example is the Public Service Induction Course, which is something the organisation had as part of knowledge sharing exercise which according to researcher can only constitute to pure information dissemination regarding how the public sector operates and not necessarily knowledge management practice. Thus, the research results have established that proper knowledge management practices were lacking at the Department of Defence.

The majority of staff members (66%) did know of the concept knowledge management although they did not practice it. It shows that they have been told or read about the concept; as such they themselves were not naïve to the concept except that their organisation was oblivious to the strategy. However there were others (16%) who have never heard or read about knowledge management.

Department of Defence did not have solid measures to make sure that knowledge is captured for future reference. Perhaps most blame should be put on lack of proper knowledge creation, because where there is knowledge there should be plans on how to capture it. What this means is that there is no proper knowledge acquisition methods or practices in DOD. This makes even the least acquired knowledge if available to be difficult to trace and reuse. This may be knowledge on experiences they undergo on their missions and lessons learned. Because there was no policy guiding the acquisition and capturing process of knowledge majority of the staff (70%) reported that they only record their knowledge gained when they feel like it.

There was serious lack of efficient methods of knowledge storage capability in the department, systems used included Mainframe/fragment system that is old capable only of keeping minimal text data. This system was only used by very few members of the defence and reason they use it was because of administration purposes. The most that the staff could do with for information access was the drives that are available, i.e. S-Drive, H-Drive, V-Drive etc which people can access individually, some which needs IT administrator authorisation for people to access.

The DOD had standing knowledge creation system though it was embedded in the day-to-day activities of the organisation. If not changed and institutionalised it will make it difficult for the organisation to progress in its development as it ventures into more sophisticated and contemporary Defence environment, this because it does not create new ideas of doing things.

Department did not to have regulations suppressing the sharing of knowledge, which makes it highly possible to share knowledge, although there are some officers who differ. Some staff members reported that there were policies or regulation discouraging sharing of knowledge sharing such as need to know bases/policy. This confusion is clear indication to lack of clear laws

governing sharing of knowledge in DOD. As mentioned earlier in this chapter, it is also imperative to value the sharing of knowledge if one is to have a guideline on this important aspect.

That being the case DOD also does not have standing policy encouraging sharing of knowledge. Because the knowledge sharing policy is non-existent, staff members advised that the organisation invests a great deal to adoption of a new policy that will help regulate sharing of knowledge. There is no culture of sharing knowledge in the organisation as such it is difficult for the officials in the department to have courage to share. However the department did have a significant presence of forums embedded in the day-to-day activities of the organisation these as part of formal and self organised forums to share ideas and insights.

The Mobility/Exit Mechanism (MEM) was not sufficient enough to encourage members who exit the organisation to leave their valuable knowledge and expertise for the benefit of the Department.

DOD did have technological means capable of sharing knowledge. Most of the staff members were using Lotus Notes to share information although not knowledge per se with majority of staff showing faith in the mailing system. As such to an extent the organisation stands a good IT solution to address its KM practices if given opportunity, there is no excuse to this support except that as it is research indicated that it is not rolled to all employees. There were those who work without PCs for example. However the IT support was not used to enhance KM practices.

On the issue of mentoring, the organisation did not have proper guideline on mentoring its staff members except in training. This practice was only embedded on ad hoc bases. There was no clear strategy present to guide the exercise of mentoring staff members. As such fundamental strategy to help organisation move forward in empowering sub-ordinates and colleagues with know-how was non-existent.

Proper and professional knowledge audit did not exist in the department. Knowledge audit was only embedded in the processes involved of daily business of individual sections and on isolated bases, not as a concerted exercise of the organisation. Vestal (2005) underscores that If organisations do not fully leverage their existing expertise, then they risk losing a valuable asset: internal know-how. Organisations capture, transfer, and use knowledge in order to attain strategic goals in a more efficient and innovative manner. As such the researcher concludes that the DOD was exposed to high risk of losing its valuable asset which is the intellectual capital because the organisation does not know what its assets (people) know. That being the case staff in the department valued knowledge audits as a potential strategy in their organisation, and saw the necessity to invest in knowledge audit considering the implications it had on organisation’s productivity.

6.3.3 Existence and importance of Knowledge Management Practitioners

The department did not plan for, nor had in their fold any knowledge management practitioners/managers. The closest the organisation had employed were information managers, researchers and librarians. It is proven in literature in Chapter Two that there is no knowledge without someone being able to manage it (De Giovanni 2009; Gottschalk 1999). As such with lack of such professionals in the Department it only means the organisation is not capacitated in workforce who will foresee the control and accountability of knowledge management practices. Lack of such personnel also means there will be no submission to knowledge management plans and development in the organisation since there is no one overseeing the process KM processes, provision of guidance, insight, and feedback to the entire organisation on matters that relate to KM. These findings also reveal the level at which the department takes these professionals and concept seriously.

6.3.4 Relevance of learning in DOD

Research findings established that DOD was a learning organisation, although at a slow pace and it was an institution that embraces change to enhance and preserve its knowledge commodity as it changes. When it comes to the value and importance of learning to organisation the staff members were in agreement that it is imperative that their organisation is a learning organisation since 96% of the respondents agreed that it is important to continue to learn and acquire new knowledge as individuals and organisation as a whole. The staff members also had high expectations over management to continue and press on new learning programs for betterment of the organisation.

On a positive side DOD was committed to becoming a learning organisation since it has programs to which its employees can be developed and trained. The organisation is aware of the modern needs to successful business objectives, especially the demands of the ever changing defence capabilities and the need to remain competitive. To create a competitive advantage, companies need to learn faster than their competitors and to develop a customer responsive culture (O'Keeffe, 2002). According to Senge (1990), a learning organisation exhibits five main characteristics: systems thinking, personal mastery, mental models, a shared vision, and team learning.

The DOD risk losing its relevance and ability to compete in the quick changing military world if it continues to move with the current pace of developing its learning capacity and ignore the current and future trends as well as strategies to enable it to be a force ready to engage the multifaceted

means possessed by the world out there. The development of modern warfare is reflected by the rising importance of having knowledge advantage and information supremacy over adversaries (Manuri, Abdullah and Yaacob 2011).

6.3.5 Challenges impeding the institution of knowledge management practices in DOD if no formal practices exist.

The challenges that were established were in line with the research problem stated in Chapter One, providing reasons hampering DOD to institute knowledge management practices (formal and Informal). These factors had to be established as it formed the core of the project in investigating the knowledge management practices in DOD.

Bruce (2008) argues that there is power in an understanding of information behavior and in an understanding of the construction of shared knowledge and how it is affected by the social identity of a group. In order to harness knowledge and deal with challenges knowledge managers will have to work out how to convince others that their role could assist improve the sharing and management of knowledge. Thus the research results have established the following challenges exist in the Department:

There was a culture amongst the employees in the department that made them feel entitled to their knowledge making it their own and stemming authority on whether to release it or not. This is influenced by credit members get from ownership of the knowledge by the executive or higher authority. As such it becomes non-negotiable to hold on to the knowledge. As such it has become almost a taboo to ask for knowledge from experts. Experts believed they have worked hard for their knowledge and therefore will not share cheaply.

A lot of knowledge was being kept tacitly with members and thus making them selfish with information or knowledge. This knowledge was never encouraged to be shared to empower others in the organisation. Lack of commitment by the Department to instill culture of knowledge sharing and management in general was another key factor. There were no structures and guidelines to help members engage in active and progressive knowledge management practices. As such time to share knowledge was another luxury which staff members in DOD could not afford.

Other factors that posed challenges to sharing of knowledge in the Department includes,

j. Lack of KM sharing strategy and KM team

k. Lack of reward factor
l. Lack of skills
m. Geographical distance
n. Professional jealousy
o. Recognition
p. Lack of cutting-edge IT.
q. Trust
r. Sense of entitlement

6.3.6 Perceptions by members of DOD on the Department's ability to manage its knowledge

The researcher would like to conclude these project findings by adding that DOD was not commanding any confidence from its staff members regarding its ability to manage its knowledge capital, never mind to appreciate that knowledge aught to be managed. In other words DOD was not doing justifiably enough to earn the confidence and trust of its employees that it was a supreme KM orientated institution. The research results indicated that majority of respondents (69%) were rating the department on 50% when it came to knowledge management. This is a clear indication that the department will have to do more in convincing the contemporary staff members and earn their trust, respect and approval on knowledge management. Other staff members (14%) thought DOD was not ready to manage its knowledge since there is not KM initiatives and structure/strategy. This is so because people of today are getting more and more knowledgeable about the importance of knowledge management and one day they will also want to work for an organisation that embraces their intellectual capital as a resource at the centre of its success and competition.

6.4 RECOMMENDATIONS

It is important that the Department of Defence considers the importance of knowledge management practices, this based on the problem statement of the study and the findings this study has made. The DOD will need to invest greatly on knowledge management programs to enhance and protect its knowledge resources to enable it carry its mandate effectively. The DOD has the responsibility of defending and protecting the Republic of South Africa and its people. For this task to be fulfilled there is a need for the department to plan and act decisively on strategies to better defend and protect the country and among those strategies is a progressive and sustainable KM strategy that will oversee healthy knowledge management practices in the Department. One of the most important steps in succeeding with its mandate is to deploy its most important assets being its knowledgeable personnel well.

DOD must realise that for it to thrive and survive as well as compete with other government defence components it should also appreciate that times have changed and defence is now sophisticated and therefore must move with times to advance. They also need thinking soldiers; that is, people who are innovative and creative to fight digital warfare, which present and future wars will be all about.

The development of modern warfare is reflected by the rising importance of having knowledge advantage and information supremacy over adversaries. Leadership, sense-making, problem-solving and decision-making are more complex and more demanding in military situations (Manuri and Raja Yaacob 2011). Command and control is taking on new dimensions, and the role of military personnel is evolving into that of ‘Knowledge force’.

The Department of Defence relies heavily on the use of information and knowledge gained through experiences for it to advance and develop as such investment in the knowledge capacity and guidelines and framework is needed in DOD. There is a lot of logistical, technical and technological knowledge on a functional and strategic level that DOD needs to have in order for it to be equipped in achieving its objectives/mandate. It is a question of staying ahead of times with the use of relevant knowledge. It is thus very important that its knowledge is coordinated and managed.

In essence DOD will need to embark on KM initiatives and benchmark with other progressive organisations to counter the following factors:

- **Competition** – by drawing more attention to the value-added by an organisation’s knowledge

- **Downsizing** – by putting into place systems for capturing the knowledge of experienced employees before it walks out the door
- **Innovation** – by initiating processes for creating new products and services
- **Speed** – by identifying smarter ways of working to save time, and reducing cycle times
- **Quality** – by applying lessons learned to improve service delivery
- **Cost savings** – by not "re-inventing the wheel" and making less mistakes and eliminating unnecessary processes

DOD will have to use KM applications that are robust and reliable within operational contexts and the knowledge creation and conversion processes must match the pace of the military operations

APQC defines knowledge management as an emerging set of strategies and approaches to create, safeguard, and use knowledge assets (including people and information), which allows knowledge to flow to the right people at the right time so they can apply these assets to create more value for the enterprise (Hasanali, 2002).

Organisation's competitive potential rests almost wholly on how well it manages and deploys its corporate assets (Smith, 1998). There has been a growing trend to treat knowledge management in a more systematic organisational sense to include the social as well as the technological implications of any attempt to manage an organisation's intangible assets.

6.4.1 Supporting structures assigned to help manage knowledge practices at the Department of Defence

The Department of Defence needs to adopt knowledge management structures to implement KM practices and strategise on channeling their knowledge to maximise their intellectual capital that reaffirm knowledge management as the means to supporting its Army's Strategic Strategy and have effective KM implementation. Each unit of the Defence Department including the entire SANDF must robustly begin with plans to have strategic and operational structures that will oversee implementation of knowledge management practices and account for activities involved as far as opportunities and weaknesses. Such a structure must have the approval of the Department's Human Resource Division to ensure institution of knowledge management as a key component in the Defence.

The DOD was struggling to articulate the relationship between their organisation's competitive strategy and its intellectual resources and capabilities. They did not have well-developed strategic models that help them to link knowledge-oriented processes, technologies, and organisational forms to business strategy, and they are unsure of how to translate the goal of making their organisations more intelligent into a strategic course of action. They need a pragmatic, yet theoretically sound model called knowledge strategy. This strategy should have a KM strategic plan that should have the following elements:

- Objectives, problems that will be addressed
- Approach
- Plan
- Budget
- Cost benefit analysis
- People, process, data, and technology assessments
- Measurements

Department also need to perform a knowledge-based SWOT analysis, mapping their knowledge resources and capabilities against their strategic opportunities and threats to better understand their points of advantage and weaknesses. They can use this map to strategically guide their knowledge management efforts, bolstering their knowledge advantages and reducing their knowledge weaknesses.

Within the KM strategy should be a KM policy implemented and altered to meet the objectives and operations of the Defence workforce. These policies will define under what circumstances, with whom, and how DOD workers should share knowledge.

For the Department to have successful knowledge management (KM) it must have a common understanding of the terms 'knowledge management' and 'knowledge sharing' and how to apply it to its situation and needs. The success of a KM initiative depends on many factors, some within our control, some not. Typically, critical success factors can be categorized into five primary categories:

6. Leadership;

7. Culture;
8. Structure, roles, and responsibilities;
9. Information technology infrastructure; and
10. measurement

6.4.2 Existence of formal and informal knowledge management practices in the Department

The above section has mentioned the importance of knowledge management structure. It is through the structure that a plan to develop and maintain knowledge management practices will be realised. The department will have to enroll proper and formal knowledge management strategy that will oversee formal practices like creation, transfer, capture, sharing and audit of knowledge in the organisation. DOD will have to uncover what knowledge exists so as to design its plans around the identified knowledge strength it has. Since the organisation has embedded informal knowledge management practices like ad-hoc creation and sharing of knowledge it will be important that it is informed of the importance of managing its knowledge capital in a concerted manner.

All employees must be informed of the objective the organisation wants to achieve using knowledge management models effective to oversee KM practices. There must be KM education provided to all employees to have full participation and buy-in from staff members. The majority of staff members (66%) do know of the concept knowledge management although they do not practice it. It shows that they have been told or read about the concept from somewhere; as such they themselves were not naïve to the concept except that their organisation was oblivious to the strategy. However there are others (16%) who have never heard or read about knowledge management.

The courses that the organisation sends its members to, the libraries and IT solutions that the organisation had at their disposal for example are instruments that must be collaborated to drive formal knowledge management activities informed by a progressive and sustainable KM strategy. There must be a distinction between information management and knowledge management.

Training, involvement, teamwork, empowerment, top management leadership and commitment, information systems infrastructure, performance measurement, culture, benchmarking, knowledge

structure and elimination of organisational constraints form key KM components for successful KM implementation (Chong and Choi, 2005).

Managing knowledge in organisations requires managing several processes of knowledge such as creation, storage, sharing, and evaluation; generation, codification, transfer and application (Singh and Soltani, 2010). The same should be applicable in DOD to be able to run successful knowledge management practices.

Department of Defence must have solid measures to make sure that knowledge is captured for future reference. Perhaps most blame should be put on lack of proper knowledge creation, because where there is knowledge there should be plans on how to capture it. The DOD must have proper knowledge acquisition methods or practices to exercise their choice of selection on available knowledge for future references and usage. The organisation needs to start immediately with consolidation of all knowledge on experiences they undergo on their missions and lessons learned. For this to happen, DOD will have to embark on efficient methods of knowledge storage capability. The Fragment system that is old capable only of keeping minimal text data must be retired.

It is important that majority of members in the defence have IT access points, i.e. Drives that are available like S-Drive, H-Drive, V-Drive etc which people can access individually, and it must not become a challenge for a staff member to access such resources. DOD will have to reconsider the use of Lotus Notes, this method of communication is old and incapable to today's corporate communication demands. There are systems like intranet which the organisation may want to look into and GroupWise which is efficient to communication amongst the colleagues.

The DOD does have standing knowledge creation means,though embedded in the day-to-day activities of the organisation, as such the creation of knowledge should be given the attention it deserves by institutionalising it. There should be teams whose primary role is to inject new knowledge into the systems of DOD so as to progress in its development as it ventures into more sophisticated and contemporary defence environment.

Sharing of knowledge in the Department must be made a culture, a practice that is known and accepted by everybody. There will be sensitive information not deemed accessible to other members, but expertise knowledge should be shared without hindrances, and if there is to be a policy, there must be only clear single standard policy that encourages knowledge sharing in the Department. As such guidelines for sharing of knowledge need to be drafted.

A standing policy on knowledge management is what the organisation needs because it will provide guide to managing and accounting of KM practices. Since the department did have a significant presence of forums embedded in the day-to-day activities of the organisation these as part of formal and self organised forums to share ideas and insights, the organisation needs to take advantage of such opportunities and practice knowledge management in concerted manner.

The Department will have to also rethink and relook the Mobility/Exit Mechanism (MEM) and try to match the current organisational objectives with the strategy, this since MEM is not sufficient enough to encourage members who exit the organisation to leave their valuable knowledge and expertise for the benefit of the Department. This strategy has become a money making strategy instead of a tool to manage skills shortage and development. It has become a compensation vehicle that does not get its returns for expertise to be used in the future. MEM did not oblige exiting members to share their knowledge; as such it becomes a futile strategy for exiting knowledge in the organisation. Much as the strategy has good intentions it will have to have principles and protocol that guide capturing and sharing of expertise from each and every member who leaves the organisation in exchange for incentives (monetary or certificates).

On the issue of mentoring, the organisation ought to have proper guidelines on mentoring its staff members. There must be a strategy that focuses on helping people progress in their careers effectively and robustly apart from just mere rank promotion. Rank promotion only takes place when an individual has reached a certain level of years and have also attended certain career related courses. Mentoring is a fundamental form of human development where one person (Usually senior, advisor, wise, teacher), invests time, energy, and personal know-how assisting the growth and ability of another person (Shea, 2002). Researcher recommends there is a human touch to this factor, and that mentors are the very supervisors to the mentee with aim of helping them work towards achievement of clear and mutually defined learning goals, as opposed to leaving the function to course instructors.

Proper and professional knowledge audit must exist in the Department. Knowledge audit has to be a function that is institutionalised to help unearth and re-discover what the organisation knows. Vestal (2005) underscores that If organisations do not fully leverage their existing expertise, then they risk losing a valuable asset: internal know-how. Organisations capture, transfer, and use knowledge in order to attain strategic goals in a more efficient and innovative manner. As such the researcher recommends that DOD develops knowledge audit protocol that will perform as scan capability to its knowledge capital so as to know how far it is in terms of this wealth.

6.4.3 Existence and importance of Knowledge Management Practitioners

It is critical that when talking about knowledge management and its practices the DOD also looks into the driving factors behind these practices and knowledge management practitioner (KMP) takes centre stage. It is critical also that DOD invests in such human capital for their skills are vital in keeping knowledge alive for the organisation to function better. KMP provides guidance, insight, and feedback to the entire organisation. Since they do not exist in the organisation it will be important that the organisation develops with the help of HR a structure of human capital that will help facilitate and account for knowledge management practices in the Department of Defence. Knowledge management practitioners will be a link between the general employees of DOD and executive and principals in the organisation. As such these professionals will be responsible to execute the following:

- Develop knowledge and obtain the consensus of the top management for considering knowledge management as a weapon of competitive advantage;
- Monitor policies related to human resources;
- Provide communication infrastructure within and between the different departments of an organisation and control the correctness of its use;
- Individualize the people responsible for inflows and outflows of knowledge management;
- Exploit and create opportunities for the internal dissemination of knowledge;
- Determine clear knowledge-management policy;
- Develop knowledge reservoirs and facilitate their access.

6.4.4 Challenges that hinder knowledge management and sharing of knowledge

To encourage all DOD members to share and disseminate their knowledge the organisation ought to come with framework that will embrace knowledge management as an important tool not only for the organisation but also the staff members since it empowers them. Systems must be put in place and there must be a section that deals with knowledge management strictly. Education of members ought to be rendered so members understand what knowledge management is all about.

Most importantly the organisation needs to reward sharing of knowledge and make the culture of sharing knowledge fashionable. This can be done using state-of-the art IT which should help members share their knowledge without challenges. There must be a way to discourage people from being selfish with their knowledge and help people understand that organisational objectives are a result of collective, not individuals, thus the more people share the more capable they become in building the organisation. Time must be allocated to seeing that members of the organisation get together and form communities of practices, whose function is to create, capture and share the know-how, not information distribution but skills required to execute certain functions which may be of foreign to other members. There should be assurance to all members that they will share and absorb knowledge from their peers and colleagues because there will be a KM sharing strategy and KM team to facilitate this function. Geographical distance between units should not be a challenge since there will be technological means of connecting the people. Lastly there should be a sense and culture of trust amongst employees since they are all employed under DOD and share common interests.

6.5 SUGGESTION FOR FUTURE RESEARCH

This study was a success in that the objectives of the project were met by establishing in clear terms and full the state of knowledge management practices in the Department of Defence (RSA). As such reviewed knowledge management practices were recommended based on existing and professional KM structures and strategy. Based on the unavailability of KM strategy in the DOD, all knowledge management practices were in crisis state and various recommendations were provided to address risks of losing knowledge cheaply and accelerating organisational objectives with the existing knowledge which DOD possesses.

Knowledge management is relatively new phenomena, given its importance many of our government departments may want to venture into full knowledge management practices. Same can be said about the DOD, as such given the fact that the sample in this study was small, it could be possible that the same research armed with large sample could yield different or similar results.

6.6 SUMMARY OF CHAPTER SIX

Chapter Six summarises the findings of the study, concludes objectives established in the study as well as providing recommendations to DOD on the importance of structured knowledge management practices. It is never late for the DOD to exercise its discretion in implementing knowledge management framework to realise its true knowledge capital potential. Without a doubt, considering the fact that other progressive militaries have already implemented KM initiatives, DOD will have to institutionalise and consolidate its KM practices to have competitive edge.

6.7 LIST OF REFERENCES

Abowitz, D.A and Toole, T.M. (2009). Mixed method research: Fundamental issues of design, validity, and reliability in construction research. *Journal of Construction Engineering and Management.* 136(1): 108-116.

AHRQ. (2005). Essentials of the research plan. Available: http://www.ahrq.gov/fund/esstplan.htm (accessed 14/07/10).

Aker, B. and Krieger, D. (2002). *Running weblogs with slash.* USA: O'Reilly & Associates, Inc.

Alavi, M and Leidner, E. (2001). Review: knowledge management and knowledge management systems: conceptual foundations and research issues. *MIS Quarterly,* 25(1): 107-136.

Albers, J.A. (1999). A practical approach to implementing knowledge management: *Journal of Knowledge Management Practice*, 10(1): 94-107.

Albert, D.S., Garstka, J.J. & Stein, F.P. (2000). *Network centric warfare: developing and leveraging information superiority*. Washington, D.C.: CCRP Publication.

American Productivity and Quality Centre. (2002). Retaining valuable knowledge: Proactive strategies to deal with a shifting work force. Available: http://www.apqc.org/portal/apqc/ksn (accessed 09/07/2009).

Anderson, G and Arsenault, N. (1998). *Fundamentals of Educational Research*. London: RutledgeFalmer.

Andreu, R. and Ciborra, C. (1996). Organisational learning and core capabilities development: the role of IT. *The Journal of Strategic Information Systems.* 5(2): 111-127.

Argote, L., McEvily, B. and Reagans, R. (2003). Managing knowledge in organisations: an integrative framework and review of emerging themes. *Management Science*, 49 (4): 571-82.

Armstrong, A and Foley, P. (2003). Foundations for a learning organisation: organisation learning mechanisms. *The Learning Organisation,* 10(2): 78-82.

Army Knowledge Management. (2008). Army knowledge management principles. Available: http://www.usaservices.gov/pdf_docs/AKMPrinciples25JUN2008.pdf (accessed 14/6/12).

Axinn, W.G and Pearce, L.D. (2006). *Mixed method data collection strategies*. New York: Cambridge University Press.

Babbie, E., and Mouton, J. (2001). *The practice of social research.* Cape Town: Oxford University Press.

Baines, A. (1996). Intranets. *Work Study*, 45(5): 5-7.

Balestrine, A., Vargas, L.M. and Fayard, P. (2008). Knowledge creation in a small-firm network. *Journal of Knowledge Management*, 12(2): 94-106.

Barclay, R.O and Murray, P.C. (2007). What is knowledge management? Available: http;//www.providersedge.com/docs/km_articles/what_is_knowledge_management.pdf (accessed 02/06/2014).

Barley, S.R, and Kunda, G. (2004). *Gurus, hired guns, and warm bodies: Itenerary experts in a knowledge economy*. Princeton University Press: New Jersey, UK.

Barger, J. (1997). Weblog resources FAQ. Available: http://www.robotwisdom.com (accessed 12/6/10).

Barney, J.B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1): 99-120.

Barrett, J and Kirk, S. (2000). Running focus groups with elderly and disabled elderly participants. *Applied Ergonomics*, 31: 621-629.

Bartczak, S.E. (2002). Indentifying barriers to knowledge management in the United States military. PhD Thesis, University of Auburn, Alabama. *Dissertation Abstracts International*, 3071350.

Bell, H. (2001). Measuring and Managing Knowledge; McGraw-Hill International edition. Available: http://www.systems-thinking.org/dikw/dikw.htm (accessed 12/10/2012).

Bellinger, G., Castro, D. and Mills, A. (2004). Data, information, knowledge and wisdom. Available: http://www.systems-thinking.org/dikw.htm (accessed 14/10/2010).

Bennet, A and Bennet, D. (2003). *The partnership between organisational learning and knowledge management.* Available at: www.blogs.nasa.gov/.../federal%20knowledge%20Management%20Working (accessed 25/09/2009).

Benardi, L., Keim, S., & von der Lippe, H. (2007). Social influence on fertility: A comparative mixed methods study in eastern and western Germany. *Journal of Mixed Methods Research*, 1: 23-47.

Benbasat, I., Goldstein, D.K and Mead, Mead, M. (1987). The case study research strategy in studies of information systems. *MIS Quarterly*, September: 369-386

Birchall, J. (2009). *Sampling and Samples*. Available: http://www.marketresearchworld.net/index (accessed 23/02/2009).

Bless, C. and Higson-Smith, C. (1995). *Fundamentals of social research methods: an African perspective*. 2nd ed. Cape Town: Juta and Co. Ltd.

Bless, C. and Higson-Smith, C. (2000). *Fundamentals of social research methods: an African perspective.* 3rd ed. Cape Town: Juta and Co. Ltd.

Blumentitt, R and Johnston, R. (1999). Towards a strategy for knowledge management. *Technology Analysis & Strategic Management*, 11: 287-300.

Bonaventura, M. (1997). The benefits of a knowledge culture. *ASLIB Proceedings*, 49(4): 82-89.

Bontis, N., Fearon, M and Hishon, M. (2003). The e-flow audit: An evaluation of knowledge flow within and outside a high-tech firm. *Journal of Knowledge Management*, 7(1): 1-2.

Bourner, T. (1996). The research process: four steps to success, *Research methods: Guidance for postgraduates*. London: Arnold.

Branin, J.J. (2003). Knowledge management in academic libraries: building the knowledge bank at the Ohio State University. *Journal of Library Administration*, 39(4): 41-56.

Brewer, P.D., Brewer, K.L. (2011). Knowledge management, human resource management, and higher education: a theoretical model. *Journal of Education For Business*. 85: 330-335.

Brooking, A. (1999). *Corporate Memories, Strategies for Knowledge Management*. London, Thompson Business Press.

Broom, A. (2005). Using qualitative interviews in CAM research: A guide to study design, data collection and data analysis. *Complementary therapies in Medicine.* 13: 65-73.

Bruce, N.M. (2008). The challenges of knowledge sharing in practice: a social approach, *Library Review*, 57(7): 562 – 563.

Bryman, A. (1988). *Quantity and quality in social research.* London: Unwin Hyman.

Bryman, A. (2001). *Social Research Methods.* Oxford, UK: Oxford University Press.

Bryman, A. and Cramer, D. (2005). *Quantitative data analysis with SPSS 12 and 13: a guide for social scientists.* London and New York: Routledge.

Business Day. (2006). Military pleased at progress of voluntary exit programme. Available: http://www.businessday.co.za/articles/topstories.aspx?ID=BD4A255568 (accessed 12/10/13).

Business Dictionary. (2010). Simulation. Available: http://www.businessdictionary.com/definition/simulation.html (accessed on 21/07/10).

Bushaway, R.W. (2003). *Managing research.* Berkshire, GBR: Mcgraw-Hill education.

Cao, Q., and Hoffman, J.J. (2011). A case study approach for developing a project performance evaluation system. *International Journal of Project Management*, 29: 155-164.

Capegateway. (2003). *Department of Defence: overview*. Available: http://www.capegateway.gov.za/eng/yourgovernment/gsc (accessed 10/03/2009).

Carmichael, T. (2009). How to write your research problem statement at WBS. Wits Business School. Available: http:// www.wbs.ac.za/download.php?data_id=367 (accessed 14/5/2013).

Carroll, J.S. & Edmondson, A.C. (2002). Leading organisational learning in health care. *Quality and Safety in Health Care*, 11: 51-56.

Chan, J.F. (2005). *E-mail: A write it well guide, how to write and manage e-mail in the workplace.* CA. Write It Well.

Chaudhry, A.S. (2005). *Knowledge sharing practices in Asian institutions: a multi-cultural perspective from Singapore*. Available: http://www.ifla.org/IV/ifla71/papers/066e-Chaudhry (accessed: 21/05/2008).

Chaudhry, A.S., Ali, N.A., Abadi, D.I., and Wee, K.W. (2008). Exploiting the potential of intranets for managing knowledge in organisations: *Journal of Knowledge Management Practice*, 9(2).

Chikh, A. and Berkani, L. (2009). Communities of practice of e-learning, an innovative learning space for e-learning actors. *Procedia Social and Behavioral Sciences*, 2: 50-27.

Chong, S.C. & Choi, Y.S. (2005). Critical factors in the successful implementation of knowledge management. *Journal of Knowledge Management Practice,* Available: http://www.tlainc.com/article90htm. (accessed 17/9/12).

Chowdhury, N. (2006). *Knowledge Audit: Overview and sample questionnaire*. available: http://www.kmtalk.net (accessed on 26/01/2008).

Choy, S.Y, Lee., W.B and Cheung C.F. (2004). A systematic approach for knowledge audit analysis: Integration of knowledge inventory, mapping and knowledge flow analysis: *Journal of Universal Computer Science.* 10(6): 674-682.

Clansey, W.J and Sierhuis, M. (1996). *Knowledge, practice, activities and people.* Available: http://ksi.cpsc.ucalgary.ca/AKIM97/sierhuis (accessed: 25/02/2009).

Claxton, G. (1999). Freeing tacit knowledge. *Knowledge Management*, 2(5): 12-15.

Coakes, E. (2006). Storing and sharing knowledge: Supporting the management of knowledge made explicit in transnational organisations. *The Learning Organisation,* 13(6): 579-593.

Cohen, W.M. and Leventhal, D.A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, 35(1): 128-152.

Corbin, J., and Strauss, A.(2008). *Basics of Qualitative Research*, 3rd ed. Thousand Oaks, Calif: Sage Publications.

Cox, J.W. Triangulation. (2008). *The SAGE Dictionary of Qualitative Management Research*, Sage Publications.

Creswell, J.W, & Plano Clark, V.I. (2006). *Designing and conducting mixed methods research*, Thousand Oaks, CA: Sage Publications.

Creswell, J.W. (1994). *Research design: qualitative and quantitative approaches*, Thousand Oaks, CA: Sage Publications.

Creswell, J.W. (2002). *Research design: qualitative, quantitative and mixed methods approaches*, 2nd ed. London: Sage Publications.

Creswell, J.W. (2003). *Research design; qualitative, quantitative and mixed methods approaches*. 2nd ed. London: Sage Publications.

Creswell, J.W. (2007). *Qualitative inquiry and research design: choosing among five approaches*. Thousand Oaks, CA: Sage publications.

Creswell, J.W, and Tashakkori, A. (2007). Developing publishable mixed methods manuscripts. *Journal of mixed methods research*, 1: 107-111.

Creswell, K., Crowe, S., Robertson, A., Huby, G., Avery, A., and Sheikh, A. (2011). The case study approach. *MBC Medical Research Methodology*. 11: 100.

Crossman, A. (2013). Stratified sample. Available: http://sociology.about.com/od/types-ofSamples/a/Stratified-Sample.htm (accessed 5/2/2013).

Curley, K.F and Kivowitz, B. (2001). *The manager's pocket guide to knowledge management*. Canada: HRD Press.

Czaja. R. (1998). Questionnaire pretesting comes of age. *Marketing Bulletin*, 9: 25-66. Available on: http://marketing-bulletin.massey.ac.nz/V9/MB_V9_A5_czaja.pdf Accessed on 5/2/2013

Dahanayake, D.N. and Gamlath, S. 2012. Learning organisation dimensions of the Sri Lanka Army. *The Learning Organisation*, 20(3): 195-215

Davenport, T.H., De Long, D W and Beers, M.C. 1999. Successful knowledge management projects: *The knowledge management yearbook 1999-2000*. USA: Butterworth-Heinemann.

Davernport, T.H. and Prusak, L. 1998. *Working knowledge: how organisations manage what they know*. Boston, MA: Harvard Business School Press.

Davenport, T.H and Volpen, S.C. 2001. The rise of knowledge towards attention management. *Journal of knowledge Management*, 5(3): 212-221.

Daneshgar, F and Parirokh, M. 2007. A knowledge schema for organisational learning in academic libraries: *Knowledge Management Research & Practice*, 34: 22-33.

David Skyrme Associates. 2002. *Knowledge audit*. [Online]. Available at: http://skyrme.com/services/kmaudit.htm (Accessed 04/08/2008).

Decrop, A. 1999. Triangulation in qualitative tourism research. *Tourism Management*. 20: 157-161

Den Hertog, J.F and Huizenga, E. 2000. *The knowledge enterprise: implementation of intelligent business strategies*. London, Imperial College Press.

De Giovanni, P. 2009. The knowledge manager's role and tasks for supply chain management success. *Journal of Knowledge Management Practice*, 10 (1) [Online] available on http://www.tlainc.com/articl178.htm Accessed 12/8/13

Demchak, C.C. 1995. Coping, copying, and concentrating: organisation learning and modernization in militaries, *Journal of Public Administration Research and Theory*, 5(3): 345-376.

Denzin, N.K.1978. The research act: A theoretical introduction to sociological methods. New York: McGraw-Hill.

Denning, S. 2010. Knowledge fair. [Online] Available at: http://www.kstoolkit.org/Knowledge+Fairs Accessed 18/08/10.

Dept of Civil Services. 2002. *Report of the knowledge management/transfer*. [Online]. Available: http://www.cs.state.ny.us/successionplanning/workgroups/knowledgemanagement/ (Accessed 16/07/08).

Desai, V. and Potter, R.B. (2006). Field surveys and inventories ; Doing Development Research. [Online] Available: http://0-srmo.sagepub.com.oasis.unisa.ac.za/view/doing-development-research/SAGE.xml (Accessed 4/5/14).

DestinationCRM.com. 2003. *How do you capture tacit knowledge.* [Online]. Available at: http://www.destinationcrm.com/Articles (Accessed 07/01/2009).

DiGaetano, R. (2014). Sample frame and related sample design issues for surveys of physicians and physician practices. *Evaluation & the Health Professions,* 36(3): 296-329.

Donoghue, L.P., Harris, J.G., and Weitzman, B. A. (1999). Knowledge management strategies that create value. Available: http://accenture-outsourcing.ie/SiteCollectionDocuments/PDF/knowldege2.pdf (accessed 20/06/2011).

Drucker, P.F. (1969). *The age of discontinuity – Guidelines to our changing society*. London: Heinemann.

Duignan, P. (2008). Methods and analysis techniques for information collection. Available: http//knoll.google.com/k/paul-duignan-phd/ (accessed 5/5/11).

Dunham, R.B and Smith, F.J. (1979). *Organisational surveys: Internal assessment of organisational health*. Glenview: Scott, Foreman and Co.

Durrant, F. (2001). *Knowledge management in the context of government.* Available: http://unpanl.un.org/intradoc/groups/public/documents/UN (accessed 07/08/08).

Earl, M. and Scott, I. (1999). "What is a chief knowledge office?" *Sloan Management Review*. Winter: 29-38.

Easley, D and Kleinberg, J. (2010). *Networks, Crowds and Markets: Reasoning about a Highly Connected World*. Cambridge University Press.

Edvinson, L and Malone. M,S. (1997). *Intellectual capital: realizing your company's true value by finding its hidden brainpower*. NY: Harper Business Publishers.

Egea-Lopez, E., Martinez-Sala, A., Garcia-Haro, J., and Sanahu. (2004). Wireless communications deployment in industry: a review of issues, options and technologies. *Computers in Industry,* 56: 29-53.

Esterberg. K.G. 2002. *Qualitative Methods in Social Research,* USA: McGraw Hill Higher Education.

Evans, P and Wolf, B. (2005). Collaboration rules. *Harvard Business Review,* 83(7): 96-104.

Eysenck, M.W. (2004). *Research methods: Data analysis*. Available: http://www.psypress.com/pip/resources/chapters/PIP_s3.pdf (accessed 20/05/2009).

Fang, S.C., Yang C.W and Hsu, W.Y. (2013). Inter-organisational knowledge transfer: the perspective of knowledge governance. *Journal of Knowledge Management*, 17(6): 944.

Fidel, R. (2008). Are we there yet?: Mixed methods research in library and information science. *Library & Information Science Research,* 30: 265-272.

Figallo, C., and Rhine, N. (2002). *Building the knowledge management network: best practices, tools, and techniques for putting conversation to work*. NY: Wiley.

Fink, A. (1995). *How to ask survey questions.* Thousand Oaks, CA.: Sage.

Firestone, M. (2009). *Wireless technology: cool science*. Minneapolis: Learner Publishers.

Fisher, K. M., Wandersee, J. H and Moody, D. E. (2000). *Mapping biology knowledge. Dordrecht,* Netherlands: Kluwer Academic Publishers.

Folorunso, O and Ogunde, A. (2005). *Data mining as a technique for knowledge management in business process redesign*. Available: http://www.emeraldinsight.com (accessed 08/04/09).

Freeman, J. (2009). *The tyranny of E-mail: The four-thousand-year journey to your inbox*. New York: Simon & Schuster, Inc.

Freeman, P. (2001). Knowledge management standards: what do they look like? *Access*, 15(2): 27-29.

Gaebler, V. (2009). *Creating a learning organisation: resources for entrepreneurs*. Available: http://www.gaebler.com/creating-a-learning-organisation (accessed 19/07/09).

Garvin, D. (1993). Building learning organisations. *Harvard Business Review,* July-August: 78-91.

Geiwitz, J., Kornell , J., and McCloskey, B. (1990). An expert system for the selection of knowledge acquisition techniques: Technical report 785-2, contract No. DAAB07-89-C-A044. California, Anacapa Sciences.

Gilley, J.W and Myacunich, A. (2000). *Organisational learning performance and change: An introduction to strategic human resource development.* Cambridge: Perseus.

Gillingham, H; and Roberts, B. (2006). Implementing knowledge management: A practical approach. *Journal of Knowledge Management Practice,* 7(1).

Girard, J. (2004). *Defence knowledge management: A passing fad*. Available: http://www.johngirard.net/johngirard/defence_km (accessed 10/10/2008).

Girard, J. (2008). Leading knowledge: what do middle managers think*? Canadian Military Journal*, 5(2): 17-28.

Godbout, A.J and Godbout, M.G. (1999). Filtering knowledge: changing information into knowledge assets. *Journal of Systematic Knowledge Management.* Available: http://www.tlainc.com/articl11.htm. (accessed 22/01/2009).

Golafshani, N. (2003). Understanding reliability and validity in quantitative research. *The Qualitative Report*, 8(4): 597-607.

Gottschalk, P. (1999). Knowledge management in the professions: lessons learned from Norwegian law firms. *Journal of Knowledge Management.* 3(30): 203-211.

Gould, J and Kolb, W. (1964). *A dictionary of the social sciences eds*. Free Press of Glencoe.

Grant, R. M. (1996). Prospering in dynamically competitive environments: Organisation capability as knowledge integration. *Organisation Science*, 7: 375-387.

Grinnell, R.M. & Williams, M. (1990). *Research in social work: A primer*. Itasca, IL: Peacock.

Grinnell, R.M. (1997). *Social work research and evaluation; quantitative and qualitative approaches*. Ithaca: Peacock.

Guba, E.G. and Lincoln, Y.S. (1994). "Competing paradigms in qualitative research", *Handbook of Qualitative Research*, Thousand Oaks, CA: Sage.

Guba, E.G. and Lincoln, Y. (1981). *Effective evaluation.* San Francisco: Jossey-Bass.

Gupta, Y.P, Karimi, J. and Somers, T.M. (2000). Study on the usage of computer and communication technologies for telecommuting. *IEEE Transactions on Engineering Management*, 47(1): 26-39.

Gurteen, D. (1999). Creating a knowledge sharing culture. *Knowledge Management Magazine*, 2(5) Available: http://www.gurteen.com/gurteen/gurteen.nsf/id/ksculture (accessed 24/07/2009).

Gy, P. (2004). Sampling of discrete materials – a new introduction to the theory of sampling. *Chemometrics and Intelligent Laboratory Systems*, 74: 7-74.

Haggie, K., Kingston, J. (2003). Choosing your knowledge management strategy, *Journal of Knowledge Management Practice*, 4.

Hamel, G and Prahalad, C. (1994). *Competing for the future – breakthrough strategies for seizing control of your industry and creating markets of tomorrow*. Boston: Harvard Business Scool Press.

Hammer, M and Champy, J. (2000). Reengineering the corporation: a manifesto for business revolution. Available: http://wwwcorporatesolutionsinc.za/lib-documents/reengineering (accessed 12/02/2009).

Hanson, J.L., Balmer, D.F. and Giardino, A.P. (2011). Qualitative research methods for medical educators. Available:

http://www.ambpeds.org/site/vlp/ESPMeetings/documents/HansonBalmerGiardinoQualMethods_Acad%20Peds_FINAL.pdf. (accessed 12/04/13)

Hansen, M.T., Nohria, N and Tierney, T. (1999). What's your strategy for managing knowledge? *Harvard Business Review*, 77(2): 106-116.

Hardy, M and Bryman, A. (2004). *Handbook of data analysis*. London: SAGE Publications.

Hariharan, A. (2005). Implementing seven KM enablers at Bharti. *Knowledge Management Review*, 8(3): 8-9.

Harrison, R.L. (2012). Using mixed methods designs. *Journal of Business Research*. Avaliable: http://0-www.sciencedirect.com.oasis.unisa.ac.za/science (accessed 23/4/12)

Hart, C. (1998). *Doing a literature review*, London: Sage.

Hasanali, F. (2002). Critical success factors of knowledge management. Available: http://www.providersedge.com/docs/km_articles/Critical_success_Factors_of_KM.pdf (accessed 12/07/10).

Hastings, S.L and Salkind, N.J. (2010). *Triangulation: Encyclopedia of Research Design.* London: Sage.

Hatch, N.W and Dyer, J.H. (2004). Human capital and learning as a source of sustainable competitive advantage. *Strategic Management Journal*, 25: 1155-1178

Heath, R.L. (2005). *Encyclopedia of public relations.* London: Sage publications.

Hedlund,J., Antonakis, J. and Sternberg, R.J. (2002). *"Tacit knowledge and practical intelligence: understanding the lessons of experience"*, United States Army Research Institute for behavioural and Social sciences, Airlington, VA.

Henczel, S. (2000). *The information audit as a first step towards effective knowledge management: An opportunity for the special librarian.* Available: http://findarticles.com/p/articles/mi_mOFWE/is_6_5/ai_75958767 (accessed 17/08/2009)

Herman, E and Bently, M. (1993). *Methods for social research in disease*. Available: http://www.unu.edu/Unupress/food2/UIN04E (accessed 19/04/2009).

Hernon, P and Schwartz, C. (2007). What is a problem statement? *Library & Information Science Research*, 29: 307-309.

Hernon, P and Schwartz, C. (2009). Procedures: Research design. *Library & Information Research*, 31: 1-2.

Hodson, R. (1999). *Qualitative data analysis software.* London: Sage.

Hogel, M., Parboteeah, K.P. ans Munson, C.L. (2003). Team-level antecedents of individuals' knowledge networks, *Decision Sciences*, 34(4): 741-770.

Hunt, O. (2007). *A mixed method design.* Available: http://www.articlealley.com/article_185975_22.html (accessed 21/11/2009)

Hunter, G. (1999). Some do's of knowledge management. Available: www.carleton.ca/kbe/preliminaryreport.htm (accessed 14/6/2012).

Hurworth, R. (2005). Document analysis. Available: http://0-srmo.sagepub.com.oasis.unisa.ac.za/view/encyclopedia-of-evaluation/n154.xml (accessed 16/4/2014).

Hylton, A. (2002). *A knowledge Audit must be people-centered and people focused.* Available: http://knowledgeboard.com/library/people-centredknowledgeaudit.pdf (accessed 05/02/2008).

Hylton, A. (2002). *Measuring and assessing knowledge-value and the pivotal role of the knowledge audit.* Available: http://www.thestep.gr/trainmor/dat/ (accessed 06/07/09)

Hysman, M and de Wit, D. 2002. *Knowledge sharing in practice*. Netherlands: Kluwer Academic Publishers.

Ibrani, M., Ahma, L. and Hamiti, E. (2014). Assessment of the exposure of children to electromagnetic fields from wireless communication devices in home environments. *IET Commun*, 8(12): 2222-2228.

Ichijo, K. (2006). *Enabling knowledge-based competence of a corporation*: *knowledge creation and management*. *New challenges of managers*. New York: Oxford University Press.

Ichijo, K and Kohlbacher, F. (2006). Global knowledge creation – the Toyota way. Available: http://www.iamot.org/conference/index.php/ocs/10/paper/viewfile/1308/577 (accessed 12/06/10).

Inglis, J.T. (1993). *Traditional ecological knowledge*. Canada: Development Research Centre.

Institute for Security Studies. (2003). *Defence transformation in South Africa.* Available: http://www.iss.co.za/index.php?link (accessed 05/02/2008).

Intervista. (2007). *Knowledge retention. Human capital strategies for knowledge transfer in the enterprise.* Available: http://www.intervista-institute.com/educational-programs/km (accessed 05/01/2009).

Jain, R. (2007). An empirical study of knowledge management in academic libraries in East and Southern Africa. *Library Review* 56(5): 377-392.

Jain, P. (2011). Personal knowledge management: the foundation of organisational knowledge management. Available: http://sajlis.journals.ac.za/pub/article/view/62/54 (accessed 12/5/13).

Janowitz, K and Koniger, P. (1995). Drawning in information but thirsty for knowledge. *International Journal of Information Management* 15(1): 5-16.

Johnson, K. (2007). Pre-test preparation for survey research. Available: http://www.research.psu.edu/training/research-protections-workshops/orp-video-archive/documents/20070329.pdf (accessed 12/11/12).

Johnson, B and Christensen, L. (2004). *Educational Research: Quantitative, Qualitative and Mixed Approaches*. Boston: Pearson.

Johnson, R.B., Onwuegbuzie, A.J. and Turner, L.A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research.* 1(2): 112-133.

Joppe, M. (2000). The research process. Available: http://www.ryerson.ca/~mjoppe/rp.htm (accessed 20/11/12).

Kidwell, J.J., Vander Linde, K.M. and Johnson, S.L. (2000). Applying corporate KM practices in higher education. *Educause Quarterly*, 4: 28-33.

Kimble, C. and Hildreth, P. (2008). *Communities of Practice: Creating Learning Environments for Educators.* UK: Information Age Publishers.

Kirsch, D. (2008). *Knowledge retention: Knowledge management community*. Available: http://it.toolbox.com.wiki.index.php/knowledge_Retention. (accessed 05/01/2009).

Klotz, M and Strauch, P. (1990). *Strategieorintierte Planung betrieblicher Informations – Kommmunikationssysteme*, Berlin: Springer.

Kippenberger, T. (1998). Some concepts about knowledge itself. *The Antidote* 3 (1).

Kirsch, D. (2008). *Knowledge retention: Knowledge management community*. Available: http://it.toolbox.com.wiki.index.php/knowledge_Retention. (accessed 05/01/2009).

KM Network. (2004). Focus on business needs, quick wins for successful knowledge audit. *Knowledge Management Review*, 13(1): 4.

Kogut, B. and Zander, U. (1992), ‘‘Knowledge of the firm, combinative capabilities, and the replication of technology’’, *Organization Science*, Vol. 3(3): 383-97.

Kothari, C. R. (1990). *Research methodology: methods and techniques*. 2nd ed. New Delhi: Wishwa Prakashan.

Kumar, J.A and Ganesh, L.S. (1999). Research on knowledge transfer in organisations: a morphology. *Journal of Knowledge Management*, 13(4): 161-174.

Labedz, C.S., Cavaleri, A. & Berry, G. (2001). Interactive knowledge management: putting pragmatic policy planning in place. *Journal of Knowledge Management*, 15(4): 551-567.

Lacey, A. & Luff, D. (2001). Qualitative data analysis: Trent Focus for Research and Development in Primary Health Care. Available:

http//www.dcc.unicamp.br/~wainer/cursos/2s2009/Qualitative%20Data%20Analysis.pdf (accessed 21/02/13).

Ladd, A and Mark, A.W. (2002). An investigation of environmental factors influencing knowledge transfer. *Journal of knowledge management practice.* Available: http://www.tlainc.com/jkmv3.htm. (accessed 23/03/2009).

Lambe, P. (2003). Knowledge-based Warfare. Available: http://www.greenchameleon.com/thoughtpieces/warfare (accessed 12/8/11).

Lamberts, K and Shanks, D. (1997). *Knowledge, concepts, and categories.* UK: Biddles Ltd.

Larsen, M.H and Leinsdorff, T. (1998). Organisational learning as a test-bed for business process re-engineering: *Proceedings of the Thirty-First Hawaii International Conference on System Sciences* 5 (6-9 Jan). Available: http://ieeexplore.ieee.org (accessed 02/07/09).

Lave, J. and Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation.* Cambridge: Cambridge University Press.

Law, S., Harper, C. and Marcus, R. (2003). Analysis. Available: http://0-dx.doi.org.oasis.unisa.ac.za/10.4135/9781849209786.n20 (accessed on 4/5/14).

Lee, H.W. (2005). Knowledge management and the role of libraries. Chinese Librarianship: an International electronic Journal, 19. Available: http://www,white-clouds.com/iclc/cliej/c119 (accessed 17/6/2012).

Lee, H. and Choi, B. (2003). Knowledge management enables, processes and organisational performance: an integrative view and empirical examination. *Journal of Management Information System,* 20(1): 179-228.

Leedy, P.D and Ormrod, J.E. (2005). *Practical Research: Planning and Design,* 8th ed. New Jersey: Pearson Prentice.

Lehner, F and Haas, N. (2009). Knowledge management success factors – proposal of an empirical research. *Electronic Journal of Knowledge Management* 8(1): 79-90.

Lepak, J.J. (2009). Creating a knowledge management strategy. Available: http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA497708 (accessed 23/3/13).

Leung, Z.C.S., Chu, K.F., Cheung, C.F., Chan, Y, Lee, W.B. and Wong, R.Y.W. (2010). Assessing knowledge assets: knowledge audit of a social service organisation in Hong Kong. *Administration in Social Work,* 34: 361-383.

Levy, M. (2011). Knowledge retention: minimising organisational business loss. *Journal of Knowledge Management,* 15(4): 582-600.

Liebowitz, J. (1999). *Knowledge management handbook*. Florida: CRC Press.

Lindvall, M., Rus, I. & Sinha, S.S. (2002). Technology support for knowledge management Available: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.19.564428rep=rep1&type=pdf (accessed on 15Oct13)

Litman, T. (2012). Evaluating research quality: Guidelines for scholarship. Available: http://www.vtpi.org/resqual.pdf (accessed 12/11/12).

Litwin, M.S. (1995). *How to measure survey reliability and validity*. London: Sage.

Lord, H.W. (2010). *How the Army runs. A senior leader reference handbook 2009-2010*. Carlisle, PA.:U.S. Army War College.

Losee.R,M. (1997). Comparing boolean and probabilistic information retrieval systems across disciplines and queries. *Journal of the American Society for Information Science*, 48 (2): 143-156.

Macintosh, H.D. (1997). Introduction: what is data analysis? Available: http://www.dartmouth.edu/~mss/data%20analysis/volume%20I%20pdf (accessed 20/02/13).

Macrina, F.L. and Munro, C.L. (1995). The case study approach to teaching scientific integrity in nursing and the biomedical sciences. *Journal of Professional Nursing*, 11(1): 40-44.

Madsen, T.L., Mosakowski, E. and Zaheer, S. (2003). Knowledge retention and personnel mobility: the nondisruptive effects of inflows of experience. *Organisation Science*, 14(2): 173-191.

Magazi, L.C. (2007). *An investigation into mechanisms used to share and disseminate knowledge among academic staff in the humanities at the University of Kwazulu-Natal and the University of Zululand*, Masters thesis, University of Kwazulu-Natal.

Magnusson, J. (2003). To facilitate or to intervene: a study of knowledge management practice in SME networks. *Journal of knowledge management practice* (4) Available: http://www.tlainc.com/jkmv3.htm. (accessed 23/03/2009).

Manuri, I. and Raja Yaacob, R.A. (2011). Perceptions of knowledge creation, knowledge management processes, technology and applications in military organisations. *Malaysian Journal of Library & Information Science*, 16(1): 73-84.

Mapisa-Nqakula, N.N. (2012). *Department of Defence Annual Report*. Department of Defence, Republic of South Africa.

Mapisa-Nqakula, N.N. (2011). *Department of Defence Annual Report*. Department of Defence, Republic of South Africa.

Maponya, P. (2004). Knowledge management practices in academic libraries: a case study of the University of Natal, Pietermaritzburg libraries. Available: http://www.ukzn.ac.za/department/data/leap_scecsalpaper.pdf (accessed 4/4/13).

Marshall, C and Rossman, R.G. (1995). *Designing Qualitative Research.* 2nd ed. California: Sage Publications, Inc.

Martin, B. (2000). Knowledge based organisations: emerging trends in local government in Australia. *Journal of Knowledge Management Practice* (2) Available: http://www.tlainc.com/jkmv3.htm. (accessed 23/03/2009).

Martins, E.C. and Meyer, H.W.J. (2012). Organisational and behavioral factors that influence knowledge retention. *Journal of Knowledge Management,* 16(1): 77-96.

Marwick, A. D. (2001). Knowledge management technology. *IBM System Journal,* 40(4): 814-830.

Masilela.J.B. (2004). *South African Department of Defence* 2003-2004 *Annual Report*. Available: http://dod.mil.za/documents/annualreports/AnnualReports2003.pdf (accessed 07/02/2009).

Matvee, V.A. (2002). *The advantages of employing quantitative and qualitative methods in intercultural research: perceptions of intercultural communication competence by American and Russian managers*. Available: http://www.russcomm.ru/eng/rca_biblio/m/matveev01_eng.shtml (Accessed 07/04/2009).

Mauri, I and Raja Yaacob, R.A. (2011). Perceptions of knowledge creations, knowledge management processes, technology and applications in military organisations. *Malaysian Journal of Library & Information Science*, 16(1): 73-85.

Mavodza. J. (2010). *Knowledge management practices and the role of an academic library in a changing information environment: the case of the metropolitan college of New York.* PhD (Information Studies), Pretoria: University of South Africa.

Mavodza, J and Ngulube, P. (2011). Exploring the use of knowledge management practices in an academic library in a changing information environment: *South African Journal of Library and Information Science*, 77(1): 15-25.

Maxwell, J.A. (1996). *Qualitative Research Design: An Interactive Approach.* Thousand Oaks, California: Sage.

McCall, H., Arnold, V., and Sutton, S.G. (2008). Use of knowledge management systems and impact on the acquisition of explicit knowledge. *Journal of Information Systems*, 22(2): 77-101.

McCausland, J.D. & Martin, G.F. (2001). "Transforming strategic leader education for the 21st century army", *Parameters: US Army War College*, 31(3): 17-33.

McCracken, G. (1988). *The long interview: qualitative research methods series*. London: Sage publishers.

McIntyre, S.G., Gauvin, M., and Waruszynski, B. (2003). Knowledge management in the military context. *Canadian Military Journal,* 4(1): 35-40.

Mckee, T. (2003). *People leave managers, not companies: how to increase employee retention*. [Online] Available on http://www.advantagepoint.com/articles/staffdev/art5 (Accessed 10/07/09)

McLagan, P. (2002). Change leadership: creating a change capable organisation. *Management Today* 18(9): 28-31.

Mearns, M.A. and Du Toit, A.S.A. (2008). Knowledge audit: tools of the trade transmitted to tools for tradition. *International Journal of Information Management*, 28(3): 161-167.

Meiring, G.L. (1995). The national defence force in transition: Annual report FY 94/95. National Defence Force Pretoria.

Miller, D. (1996). A preliminary typology of organisational learning. *Journal of Management*, 22(3): 485-505.

MingYu, C. (2002). Socialising knowledge management: the influence of the opinion leader. *Journal of Knowledge Management Practice*, 3(3).

Mitchell, J. (2003). Effectively structuring communities of practice in VET. Available: http://www.reframingthefuture.net/docs/2003/publications/4CP_COP2002_report.pdf (accessed 12/08/10).

Mitchell, J., McKenna, S. and Young, S. (2005). *Communities of practice: change practice – but not always, nor easily.* Sydney, University of Technology.

Mitleton-Kelly, E. (2003). What are the characteristics of a learning organisation: Complex systems and evolutionary perspectives or organisations. Elsevier. Available: http://www.gemi.org/matrixnavigator/eag/what%20are%20520characteristics%20of%20a%20learning%20organisation.pdf (accessed 13/10/13).

Modell, S. (2009). In defence of triangulation: a critical realist approach to mixed methods research in management accounting. *Management Accounting Research*, 20: 208-221.

Morgan, D.L. (1997). *Focus groups as qualitative research, 2nd Edition*. Qualitative research methods series, Vol. 16. Thousand Oaks, Sage publishers.

Morgan, D.L. (2008) Sampling frame. The SAGE Encyclopedia of Qualitative Research Methods. Available: http://0-srmo.sagepub.com.oasis.unisa.ac.za/view/sage-encyc-qualitative-research-methods/n414.xml (accessed 12/7/14)

Monks, G. (1998). What is an Intranet? Available: http://www.ariadne.ac.uk/issue13/what-is/ (accessed 24/08/10).

Moustakas, C. (1994). *Phenomenological Research Methods*. Thousand Oaks, Calif: Sage Publishers.

Mpofu, N.Z.H. (2011). Department of Defence: Republic of South Africa. *Annual report FY 2010/11*.

Mulford, B. and Silins, H. (2003). Leadership for organisational learning and improved student outcomes – what do we know? *Cambridge Journal of Education*. 33(2): 175-192.

Mulgan, G. (2003). *Government, knowledge and the business of policy-making*. Available: http://www2.dwaf.gov.za/dwaf/download (accessed 18/08/2008).

Myers, D.M. (2007). Qualitative Research in Information Systems. MIS Quarterly, updated version. Available: www.qual.auckland .ac.nz (accessed 29/01/13).

NASA. (2009). KM Policy and Standard Action Group. Available: http:wiki.nasa.gov/federal-knowledge-management-working-group-kmwg/wiki/home/e-community-of-practice-federal-knowledge-management-initiative/b (accessed 13/Aug/13).

Nahapiet, J. and Ghoshal, S. (1999), ‘‘Social capital, intellectual capital and the organizational advantage’’, *Academy of Management Review,* Vol. 23(2): 242-66.

Natarajan, M. (2008). Knowledge sharing through Intranet. *Journal of Library and Information Technology,* 28(5): 5 -12.

Neilson, R.E. (2011). Army knowledge management: A principles based approach. Available: http://www.digitalgovernment.com/media/downloads/asset_upload_file728_2270.pdf (accessed 20/3/2013)

Neuman, W.L. (2000). *Social research methods: Qualitative and quantitative approaches*. Boston: Allyn and Bacon.

Ng, P.T. (2012). Mentoring and coaching educators in the Singapore education system. *International Journal of Mentoring and Coaching in Education*, 1(1): 24-35.

Ngulube, P. (2002). Managing and preserving indigenous knowledge in the knowledge management era: challenges and opportunities for information professionals. *Information Development,* 18(2): 95-102.

Ngulube, P. (2003). *Preservation and access to public records and archives in South Africa*. PhD thesis. Pietermaritzburg: University of Natal..

Ngulube, P. (2005). Research procedures used by Master of Information Studies students at the University of Natal in the Period 1982-2002 with special reference to their sampling techniques and survey response rates: A methodological discourse. *The International Information & Library Review*. 27(2): 127-143.

Ngulube, P. (2005). Improving quality research output in higher education through knowledge sharing and collaboration: a case study. *Mousaion*, 23(1): 39-61.

Ngulube, P. (2012). Knowledge sharing in a multicultural environment: challenges and opportunities. *South African Journal of Library and Information Science,* 78(1): 68-77.

Ngulube, P., Ndwandwe, S.C., and Mokwatlo, K. (2009). The prevalence of mixed methods research in library and information researchin South Africa. *South African Journal of Library and Information Science,* 75(20): 105-116.

Ngulube, P and Mavodza, J. (2011). Exploring the use of knowledge management practices in an academic library in a changing information environment. *South African Journal of Libraries and Information Science,* 77(1): 15-25.

Nifco, N. (2005). A conceptualization of knowledge management practices through knowledge, awareness and meaning. *Electronic Journal of Knowledge Management,* 3(1): 45-52.

Noe, R.A., Greenberger, D.B., and Wang, S. (2002). Mentoring: what we know and where we might go. *Research in Personnel and Human Resources Management,* 21: 129-173.

Nonaka, I. (1991). The knowledge-creating company, *Harvard Business Review*, 69(6): 96-104

Nonaka, I. & Takeuchi, H. (1995). *The knowledge creating company: how Japanese companies create the dynamics of innovation*. New York: Oxford University.

Nonaka, I. and Teece, D.J. (2001). *Managing industrial knowledge: creation, transfer and utilisation*. London: SAGE Publications.

Obeng, E and Crainer, S. (1996). *What's wrong with the organisation anyway?: Making re-engineering happen.* London: Bell & Bain.

O'Dell, C. and Grayson. (1998). *If only we knew what we know.* New York: The Free Press.

O'Keeffe, T. (2002). Organisational Learning: a new perspective. *Journal of European Industrial Training*, 26(2): 130-141.

Okunoye, A. (2003). Towards a framework for sustainable knowledge management in organisations in developing countries. In Brunnstein, K. and Berleur, J (eds). *Human choice and computers: issues of choice and quality of life in the information society*. Canada: Kluwer Academic Publishers.

Oliver, J. (2008). Knowledge management practices to support continuous improvement. *Journal of Knowledge Management Practice* 9(4). Available: http://www.tlainc.com/jkmv3.htm. (accessed 23/03/2009).

O'Leary, D.E. (2013). Technologies for knowledge assimilation. Available: https://msbfile03.usc.edu/digitalmeasures/doleary/intellcont/technologies-assimilation-1.pdf (accessed 11/01/14).

O'Leary, D.E. (1999). *Re-engineeringand knowledge management.* Lecture notes in Computer Science, Springer.

Orb, A., Eisenhauer, L. and Wynaden, D. (2001). Ethics in qualitative research. *Journal of Nursing Scholarship*, 33(1): 93-96.

O'Sullivan, E., Rassel, G.R. and Berner, M. (2008). *Research methods for public administrators.* New York: Pearson.

Pampel, F.C. (2004). Exploratory data analysis. Available: http://0-dx.doi.org.oasis.unisa.ac.za/10.4135/9781412950589.n316 (accessed: 4/5/14).

Parliament Monitoring Group. (2007). Mobility/Exit Mechanism & Employee Initiated Severance Package: Department Briefing. Available: http://www.pmg.org.za/report/20111124-department-process-employment-sa-defence-force-skillsrequired-or-pro (accessed 12/10/13)

Pascale, R. and Gioja, L. (2000). *Surfing the edge of chaos – the laws of nature and the new laws of business.* TEXERE Publishing Ltd.

Payne, G. and Pyne, J. (2004). *Key concepts in social research.* London: Sage

Pedler, M., Burgoyne, J and Boydell, T. (1996). *The learning company. A strategy for sustainable development*. London: Mcgraw-Hill.

Peil, M. (1982). *Social science research methods: an African handbook.* London: Hodder and Stoughton.

Perez-Bustamante, G. (1999). Knowledge management in agile innovative organisations. *Journal of Knowledge Management,* 3(1): 6-17.

Perrin, A. (2011). The practise of knowledge managers in Lafarge, *Journal of Knowledge Management,* 16(2): 204-214.

Perry, C. and Sobh, R. (2006). Research design and data analysis in realism research. *European Journal of marketing,* 40(11): 1194 – 1209.

Petersen, L., Minkkinen, P., and Esbensen, K.H. (2005). Representative sampling for reliable data analysis: theory of sampling. *Chemometrics and Intelligent Laboratory Systems,* 77: 261-277.

Petrescu, M., Popescu, D. M. and Sirbu, N. (2010). Modelling a trusted mechanism for knowledge sharing. *Review of International Comparative Management,* 11(5): 799-805.

Petty, N.J., Thomson, O.P., and Stew, G. (2012). Ready for a paradigm shift? Part 2: introducing qualitative research methodologies and methods. *Manual Therapy,* 17: 378-384.

Pihlanto, P. (1994). The action oriented approach and case study method in management studies. *Scandinavian Journal of Management,* 10(4): 369-382.

Platts, M.J and Yeung, M.B. (2000). Managing learning and tacit knowledge. *Strategic Change,* 9(6): 347 – 356.

Polanyi, M. (1967). *The Tacit Dimension*. New York: Anchor Books.

Polanyi, M. (2002). Personal knowledge: *Towards a Post-Critical Philosophy.* London: Routledge.

Pomerantseva, V. (2012). Coding & designing a clinical database. Applied Clinical Trials. Available: http://www.appliedclinicaltrialsonline.com (accessed 4/3/13).

Pommier JLM. (2007). How the World Bank launched a knowledge management program. available: http://www.knowledgepoint.com.au/knowledge_management/articles/KM_MP001a.html (accessed 12/06/10).

Pope, C. and Mays, N. (1996). Qualitative Research in Health Care. London, BMJ Publishing Group.

Powell, R.R. and Connaway, L.S. (2004). *Basic research methods for librarians*. London: Libraries Unlimited.

Powell, R.R. (1997). *Basic research methods for librarians.* Westport, CT: Ablex Publishing.

Prior, L.F. (2008). Document analysis: *The SAGE Encyclopedia of Qualitative Research*. Tousand Oaks, CA: London: Sage Publishers..

Ramanathan, K. (2012). Operational Learning: The new relevancy for knowledge management in the Singapore armed forces. *Journal of the Singapore Armed Forces*, 38(1): 67-71.

Rao, P.S.R.S. (2000). *Sampling methodologies with applications.* New York: Chapman and Hall/CRC.

Rapley, T. (2008). Doing conversation, discourse and document analysis. Available: http://0-dx.doi.org.oasis.unisa.ac.za/10.4135/9781849208901 (accessed 16/4/14).

Reid, F. (2003). Creating a knowledge sharing culture among diverse business units. *Employment Relations Today*, 30(3): 43-49.

Reimer, D.J. (1999). Army values, *Military Review*, 79(2): 67-71.

Reio, T.G., and Wiswell, A. (2000). Field investigation of the relationship among adult curiosity, workplace learning, and job performance. *Human Resource Development Quarterly* 11: 5-30.

Rekha, K.N. & Ganesh, M.P. (2012). Do mentors learn by mentoring others? *International Journal of Mentoring and Coaching in Education*, 1(3): 205-217.

Roberts, G. (2005). Groupware as a knowledge repository. *Computers in Small Libraries* 23 (4).

Rosenbloom, A. (2004). The blogsphere: *Communications of the ACM* 42, (12): 31-33.

Rossman, G.B and Rallis, S.F. (2003). Learning in the field: An introduction to qualitative research ,2nd ed. Thousand Oaks, CA: Sage.

Rothbauer, P.M. (2008). Triangulation: *The SAGE Encyclopedia of Qualitative Research Methods*. Sage Publishers.

Rowley, J. (2003). Knowledge management – the new librarianship? From custodians of history to gatekeepers to the future. *Library Management*, 24(8): 433-440.

Rowley, J and Gibbs, P. (2008). From learning organisation to practically wise organisation. *The Learning Organisation*, 15(5): 256-372.

SA Army. (2000). Training in the DOD. Available: http://www.army.mil.za. (accessed 14/10/13)

Sanchez, R. (2000). *"Tacit knowledge" versus "Explicit knowledge": Approaches to knowledge management practice*. Available: http://ir.lib.cbs.dk/download/ISBN/x65640929x.pdf (accessed 08/03/2009).

SANDF. (1996). *Defence in a Democracy: White Paper on National Defence for the Republic of South Africa.* Pretoria, 1 Military Printing Regiment.

Sanderson, M. (2001). Records management and the capture of tacit knowledge. *Records Management Journal,* 11(1): 7-17.

SANews. (2013). Training to SA defence agenda. Available: http://www.sanews.gov.za (accessed 14/08/13).

Santamaria, J. and Keslar, E. (2002). Transforming the Army by managing knowledge at PEO C3S. *Army A&L Magazine*, January-February: 14-15.

Scarbrough, H. (1999). *BPR and the knowledge-based view of the firm. In Knowledge and Process Management*. UK: John Wiley & Sons, Ltd.

Schultze, U. and Avital, M. (2010). Designing interviews to generate rich data for information systems research. *Information and Organisation*, 21: 1-16.

Schank, R and Dimitry, L. (2008). *How people manage knowledge*. Available: http://ulysses-systems-km.blogspot.com/2008/01/how-people-manage-knowledge (accessed on 18/03/2009).

Seaberg, J.R. (1988). Utilising sampling procedure. In Grinnell (Ed), *Social work research and evaluation.* Itasca, IL: Peacock.

Senge, P.M. (1990). The Fifth Discipline: The art and practice of the learning organisation, New York, Doubleday.

Senge, P., Kleiner, A., Roberts, C., Ross, R and Smith, B. (1999). *The dance of change: the challenges of sustaining momentum in learning organisations*. New York: Doubleday.

Semmel, C.E.D. (2002). Knowledge management: processes and strategies used in United States research universities. PhD Thesis, Florida Atlantic University. *Dissertation Abstracts International*. (UMI No 3071350).

Shea, G.F. (2002). *Mentoring: how to develop successful mentor behaviours*. USA: Crisp Publications.

Shelley, M.C. (2006). Questionnaires. *Encyclopaedia of Educational Leadership and Administration*, SAGE Publications.

Shiffrin, R.M and Borner, K. (2004). *Mapping knowledge: proceedings of the National Academy of Sciences of the United States of America.*

Sie, L., and Yakhlef, A. (2009). Passion and expertise knowledge transfer. *Journal of Knowledge Management*, 13(4): 175-157.

Singh, A. & Soltani, E. (2010). Knowledge management practices in Indian information technology companies". *Total Quality Management,* 21(2): 145-157.

Skinner, B. (2008). Web alert: resources to support the development of a knowledge management strategy. *Quality in Primary Care,* 16: 295-9.

Skyrme, D. (2007). *KM basics.* Available: http://www.skyrme.com.resource/kmbasics (accessed: 22/03/09).

Smith. E. (2001). The role of tacit and explicit knowledge in the workplace. *Journal of Knowledge Management*, 5(4): 311-321.

Smith, S.F. (2005). Knowledge management strategy. KEMA, Inc. Available: http://www.gisdevelopment.net/proceedings.gita/2005/papers/62.pdf (accessed 07/07/2010).

Smith, P.A.C. (1998). Systematic knowledge management: Managing organisational assets for competitive advantage. *Journal of Systematic Knowledge Management.* Available: http://www.tlainc.com/article8.htm (accessed 18/06/ 2013).

Soy, S.K. (1997). *The case study as a research method.*US: University of Texas.

South Africa.info. (2009). South African population. Available: http://southafrica.info/about/people/population.htm (accessed 23/03/10).

Srinivas, H. (2008). *Knowledge Management.* [Online]. Available: http://www.gdrc.org/kmgmt/index (accessed 09/01/2009).

Stenhammar, C., Bokstrom, P., Edlund, B., and Sarkadi, A. (2011). Using different approaches to conducting postal questionnaire affected response rate and cost-efficiency. *Journal of Clinical Epidemiology,* 64: 1137-1143.

Strauss, A and Corbin, J. (1990). *Basics of qualitative research: grounded theory procedures and techniques.* United Kingdom: SAGE Publications.

Strauss, A. L and Corbin, J. M. (1998). *Basics of qualitative research: techniques and procedures for developing grounded theory.*2nd ed. United Kingdom: SAGE Publications.

Subramaniam, M. and Youndt, M.A. (2005). The influence of intellectual capital on the types of innovative capabilities. *Academy of Management Journal,* 48(3): 450-63.

Sunassee, N.N. and Sewry, D.A. (2002). 'A theoretical framework for knowledge management implementation', ACM International Conference Proceeding Series; Vol 30. Proceedings of the 2002 annual research conference of the South African Institute of Computer Scientists and Information Technologists on enablement through technology. PE, South Africa: 235-245.

Szulanski, G. (1996). Exploring internal stickiness: impediments to the transfer of best practice within the firm. *Strategic Management Journal*, 17(96): 27-43.

Synodinos, N. (2003). The "art" of questionnaire construction: some important considerations for manufacturing studies. *Integrated Manufacturing Systems*, 14(3).

Szulanski, G. (1999). *The process of knowledge transfer: a diachronic analysis of stickiness.* Philadelphia: University of Pennsylvania.

Taylor, D. (2008). *The literature review: a few tips on conducting it*. Available: http://www.utoronto.ca/writing/litrev.html (accessed 20/04/09)

Taylor-Powell, E and Renner, M. (2003). Analyzing Qualitative Data. Available: http://learningstore.uwex.edu/assets/pdfs/g3656-12,pdf (Accessed 10/3/13)

TESOL. (2007). *Qualitative research: Case study guidelines*. Available: http://tesol.org/s_tesol/sec_document.asp?cid=476&did=2153 (accessed 04/09/09)

Tiwana, A. (2002). *The knowledge management toolkit: orchestrating IT, strategy, and knowledge platforms*. Upper Saddle River, NJ: Prentice Hall.

Tongchuay, C. & Praneetpolgram, P. (2008). Knowledge quality and quality metrics in knowledge management systems, Fifth International Conference on eLearning for Knowledge-Based Society, 11-12 December 2008, Bankok.

Trochim, M.K. (2006). Non-probability sampling: Research Methods Knowledge Base. Available: http://www.socialresearchmethods.net/kb/sampnon.php (accessed 5/2/13)

Tsai, W. (2001). Knowledge transfer in intraorganisational networks: effects of network position and absorptive capacity on business unit innovation and performance. *Academy of Management Journal*, 44(5) 996-1004.

Tsui, L. (2006). A handbook on knowledge sharing: Strategies and recommendations for researchers, policymakers, and service providers. Available: http://www.uws.edu.au/_data/assets/pdf_file/0018/405252/knowledge_sharing_handbook.pdf (accessed 13/08/13).

Tuffill, S. (1998). *Knowledge capture: knowledge management community*. Available: http://it.toolbox.com/wiki/index.php/knowledge_capture (accessed 07/01/09).

UN. (2009). DPKO/DFS Policy on knowledge sharing. Available: http://peacekeepingbestpractices.unlb.org/pbps/library/DPKO_DFS_knowledge-sharing_pol.pdf (accessed 14/08/13).

UNESCAP. (2010). Knowledge management initiative at UNESCAP. Available: www.unescap.org/oes/km.asp (accessed 20/06/2010).

United Nations, Department of Peacekeeping Operations. (2009). *Policy: Knowledge Sharing*. [Online] Available: http://pbpu.unlb.org/pbps/Library/DPKO_DFS_Knowledge_sharing_POL.pdf (accessed 26/7/13).

University of South Africa. (2013). Procedures for Master's and Doctoral Degrees. Available: http://www.unisa.ac.za/contents/colleges/col_grad_studies/docs/Procedures%20for%20Masters%20and%20Doctoral%20degrees%20-%20appr%20Senate%20%20-%2023.10.2013.pdf (Accessed 24/07/2014).

University of Victoria. (2011). Primary vs secondary sources. Available: http://library.uvic.ca/instruction/reserach/primvsec.html (accessed 25/10/12).

University of Victoria. (2006). *Knowledge transfer strategies for community based research*. Available: http://www.youth.society.uvic.ca/ktconference/index (accessed 28/08/2008).

University of Huddersfield. (2005). *What is qualitative data analysis* (QDA)? Available: http://onlineqda.hud.ac.uk/intro_QDA/what_is (accessed: 23/02/2009).

US Army. (2008). New army knowledge (KM) management principles. Available: www.army.mil/-news/2008/08/11/11588-new-army-knowledge-km-management-principles/index.html (accessed 21/06/2010).

Van Baren, J. (2013). How to use tally sheets. Available: http://www.ehow.com/how_7822067_use-tally-sheets.html (accessed 11/8/13).

Van den Hoonaard, D.K, and Van den Hoonaard, W.C. (2008). Data analysis. Available: http://0-dx.doi.org.oasis.unisa.ac.za/10.4135/9781412963909 (accessed 30/5/14).

Vestal, W. (2005). *Knowledge mapping: the essential for success*. Texas: APQC Publications.

Voce, A. (2005). *Handout for the qualitative research module*. Available: http://www.familymedicine.ukzn.ac.za/uploads/ed (accessed 17/04/09).

Von Krogh, G., Ichijo, K. & Nonaka, I. (2000). *Enabling knowledge creation, how to unlock the mystery of tacit knowledge and release the power of innovation*. New York: Oxford University Press.

Wagner, R.K., and Stemberg, R.J. (1987). Tacit knowledge in managerial success, *Journal of Business and Psychology*, 1(4): 303-12.

Wagner, C., and Bolloju, N (2005). Supporting knowledge management in organisations with conversational technologies: discussion forums, weblogs, and wikis. *Journal of Database Management*, 16(2): 1-8.

Walter, J.D. (2002). Navy building knowledge management portal. Navy Newsstand, The Source for Navy News. Available: http://www.navy.mil/search (accessed 23/05/2012).

Wamundila, S. (2008). *Developing guidelines for a knowledge management policy to enhance knowledge retention at the University of Zambia*. Masters Thesis, University of South Africa.

Wang, D., Su, Zhongfeng and Yang, D. (2010). Organisational culture and knowledge creation capability. *Journal of Knowledge Management*, 15(3): 363-373.

Ward, S. and Wooler, I. (2010). Keeping knowledge flowing in a downturn: actions for knowledge and information managers. *Business Information Review*, 27(4): 253-262.

Weick, K. (1995). *Sense-making in organisations.* CA: Sage.

Welman. J.C. and Kruger, S.J. (2001). *Research Methodology for the Business and Administrative Science*, 2nd ed. Oxford: Oxford University Press.

Wenger, E., McDermott, R. and Snyder, W. (2002). *Cultivating Communities of Practice: A guide to managing knowledge*. Harvard Business School Press: Boston MA.

Westerman, M.A. (2006). Quantitative research as an interpretive enterprise: The mostly unacknowledged role of interpretation in research efforts and suggestions for explicitly interpretive quantitative investigations. *New Ideas in Psychology*, 24: 189-211.

World Health Oorganisation. (2010). WHO knowledge management strategy. Available: http://www.who.int/kms/about/strategy/en/index (accessed 17/06/10).

Williams, M. (2003). *Making sense of social research*. London: Sage.

van Wijk, R., Jansen, J.J.P. and Lyles, M.A. (2008), Inter- and intra-organisational knowledge transfer: a meta-analytic review and assessment of its antecedents and consequences, *Journal of Management Studies*, 45: 830-853.

Wilkesmann, M. & Wilkesmann, U. (2011). Knowledge transfer as interaction between experts and novices supported by technology. *The Journal of Information and Knowledge Management Systems*, 41(2): 96-112.

Wilkinson, D. (2000). *Researcher's toolkit: the complete guide to practitioner research*. Florence, KY: Routledge.

Wilson, T.D. (2002). The nonsense of 'knowledge management': *Information Research*, 8(10).

Wishart, N.A and Robey, D. (2002). Merging the metaphors for organisational improvement: business process reengineering as a component of organisational learning. *Accounting, Management and Information Technologies*, 5(1): 23-39.

World Bank. (2008). Knowledge for development (K4D). Available: http://web.worldbank.org/WBSITE/EXTERNAL/WBI/WBIPROGRAMS/KFDLP/ (accessed: 22/12/2008).

Wright, K. (2007). Personal Knowledge Management Planning Guide: developing ways to work smarter not harder. Available: http://www.knowledgeresources.ca/Knowldge_Resources/PKM_Planning_files/PKM%20Planning%20Guide.pdf (accessed 20/07/12).

Yin, R. K. (1984). *Case study research: Design and Methods.* Newbury Park, CA: Sage.

Yin, R.K. (1994). *Case study research: design and methods*. Tousand Oaks, CA: Sage.

Yin, R. (1999). Enhancing the quality of case studies in health services research. *BMC Health Services Research,* 34: 1209-1224.

Yin, R.K. (2003). *Case study research: design and methods*. 3rd ed. London: Sage Publications.

Yoo, K., Suh, E and Kim, K. (2007). Knowledge flow-based business process redesign: applying a knowledge map to redesign a business process. *Journal of Knowledge Management,* 11(3): 104 – 125.

Zack, M.H. (2002). Developing a knowledge strategy: *The strategic management of intellectual capital and organisational knowledge.* US: Oxford Press..

Zachary, J.L. (2005). *Creating a mentoring culture: the organisation's guide*. CA: John Wiley & Sons Inc.

APPENDICES

Appendix I: Research objectives, research questions and possible sources of data

Ser No	Research objective	Research question	Possible source of data
1	To investigate supporting structures that will be/ are assigned to help manage knowledge practices at the Department of Defence.	Are there supporting structures at the department that do or will enhance management of knowledge? For example, existence of structure or division responsible for KM, policy used, budget allocated and physical resources organised for KM.	Literature/Interviews/Questionnaires
2	To determine the existence of formal and informal knowledge management practices and awareness of such by employees.	What is being done to build knowledge capacity? What is in place within the organisation to promote good knowledge management practices? How important is it to manage knowledge? What current methods (Channels) and techniques are used for knowledge creation, acquisition, dissemination (transfer), use, storage and audit?	Interviews and questionnaires

3	To investigate the existence and importance of knowledge practitioners.	Does DOD have specialist personnel who deal with management of knowledge? if not what is being done to make sure knowledge is managed, in other words who or what oversees the process?	Interviews and questionnaires
4	To determine the relevance of KM practices to change and learning in the DOD	As a learning organisation what does DOD do in relation to knowledge management, to see that they continuously improve their learning capability?	Literature, interviews/focus group discussions
5	To establish challenges impeding the institution of formal knowledge management practices in the DOD if no formal practices are there.	What factors are there in the DOD that will obstruct the running of knowledge management and its practices?	Interview /questionnaires
6	Understand the perceptions by members of the DOD on the department's ability to manage its knowledge.	What do members of the DOD think of their organisation's ability to manage its knowledge?	Interview/questionnaire
7	To recommend an	What model or KM strategy will	Document review and

	effective knowledge management model or strategy to be adopted or incorporated	best suit the Department	literature

Appendix II: Letter of request to conduct research in Defence Intelligence (RSA)

DI/C/2010/10/00

Telephone: (012) 315 0086
Fax No: (012) 326 1864
Enquiries: Mr M.P Ramohlale

Oct 2011

From: Section Collection Support (DOC)
To: Brigadier General J.M Nyembe (Chief Directorate Collection)

SUBJECT: REQUEST TO CONDUCT STUDY IN DEFENCE INTELLIGENCE AND CORPORATE STAFF DIVISION ON KNOWLEDGE MANAGEMENT PRACTICES

BACKGROUND

1. My name is Paul Ramohlale, PSAP (Public Service and Administration Personnel) member, posted in the (DI) Defence Intelligence, (DOC) Directorate Overt Collection. As senior Information Manager in section Collection Support (DOC) my responsibility entails coordinating and managing data retrieval and dissemination as well as database management.

2. I am currently studying for my Masters degree in Information Science with the University of South Africa. My research topic is **Investigation into Knowledge Management Practices at the Department of Defence in South Africa.**

3. Today knowledge or intellectual assets/capital is highly embraced by many organisations as a tool to improve the quality of productivity in their business. Thus in modern business world Knowledge Management (KM) has fast become a tool for development in anticipation for progressive opportunities in companies and organisations to enhance their competitive performance through the know-how or expertise. Attention is given on how the organisation prepares itself to manage the knowledge that it has.

AIM

4. Following my advancement in this study, I seek permission to continue with my research which entails conducting a survey, through interviews, questionnaires and group discussions with selected DI and Corporate Staff Division HQ personnel and reviewing existing strategy on knowledge management.

5. It is my wish that this study will add value to the objectives that the Department of Defence sets itself in as far as knowledge management is concerned

6. As member of the Defence Intelligence community the researcher takes full cognisance and consideration of the confidentiality of the SANDF information and that such information shall not be shared or published without authorisation by your office. Thus a

SUBJECT: REQUEST TO CONDUCT STUDY IN DEFENCE INTELIGENCE ON KNOWLEDGE MANAGEMENT PRACTICES

final report can or shall be subject to vetting and recommendations made to publication of findings and of the thesis by Defence Intelligence.

Thanking you in advance

RECOMMENDED/ NOT RECOMMENDED

Signed

(J.M. NYEMBE)
DIRECTOR OVERT COLLECTION: MAJ GEN …..OCT 2011

Appendix III: Letter of request to conduct research at the Corporate Staff Division – HQ Unit (DOD)

MEMORANDUM DI/C/2010/10/00

Telephone: (012) 315 0086 Oct 2011
Fax No: (012) 326 1864
Enquiries: Mr M.P Ramohlale

From: Section Collection Support (DI)
To: Lt Gen V.I. Ramlakan (Chief of Corporate Staff)

SUBJECT: REQUEST TO CONDUCT STUDY IN DEFENCE INTELLIGENCE AND CORPORATE STAFF DIVISION ON KNOWLEDGE MANAGEMENT PRACTICES

BACKGROUND

7. My name is Paul Ramohlale, PSAP (Public Service and Administration Personnel) member, posted in the (DI) Defence Intelligence, (DOC) Directorate Overt Collection. As senior Information Manager in section Collection Support (DOC) my responsibility entails coordinating and managing data retrieval and dissemination as well as database management.

8. I am currently studying for Masters Degree in Information Science with the University of South Africa. My research topic is **Investigation into Knowledge Management Practices at the Department of Defence in South Africa.**

9. Today knowledge or intellectual assets/capital is highly embraced by many organisations as a tool to improve the quality of productivity in their business. Thus in modern business world Knowledge Management (KM) has fast become a tool for development in anticipation for progressive opportunities in companies and organisations to enhance their competitive performance through the know-how or expertise. Attention is given on how the organisation prepares itself to manage the knowledge that it has.

10. I have finished chapter three of my thesis and should conclude the research by early 2012.

AIM

11. I have selected Defence Intelligence and Corporate Staff Division as my sample areas to conduct my survey based on their strategic importance within SANDF. Following my advancement in this study, I seek permission to continue with my research which entails conducting a survey, through interviews, questionnaires and group discussions with selected Corporate Staff Division HQ personnel and reviewing existing strategy on knowledge management. Authority to carry this exercise in DI has been approved and project is underway in DI as a sample. (Attached see the authority)

12. It is my wish that this study will add value to the objectives that the Department of Defence sets itself in as far as knowledge management is concerned

13. As member of the Defence Intelligence (SANDF) community the researcher takes full cognisance and consideration in the confidentiality of the SANDF information and that such

information shall not be shared or published without authorisation by your office. Thus a final report can or shall be subject to vetting and recommendations made to publication of findings and of the thesis by Defence Intelligence.

SUBJECT: REQUEST TO CONDUCT STUDY IN DEFENCE INTELIGENCE ON KNOWLEDGE MANAGEMENT PRACTICES

Thanking you in advance

Signed

(M.P RAMOHLALE)
ASS DIRECTOR OVERT COLLECTION:

RECOMMENDED/ NOT RECOMMENDED

Signed

(J.M. NYEMBE)
DEPUTY CHIEF DIRECTOR INTELLIGENCE: MAJ GEN

APPROVED/ NOT APPROVED

Signed

(V.I. RAMLAKAN)
CHIEF OF CORPORATE STAFF: LT GEN ……NOV 2011

Appendix IV: Covering letter of the survey instrument for data collection

Enquiries: M.P Ramohlale
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Dear respondent,

My name is Molatelo Paul Ramohlale, Senior Information Manager: Ass Dir, in Directorate Overt Collection (Defence Intelligence SANDF). I am currently studying for Masters in Information Science with University of South Africa. My research topic is: Investigation of Knowledge Management Practices in Department of Defence (DOD). Authority to execute this survey in the DoD has been obtained from DI Management.

I need your assistance to conduct my research project. The main aim of this project is to investigate knowledge management practices that exist in the Department of Defence. The objective of the survey is to gather your views about existing knowledge management practices and its importance to the organisational strategy. This exercise seeks also to record the level of awareness, success stories and challenges that hinders proper knowledge creation, sharing and management as well as KM relevance to the Defence Department (SANDF).

Participation in this survey is voluntary and all replies will remain confidential to safe-guard integrity of all individual respondents. Recorded data will be aggregated when reporting findings. Researcher notes that you are busy and thus the survey may consume some part of your time, however the results and recommendations of this study will and should benefit the organisation and yourself in return. The research objectives for my study are as follows:

i. To investigate supporting structures that will be/ are assigned to help manage knowledge practices at the Department of Defence.

ii. To investigate the existence and importance of knowledge practitioners.

iii. To determine the level of awareness among DOD personnel of formal and informal knowledge management practices and their existence in the department.

iv. To determine the relevance of KM practices to change and learning in the DOD.

v. To analyse theoretical models or strategies of knowledge management practices

vi. To find out what challenges there are to instituting formal knowledge management practices in the DOD if no formal practices are there.

vii. To recommend an effective knowledge management model or strategy to be adopted or incorporated.

Your selection to participate in this research was purely based on stratified random sampling. I therefore look forward to your support in this noble exercise.

Appendix V: Survey questionnaire

Instructions

1. Write in the provided spaces where appropriate, if space is not enough, please make use of a separate piece of paper.

2. Please indicate your response by ticking (X) in appropriate boxes as provided

SECTION A: Personal details

a. Rank……

b. Post……..

c. Ethnic group……..

d. Worked for SANDF since…….

e. Age range

I. 20-25 years old [ ]

II. 25-35 years old [ ]

III. 35-45 years old [ ]

IV. 45-55 years old [ ]

V. 55 years old and above [ ]

f. Education level…….

SECTION B: Organisational Knowledge commodity

Knowledge is information combined with experience, context, interpretation and reflection. It is a high-value form of information that is ready to be used for decisions and actions (Davenport 1998). Given the importance of such an asset, it is not surprising that organisations everywhere are paying attention to knowledge, exploring what it is and how to create, transfer, and use it more effectively. Furthermore there are two distinct types of knowledge, Tacit and explicit knowledge. Tacit is unwritten, unspoken and hidden knowledge held in living memory (i.e. Human beings) based on emotions, experience and insights, not easy to read.

Explicit knowledge is knowledge that already is transmitted through books, computers, and many other forms of media. Some may call it information.

1. *Organisational Knowledge Management Structure and knowledge commodity*

a. How often is knowledge management as a practice given attention or spoken about in your section?

Most of the time [ ] Sometimes [ ] Never [ ]

b. Are you familiar with the concept knowledge management?

No [ ] Yes I heard about it [ ] I practice it every day [ ]

c. What activities or practices performed in your section you think will help manage knowledge efficiently and please specify.

HR Practices	
Courses	
Library	
Information Technology	
Communities of Practice	
Other	

d. Every employee is an investment to the organisation and thus the knowledge and skills they possess is a direct influence of the organisation. ***(Tick in appropriate box)***

Strongly agree	
Agree	
No opinion	
Disagree	
Strongly disagree	

e. Do you apply specialised knowledge in undertaking your responsibilities and other work related matters?

Yes [ ] Sometimes [ ] Never [ ]

f. Can managing knowledge be a priority and policy?

No [ ] Yes indeed [ ] Not sure [ ]

g. How best can your knowledge be managed?

Structured [ ] Individually [ ] When necessary [ ] No need [ ]

h. Do you know of particular knowledge experts with great expertise in this organisation?

No [ ] There is lot of them [ ] Just a few [ ]

i. Can the organisation function as normal without their expertise or after their departure?

Yes no problem	
Only if they are replaced	
Never, their skills are vital	

j. As you gain knowledge, do you record it?

Always [ ] Sometimes [ ] Never [ ]

k. Do you consider yourself skilled and knowledgeable in your field?

No not yet [ ] Yes of course [ ] Not sure [ ]

l. Do you have specified professionals who manage your knowledge, if yes please specify

Yes [ ] No [ ] Not sure [ ]

m. Which of the following do you think knowledge can be managed by:

Dedicated team	
Ad-hoc task team	
Self-driven	
None at all	

2. *Knowledge Audit*

Knowledge audit is a systematic examination and evaluation of organisational knowledge health, which examines organisation's knowledge needs, existing knowledge assets/resources, knowledge flows, future knowledge needs, knowledge gap analysis as well as the behavior of people in sharing and creating knowledge (Chowdhury 2006).

a. Knowledge audit is exercised in your division.

Strongly agree Agree Don't know Disagree Strongly disagree

[ ] [ ] [ ] [ ] [ ]

b. It is important to examine and investigate the level of knowledge the organisation has?

Strongly agree Agree Don't know Disagree Strongly disagree

[ ] [ ] [ ] [ ] [ ]

c. If you disagree to question "b", what disadvantages are there which you think can be associated with Knowledge Auditing

---

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3. *Organisational learning*

a. Is it important to continue to learn and acquire new knowledge as an organisation?

Strongly Agree	Agree	Don't know	Disagree	Disagree
[ ]	[ ]	[ ]	[ ]	[ ]

b. Can you still do more in furthering your knowledge to help the organisation function better?

Definitely [ ] Maybe [ ] Not so important [ ]

c. My organisation encourages that we learn new practices and systems to improve our knowledge.

Most of the time [ ] Sometimes [ ] Never [ ]

d. What form of learning projects are you attending?

i. Outsourced Courses [ ]

ii. Conferences [ ]

iii. Workgroup/group discussions [ ]

iv. Military courses [ ]

v. Academic degree and diploma [ ]

e. When attending learning projects, who facilitates the sessions

i. SANDF [ ]

ii Private companies [ ]

iii. Academic institutions [ ]

iv. All of the above (Mixed) [ ]

f. Lessons learned are captured and used in real working situation.

Always [ ] Sometimes [ ] Never [ ]

g. How satisfactory is the knowledge imparted by the trainers

Good [ ] Fair [ ] Bad [ ]

4. *Knowledge creation*

By knowledge creation knowledge creation we mean the capability of a company as a whole to create new knowledge, disseminate it throughout the organisation, and embody it in products, services, and systems. The process starts when team members meet to share their knowledge of a given product area, much of which is tacit and can include insights into customer needs, information about new technologies, and personal skills required to perform complex tasks (Nonaka 1995).

a. Do you have a process or system where new knowledge is created significantly for future use and for the benefit of the organisation?

Yes [ ] No [ ] Not sure [ ]

b. Is there formal follow-up mechanisms to keep the created knowledge intact and developed?

Yes [ ] No [ ] Not sure [ ]

c. If your answer was "Yes" please mention the methods/mechanisms currently employed

……

……

d. If there is any challenges regarding creation of knowledge in your section what can those challenges be?

i. Lack of skills to create new knowledge [ ]

ii. Just not sure where to start [ ]

iii. Lack of knowledge management team [ ]

iv. Everyone does things for themselves [ ]

v. Lack of time, there is more important things to do [ ]

vi. Other……

5. *Knowledge sharing*

Knowledge sharing is central to the success of all knowledge management strategies. Effective knowledge sharing practices enable reuse and regeneration of knowledge at individual and organisational level.

a. Knowledge sharing culture/phenomenon

i. Do you think the environment is conducive to sharing of information and knowledge?

Yes [ ] Not sure [ ] Not at all [ ]

ii. Are there policies that you know of that prevents or discourage you from sharing knowledge with your colleagues?

Yes [ ] No [ ]

iii. If you answered the above as "Yes" please share those policies

……

……

iv. Which of the following have you used as a tool for sharing the practices methods/ know-how.

a. Standard Working Procedure [ ]

b. Practice manual [ ]

c. Norms and Values Doctrine [ ]

d. Collaboration standards [ ]

e. None [ ]

v. What is your opinion on possible adoption of a knowledge sharing policy by your organisation?

a. Already there is a policy [ ]

b. It will be a good move [ ]

c. Will be a waste of time and resources [ ]

vi If you answered with "a", please mention the policy and if possible its origin.

…….

…….

vii. Is Mobility/Exit Mechanism (MEM) sufficient enough to encourage members who exit the organisation to leave their valuable organisational knowledge and expertise?

Yes [ ] No [ ] Not sure [ ]

viii. According to you, what are the reasons for knowledge-sharing to be difficult in your section

……

……

PEOPLE–BASED KNOWLEDGE-SHARING AND DISSEMINATION MECHANISMS

6. Communities of Practice

A Community of Practice (CoP) is a group of people who have worked with each other for a period of time with a common sense of purpose and a real need to know what each other knows (Mitchell 2003)

a. Are there informal forums (For example during work-sessions, in corridors, or even during tea breaks) within the organisation where individuals share ideas and insights?

Yes [ ] No [ ]

b. If "yes", how would you describe them?

Topics are discussed by a group of organisational members who are simply friends	
Topics are discussed with organisational members (not necessarily friends) that spontaneously come up for tea breaks/social gatherings.	
Topics are discussed by chance when members meet in the corridor	

Other, please specify	

c. Are there self-organised groups or formal forums (for example, sharing meetings) within your directorate where officials share ideas and insights?

Yes [ ] No [ ]

d. Meetings are usually about giving feedback report and planning, are your forums about sharing ideas and know-how?

Yes [ ] No [ ] Not sure [ ]

e. What tools are used to effect CoPs at your office?

i. Boardrooms [ ]

ii. Teleconferencing [ ]

ii. E-mail [ ]

iv. Memorandums [ ]

v. To be honest, none [ ]

f. Can these forums be used to yield substantial knowledge to be used in the future?

Yes [ ] No [ ] Perhaps [ ]

g. Is it correct that a lot of information is kept tacitly with members and thus making them selfish with information or knowledge?

Always the case [ ] Not sure [ ] Not true [ ]

h. It is not easy to communicate the knowledge I have with colleagues because:

My colleagues are lazy to acquire their own knowledge	
I do not have the time to share	

There is no structures of knowledge-sharing	
It is against organisational policy	
My colleagues will not understand anyway	

i. Collaboration amongst or with other Departmental divisions is always encouraged and exercised to share knowledge in serving the overall mandate of DoD.

Yes indeed [ ] Hardly possible [ ] Never [ ]

7. Mentoring

Mentoring is a powerful personal development and empowerment tool. It is an effective way of helping people progress in their careers. A mentor is a guide who can help the mentee to find the right direction and who can help them to develop solutions to career issues. Mentoring is a fundamental form of human development where one person (Usually senior, advisor, wise, teacher), invests time, energy, and personal know-how assisting the growth and ability of another person (Shea 2002)

a. Do you believe mentoring can help you be knowledgeable and develop to function better?

Yes [ ] Waste of time [ ] Not sure [ ]

b. How often does your mentor/supervisor intervene in developing your career?

Satisfactorily [ ] Once in a while [ ] Poorly [ ]

c. How often do you mentor someone in the working environment?

Always	
Often	
Seldom	
Never	

d. Is there a practice where knowledge experts groom new or promising prospects in your organisation?

Yes	
Sometimes	
No strategy	
Never	

8. Conferences and seminars/ Knowledge fares/ Deployments

A conference is an event at which new and current research is reported and discussed in an atmosphere that encourages spontaneous generation of ideas and communication.

a. How often do you attend conferences:

i. Often enough [ ]

ii. Not so much [ ]

ii Never [ ]

b. Is there a system that consolidates the lessons learned for those who could not manage to attend conferences or deployment?

Yes [ ] No [ ] There is no need [ ]

TECHNOLOGY – BASED KNOWLEDGE-SHARING MECHANISMS

There are technologies and computer based software that enables knowledge-sharing and dissemination. In this section you are required to identify the technology based mechanisms that you use to share and disseminate knowledge in DI/Corporate Staff Division DOD HQ Division.

a. Using the table below please indicate mechanisms that you are using to share knowledge/information. Tick on those that you use more often.

Mechanism	In use	Not in use
Internet/email		
Groupware/Lotus		
Weblogs		

Wireless Technology		
Intranet		

b. How effective is the method you use to communicate your messages/knowledge

Good [ ] Fair [ ] Bad [ ]

c. If your answer was “Fair” or “Bad”, what can be done to improve the technology method of communication?

……

……

……

d. If you use the Intranet what do you use it for: Please tick on the applicable function.

To access latest DOD media bulletin	
Access manuals and doctrines	
Communication from Top Management	
Access common interest, i.e. deployments, transportation, etc	
Events calendar	
Something else	
Nothing that I know of	

e. If you answered “Something else” please elaborate

……

……

f. How would you rate your division's ability to manage its knowledge

Bad [ ] Fair [ ] Good [ ] Excellent [ ]

Thank you for your participation, your help is highly appreciated. Please return your responses to Mr M.P Ramohlale at Defence Intelligence, Liberty Life Building office No. 836 X0086. Alternatively return them to the designated representative in your section.

Best wishes.

Paul Molatelo Ramohlale

Appendix VI: Interview guide for collection of data on knowledge management practices in the Department of Defence with reference to Defence Intelligence and Corporate Staff Division – DOD HQ Unit

Introduction

Good day Generals, Colonels, Officers, ladies and gentlemen. My name is Paul Molatelo Ramohlale. I am carrying out a research for my Masters dissertation at the University of South Africa under supervision of Prof. P. Ngulube. My topic is **Investigation of Knowledge Management Practices in the Department of Defence.** You have been selected to take part in this research through purposive sampling. The objective of the interview is to gather your views about existing knowledge management practices and its importance to the organisational strategy.

Kindly note that your views in this interview session shall not, in any way or form be used for any other purpose than academic research and thesis. You are therefore assured that your views as part of the content of the interview session shall not be used in manner that might cause harm, discriminate, victimise, or damage your character and reputation as an individual and professional. The information provided shall not attach any names and shall be treated with high level of confidentiality. Your participation is voluntary and you are free to withdraw from the process at any point during the interview process.

The aim of this research is to investigate knowledge management practices in the DOD, department you are part of as employees. Please be free to ask any questions for clarity where you feel uncertain during participation.

Thank you.

Topic:

AN INVESTIGATION INTO KNOWLEDGE MANAGEMENT PRACTICES AT THE DEPARTMENT OF DEFENCE IN SOUTH AFRICA

Date of interview…….

Place of interview……

Rank of interviewee…….

Race of interviewee…….

Academic qualification……

Aim of the research

To investigate KM practices in the DOD and its KM strategy. If there is any, to identify and document them and compare them in accordance to known and standardised KM practices in the literature and possibly make recommendations where possible.

Research objectives

i. To investigate supporting structures that will be/ are assigned to help manage knowledge practices at the Department of Defence.

ix. To investigate the existence and importance of knowledge practitioners.

x. To determine the level of awareness among DOD personnel of formal and informal knowledge management practices and their existence in the department.

xi. To determine the relevance of KM practices to change and learning in the DOD.

xii. To analyse theoretical models or strategies of knowledge management practices

xiii. To find out what challenges there are to instituting formal knowledge management practices in the DOD if no formal practices are there.

xiv. To recommend an effective knowledge management model or strategy to be adopted or incorporated.

1. Knowledge Management Concept in DOD

Advantages of using KM practices include the fact that they help organisations to refocus on using their already existing knowledge, they create the environment for innovation rather than limiting themselves to best practices solutions only, they enable convergence towards knowledge portals rather than separate silos of knowledge in an organisation, and they promote interconnectedness among departments, employees, and systems in an organisation. There is no doubt that knowledge management practices take centre stage in the knowledge economy due to loss of knowledge capital that is essential in achieving organisational objectives.

1.1.1 Are you familiar with the concept knowledge management?

1.1.2 Do you believe you have knowledge management practices in your organisation?

1.1.3 How is knowledge institutionalised in your organisation?

1.1.4 Please mention some of your best knowledge management practices.

2. Knowledge assessment

2.1 Do you believe you know what your colleagues' know?

2.2 Does management have a way of auditing knowledge available?

2.3 How important is it for you that your organisation examines the knowledge it has in the staff employed in the Department?

3. Knowledge Creation Capability

Organisational knowledge creation is the key to the distinctive ways companies innovate. They are especially good at bringing about innovation continuously, incrementally, and spirally. Recognizing the value of tacit knowledge and figuring out how to use it is the key challenge in a knowledge-creating company, one that requires extended conversations and good personal relationships-that is, knowledge enabling.

3.1 Is there a process in your sections with which knowledge is created for the benefit of the organisation?

3.2 Are there follow-up mechanisms to keep created knowledge developed and intact if yes please mention those mechanisms.

3.3 What challenges are there making creation of knowledge difficult in your organisation?

4. Knowledge Sharing

Knowledge sharing is central to the success of all knowledge management strategies. Effective knowledge sharing practices enable reuse and regeneration of knowledge at individual and organisational level. By sharing people of one or more organisation or community share and exchange understandings, norms, values, attitudes, beliefs, ideas and expertise (best practices).

4.1 How do you ensure the flow of knowledge amongst staff members in your sections?

4.2 What policies are there responsible for sharing/non-sharing of knowledge in the Department?

4.3 What would motivate you to share you knowledge if necessary?

4.4 What challenges do you have that make knowledge not to be shared effectively?

5. Knowledge Storage

An organisation's capability to learn will be dependent on its ability to record organisational experience and, when needed, to retrieve this information. Some organisations have an archival system for this knowledge management practice (Oliver, 2008). Knowledge held by employees can be captured in formal reports, which suggests that for many organisations the organisation's memory is held by its employees and will be lost to the organisation if the employee departs.

5.1 What systems do you have in place to store knowledge you have tapped into?

5.2 Ho relevant is the knowledge stored to the objectives of the organisation?

6. Skill Development and Retention

The loss of critical knowledge hits organisations twice: by the growing number of managers and executives retiring and exiting from the workforce, and by the shrinking pool of qualified younger workers.

6.1 What is your feeling on Mobility Exit Mechanism as far as knowledge retention is concerned?

6.2 Is profiling of skills done in your section and recorded for future reference and use?

6.3 Is there standardised method where retiring, dismissed, and resigning members leave behind the 'know-how'

7. Knowledge Management Strategy

Business organisations are coming to view knowledge as their most valuable and strategic resource. Many executives are struggling to articulate the relationship between their organisation's competitive strategy and its intellectual resources and capabilities

7.1 Is there organisational strategy talking to knowledge management?

7.2 How are you assisted in making sure you access knowledge and you share it?

8. Knowledge Management Practitioner

It is critical that when we talk about knowledge management and its practices we also look into the driving factors behind these practices and who can make or break successful knowledge practices.

8.1 Do you have professionals dedicated to seeing enhancement and management of knowledge, if yes specify.

8.2 Are your knowledge specialists good at maintaining and managing your knowledge?

9. Use of Information Technology for KM Practices

Knowledge management practices have close relations with information technology, example is Intranet.

9.1 With your current technology are you able to transfer, receive and store knowledge?

9.2 What needs to be done to improve knowledge management practices as far as technology is concerned?