**COMMUNITIES OF PRACTICE: AN ESSENTIAL ELEMENT IN THE
KNOWLEDGE MANAGEMENT PRACTICES OF AN ACADEMIC LIBRARY AS
LEARNING ORGANISATION**

by

BAREND JOHANNES VAN WYK

submitted in fulfilment of the requirements for the degree of

MASTER IN INFORMATION SCIENCE

in the

FACULTY OF ENGINEERING, BUILT ENVIRONMENT AND
INFORMATION TECHNOLOGY
UNIVERSITY OF PRETORIA
PRETORIA

June 2005

"**We are drowning in information but starved for knowledge**"

**- John Nasbitt**

## ACKNOWLEDGEMENTS

**SUMMARY**


**COMMUNITIES OF PRACTICE: AN ESSENTIAL ELEMENT IN THE**

**KNOWLEDGE MANAGEMENT PRACTICES OF AN ACADEMIC LIBRARY AS**

**LEARNING ORGANISATION**


By: Barend Johannes van Wyk

Study leader: Prof. M.M.M. Snyman

Department of Information Science

Master in Information Science


Communities of Practice have been utilized with great success by organisations in the business and manufacturing sectors to help in the management of their knowledge. Not much research have been done on their application in learning organisations such as academic libraries, however. The aim of this study was therefore to determine how knowledge can be managed through Communities of Practice in a learning organisation such as an academic library.

The investigation was build around the concepts knowledge management, learning organisations and Communities of Practice and the interrelationship between these concepts. The role Communities of Practice play in the management of knowledge in a learning organisation is investigated as well as the development stages in the implementation of Communities of Practice to support knowledge management. This is followed by an investigation of the factors critical to the success of Communities of Practice in a learning organisation.

The investigation consisted of a literature study to help define the key concepts and to lay a framework for the research design, and is followed by an empirical study where interviews were held with some of the staff members of the Academic Information Service (AIS) of the University of Pretoria, South Africa.

In conclusion it was found that the AIS was considered a learning organisation and that the AIS was in the beginning stages of knowledge management. A number of Communities of Practice in the AIS were identified that existed internally and externally, and the small number of internal Communities of Practice in the AIS were linked to

specific inhibiting factors. The study also showed that Communities of Practice can be found in learning organisations, and that learning organisations are characterised by knowledge management. Knowledge managed through Communities of Practice was also shown to help in the development of learning organisations. Communities of Practice in the AIS were shown to be in the beginning stages of development. The role of management, incentives and rewards for participation, information technology/tools, attention to newcomers, knowledge capturing/sharing techniques, trust and a proper knowledge management framework were shown to be essential for the success of Communities of Practice in the AIS.

**Key terms**

Academic library, Academic Information Service, Communities of Practice, knowledge management, learning organisation, tacit knowledge, explicit knowledge, cultural knowledge, organisational knowledge.

**OPSOMMING**

"Communities of Practice" is met groot welslae deur organisasies in die besigheids- en vervaardigingsektore gebruik om te help met die bestuur van hulle kennis. Daar is egter nog nie veel navorsing gedoen oor die toepassing daarvan in lerende organisasies soos akademiese biblioteke nie. Die doel van hierdie studie was dus om te bepaal hoe kennis bestuur kan word met behulp van "Communities of Practice" in 'n lerende organisasie soos 'n akademiese biblioteek. Die ondersoek het gewentel rondom die konsepte kennisbestuur, lerende organisasies en "Communities of Practice", asook die inter-verwantskap tussen hierdie konsepte. Die rol wat "Communities of Practice" speel in die bestuur van kennis in 'n lerende organisasie is ondersoek, sowel as die ontwikkelingsfases in die implementering van "Communities of Practice" ter ondersteuning van kennisbestuur. Dit is opgevolg deur 'n ondersoek na die faktore wat krities is vir die sukses van "Communities of Practice" in 'n lerende organisasie.

Die ondersoek het bestaan uit literatuurstudie om die sleutelkonsepte te help definieer en om 'n raamwerk daar te stel vir die navorsing, wat weer opgevolg is deur 'n empiriese studie waar onderhoude met enkele personeellede van die Akademiese Inligtingsdiens (AI) van die Universiteit van Pretoria, Suid-Afrika gevoer is.

In die slotsom tot hierdie studie is bevind dat die AI beskou word as 'n lerende organisasie en dat die AI hom in die beginfases van kennisbestuur bevind. 'n Aantal "Communities of Practice" in die AI wat intern en ekstern bestaan is geïdentifiseer, en die klein getal interne "Communities of Practice" in die AI is toegeskryf aan sekere remmende faktore soos afwesige bestuur, probleme met inligtingstegnologie ensomeer. Die studie het ook gewys dat "Communities of Practice" gevind kan word in lerende organisasies, en dat lerende organisasies gekenmerk word deur kennisbestuur. Die studie het verder getoon dat kennis wat met behulp van "Communities of Practice" bestuur word kan lei tot die ontwikkeling van lerende organisasies. Daar is ook bevind dat die "Communities of Practice" in die AI in die beginstadiums van ontwikkeling is. Die rol van bestuur, insentiewe en belonings vir deelname, inligtingstegnologie/-gereedskap, aandag aan nuwelinge, kennisvaslegging/-delingtegnieke, vertroue en 'n behoorlike kennisbestuursraamwerk is uitgewys as essensieel vir die sukses van "Communities of Practice" in die AI.

**Steutelterme**

Akademiese biblioteek, Akademiese Inligtingsdiens, Communities of Practice, kennisbestuur, lerende organisasie, versweë kennis, eksplisiete kennis, kulturele kennis, organisatoriese kennis.

**TABLE OF CONTENTS**

**CHAPTER 5:     CASE STUDY: COMMUNITIES OF PRACTICE AS A TECHNIQUE FOR THE MANAGEMENT OF KNOWLEDGE IN THE ACADEMIC INFORMATION SERVICE OF THE UNIVERSITY OF PRETORIA**

**LIST OF FIGURES**

**LIST OF TABLES**

**CHAPTER 1**

**INTRODUCTION**

**1.1    CONTEXT OF THE RESEARCH PROBLEM**

The global economy of the modern world, also called the New Economy, is characterised by globalisation, growing customer demands, greater competition and continual advances in technology. This has forced organisations to rethink the way(s) in which they operate and do business. Knowledge has become one of the most important assets that can enable organisations to be among the top players. Knowledge in organisations can be explicit and recorded, or can be tacit (i.e. in people's minds). In the past, organisations were good at creating, disseminating, organising, recording and retrieving explicit knowledge (also called information). Organisations have however found that it is the tacit knowledge (expertise, know-how, skills, etc.) of their staff and clients that give them the edge above their competitors. Tacit knowledge, though, is situated in people's heads and when people leave the organisation, the knowledge leaves with them. Some tacit knowledge can be recorded (made explicit), but a big part of it can never be recorded, documented or captured. This has created a very real need. How can tacit knowledge, which is very valuable to organizations, be disseminated and embedded in the organisation for future use? The answer lies in the utilization of Communities of Practice.

A literature review revealed that a vast array of Internet articles and journal articles on the topic were published, but books specifically focusing on the topic were found to be few. The reason for this could be that the term Communities of Practice was only used for the first time at the end of the 1990's. The review also showed that Communities of Practice have been utilized with great success by organisations in the business and manufacturing sectors. It was also found that research have mostly focused on the functioning and utilization of Communities of Practice in these sectors. A search on the Nexus database of the National Research Foundation of South Africa however showed that little research had been done on the application of Communities of Practice in learning organisations such as libraries, especially in South Africa. Academic libraries, in much the same manner as business and manufacturing organisations, are confronted

with the ever-increasing problem of capturing and embedding the tacit knowledge of not only their own staff, but also of clients, in this case academics, researchers and students, at their respective universities. This presented an opportunity for research. During the literature survey it was also found that much were written on knowledge management in academic libraries, as well as on academic libraries as learning organisations. The researcher realised that these concepts are interrelated to the concept of Communities of Practice, and decided to include them in the research.

The aim of this study was thus to determine how knowledge can be managed through Communities of Practice in a learning organisation such as an academic library. The Academic Information Service at the University of Pretoria, South Africa was chosen as a case study because the researcher worked for the organisation and was aware of Communities of Practice initiatives in the organisation. With this in mind, the researcher then formulated a problem statement, which will be discussed in the next section.

## 1.2    PROBLEM STATEMENT

The central research problem centred on the question of how knowledge can be managed through Communities of Practice in a learning organisation such as an academic library.

To address the central research problem, the following questions were formulated:

- What is meant with the concepts knowledge management, learning organisation and Communities of Practice?
- What interrelationship exists between the knowledge management, learning organisation and Communities of Practice concepts?
- What role does Communities of Practice play in the management of knowledge in a learning organisation?
- What are the development stages in the implementation of Communities of Practice to support knowledge management?
- What are the critical factors for the success of Communities of Practice in the management of knowledge in a learning organisation?

In addressing the research problem, a shortcoming in the literature on knowledge management was looked into, namely the role that Communities of Practice play in a learning organisation, and specifically in an academic library.

## 1.3    DEMARCATION OF THE STUDY

Though other methods can be used to manage knowledge in organisations, the focus of this study was on Communities of Practice as a method to manage knowledge. Furthermore, while Communities of Practice can be found in organisations across all sectors of society, this study concentrated on the management of knowledge through Communities of Practice in a specific academic library operating as a learning organisation. It was felt that lessons learned from this study could assist other academic libraries in the management of their tacit knowledge. The Academic Information Service of the University of Pretoria, South Africa, was chosen as a case study, and respondents from different sections of the organisation, who are involved in such Communities, were chosen as part of the empirical study.

## 1.4    RESEARCH METHOD

A qualitative research approach was followed when conducting this study. Qualitative research is described by Babbie et al. (2001: 270) as the research approach in social research that takes as its departure point the insider perspective on social action. In other words, human action is studied from the perspectives of the social actors themselves. The primary aim of studies using this approach is to describe and to understand, rather than to explain human behaviour (Babbie et al. 2001: 270). Qualitative studies use qualitative methods (e.g. snowball sampling, theoretical selection of cases, purposive sampling, etc.) to get access to research subjects. Qualitative data-collection methods can include participation, observation, semi-structured interviewing, etc.  (Babbie et al. 2001: 270)

The research design used in this study includes both empirical and non-empirical study. Empirical research according to Mouton (2001: 51-52) focuses on real-life objects, for example physical objects (matter), cultural objects (art and literature), technology, human beings (individuals or groups), human actions and historical events, biological organisms and processes, social interventions (programmes or systems), social

organisations and institutions, and collectives (e.g. countries, nations or cities). Non-empirical research is described by Mouton (2001: 52) as research dealing with conceptual problems, for example scientific concepts or notions, scientific methods and techniques, the body of scientific knowledge or literature, scientific theories and models, schools of thought, scientific data, worldview and philosophies. The non-empirical part of this study thus consisted of a literature study of the concept and the empirical part of this study focused on a case study. A case study was used because case studies are rich in contextual knowledge, take various perspectives into consideration, and attempt to understand the effects of multilevel social systems on subjects' perspectives and behaviours (Babbie et al. 2001: 281).

## 1.4.1  LITERATURE STUDY

As a first step in the investigation of the management of knowledge through Communities of Practice in a learning organisation, a non-empirical literature study of the subject field was conducted. This was felt to be essential in order to help define the key concepts and laying a framework for the research design. Literature studies according to Mouton (2001: 87) are used to determine what has been done in the field of study through a review of the existing scholarship or available body of knowledge, so that one can get a clear picture of how other researchers have investigated the research problem you are interested in. A literature study can "*ensure that one does not duplicate a previous study*"; it can help *"to discover what the most recent and authoritative theorising about the subject is"*; it can assist one *"to find out what the most widely accepted empirical findings in the field of study are"*; it can assist in the identification of *"available instrumentation that has proven validity and reliability"*; and help *"to ascertain what the most widely accepted definitions"*, theories, models and hypotheses on *"the key concepts in the field are"* (Mouton 2001: 87). In this study, business-related literature on the topic was used as a basis for application in the academic environment. Results of this literature study can be found in Chapters 2 to 4 and are not discussed in this introductory chapter. The results of the literature study were then verified by the findings of the interviews (See Chapters 5-6).

**1.4.2  CASE STUDY**

As stated in the section on the context to the problem statement, the Academic Information Service of the University of Pretoria, South Africa was used as a case study for the empirical research. Five individuals in the organisation who were involved in Communities of Practice were identified through a qualitative method of purposive sampling. Purposive sampling is described by Babbie et al. (2001: 166) as the method whereby you "*select your sample on the basis of your own knowledge of the population, its elements, and the nature of your research aims*".

In choosing the right qualitative data-collection method, the researcher had to consider the various data-collection methods that can be used in a case study. These included basic individual interviews, in-depth individual interviews, semi-structured interviews, focus group interviews, observation, etc. (Babbie et al. 2001: 289-293). The researcher then decided upon semi-structured interviews, because these interviews with their "*face-to-face interaction between the interviewer and an interviewee*" provided an "*understanding of experiences*" or situations as described "*by the interviewee in his or her own words*" (Schurink 1998: 20)*.* Using qualitative research interviews was thus an attempt to understand the subject from the respondents' point of view, and an attempt "*to unfold and uncover their lived world prior to scientific explanations*" (Kvale 1996: 1). According to Qualitative research for social workers: phases, steps, and tasks (1996: 65) "*semi-structured interviews can sometimes be called guided interviews*". These types of interviews, because of their flexibility, allowed the researcher to explain questions and elaborate on them. It also allowed the researcher to explore unplanned topics that came up during the interview, and made it possible for the researcher to understand the respondents' viewpoints and reasons behind it. This would not have been possible if questionnaires were used. Data collected from respondents included feelings, thoughts, opinions and experiences in the AIS, University of Pretoria (UP) concerning Communities of Practice as knowledge management instruments in the AIS.

The semi-structured interviews conducted in the AIS contained predetermined questions. All respondents were asked the same questions, which were helpful when comparisons were drawn with other respondents. After the interviews, the answers received from individuals were sent back to the respondents via e-mail to verify that the

researcher understood and interpreted the answers correctly. Changes suggested by the respondents were then implemented.

In order to further validate the findings received during the individual semi-structured interviews, a focus group interview were held where the individuals that were involved in the individual interviews were brought together in a group situation. The questions and findings from the individual interviews were then discussed and verified with the focus group. Suggestions from this interview were then implemented in the results. The advantage of using focus groups is that they "*provide an opportunity to observe a large amount of interaction on a topic in a limited period of time*" (Babbie et al. 2001:  292). Discussions in "*these groups also provide direct evidence about similarities and differences in the participants' opinions and experiences*" (Babbie et al. 2001: 292).

The methods of analysis used to analyse the results gained through the semi-structured and focus group interviews included the following:

- Pattern-matching, where patterns emerging from the data collected from the case study are matched with patterns found in the results from the literature study; and
- Explanation building, where "*the idea is to generate explanations about the case*" (Yin 1994 as cited by Babbie et al. 2001: 283).

These methods of analysis means that findings are tested for their fit with previous research and theory on the subject. Linkages between findings and previous knowledge help to demonstrate the generalisability of the findings, called *analytic generalisation* by Babbie et al. (2001: 283).

## 1.5    FORESEEN BENEFITS OF THE STUDY

The study aspires to contribute to the subject field in the following manner:

- Understanding how knowledge are managed in learning organisations;
- Understanding the value of Communities of Practice for an academic library;
- Identifying possible Communities of Practice in libraries;
- Identifying the possible roles library staff can play in Communities of Practice;

- Shedding light on possible technologies that can be used in Communities of Practice;
- Convincing management of the importance of Communities of Practice in their organisation, as well as their essential role in the development and nurturing of these Communities.

## 1.6    TERMINOLOGY

From a practical point of view, certain terms and abbreviations have been used frequently in this study. It was therefore deemed necessary to give a description of these terms and to list the abbreviations that were used with their full form.

### 1.6.1  EXPLANATION OF CONCEPTS

| TERM/CONCEPT | DESCRIPTION |
|---|---|
| Community of Practice | A network of people emerging spontaneously, and held together by informal relationships and common purpose, that share common knowledge or a specific domain, expertise and tools, and learn from one another. |
| Domain | A joint enterprise or undertaking emerging from a people's shared understanding of their situation (Wenger 1998: 73, 77). |
| Community | A social entity that is formed through relationships of mutual engagement between people (Wenger 1998: 73). |
| Practice | Shared repertoire and resources such as tools, documents, routines, stories, vocabulary, symbols, artefacts, etc. that embody the accumulated knowledge of the Community (Wenger 1998: 47-50, 72-73). |
| Explicit knowledge | Expressed knowledge, which can be recorded, stored or searched (Collison & Parcel 2001: 16). |
| Information management | The application of management principles to the acquisition, organization, control, dissemination and use of information relevant to the effective operation of organizations of all kinds (International Encyclopedia of Information and Library Science 1997: 187). |

| Information specialist | An academic librarian who is primarily concerned with the processing of information in a particular area of knowledge rather than with the control of documents  (Harrod 1990: 309). |
|---|---|
| Intellectual capital | Knowledge, which can be utilized for moneymaking or other useful benefits. It can include the skills and knowledge that an organisation has developed about how to deliver its products and services, skills and knowledge of individual or groups of employees whose knowledge is deemed critical for the organisation's success, as well as the totality of its documents on processes, customers, research results, and other information of value to competitors (Intellectual Capital SearchCRM.com: Online). |
| Invisible College | Unofficial/informal groups of knowledgeable researchers. |
| Knowledge | Capacity for informed action (Page-Shipp 2001). |
| Knowledge management | An organizational discipline that optimizes culture, processes and infrastructure in creating, using and especially re-using knowledge, to ensure that every client receives optimal value-addition to his/her "capacity for informed action" and thereby improves organizational sustainability (Page-Shipp 2001). |
| Knowledge worker | A knowledge worker is an employee whose major contribution depends on him/her employing his/her knowledge rather than his/her muscle power and co-ordination (Drucker 1988: 564). |
| Learning organisation | An organisation that can identify, develop and utilize its tacit and explicit knowledge capabilities, enabling the organisation to expand its capacity to learn and grow, and to modify its behaviour to reflect new knowledge and insights, and in doing so to improve its performance and success. |
| Listserv | A mailing list software program that automatically distributes mailing lists on a particular subject (LIS 2004: Online). |
| Metadata | Metadata is data about data. Metadata is commonly used to identify information that describes a Web asset, most typically an HTML file. (Upstream CIO: Online) |
| "New Economy" | The "New Economy" can be described as an evolution stemming from the late 20$^{th}$ century, and is driven by the |

| | |
|---|---|
| | following: the personal computer, networks, the Internet, telecommunications, information and knowledge, rapid globalization, e-commerce, and elimination of barriers to trade (mobility) (Bothma 2000: 23). |
| Portal | *"An integrated and personalized web-based interface to information, applications and collaborative services. Access to most portals is limited to corporate employees (an intracompany portal) or corporate employees and certain qualified vendors, contractors, customers and other parties within the extended enterprise (an intercompany portal)"* (Upstream CIO: Online) |
| Tacit knowledge | Personal knowledge embedded in individual experience and involving such intangible factors as personal belief, perspective and values (Ponelis and Fairer-Wessels 1998:  3). |

### 1.6.2  ABBREVIATIONS

| | |
|---|---|
| AI | Artificial intelligence |
| AIDS | Acquired Immune Deficiency Syndrome |
| AIS | Academic Information Service |
| CoP | Community of Practice |
| CRM | Customer Relationship Management |
| e | Electronic |
| ERP | Enterprise Resource Planning |
| FAQ | Frequently Asked Questions |
| GAELIC | Gauteng Environs Libraries Consortium |
| GCATS | GAELIC Cataloguers |
| HIV | Human Immunodeficiency Virus |
| IMPS | Information Management Procurement Service |
| IT | Information Technology |
| KMPG | Knowledge Management Practitioners Group of Pretoria |
| NER | National Electricity Regulator (South Africa) |
| OCR | Optical Character Recognition |
| PARC | Palo Alto Research Centre |

| SARIS | South African Research Information Service |
|-------|---------------------------------------------|
| SECI | Socialisation, externalisation, combination and internalisation |
| TQM | Total Quality Management |
| UNISA | University of South Africa |
| UP | University of Pretoria |
| URL | Uniform Resource Locator |

## 1.7    EXPOSITION OF CHAPTERS

The aim of the introductory chapter, **Chapter 1**, was to state the research problem. This was done by discussing the context to the research problem, the problem itself, the demarcation of the study and the research methodology followed to conduct this study. In the last part of the chapter, the foreseen benefits of the study were indicated and terms and concepts used in this study was defined and described.

**Chapter 2** provides an overview of the concept of knowledge management. Different perspectives on knowledge are explored, followed by definitions of the concept knowledge, a discussion of knowledge work, types of knowledge and the processes of knowledge creation, knowledge transfer and knowledge capture. Following this, the concept of knowledge management is defined, after which the possibility of knowledge management as a discipline is described. This is followed by a discussion on the purpose and value of knowledge management, and the knowledge management models of value to the study. Next, different perspectives on knowledge management are discussed, followed by a discussion of the drivers that led to the development of knowledge management. An overview of the different stages through which knowledge management developed is provided, as well as an overview of the interdisciplinary character of knowledge management as a concept.

The concept of the learning organisation is discussed in **Chapter 3**. The discussion is started with an overview of definitions of learning as found in literature, as well as an overview of the different types of learning pertinent to this study. Wenger's perspective on learning as *learning in the context of lived experience and participation in the world* is also touched upon. This is followed by an investigation of the definitions and origin of the learning organisation concept. The idea of disciplines to describe learning organisations is explored next, followed by an overview of the characteristics of learning

organisations. Then the processes as well as the stages through which learning organisations develop are explored, and finally the relationship between knowledge management and learning organisations are discussed.

**Chapter 4** deals with the concept of Communities of Practice. As a starting point, the origin and development of the concept is explored. Next, the meaning of the concept is investigated at the hand of definitions and characteristics as found in literature. This is followed by a discussion of the value Communities of Practice have for organisations, Communities and the individual members of these Communities. A description of techniques that inspire participation in Communities of Practice is next, followed by a discussion of the development stages of a Community of Practice. Then a short description of the possible interactions taking place in an operational Community of Practice is given. Following this, the critical factors that contribute to the success of Communities of Practice are discussed. Next, an overview of the techniques for sharing/transfer of knowledge in Communities of Practice is offered, followed by a discussion of those factors that enhance or hinder knowledge transfer in Communities of Practice, and a discussion of the differences between teams, Communities of Interest and Communities of Practice. A discussion of the idea of managing knowledge through Communities of Practice in learning organisations follows next by way of exploring the relationship of Communities of Practice and learning organisations, the management of knowledge through Communities of Practice, management of knowledge through Communities of Practice in academic libraries, as well as the role of the information professional in Communities of Practice.

The empirical study can be found in **Chapter 5**. This chapter comprises the case study, focusing on Communities of Practice as a technique for the management of knowledge in the Academic Information Service of the University of Pretoria, South Africa. The introduction to the chapter contains the aim of the empirical study. This is followed by an overview of the research methodology used to acquire the findings, and an overview of the aspects that are dealt with in the chapter. Next, an overview is given on the background of the Academic Information Service, as well as on the profiles of the respondents. The findings are then discussed in the following format: question first, followed by an overview of why the question was asked, a table with the answers from the respondents, and a deduction from the answers after the table.

In **Chapter 6**, conclusions are made regarding findings in the empirical study, based on the literature study. This is followed by recommendations to the Academic Information System, and suggestions of areas in which future research should be conducted.

## 1.8    SUMMARY

This chapter gave an overview of the research problem by first discussing the context to the research problem. This was followed by an overview of the research problem itself. After that followed a discussion on the demarcation of the study and on the research methodology followed to conduct this study. In the last part of the chapter, the foreseen benefits of the study were indicated and terms and concepts used in this study defined and described. Finally, an exposition was given of the different chapters in the study.

The next chapter is the starting chapter of the literature study and contains an overview of the concept of knowledge management.

**CHAPTER 2**

**KNOWLEDGE MANAGEMENT**

## 2.1    INTRODUCTION

Since the beginning of time, man has been an inquisitive creature, and "to know" has been an essential ingredient of man's make-up.

Organisations are in essence human structures. Therefore, they cannot function without knowledge. Since the $20^{th}$ Century, though, the accumulation of knowledge has accelerated phenomenally. Knowledge became the most important asset of organisations in today's competitive environment, and managing it has become essential for their survival and prosperity.

The researcher deemed it important to first understand the process of knowledge management, by looking at what knowledge is, how it is created, and how it is transferred. To reach this aim, the researcher in this chapter firstly investigates the different perspectives on knowledge, namely viewing knowledge as object, a representationalistic view on knowledge, knowledge embedded in individuals, and knowledge embedded in communities. This is followed by definitions of the concept knowledge, and a discussion of knowledge work, types of knowledge and the processes of knowledge creation, knowledge transfer and knowledge capture. Following this, the concept of knowledge management is defined, after which an attempt is made to determine if knowledge management could be described as a discipline. This is followed by an investigation into the purpose and value of knowledge management. Various knowledge management models have been suggested over the years, and those of value to the study are included in this chapter. Thereafter, different perspectives on knowledge management are investigated, followed by an investigation of the drivers that led to the development of knowledge management.

At the end of the chapter, an overview is provided of the different stages through which knowledge management developed, in an effort to better understand the interdisciplinary character of knowledge management as a concept.

The concept of knowledge will now be addressed.

## 2.2    KNOWLEDGE

A definition of the concept 'knowledge' is quite difficult to formulate, because the concept can be viewed from a variety of perspectives. To gain a better understanding of the concept, some of the perspectives pertinent to this study are discussed, followed by a description of some of the definitions on 'knowledge' as found in literature, and an identification and discussion of the different types of knowledge and knowledge processes pertinent to this study.

### 2.2.1  PERSPECTIVES ON KNOWLEDGE

Perspectives pertinent to this study include knowledge as object that exists independently of human action, a representationalistic view on knowledge, knowledge embedded in individuals, and knowledge embedded in communities (Aadne, Von Krogh and Roos 1996: 11; Wasko and Faraj 2000: 156).

#### 2.2.1.1    Knowledge as an object

This perspective assumes a Positivist Neo-Kantian view of knowledge, defined as *"justified true belief"* (Nonaka 1994: 15; Spender 1996: 47). According to this perspective, *"knowledge can exist independently of human action"*, and perception *"is foremost a private good and can be described along a variety of dimensions such as tacit-explicit, universal-local, declarative-procedural, or sticky-fluid"* (Wasko and Faraj 2000: 156). Knowledge is considered a private good that can be appropriated by organisations or exchanged like any other commodity (Davenport and Prusak 1998: 149). This perspective corresponds to Radical Structuralism, one of the four paradigms in Burrel and Morgan (1979: 326), which also view knowledge as an object that can exist independently of human action and perception, and can be used as a structural asset in an organisation.

On the other hand, Aadne, Von Krogh and Roos (1996: 11) suggest a representationalist view on knowledge, which link up with the view of knowledge as an object.

### 2.2.1.2    A representationalistic view on knowledge

According to this view, reality, be it objects, events or states, reside outside the cognising subject and is objectively given for everyone (Aadne, Von Krogh and Roos 1996: 11). The mind furthermore has the ability to create inner representations, which more or less correspond to this given reality. Knowledge is therefore regarded as a mirror of reality (Aadne, Von Krogh and Roos 1996: 11). Human beings on the other hand is regarded as being transparent to information from the outside, which is then processed and subsequently used to build mental representations that can be stored in the mind (Aadne, Von Krogh and Roos 1996: 11). This corresponds to Senge's (1990a: 8) discipline of mental models, which he describes as deeply ingrained assumptions, generalisations, or even images/pictures that influence the way we see the world and the way we act.[1]

Logic is regarded as a human competence that assists people in the attainment of knowledge (Aadne, Von Krogh and Roos 1996: 11). Furthermore, because represented objects, events, or states have the potential to be complex, and because of time constraints on the observations, the mind is assumed to have some kind of competence probability judgements and heuristics. Learning therefore means to improve representations through assimilating new experience and to further develop competence in logic and probability judgments (Aadne, Von Krogh and Roos 1996: 12).

Some types of knowledge are rather explicit, articulated and packaged, and are therefore relatively easy to transfer between organisations or sections in an organisation. On the other hand, some knowledge can be highly organisation specific and less diffusible across the boundaries of the organisation or section (Aadne, Von Krogh and Roos 1996: 12). This type of knowledge is regarded by Polanyi (1962: 203-222) as tacit and personal, and can be found in individual and social relationships in the organisation. According to Aadne, Von Krogh and Roos (1996: 12), the only possible

---

1.     For a more detailed discussion on mental models see Section 3.3.3.3 of this study.

way to reveal and transfer this knowledge is to establish a closer relationship with the one possessing it. This is where Communities of Practice as a social entity can play an active role.[2]

### 2.2.1.3    Knowledge embedded in individuals

According to this perspective, knowledge is inseparable from people, resides only in individual minds, and can be defined as "that which is known" (Grant 1996: 110). This corresponds to Burrel and Morgan's (1979: 280) radical humanism paradigm, where knowledge is regarded as the social practice of knowing. In this perspective, *"knowledge is considered a private good that is owned by the individual, and its development and exchange occurs through one-to-one interactions"* (Wasko and Faraj 2000: 156). Because it seems that people know a great deal more than they can articulate, it is hard to formalize and communicate this tacit aspect of knowledge (Wasko and Faraj 2000: 159). According to Polanyi (1962) and Wasko and Faraj (2000: 159), knowledge is also deeply rooted in action, commitment and involvement in a specific context. Simon (1991: 125-126) regards organisational knowledge in a corporate context as in the minds of an organisation's individual employees, which is increased through the learning of individual employees, or by adding new people to the organisation. Knowledge is thus *"not owned by the organisation but rather resides in the minds of individuals"* (Wasko and Faraj 2000: 159). In other words, knowledge is treated as a boundary asset *"where the asset is put to use for the organisation, but the asset itself resides within an external constituency"* (Nanda 1996: 105; Wasko and Faraj 2000: 159). This means that individuals have control over their personal knowledge and can do what they wish with it (Wasko and Faraj 2000: 159). These individuals are normally willing to exchange their knowledge for intangible returns such as status, respect, reputation, image, self-esteem, perceived usefulness, compliance and obligation (Blau 1964: 89; Constant, Kiesler and Sproull 1994: 403, 405-406; Jarvenpaa and Staples 2000: 131-135). However, one disadvantage of this perspective is that knowledge is not converted into a structural asset of the organisation (Wasko and Faraj 2000: 160). Knowledge stays under the control of the individual, is not easily transferable, and can be lost if the person leaves the organisation (Wasko and Faraj 2000: 160). Knowledge sharing according to this perspective is therefore motivated by self-interest.

---

2.    See Chapter 4 for a description of Communities of Practice.

The willingness of individuals to exchange their knowledge for intangible returns such as status, respect, reputation, image, self-esteem and perceived usefulness can be exploited to its fullest in a Community of Practice. By giving the individual an opportunity to share his/her knowledge with his/her peers, it earns him/her respect, reputation and status in the organisation. Communities of Practice also provide an individual with an opportunity to add to his knowledge.

Knowledge is not merely an individual asset, but an integral part of a community, as will be addressed in the next perspective.

### 2.2.1.4    Knowledge embedded in Communities

According to this perspective, knowledge is *"an intangible resource that can be shared and spread throughout a Community of Practice without losing value, nor being consumed in the process of transfer"* (Wasko and Faraj 2000: 156). Knowledge is defined as the *"social practice of knowing"*, and learning, knowing and innovating are emphasized as closely related forms of human activity that is implacably connected to practice (Brown and Duguid 1991: 40-41; Schultze 1999: 160, 163; Wasko and Faraj 2000: 60). This perspective links up with the interpretive paradigm as promoted by Burrel and Morgan (1979: 260), where knowing is viewed as a kind of knowledge that is inseparable from action (Schultze 1999: 163). Knowledge is viewed by Brown and Duguid (1991), Lave (1988) and Lave and Wenger (1991) as a public good that is socially generated, maintained, and exchanged within emergent Communities of Practice. Brown and Duguid (1991: 53-55) and Boland and Tenkasi (1995: 350-351) view organisations as a collection of overlapping Communities of Practice, where each community develops its own colloquial, shared stories and codes, and where knowledge is best comprehended within the context of its community. This perspective therefore considers knowledge as a collective asset that is maintained by the community, collectively contributed to by members of the community, and accessible to all members (Wasko and Faraj 2000: 160). Knowledge sharing is not motivated by self-interest, but takes place in the form of open discussion and debate about issues relevant to the community and by sharing stories of personal experience (Wasko and Faraj 2000: 161). The researcher differs from Wasko and Faraj (2000: 161) and is of the opinion that knowledge sharing by individuals in Communities can be motivated by self-interest. People will take part in a Community of Practice for the benefit they can gain from it.

Although knowledge can be viewed as an object (explicit) and representative of reality, and can be embedded in individuals, the perspective of *"knowledge embedded in communities"* as encompassing viewpoint was used as the point of departure for the research for this study. The concept of knowledge embedded in Communities is further elaborated upon in chapter 4.

The concept of knowledge can be defined in various ways, as a study of literature will show, but only those definitions that are pertinent to this study are presented below.

## 2.2.2   DEFINITION OF KNOWLEDGE

*Webster's New World Dictionary of the American Language* (1964) describes knowledge as *"organized information applicable to problem solving"*.

Knowledge according to Van der Spek and Spijkervet (1997: 36) is *"the whole set of insights, experiences, and procedures which are considered correct and true and which therefore guide the thoughts, behaviour, and communication of people"*.

Wiig (2000: 26) regards knowledge as something that *"is possessed by humans or inanimate agents as truths and beliefs, perspectives and concepts, judgments and expectations, methodologies and know-how. Knowledge is used to receive information - to recognize and identify; analyse and interpret, and evaluate, synthesize, assess and decide; adapt, plan, implement and monitor - to act"*.

For Bohm (1994: x-xv), and Gick and Holyoak (1987: 13-46), knowledge *"is the combination of information, context and experience. Context is viewed as an individual's framework for viewing life, which includes influences like social values, religion, cultural heritage and gender. Experience is seen as previously acquired knowledge. Knowledge that is transferred from one person to another is drawn into the receiver's context and experience"*.

Turban and Frenzel (1992: 10-11) regard knowledge as *"understanding; learning; a clear and certain perception of something; all that can be perceived or grasped by the mind;*

*practical experience or skill; cognisance; recognition; and organised information applicable to problem solving".*

Taylor (1996: Online) views *"knowledge as formulated in the minds of individuals through experience".* The sharing of knowledge happens between groups and communities through shared experience and through the transfer of tacit and explicit knowledge. This means that the individual and community have a pool of knowledge to draw from (Ponelis and Fairer-Wessels 1998: 2).

Ponelis and Fairer-Wessels (1998: 2-3) consider knowledge as *"what is known, and requires one party to internalise what has been received through the process of informing"*. In other words, nothing can be knowledge unless it is internalised within the mind; everything outside the mind is information, which is only potential knowledge.

For the purpose of this study, the following definition can be synthesized from the above definitions: **Knowledge can be defined as that which is known, in other words a set of insights, experiences, understanding, learning, truths, beliefs, perspectives, concepts, judgments, expectations, methodologies and expertise, that are internalised or formulated in the minds of individuals, which can be tacit or explicit, and guide people's actions.**

In organisational contexts, the emphasis is placed increasingly on the management of knowledge and knowledge work. The next section provides an explanation of the concept "knowledge work".

## 2.2.3  KNOWLEDGE WORK

Knowledge work, according to Davenport, Jarvenpaa and Beers (1996: 54), is about the "*acquisition* (knowledge capture), *creation, packaging, application*" or re-use of knowledge. Broadbent (1998: 30) views knowledge workers as workers who exercise their intellects to execute these activities. She considers knowledge work as inherently hard to manage and characterises it as "*having variety and uncertainty in inputs and outputs, unstructured and individualized work rules and routines, lack of separation among process, outputs and inputs, lack of measures, worker autonomy, high variability in performance across individuals and time, lack of information technology support,*

*etc."* (Broadbent 1998: 31). She further emphasizes, *"as work becomes more knowledge intensive, communication becomes more important"* (Broadbent 1998: 31). Knowledge about people in the organisation and their expertise becomes pivotal. This is where Communities of Practice[3] can play a more active role.

Knowledge can however manifest in a variety of forms or types, and it was deemed important to also investigate these forms or types for the benefit of this study.

## 2.2.4  TYPES OF KNOWLEDGE

As knowledge can take different forms in different situations, it was deemed important for clarity to have an overview of some of the types of knowledge as identified in literature. However, only those of value to this study were included.

Aristotle was the first to make a distinction between tacit and explicit knowledge, and this distinction is still made by most knowledge management authors. Because this study focuses on Communities of Practice in organisations (libraries), organisational knowledge and cultural knowledge were included in this discussion. Cultural knowledge as identified by Choo (2000: 395) was also included as another type because of its implications for Communities of Practice.

### 2.2.4.1    Tacit knowledge

Tacit knowledge according to Choo (2000: 395) is personalized knowledge, which is utilized in the performance of tasks, and also to gain understanding of the work environment. This type of knowledge is learned through experience, and by developing a sense of feel and ability to make intuitive judgements about the successful execution of an activity (Choo 2000: 395). Nonaka (1998: 27-28) regards tacit knowledge as very personal and difficult to formalise and to communicate to others. According to him, tacit knowledge is deeply grounded in action and in individuals' commitment to a specific context. Snowden (1998: 10) on the other hand views tacit knowledge as something we simply know. The management of tacit knowledge according to Willard (1999: 45) is only possible when people have the relevant expertise or experience, and are willing and motivated to apply their knowledge. Communities of Practice, because of their

---

3.      See Chapter 4.

informal character, can provide the necessary space where tacit knowledge can be shared amongst members. Through sharing tacit knowledge with each other, it can be embedded in other members' minds, or converted into explicit knowledge in the form of artefacts like newsletters, websites, reports, diagrams etc.

### 2.2.4.2        Explicit knowledge

Choo (2000: 396) describes explicit knowledge as formal knowledge that can easily be communicated or diffused by using a system of symbols. This type of knowledge can be object-based, i.e. using strings of symbols, e.g. words, numbers, formulas; can be embodied in physical entities, e.g. models, substances or equipment; or can be rule-based, e.g. rules, routines, or operating procedures (Choo 2000: 396).

Nonaka (1998: 27) describes explicit knowledge as formal and systematic knowledge that is easily communicable and shared in product specifications, scientific formula, or a computer programme. According to Ponelis and Fairer-Wessels (1998: 3), explicit knowledge can be articulated in formal language and transmitted among individuals. Snowden (1998: 9-10) on the other hand equals explicit knowledge with information; in other words, everything outside the mind or documented is regarded as explicit knowledge. Explicit knowledge can be shared in a Community of Practice through the sharing of files, reports, etc. This is then converted into tacit knowledge through the process of internalisation, using simulation or storytelling.

### 2.2.4.3        Organisational knowledge

According to Broadbent (1998: 25) *"knowledge becomes organisational knowledge when there are management processes in place which capture that often personal, tacit information (knowledge about products, processes, as well as why some of these are not working), from which others in the organisation can learn, and make decisions"*. Machlup (1980: 31-33) calls this type of knowledge "practical knowledge", in other words knowledge that is useful in an individual's work, decisions and actions.

Brooking (1996) as quoted in the *Knowledge Management Handbook* (1999: 1-3) regards organisational knowledge as *"the collective sum of human-centred assets, intellectual property assets, infrastructure assets, and market assets".*

In *Knowledge Management and Organizational Design* (1996: 2), organisational knowledge is viewed as *"processed information embedded in routines"*, i.e. systems, processes, products, rules and culture of an organisation that enable action; in other words, explicit knowledge.

Integrating these viewpoints, one could describe organisational knowledge **as the sum of the intellectual capital[4] (expertise and know-how about products, processes, culture and values) as well as explicit knowledge of the organisation (embedded in routines, systems, products, rules and culture of an organisation), which enable action.** Because organisational knowledge consists partly of tacit knowledge, Communities of Practice can be a very helpful instrument to embed and manage it.

### 2.2.4.4        Cultural knowledge

Sackman (1991: 34) describes cultural knowledge from a structural and developmental perspective. She defines the **structural** side of culture as *"sets of commonly held cognitions that are held with some emotional investment and integrated into a logical system or cognitive map that contains cognitions about descriptions, operations, prescriptions and causes. These are habitually used, and influence perception, thinking, feeling and acting"*. Sackman (1991: 34) further stresses that the structural components of culture are present at any point in time, but that the cultural content may vary, depending on its development. The **developmental perspective** *"addresses the formation, change, and perpetuation of cultural cognitions over time in the form of cultural knowledge. These cognitions become commonly held in processes of social interaction, can be introduced into the organisation based on outside experiences, can emerge from growing experiences, and can be invented and/or negotiated. When repeatedly applied they become attached with emotions and assigned with degrees of importance - also commonly held. They are relatively stable over time and are accumulated in the forms of different kinds of cultural knowledge, which she labels as dictionary, directory, recipe, and axiomatic knowledge"*.  When new members join an

---

4.    Intellectual capital: knowledge that can be utilized for some moneymaking or other useful benefits. It can include the skills and knowledge that an organisation has developed about how to deliver its products and services, skills and knowledge of individual or groups of employees whose knowledge is deemed critical for the organisation's success, as well as the totality of its documents on processes, customers, research results, and other information of value to competitors (Intellectual capital: Online).

organisation, cultural knowledge is passed on to them to enable them to adjust to their new environment. Every organisation has its own organisational culture and cultural knowledge, which have developed over a period of time and which is held in processes of social interaction. When new employees start in an organisation it is often difficult for them to internalise the cultural knowledge of the organisation. As this can take a long time, Communities of Practice can provide the ideal spaces where newcomers or novices can acquire cultural knowledge much quicker through interaction with other members.

Other types of knowledge found in literature but not pertinent to this study include: indigenous knowledge, Machlup's five categories of knowledge, namely practical knowledge, intellectual knowledge, small talk knowledge and past time knowledge, spiritual knowledge and unwanted knowledge, and Jantz's three types of knowledge namely public knowledge, shared expertise and personal knowledge (Jantz 2001: 34; Machlup 1980: 108).

Having an understanding of the types of knowledge is however not enough to understand the concept better. Questions that remain include how knowledge is created, transferred and captured. The researcher tried to answer this question through an exposition of knowledge processes that can help in knowledge creation, transfer and capturing.

## 2.2.5  KNOWLEDGE PROCESSES

Various knowledge processes exist, e.g. knowledge creation, knowledge capture, knowledge flow/transfer, knowledge retrieval, packaging of knowledge, knowledge embedding, knowledge application, knowledge re-use, etc. For the purpose of this study, the focus was on knowledge creation, transfer and capture.

### 2.2.5.1　　　Knowledge creation

According to Shin, Holden and Schmidt (2001: 340), knowledge creation relates to knowledge addition and/or the correction of existing knowledge. Machlup (1980: 173) uses the term "generation" to describe creation. According to him, knowledge generation refers to the generation of socially new knowledge, which was previously

unknown to anyone and now known only to the one person or small group who have come upon it. Nonaka (1994), Nonaka and Takeuchi (1995), and Nonaka, Reinmoeller and Senoo (1998) describes this process further in their comprehensive model of knowledge creation (SECI model), which have been included in this study in Section 2.6.1. According to this model, knowledge is created through the processes of socialisation, externalisation, combination and internalisation. However, creating/generating knowledge without disseminating/transferring it makes it socially worthless, as well as unascertainable (Machlup 1980: 175). In other words, for new knowledge to have value, it has to be shared/transferred.

**2.2.5.2      Knowledge flow/transfer**

The concept of knowledge flow/transfer varies substantially in literature. Some authors regard knowledge transfer as transfer of skills (knowledge) and technology between organisational subunits (Gupta and Govindarajan 1994: 444). Others focus on the transfer of business practices (Darr, Argote and Epple 1995; Szulanski 1996). Machlup (1980: 170) views knowledge flow as different from the flow of material goods. The flow of goods from one person to another reduces the stocks of the former and increases the stocks of the latter. In contrast to this, a flow of knowledge may or may not increase the recipient's stock of knowledge, without reducing the stock of knowledge of the sender (Machlup 1980: 170). Some authors like Szulanski (1996; 28-29) considers knowledge flows as a multistage process that might involve initiation, implementation, ramp-up, and integration, while Hansen (1999: 82-83) regard it as search and transfer. Schulz (2001: 662) on the other hand defines knowledge flows as *"the aggregate volume of know-how and information transmitted per unit of time"*. Authors that view it from information-processing theories regard knowledge flows as organisational response to task uncertainty, where task uncertainty is regarded as the difference between the amount of information required to perform a task and the amount of information already possessed by an organisation (Galbraith 1973: 5; Van De Ven, Delbecq and Koenig 1976: 328-329).

For the sake of this study, the researcher described knowledge flow/transfer in an organisation as the transfer/flow of tacit knowledge (e.g. skills, know-how, expertise, etc.), or the transfer/flow of explicit knowledge (e.g. in the form of documents, books, articles, graphs, procedures etc.) from the stock of knowledge of a sender, to the

recipient's stock of knowledge (adding to it or not), with the main purpose of enhancing the intellectual capital of an organisation.

Knowledge can be transferred in a variety of ways. A few of these are highlighted:

a)  **Transferring explicit knowledge**

Some of the methods for transferring explicit knowledge are: books, journals, broadcasting, motion picture films, performing arts, using online systems for OCR reading, storage and retrieval of vital documents, and by using e-mail systems, conferencing systems and word processing, computer archives, etc. (Machlup 1980: 171; Sveiby 1997:  87).  Explicit knowledge can be transferred through the processes of internalisation and combination (See the SECI model in Section 2.6.1).

b)  **Transferring tacit knowledge**

Tacit knowledge can be transferred from person to person or from records to persons. This occurs through working together in practice. The process happens quite unknowingly. The SECI model in Section 2.6.1 shows how tacit knowledge is transferred through the processes of externalisation and socialization.

As part of the transfer process, knowledge has to be captured in some or other way so that it can be of value to the rest of the organisation. For this reason, the concept of knowledge capture was included in this study.

### 2.2.5.3       Knowledge capture

When knowledgeable staff leaves an organisation, valuable undocumented knowledge also leaves the organisation. Though knowledge can flow between staff of an organisation, it is imperative that this knowledge be elicited, stored, and presented (captured) before the staff member leaves, so that it can be of value to the rest of the staff of the organisation.

The first step in knowledge capture is to set up a knowledge capture plan. *"The plan should identify the specific knowledge elicitation (capturing) method(s); it should define*

*the methods of storage, and describe how the stored knowledge will be retrieved"* (Hanes and Gross 2002: 2). However, a number of factors must be considered, namely the type(s) of knowledge, availability of staff members, and the skills and capabilities of the staff responsible for the knowledge capture (Hanes and Gross 2002: 2). The next step is to implement the plan and to format the elicited knowledge and package it in knowledge modules. Hanes and Gross (2002: 2) describes knowledge modules as explicit knowledge that are related to a specific job, activity or task, which were elicited from an expert, evaluated, edited and formatted to be in a form usable to others, stored in  paper or electronic format, and which can be retrieved when needed.

Knowledge can be elicited through a variety of methods, which can include story telling, interviews, scenarios, simulations/role-play, and games, etc. and can be presented by using modelling techniques such as concept ladders, process maps, domain hierarchies, taxonomies, rules, etc. (Cadas 2003: 3).

Knowledge creation, knowledge transfer and knowledge capture are some of the main building blocks through which knowledge can be managed in a Community of Practice. It is imperative in today's turbulent environment that organisations create or generate new knowledge, and especially tacit knowledge. However, this type of knowledge cannot stay in the minds of one or a few individuals. By sharing or transferring this knowledge to other colleagues, the knowledge gets social value. Communities of Practice provide the necessary trusting platform where new knowledge can be created and transferred to other members, using some of the knowledge capturing techniques mentioned above. For a further discussion of the concept of Communities of Practice, as well as the role of knowledge in them, refer to Chapter 4.

Before determining what is meant by the concept knowledge management it was deemed necessary to first examine the concept of knowledge. Having done this, the researcher initiated the discussion on knowledge management with a discussion of the definitions of knowledge management in the next section.

## 2.3    DEFINITION OF KNOWLEDGE MANAGEMENT

A variety of definitions on knowledge management exist in literature, but for the purpose of this study, the following definitions were deemed important:

Broadbent (1998: 25) defines knowledge management as "*purposeful management processes which capture often personal and contextual information that can be used for the organisation's benefit. Knowledge management is a form of expertise-centred management focussing on using human expertise for business advantage*".

Broadbent (1998: 25) continues by saying that knowledge management *"is about enhancing the use of organisational knowledge through sound practices of information management and organisational learning, with the purpose to deliver value to business*".

According to Broadbent (1998: 24), the foundations on which knowledge management rests are:

- The utilization and exploitation of the organisation's information;
- The application of people's competencies, skills, talents, thoughts, ideas, intuitions, commitments, motivations and imaginations.

Page-Shipp (2001) describes knowledge management as *"an organisational discipline that optimises culture, processes and infrastructure in creating, using and especially re-using knowledge, to ensure that every client receives optimal value-addition to his/her "capacity for informed action" and thereby improves organisational sustainability".*

*"Knowledge management is a discipline that promotes an integrated approach to identifying, managing and sharing an organisation's information assets, including databases, policies and procedures as well as unarticulated expertise and experience resident in individual workers"* (Knowledge Management, Gartner Group 1996: Online).

*"In the academic world, knowledge management is a new dimension of strategic information management"* (Ponelis and Fairer-Wessels 1998: 5).

*"The term knowledge management is used in the corporate world to differentiate between management of content (knowledge management), management of records (records management) and management of information technology and systems (referred to incorrectly as information management)"*  (Ponelis and Fairer-Wessels 1998: 6).

*"Knowledge management is the explicit and systematic management of vital knowledge and its associated processes of creating, gathering, organising, diffusion, use and exploitation. It requires turning personal knowledge into corporate knowledge that can be widely shared throughout an organisation and appropriately applied"* (Skyrme 2003: Online).

*"Knowledge management involves capturing the knowledge, the wisdom, the added value experiences of individuals within an organization, making it easy to find again, and in so doing, preserving it as an organizational asset"* (Perez 1999: 75).

Kim (1999: Online) describes knowledge management as *"a discipline that promotes an integrated approach to identifying, managing and sharing all of an organisation's knowledge assets including unarticulated expertise and experience resident in individuals"*.

*"Knowledge management is the name of the concept in which an enterprise consciously and comprehensively gathers, organizes, shares and analyzes its knowledge in terms of resources, documents, and people skills"* (Knowledge Management, SearchDomino.com: Online).

These definitions were integrated and synthesized by the researcher into the following definition: **Knowledge management is a discipline that utilizes and exploits all of an organisation's knowledge assets, including all its information (explicit knowledge) as well as its unarticulated experience and expertise (tacit knowledge) resident in individuals so as to ensure sustainability as well as competitive advantage. This is done by utilizing its culture, processes and infrastructure to create, identify, capture, share, use and re-use knowledge so that it adds optimal value to every member and every client's knowledge base.**

In the above definition, knowledge management is described as a discipline. The question is - can knowledge management really be described as a discipline? This question is addressed in the next section.

## 2.4    KNOWLEDGE MANAGEMENT AS A DISCIPLINE

To determine whether knowledge management can be described as a discipline, it is important to have an understanding of what a discipline is. The concept of an academic discipline according to Becher (1989: 19) is not clear-cut, as in the case of many concepts, it allows for some uncertainties of application. He links disciplines to the existence of relevant academic departments that represent them. He furthermore describes disciplines as having international currency, a general set of notions of academic credibility, intellectual substance, and having appropriate subject matter.

Another way of looking at disciplines is through a structural framework, and by *"noting how they are manifested in the basic organisational components of the higher education system"* (Becher 1989: 19).

King and Brownell (1966: 68-95) describes a discipline as:
- **a community:** in other words *"a defined area of study, the network of facts writings and other works of scholars associated with the field, or as the corps of human beings with a common intellectual commitment"* (King and Brownell 1966: 68);
- **an expression of human imagination:** in other words, *"the creation of novel mental images in a variety of forms"* (King and Brownell 1966: 71);
- **a conceptual structure:** in other words, a full set of ideas consisting of classes of phenomena and relationships between them (King and Brownell 1966: 81);
- a network of communications (King and Brownell 1966: 86);
- a tradition (King and Brownell 1966: 75);
- a particular set of values and beliefs (King and Brownell 1966: 87);
- **a domain:** "in other words, the natural phenomenon, process, material, social institution, or any other concern on which members of the discipline focus" (King and Brownell 1966: 74); and
- a mode of enquiry.

Toulmin (1972: 139) views disciplines from an epistemological perspective, and describes disciplines as *"each characterised by its own body of concepts, methods and fundamental aims"*. Other authors describe them as organised social groupings (Whitley 1976; Whitley 1984). Most authors however emphasize both the substantive content (forms/domains of knowledge) and social behaviour (knowledge communities) (Becher 1989: 20).

Van der Westhuizen (2002: 94) suggests that knowledge management should perhaps not be regarded as a discipline in itself, but should be viewed in terms of organisational design. He then goes on to describe it as a *"change management term"*.

The researcher differs from this viewpoint and is of the opinion that knowledge management could be described as a discipline, as it complies with most of the characteristics of a discipline as described above. Knowledge management has international currency, a general set of notions of academic credibility, intellectual substance, and has appropriate subject matter. It also has substantive content (a domain of knowledge) and is characterised by social behaviour (knowledge communities).

Having described knowledge management as a discipline, one could ask what value it has for an organisation? This question is addressed in the next section.

## 2.5    THE PURPOSE AND VALUE OF KNOWLEDGE MANAGEMENT

The purpose of knowledge management according to Wiig (2000: 6) is to build and exploit intellectual capital effectively and gainfully in an organisation. Knowledge management also assists organisations to become more competitive, by exploiting the capacities of their people to be more flexible and innovative. In practice, this means drawing out the tacit knowledge (observed and learned from experience) that people have (The Learning Organisation: Managing Knowledge of Business Success 1995: 17).

Improved knowledge and its use lead to less re-work and hand-offs, quicker analysis, decision and execution, particularly of non-routine tasks and other desirable and work-reducing effects (Wiig 2000: 7). When experts provide knowledge openly and widely, they tend to be considered important by their peers and gain status and recognition

(Wiig 2000: 7). In *Benefits of Knowledge Management* (2001: Online), possible benefits of knowledge management in an organisation are listed. According to them, knowledge management:

- generates new ideas and creativity;
- accelerates innovation;
- improves and accelerate learning;
- leads to greater productivity and efficiency;
- improves decision-making;
- produces and conserves new value such as intellectual property assets;
- generates new wealth and increased returns and revenue;
- opens up new markets;
- enables sustainable organic growth;
- mitigates risk;
- helps in the development of new business models;
- helps create a more adaptive responsive and dynamic organisation;
- enhances team corroboration and coordination;
- improves the ability of the organisation to manage change;
- helps the organisation avoid waste and duplication by knowledge re-use;
- helps knowledge workers handle infoglut and information-overload;
- helps the organisation to develop more network connections/knowledge nodes;
- helps in the gathering of superior business and competitive intelligence.

Having discussed the value of knowledge management for organisations, one could very well ask how knowledge management operates in practice. In order to gain a better understanding of the functioning of knowledge management, a variety of models have been suggested through the years. A discussion of these models is thus essential.

## 2.6    KNOWLEDGE MANAGEMENT MODELS

Though a variety of models exist on knowledge management, only two knowledge management models pertinent to this study were included to give a greater understanding of the concept. These two models are the SECI Model and the Cynefin Model.

**2.6.1  THE SECI MODEL**

According to the SECI model, there are two types of knowledge, namely explicit and tacit, and the interactions between these two types leads to a spiralling process of knowledge creation (Nonaka and Konno 1998: 43). Four processes of moving between tacit and explicit states are identified, namely: socialisation, externalisation, combination and internalisation, which form the acronym SECI (Nonaka and Konno 1998: 43-45).

The SECI model was subsequently republished in 1998 in Nonaka and Konno (1998), using the concept of "Ba". The model is illustrated in figure 2.1.
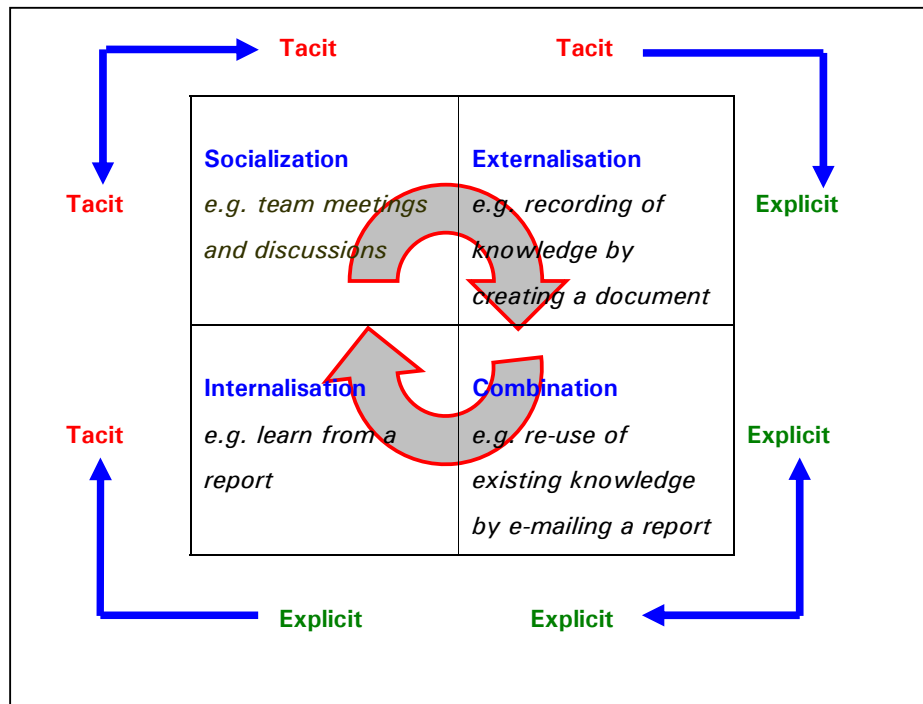


**Figure 2.1:     SECI Model (Nonaka and Takeuchi 1995)**

The SECI Model can be interpreted as follows:

**2.6.1.1       Socialisation: Tacit-to-Tacit**

The process of socialization involves the sharing and dissemination of tacit knowledge between people. *"Tacit knowledge though can only be shared if the self is freed to*

*become a larger self that includes the tacit knowledge of the other*. Self-transcendence *is seen as fundamental to sharing individual tacit knowledge"* (Nonaka and Konno 1998: 42). The term *socialisation* is used to emphasize that *"tacit knowledge is exchanged through joint activities such as being together, spending time together, and living"* and working *"in the same environment, etc."* (Nonaka and Konno 1998: 42). In practice, this means that knowledge is captured through physical proximity to others (Nonaka and Konno 1998: 44).

Socialisation can manifest in different ways, and only a few of these will now be discussed.

### a) Socialization using the open-office space

People working in an open-space office spend a great deal of their time either on the phone or chatting with each other, and by doing so create tacit knowledge without deliberation or reporting. Just by being present, people can absorb all they need to know to function in their profession (Sveiby 1997: 88). In this atmosphere, people learn from one another, and tacit knowledge is exchanged between each other. This also helps new staff members to adjust very quickly to their new workplace.

### b) Socialization using Piggybacking

Piggybacking can be used as a method through which senior professionals can show their skills to juniors to imitate (Sveiby 1997: 89). Many firms staff their teams with at least one very junior member, who has the double task of doing the dirty work and observing and learning (Sveiby 1997: 89). The tacit techniques of the profession are thus learned on the job.

### c) Socialization using Communities of Practice

These informal groups does not necessarily evolve in an open-office space, but are formed by people sharing a common domain, who realize that they can benefit by sharing ideas, expertise, experiences and skills with one another. These people can be scattered throughout an organisation or even across organisational boundaries. The

sharing in these communities can take place anywhere, e.g. at the coffee machine, tearoom, or even online. This is the process on which this study was based.

### 2.6.1.2    Externalisation: Tacit to Explicit

People usually express tacit knowledge externally in comprehensible forms (explicit knowledge), so that it can be understood by others and can be easily produced (Nonaka and Konno 1998: 42; Sveiby 1997: 87). Through conceptualisation, elicitation, and articulation, some proportion of a person's tacit knowledge may be captured in explicit form (Sveiby 1997: 87). The problem with this method is that it does not take context into consideration. The receiver cannot grasp the full meaning of the giver without context. However, this does not mean that written knowledge has no value, but that there are better ways of knowledge transfer, e.g. talking and showing what you mean (Sveiby 1997: 87). This is where socialization and internalisation come into the picture.

### 2.6.1.3    Combination: Explicit-to-Explicit

Combination according to Nonaka and Konno (1998: 43) involves *"the conversion of explicit knowledge into more complex sets of explicit knowledge. New knowledge generated in the externalisation stage transcends the group in analogue and digital signals."* Three processes are identified on which the combination phase relies: capturing and integrating new explicit knowledge by collecting externalised knowledge (e.g. public data) from inside or outside the organisation and then combining the data; secondly by disseminating explicit knowledge directly by using presentations or meetings; and thirdly by editing or processing explicit knowledge to make it more useable (e.g. reports, plans, tables, graphs, etc.) (Nonaka and Konno 1998: 43).

### 2.6.1.4    Internalisation: Explicit to Tacit

*"Internalisation of newly created knowledge"* according to Nonaka and Konno (1998: 43) *is the conversion of explicit knowledge into tacit knowledge"*. In an organisational context, the individual has to identify the knowledge relevant to him- or her within the organisational knowledge (Nonaka and Konno 1998: 43). Internalisation further relies on two dimensions: firstly *"explicit knowledge has to be embodied in action and practice"* (this includes methods about strategy, tactics, innovation, or improvement), and

*"secondly there is a process of embodying the explicit knowledge by using simulations or experiments to trigger learning by doing processes"* (Nonaka and Konno 1998: 43).

Knowledge can be internalised in a variety of ways, but only those pertinent to this study will now be discussed.

**a)  Internalisation using simulation/role-play**

According to Sveiby (1997: 89), practical knowledge is best transferred when we use our whole bodies, and that is the reason why games, simulations and role-play are so effective in transferring knowledge. In simulations, the real thing is emulated to help the participant(s) to acquire the necessary knowledge (skills, expertise, etc.) (Sveiby 1997: 89).

**b)  Internalisation using storytelling**

Stories are narrative frameworks people create to make sense of the world, to share experiences, to convey meaning and to pass on what they know (Gill 2001: Online). Stories are remembered much easier than facts, and are thus powerful tools with which knowledge can be embedded or internalised. In Communities of Practice, storytelling is a powerful method with which to transfer knowledge, and this will be expanded upon in the next chapter of this study.

Communities of Practice can provide the ideal mechanism wherein the SECI model can be accommodated. More details on the concept of Communities of Practice can be found in chapter 4.

The second model included in this study is the Cynefin model.

**2.6.2  THE CYNEFIN MODEL**

Cynefin is a Welsh term that describes *"the place of your birth and of your upbringing, the environment in which you live and to which you are naturally acclimatised"* (Sinclair 1998 as cited by Snowden 2000: Online).

The Cynefin model focuses strongly on how people make sense of the world. It emphasizes three types of systems, namely complicated, complex and chaotic systems, which can best be understood through two distinctions. The first distinction is between **complex and complicated** systems. To illustrate this, Snowden (2002: 7) uses the example of an aircraft as a **complicated system** with thousands of knowable, definable components that are capable of being catalogued, as well as all the relationships between components. Cause and effect can be separated, and by understanding their linkages, outcomes can be controlled.

For a **complex system**, Snowden (2002: 7) uses human systems as examples. According to him, a **complex system** comprises many interacting agents, an agent being anything that has identity. Humans exist in many identities; a person can be son, father, or brother in different contexts. He or she can also have workgroup identities, which can both be formal and informal, along with various social groupings (Snowden 2002: 7). As one moves among identities, one observes different rules, rituals and procedures unconsciously. This means that components and their interactions are ever changing and can never be quite pinned down (Snowden 2002: 7). In other words, the system is irreducible. Cause and effect can therefore not be separated, because they are intertwined (Juarrero 1999: 40-41).

The mistake that organisations tend to make is to study past events in order to create predictive and prescriptive models for future decisions based on the assumption that they are dealing with a complicated system, when in fact they are dealing with a complex system (Snowden 2002: 7).

The second distinction is between a **complex system** comprising many interacting identities and a **chaotic system** in which all connections have been broken down, and which is in a constant state of turbulence (Snowden 2002: 8). Complex and chaotic systems should not be confused. In a complex system, the emergence of patterns can be recognised, disrupted, reinforced, and seeded (Snowden 2002: 8). Interaction of identities also creates coherence and meaning. In a chaotic system, no such patterns are possible, unless we intervene to impose them (Snowden 2002: 8). The Cynefin model is illustrated in Figure 2.2.

**Figure 2.2: The Cynefin Model (Kurz and Snowden 2003: 468)**

The Cynefin model (see Figure 2.2) consists of four open spaces or domains of knowledge, all of which have validity within different contexts. These domains are:

- **Known Domain**

  In this domain, cause and effect relations are repeatable and predictable, in other words the root cause of issues that are commonly experienced are well understood and outcome is predictable with certainty. Diagnosis of issues is done through classification of a problem. Organisations in this domain are characterised by strong management and bureaucracy. They rely on manuals, procedures and policy and do process re-engineering (Kurz and Snowden 2003: 468).

- **Knowable Domain**

  In this domain, cause and effect are separated over time and space. In other words, issues that are dealt with have not arisen before, but similar ones have, for which the cause was very clear. The plausible outcomes can thus be predicted with confidence and probability. Diagnosis of issues is done through analytical, reductionist and logical thinking, and with the help of experts. In other words, they sense, analyze and respond. Organisations in this domain do scenario planning, gather business/competitive intelligence, and do market

analysis (Kurz and Snowden 2003: 468). Communities of Practice (See Chapter 4) can be used as forums where experts can deal with issues and where others can learn from them for future action.

- **Complex Domain**

    In this domain, cause and effect are coherent in retrospect, but do not repeat. In other words, every time one thinks one has solved an issue it returns in a different form. There exist an infinite range of possible outcomes that aren't possible to predict beforehand. Diagnosis of issues is done through probing, sensing and seeding patterns and by exploring perspectives. In other words, they probe, sense and respond. For example, the organisation probes the issues at hand, chooses a pattern (intervenes), and stabilises it. Success of the decision can only be determined in retrospect. Organisations in this domain use narrative techniques (e.g. storytelling), interviews, future-backwards exercises, network analysis etc. (Kurz and Snowden 2003: 468). Communities of Practice (See Chapter 4) as informal groups can be used with great success in organisations that find themselves in this domain, to help stabilise patterns in the organisation.

- **Chaos Domain**

    In this domain, no cause and effect relationships can be discerned. In other words, because issues are implausible, they cannot be expected. Outcomes can thus not be explained or predicted. Diagnosis cannot be done and one just has to act. The organisations in this domain do crisis management. In other words, they act, sense, and respond (Kurz and Snowden 2003: 468).

Communities of Practice as discussed in Chapter 4 can play important roles in the different sections of these models.

Having defined knowledge management, discussing its traits as a discipline, and studying two knowledge management models, has answered the question of what knowledge management is. The question that remains is - where did knowledge management come from? This question is addressed in the next section.

**2.7     THE BACKGROUND TO KNOWLEDGE MANAGEMENT**


**2.7.1  DIFFERENT PERSPECTIVES ON KNOWLEDGE MANAGEMENT**


In the discussion on knowledge management, it is important that the different perspectives on information management as found in literature are examined. This will serve as point of departure when approaching the topic of knowledge management. Two views of information management emerge from the literature (Bergeron 1996: 266-277): the **information technology perspective** and the **integrative perspective**. *"Literature with an information technology perspective"*, according to Bergeron (1996: 266), *"focus on information management as an expansion or sub-discipline of management information systems or as a guide for better management of computer-based information systems".* Bergeron (1996: 268) describes literature with an **integrative perspective** as those who view information management as a "*management approach and function that seeks to integrate and harmonise corporate information sources, services and systems, and also to create a synergy between external and internal corporate information resources".*


These two perspectives also serve as a foundation when approaching the topic of knowledge management. Authors with an **information technology perspective** believe that knowledge management is a totally new concept, in other words, the management of explicit and tacit knowledge are both new (Snyman 2001: 274). Those supporting this approach (especially in the corporate business world), regard knowledge management as the management of content and information management as the management of information technology (Ponelis and Fairer Wessels 1998: 5-6).


Authors with an ***integrative perspective*** to information management view knowledge management as the management of tacit and explicit knowledge in an integrative manner (Snyman 2001: 274). This is the approach that has been followed in this study. These approaches form the basis from which the background to knowledge management can be studied.


The mentioned approaches form the basis from which the background to knowledge management can be studied. However, keeping these approaches in mind, the researcher was still confronted with the question of where knowledge management

originated. In other words, what led to the development of knowledge management as a concept? With this in mind, the researcher embarked on identifying the driving forces (or drivers) that led to the development of the field.

## 2.7.2      THE DRIVERS OF KNOWLEDGE MANAGEMENT

Knowledge management developed in response to specific driving forces, which will now be discussed.

### 2.7.2.1      Globalisation of business

Globalisation has speeded up all elements of global trade, and information technology and decentralized markets make it possible for organisations to bring new products and services to wider markets more rapidly. This compels organisations to ask themselves what they know; who knows it and what it is they don't know, but should know (Prusak 2001: 1002). Knowledge management plays an important role in this.

### 2.7.2.2      Sophisticated customers

Customers have become more demanding and customized products and services that support their success are increasingly in demand. This means that organisations that want to survive, or have the competitive edge over their competitors, have to keep on improving their understanding of customer needs and capabilities (Wiig 2000: 11).

### 2.7.2.3      Sophisticated competitors

Competitors have become more sophisticated in products they offer and services they render. This compels organisations to constantly implement innovations in products, services and practices that can ensure that they have the competitive edge over competitors. However, to keep this up, constant learning is essential in order to build competitive expertise (Wiig 2000: 11).

**2.7.2.4       Sophisticated suppliers**

The capabilities of suppliers are continuously improving, and they can be valuable partners in the creation of innovations to deliver sophisticated products. Organisations must therefore have an understanding and knowledge of new supplier capabilities and how to integrate them with internal efforts, directions and culture (Wiig 2000: 11).

**2.7.2.5       Ubiquitous computing and increased technological capabilities**

Ubiquitous and transparent computing and new advances in technology and applied artificial intelligence have expanded the access to information dramatically, so that people increasingly have access to information they need at any time and any place (Prusak 2001: 1002). An unintended consequence of this is the rise in value of knowledge that cannot be digitised, codified or distributed. This for instance includes components like judgment, design, leadership, better decisions, persuasiveness, wit, innovation, aesthetics, and humour (Prusak 2001: 1002). The field of knowledge management can help in the management of these knowledge skills. Knowledge management software that can assist in this includes groupware for collaborative work, knowledge encoding for knowledge bases, performance support systems, natural language understanding and advanced search engines (Wiig 2000: 11).

**2.7.2.6       Knowledge centric view of the organisation**

The ideas of organisations being primarily information processors, productive machines, or quasi-military structures are changing rapidly (Prusak 2001: 1003). An increasing number of academics, economists and commentators regard an organisation as a coordinated collection of capabilities, somewhat bound by its own history, and limited in its effectiveness by its current cognitive and social skills. According to Prusak (2001: 1003), the main building block or unit of analysis of these capabilities is knowledge, and especially the knowledge that is mostly tacit and specific to the organisation. Knowledge management can help in the management of these capabilities.

**2.7.2.7        Bottlenecks in enterprise effectiveness**

Restrictions (bottlenecks) in workflows and information that limit enterprise effectiveness have been removed or relocated to other sites through improvements such as: investments in technology and logistics, personnel working harder and longer, organized work flows and tasks, improved information for decision-making and other work, increased intelligent automation of routine, and simpler operational tasks (Wiig 2000: 11). Bottlenecks though have moved from visible and tangible sites to knowledge-intensive work areas that require better understanding and expertise (Wiig 2000: 11). Knowledge management can provide the necessary framework to create a better understanding and expertise.

**2.7.2.8        Understanding of human cognitive functions**

An effective organisation depends heavily on people and their work behaviour (Wiig 2000: 12). It is therefore essential to incorporate better professional understanding of cognitive aspects of how knowledge (understanding, mental models and associations) affects decision-making and the performance of knowledge-intensive work (Wiig 2000: 12). Knowledge management can help to create a better professional understanding of these cognitive aspects.

According to literature, knowledge management as a field developed through different stages, which are addressed in the next section.

**2.7.3      THE KNOWLEDGE MANAGEMENT STAGES**

According to Snowden (2002: 2), knowledge management developed through two stages and is currently moving into the third stage. He distinguishes the three stages as follows:

**2.7.3.1      First Stage: Information for decision support**

This stage covers the period before 1995 and focuses on appropriate structuring and flow of information to decision makers. It also focuses on computerisation of major business applications, which led to a technology-enabled revolution and was dominated

by perceived efficiencies of process re-engineering (Snowden 2002: 2). The result of this was that efficiencies were achieved at the cost of effectiveness and that people with experience and expertise were laid off (Snowden 2002: 2). There was a general failure to recognise the value of knowledge gained through experience, and through traditional forms of knowledge transfer such as apprentice schemes. The collective nature of much knowledge was problematic (Snowden 2002: 2). This situation was bound to change and in 1995 the second stage was heralded.

### 2.7.3.2    Second Stage - Nonaka's SECI Model

This stage was characterised by the popularisation of Nonaka and Takeuchi's SECI Model (see Section 2.6.1), which they introduced in 1995 (Snowden 2002: 2) and subsequently republished in 1998 in Nonaka and Konno (1998) using the concept of "Ba", meaning "shared space for emerging relationships".

This second stage in the development of knowledge management is one of the stages on which this study is grounded. Socialisation (see Section 2.6.1.1) can be used with great success in Communities of Practice as the purpose is the sharing of tacit knowledge through joint activities and being together. As Nonaka and Konno (1998: 44) stated, knowledge is captured through physical proximity to others. The transformation of tacit knowledge into explicit knowledge through the process of externalisation (see Section 2.6.1.2) can also be used with great success in Communities of Practice. The tacit knowledge shared in a Community of Practice can be recorded by someone in the Community and made available though documents, websites, virtual workspaces on portals, etc. Members in the Community can also take the explicit knowledge generated in the Community, add other explicit knowledge to this, and create new complex sets of explicit knowledge through the process of combination (see Section 2.6.1.3). These newly created sets of explicit knowledge are then assimilated (internalised) (see Section 2.6.1.4) into people's minds through different methods, e.g. storytelling and role-play simulations.

A new perspective on knowledge management has been developing over the past few years, which can be described as complicated-complex and chaotic. This is expanded upon in the next section.

**2.7.3.3    Third Stage - Complicated-Complex and Chaotic**

Stacy (2001: 4) was one of the first authors who promulgated a new theory concerning knowledge. He regards knowledge not as a "thing" or a system, but an ephemeral active process of relating. In other words, the thinking about knowledge in this stage goes beyond managing knowledge as a "thing" to managing knowledge as a "flow". In this stage, there is also a greater focus on context and narrative than on content (Snowden  2002: 3). Snowden (2002: 3) lists 3 heuristics to illustrate this change in thinking about knowledge:

- Knowledge can only be volunteered, not be conscripted;
- We can always know more than we can tell, and we can always tell more than we can write down;
- We only know what we know when we need to know it. In other words, human knowledge is highly contextual; it is triggered by circumstance.

These heuristics, according to Snowden (2002: 3), partially supports Stacy's (2001) view of knowledge as an active process of relating, but it does not mean that we have to abandon second-generation practice. Rather, we have to recognise its limitations.

Snowden (2002: 3) suggests the use of paradox, which allows one to embrace both Stacy (2001) and Nonaka and Takeuchi (1995). According to this view, knowledge is paradoxically both a "thing" and a "flow" (Snowden 2002: 3).

"The issues of content and context which runs through all three heuristics" are regarded by Snowden (2002: 7) as "the key to understanding the nature of knowledge transfer".

Two dimensions of context are further identified by Snowden (2002: 7), namely the dimension of abstraction and dimension of culture. In the dimension of abstraction, knowledge can be shared at different levels of abstraction, for example:

- Level 1 – Someone known asks a question, a brief exchange takes place in the context of common experience and trust, and knowledge is transferred.
- Level 2 – Someone not known asks a question. This time the conversation is more comprehensive and its takes longer to create a common context.

44

- Level 3 – This time the expert is asked to codify (e.g. write a book) his/her knowledge for potential future uses of that knowledge.

In the dimension of culture, Snowden (2002: 8) refers to Keesing and Strathern's (1998: 16) two cultures, namely the socio-cultural system (which includes tools and other artefacts that we use to create communities, the virtual environment we create and the way we create, distribute and utilise assets within the community),  and culture as an ideational system (which *"comprise of systems of shared ideas, systems of concepts and rules and meanings that underlie and are expressed in the ways that humans live"*, in other words what humans learn). He sees both these cultures as key to knowledge flow in an organisation. This type of knowledge is painfully created at cost over generations, and need to be transferred to new members in the organisation. To enable staff to acquire (learn) these types of knowledge, provision must be made for space and time for new meaning to emerge. Communities of Practice could provide the necessary space.

These dimensions of abstraction and culture led to the development of the Cynefin sense-making model by Snowden (2002: 9), which was discussed in Section 2.6.2.

Most organisations today find themselves somewhere between being complicated or complex, and in this turbulent and ever changing environment, Communities of Practice can provide the necessary mechanisms for the dissemination of ideas, bringing coherence and meaning, helping to determine patterns, and helping with decision-making. Communities of Practice can thus also play an important role in this third stage of the development of knowledge management.

Knowledge management as a concept have its origin in an assortment of disciplines, and it is important to take notice thereof in order to have a greater understanding of background to the concept.

## 2.7.4   INTERDISCIPLINARY CHARACTER OF KNOWLEDGE MANAGEMENT

Knowledge management relies on a wide variety of disciplines, which gives it an interdisciplinary character.

**2.7.4.1    Economics**

From the discipline of economics, knowledge management inherited the notion that workers learn from experience, and that by developing and managing the learning strategies in an organisation, it can be more effective (Prusak 2001: 1004). Another driver of knowledge management that comes directly from economics is how to account for significant performance variation (Prusak 2001: 1004). According to Prusak (2001: 1004), the essential knowledge management question about the unit of analysis and the way it is measured also has its origin in economics.

**2.7.4.2    Business theory**

Business theory tries to understand work and its organisation (Wiig 2000: 5).

**2.7.4.3    The rationalization of work (Taylorism)**

According to this view, work, including knowledge work, can be broken down into individual motions, which are then analysed to determine which are essential. Unnecessary motions are eliminated. This helps organisations to become more productive (Taylorism n.d.: Online).

**2.7.4.4    Total Quality Management (TQM)**

TQM is a comprehensive approach to quality that focuses first on customer definitions of quality, and then on orienting the entire production function in an organisation towards achieving products and/or services of this quality (IEBM Dictionary of Business and Management 1999: 308). Knowledge or expertise in an organisation can help ensure that products and/or services of quality are delivered.

**2.7.4.5    The cognitive sciences**

The cognitive sciences try to understand how best to support knowledge workers' mental functioning (Wiig 2000: 21).

**2.7.4.6    Artificial intelligence (AI)**

AI is used to automate routine and assist knowledge-intensive work with reasoning and other high-level functions (Wiig 2000: 22).

**2.7.4.7    Cybrary and Information sciences**

"Cybrary" sciences (combination of library sciences and cyber space) and information sciences bring knowledge related services to everyone and build supporting infrastructure and special knowledge-related capabilities (Wiig 2000: 22).

**2.7.4.8    Knowledge engineering**

Knowledge engineering is used to elicit and codify knowledge (Wiig 2000: 22).

**2.7.4.9    Ergonomics**

Ergonomics is used to create effective and acceptable work environments, which in turn has an effect on knowledge flows within an organisation (Wiig 2000: 22).

**2.7.4.10   Sociology**

One of the aspects this field tries to understand is the role knowledge plays in society (Wiig 2000: 5). At macro level, Bell (1973) and Machlup (1980) were among the first to attempt to describe a Post-Industrial knowledge-based society. Their research showed the underlining principles of working with knowledge. At a micro level, sociology has a strong research interest in the complex structures of internal networks and communities, which is of great importance in knowledge management (Prusak 2001: 1004). Another aspect of sociology that knowledge management inherited, according to Prusak (2001: 1004), is its concern for social facts. Rather than building from theory, it looks at what people actually do; in other words, the circumstances in which they share or don't share knowledge, and the way they use, change, or ignore what they learn from others (Prusak 2001: 1004).

**2.7.4.11        Philosophy and religion**

These fields developed to understand the role and nature of knowledge, and by permission given to individuals "to think for themselves" (Wiig 2000: 5). As stated in Section 2.2.4, the Greek philosopher Aristotle was the first to make the distinction between tacit (know how) and explicit (know what) knowledge, but this was seemingly forgotten in the years after the Second World War (Prusak 2001: 1005). The computerisation of work and the accessibility to vast quantities of information in recent decades has however increased the value of tacit or undigitised knowledge significantly. Knowledge management re-acknowledged Aristotle's distinction from the start, and is today one of its main aspects (Prusak 2001: 1005).

**2.7.4.12        Psychology**

One of the aspects psychology tries to understand is the role of knowledge in human behaviour (Wiig 2000: 5). From psychology, knowledge management has inherited the concern about different kinds of knowing, as well as about how and why people learn, forget, ignore, act, or fail to act (Prusak 2001: 1005).

Together, all these disciplines enable knowledge management to have the intellectual scope and substance to wrestle with real human and structural complexities of knowledge in organisations (Prusak 2001: 1005).

**2.8      SUMMARY**

The study on knowledge management as a concept was preceded by a study on knowledge as a concept. Knowledge as a concept can be viewed from a variety of perspectives and those pertinent to this study were discussed. In the discussion, it was indicated that knowledge could be viewed as an object that exists independently of human action, or can be viewed as a mirror/representation of reality, or can be seen as inseparable from people's minds, or can be transferred throughout a Community of Practice without losing value (in other words, people know through socialisation).

Different definitions as found in literature was discussed and from these the researcher formulated a definition that synthesized the other definitions that were discussed. This

was followed by a discussion of the concept of knowledge work, which was described as the acquisition (knowledge capture), creation, packaging, application or re-use of knowledge. After this, the study focussed on the different types of knowledge pertinent to the study, namely tacit, explicit, organisational and cultural knowledge. The discussion then moved on to the different knowledge processes, namely knowledge creation, knowledge transfers and knowledge capture. The importance of these processes in Communities of Practice was then indicated.

Having studied the concept of knowledge, the researcher approached the concept of knowledge management with more clarity. First the definitions of knowledge management pertinent to this study were discussed and the researcher again synthesized these into his own definition of the concept. Next, the question of whether knowledge management could be classified as a discipline was addressed, and the researcher was of the opinion that it could indeed be classified as a discipline. This was followed by a discussion on the value/purpose that knowledge management has for organisations. Because knowledge management can be described by a variety of models, two pertinent models to this study was included in a discussion, namely the SECI model and the Cynefin model. In the discussion, the processes of socialisation, externalisation, combination and internalisation were touched upon and their value in Communities of Practice indicated. The discussion on the Cynefin model revealed that it focused on how people make sense of the world and emphasized three types of systems, namely complicated, complex and chaotic systems, which can be plotted in four domains, namely known, knowable, complex and chaotic. The background to the management of knowledge was explored next, by looking at the different perspectives on knowledge management, the driving forces that led to its development, and the different ages through which it developed, as well as its interdisciplinary character. It was found that knowledge management could be viewed from an integrative perspective and an information technology perspective, and that this study followed an integrative perspective to knowledge management. The driving forces that led to the development of knowledge management were shown to be globalisation of business, sophisticated customers, sophisticated competitors, sophisticated suppliers, ubiquitous computing and increased technological capabilities, a knowledge centric view of the organisation, bottlenecks in enterprise effectiveness, and moves to understand human cognitive functions. Next, the researcher indicated that knowledge management developed through three stages,  namely information for decision support, the SECI

Model and the Complex-complicated chaotic stage. Finally, the researcher listed the different disciplines that give knowledge management its interdisciplinary character.

Knowledge in individuals or organisations can be increased through learning. Broadbent (1998: 25) describes knowledge management as the process through which the use of organisational knowledge is enhanced through sound practices of information management and organisational learning. It therefore seems that a link exist between knowledge management and the concept of the learning organisation, but what is meant by the concept learning organisation? In order to investigate this concept further, the researcher included a discussion of the concept in the next chapter.

**CHAPTER 3**

**LEARNING ORGANISATIONS**

**3.1     INTRODUCTION**

In an ever-changing environment, organisations need to adapt continuously, and organisational renewal is high on the agenda. The learning organisation concept may help to address this need. The idea that organisations can learn developed over a number of decades and some of the first researchers that investigated learning organisations were Argyris and Schön in their book: *Organizational Learning: a theory of action perspective*, in 1978.   During the 1980's and 1990's, the way in which organisations operate changed dramatically. Where organisations in the past were more concerned with manufacture (creation using physical tools), the focus shifted to "mentofacture" (creation using the mind) (Burgoyne 1995: 2). In other words, the ownership of the critical means of production shifted to employees, in the form of brainpower (Burgoyne 1995: 2). This is where the concept of the learning organisation offered a potential useful new focus for organisational change programmes (Burgoyne 1995: 2).

When approaching the concept of the learning organisation, the researcher realised that a discussion of the concept would be fruitless if the concept of learning isn't touched upon first. This chapter is therefore initiated by a discussion of different definitions of learning as found in literature, followed by a discussion of the different types of learning pertinent to this study. Wenger's perspective on learning as *learning in the context of lived experience and participation in the world* is also touched upon, as it relates learning to participation in Communities. After discussing the concept of learning, the learning organisation concept is approached. Definitions of the concept are investigated and its origin determined. This is followed by an overview of the idea of disciplines to describe the concept, after which the characteristics of learning organisations are listed. Having determined what a learning organisation is, the processes as well as the stages through which learning organisations develop are discussed. Since this study is conducted in the context of academic libraries, a discussion on the relationship between academic libraries and learning organisations have been included, which in turn is

followed by a discussion on the relationship between knowledge management and learning organisations.

## 3.2     LEARNING

The concept of learning is approached by first defining it, followed by a discussion on the different types of learning, which in turn is followed by a discussion on *learning in the context of lived experience and participation in the world.*

### 3.2.1  DEFINITION OF LEARNING

"Learning" can be defined in various ways, as a study of literature has shown. However, only a few definitions pertinent to this study are discussed.

Learning is regarded by Stata (1989: 64) as the process whereby individuals obtain new knowledge and insights, and through which their behaviour and actions are changed.

According to Huber (1991: 88) "*learning occurs in an entity if, through its processing of information, the range of its potential behaviours is changed*". The processing can involve acquiring, distributing or interpreting information.

Kolb, Rubin and Osland (1995: 49) regard learning as a process with a four-stage cycle. The process is active and passive, but also abstract and concrete*. "The learning cycle revolves around concrete experience, followed by observation and reflection, which leads to formation of concepts and generalisations, which leads to hypothesis to be tested in future action, which in turn leads to new experiences"*(Kolb, Rubin and Osland 1995: 49)*.

Learning according to Hosley et al. (1994: 7) is *"the process whereby a person acquires knowledge and skills, which leads to a change in attitudes".*

Marcum (1998: Online) regards learning as *"the process by which we move beyond information (explicit knowledge) to knowledge (tacit knowledge)"*.

For the purpose of this study, the following definition of learning that integrates the above definitions has been compiled: *learning is the process whereby a person processes information, and by doing so obtain new knowledge, insight, experience and skills. This process includes acquirement, observation, reflection and interpretation of tacit and explicit knowledge, which leads to a change in behaviour, actions and attitudes.*

Learning can take different forms, as discussed in the next section.

**3.2.2    TYPES OF LEARNING AND ITS APPLICATION IN ORGANISATIONAL SETTINGS**

Three types of learning pertinent to this study have been identified in literature. These are: single-loop-, double-loop- and deutero-learning (Argyris and Schön 1978: 8; Bateson 1972: 166-167).

**3.2.2.1    Single-loop learning**

In single-loop learning, also called *adaptive learning* by Senge (1990a: 206), the members of the organisation respond to changes in the internal and external environments of the organisation by detecting errors, which they then correct. The focus is thus on "survival learning" (Senge 1990a: 206). This is the type of learning that enables an organisation to remain stable in a changing context. Single-loop learning has a single feedback loop, which links detected outcomes to organisational strategies and assumptions that are adapted so as to keep organisational performance within the range set by organisational norms. The norms themselves however remain unchanged (Argyris and Schön 1978: 18-19). To illustrate this, an image of a thermostat can be used. In single loop learning, the temperature is just adjusted in accordance with the specific setting of the thermostat (Argyris 1991 as cited by Hitt 1995: 22). In other words, an individual working at a single loop level just conforms to the set standards and will focus on solving the problem. Single-loop learning it seems tends to occur more frequently in traditional organisations (Hitt 1995: 23).

### 3.2.2.2    Double-loop learning

Double-loop learning, also called *generative learning* by Senge (1990a: 206), occurs when flaws are detected and corrected in a manner that results in the modification of an organisation's underlying norms, policies, strategies, objectives, and assumptions associated with the norms (Argyris and Schön 1978: 3). This type of learning "*has a double feedback loop, which connects the detection of"* flaws or *"errors not only to strategies and assumptions for effective performance but also to the very norms which define effective performance"* (Argyris and Schön 1978: 22). In other words, double loop differs from single loop learning in that products and services are not the focus of modification when error is detected, but the organisation's underlying norms, policies, strategies, objectives, and assumptions associated with the norms. To illustrate this type of learning, one could again use Agyris's (1991) analogy of the thermostat (As cited by Hitt 1995: 23). Whereas in single- loop learning the temperature is just adjusted in accordance with the specific setting of the thermostat, with double-loop learning, one can ask whether this temperature setting is the proper one (Hitt 1995: 23). People operating at a double-loop level will not just conform to the standards and norms that have been set, but will question whether the standards and norms are the proper ones, and will ask what could be done to redesign the system so that problems won't occur again. Double-loop learning seems to be more aligned with learning organisations (Hitt 1995: 23).

### 3.2.2.3    Deutero-learning (Second-order-learning)

Deutero-learning was first coined by Bateson (1972: 166-167), and is the type of learning where organisations learn how to learn, in other words how to carry out single-loop and double-loop learning (Argyris and Schön 1978: 26). Through deutero-learning, an organisation's members also learn about previous contexts for learning. Previous episodes of organisational learning, or failure to learn, present opportunities for reflection to discover what they do that facilitate or inhibit learning (Argyris and Schön 1978: 27). The results of these are encoded in images and maps. Consequently, they invent new strategies for learning, which they then produce, evaluate and generalize (Argyris and Schön 1978: 27). In other words, deutero-learning can be regarded as the type of learning where organisations learn about learning.

All three of these types of learning are important to an organisation and should be present for an organisation to have the competitive edge. All three can also be found in Communities of Practice, which is the focus of this study. By engaging with other members of a Community of Practice, members can become aware of changes in the internal and external environments of the organisation and detect errors in the products and services of the organisation they belong to (single-loop learning can thus take place). Sometimes the errors detected can lead to the modification of the organisation's underlying norms, policies, strategies, objectives, and assumptions associated with the norms (in other words double-loop learning takes place). Members of a Community of Practice also learn from one another "how to learn" (deutero-learning). Through storytelling, role-play and simulations (see Section 4.8.11), members share with one another about previous episodes of learning that were a success or failed, and are given opportunities to reflect on what promoted learning and what hindered learning.

Wenger (1996: 22) however suggests a different perspective on learning, which will be discussed in the next section.

### 3.2.3  LEARNING IN THE CONTEXT OF LIVED EXPERIENCE AND PARTICIPATION IN THE WORLD

Wenger (1996: 22) suggests a perspective on learning that places learning in the context of our lived experience or participation in the world, in other words social learning. Learning is seen as part of human nature, which are both life sustaining, inevitable and a fundamentally social phenomenon. Consequently, Wenger (1998: 4) proposes a social learning theory around the concept of participation in a community life, which provides the basis for learning and identity construction processes.  First the theory sees all life experience as social experience in various communities. According to him, everyone is involved in multiple communities, and this participation is usually so natural that they are not even aware of it (Wenger 1998: 6-7). Secondly, the theory regards social participation as a process of learning and knowing that leads to the development transformation of identity (Wenger 1998: 4, 13). Thirdly, Wenger (1998: 53) proposes negotiation of meaning as being at the base of learning, the purpose being to ascribe meaning to life experience. Negotiation of meaning is regarded as being composed of participation and reification processes, with participation referring to *"the social experience of living in the world in terms of membership in social communities*

*and active involvement in social enterprises"* (Wenger 1998: 55). The reification process is regarded as *"giving form to our experience by producing objects that congeal this experience into thingness"* (Wenger 1998: 58).

To illustrate this social learning perspective, Wenger (1996: 22) suggests 7 principles:

### 3.2.3.1    Learning is inherent in human nature

According to this principle, we learn all the time, whether or not we see our learning, and whether or not we learn what is expected of us or of our organisations (Wenger 1996: 22). This means we already have learning organisations. We do not need to create learning, but circumstances that make learning empowering and productive (Wenger 1996: 22). Communities of Practice can supply the necessary framework for learning.

### 3.2.3.2    Learning is fundamentally social

This principle demonstrates that the social world is essential to learning, as man is a social being (Wenger 1996: 22). In other words, working together is at the heart of learning. According to Wenger (1996: 22), learning is organised in an apprenticeship-manner. He also sees no distinction between learning and social participation. Wenger (1996: 22) does not deny the place of neurological processes in learning, but emphasize that the placing of it in social contexts make them meaningful. Communities of Practice can provide the necessary social contexts for learning to occur.

### 3.2.3.3    Learning changes who we are

According to Wenger (1996: 23), learning changes our ability to participate in the world. By transforming our relations with the world and with others, learning transforms our identities as social beings (Wenger 1996: 23). This happens when we participate in Communities of Practice.

**3.2.3.4    Learning is a matter of engagement in practice**

This principle implies the ability to engage in the world in certain ways, so as to recognise oneself and to be recognised as a member of a community (Wenger 1996: 23). In other words, it is a matter of being able to participate in socially defined activities and to contribute to a community and its enterprise. This engagement in practice, according to Wenger (1996: 23), determines what we learn and empowers us to be who we are.

**3.2.3.5    Learning reflects our participation in Communities of Practice**

If learning is a matter of engagement in social practices, the communities that share these practices play an important role in shaping learning (Wenger 1996: 24). As people pursue a shared enterprise over time, they develop a common practice, that is, shared ways of doing things and relating to one another, which allow them to achieve their joint purpose (Wenger 1996: 24). Their joint learning affects the identities of those involved by changing their sense of how they can engage with the world (Wenger 1996: 24). Learning is both the vehicle and the result of our participation; as a matter of fact, it is integrated in the experience of participation (Wenger 1996: 24).

**3.2.3.6    Learning means dealing with boundaries**

In the formation of Communities of Practice, boundaries are created between those that are engaged and those that are not (Wenger 1996: 24). These boundaries are created by differences in the perspectives, the languages, and the styles that characterize each Practice. These boundaries are relevant to learning in the following ways: first they often confront newcomers or outsiders who seek entry into a Community; and secondly, they are reflected in our identities (Wenger 1996: 24). For example, if you are a member of such a community and belong to a business unit, you have to learn to function with the conflicting demands between the various forms of accountability. This means you have to find an identity that can encompass and reconcile these two forms of membership into a way to proceed (Wenger 1996: 24). Thirdly, boundaries have to be crossed for Communities of Practice to work together, and for their various perspectives to be coordinated. People who cross these boundaries have different experiences in different practices, and they may broker learning from one community to

another. Wenger (1996: 24) emphasizes further that the boundaries of practice may either be liabilities or if properly understood, learning assets for a learning organisation. Much learning occurs when boundaries are rich in interactions, and creates fertile ground for innovation.

### 3.2.3.7    Learning is an interplay between the local and the global

This principle emphasizes the aspect of individuals being employed by organisations but working on a day-to-day practice for and with much smaller circles of people who share their situations and enterprise (Wenger 1996: 25). Communities of Practice are seen not just places where local activities are organised, but also where the meaning of belonging to broader organisations is negotiated and experienced. Communities have to create a picture of the broader context in which its practice is located. Local practices thus deal with a variety of global categories of membership and identification, like profession, age, and gender, or institutional affiliation, styles, etc. (Wenger 1996: 25).

Having discussed definitions of learning, types of learning, and learning in the context of lived experience, the concept of the learning organisation can now be approached.

### 3.3    THE LEARNING ORGANISATION CONCEPT

In order to have a clear understanding of the learning organisation concept, the researcher deemed it important to define the concept and investigate its origin and characteristics. The idea of disciplines to describe the concept is also touched upon.

### 3.3.1    DEFINITION OF THE LEARNING ORGANISATION CONCEPT

The learning organisation concept has been defined by many authors, but only those definitions that could be of value to this study are included.

Burgoyne (1995: 6) defines a learning organisation as *"an organisation that facilitates the learning of all of its members and continuously transforms itself"*.

Daft and Marcic (1998: 25) on the other hand defines the learning organisation as *"one in which everyone in the organisation participates in identifying and solving problems,*

*enabling the organisation to continuously experiment, improve, and increase its capability".*

Senge (1990a: 14) regards a learning organisation as *"an organisation that is continually expanding its capacity to create its future".*

The learning organisation is defined by Garvin (1993: 78) as an organisation "*that is skilled at creating, acquiring, and transferring knowledge, and at modifying its behaviour to reflect new knowledge and insights".*

King (2001: 12) however regards Garvin and Senge's definitions as insufficient, because it does not encompass the notion of organisational results. According to him, few firms would be willing to invest in the pursuit of a learning organisation if the results were to be solely *"expanding its capacity"* (Senge 1990a: 14) or even *"modifying its behaviour"* (Garvin 1993: 78). King (2001: 14) regards a learning organisation as *"one that focuses on developing and using its information and knowledge capabilities in order to create higher-valued information and knowledge, to change behaviours, and to improve bottom-line results".* To King (2001: 14), the learning organisation is *"a goal to be pursued rather than a state of affairs to be achieved".*

For the purpose of this study, however, the learning organisation is defined as **an organisation that can identify, develop and utilize its tacit and explicit knowledge capabilities, enabling the organisation to expand its capacity to learn and grow, and to modify its behaviour to reflect new knowledge and insights, and in doing so to improve its performance and success.**

Having defined the terms *learning* and *learning organisation*, one could ask where the idea of a learning organisation originated? This question is addressed in the next section.

### 3.3.2   THE BACKGROUND TO THE LEARNING ORGANISATION

Hitt (1995: 17) describes the learning organisation as a *"paradigm shift from the more traditional organisation"*. According to him, organisations experienced three organisational paradigm shifts in the 20th Century. The early part of the 20th Century

were characterised by bureaucratic organisations, which focused on rationality and efficiency. Then, in the middle of the Century, Peter Drucker (1964) introduced the concept of performance-based organisations, which focused on results and effectiveness (Hitt 1995: 18). At the end of the Century, a third paradigm shift took place, with the popularisation of the learning organisation concept by Peter Senge (1990a and 1990b). This is the paradigm most of today's organisations find themselves in.

The three paradigms highlighted three important aspects that all organisations should have, namely efficiency (*"doing things right"*), effectiveness (*"doing the right things"*) and learning (*"expanding an organisation's capacity to do the right things and to do things right"*) (Hitt 1995: 18). In other words, learning organisations have incorporated the core features of the previous paradigms, but the level has been raised.

During the 1960s, 1970s and 1980s, some authors prepared the way for the development of the learning organisation concept. Some of these were Burns and Stalker (1962) who focused on organic organisations in their book *The management of innovation*,  Revans (1983) who focused on action learning in the article *Action learning: kindling the touch paper*, and Argyris and Schön (1978) with their study on organisational learning in the 1970s with their book, *Organizational learning: a theory of action perspective.*

Then, during the 1980s and 1990s, the environment in which organisations operated started to change radically, as a result of advances in technology and communications. Organisations were compelled to transform themselves in order to adjust to the changing environment and to ensure their competitive advantage. Many organisations went through change programmes, which were driven by principles of total quality management, business process re-engineering, "becoming lean", delayering, focusing on the mission-vision-commitment, and putting human resource development on the background (Burgoyne 1995: 2). Once these processes were completed, organisations found that though their firms were functioning with maximum efficiency to operate their value chains (basic chains to perform primary organisational tasks), they could not develop further (Burgoyne 1995: 2). Organisations were left vulnerable, with little capacity to see them through crises'. Their pursuit for leanness had led to valuable expertise being lost, resulting in little capacity to investigate potential business

developments and an inability to deal with periodically occurring problems (Burgoyne 1995: 2). This is where the concept of a learning organisation offered a useful new focus in organisational change programmes (Burgoyne 1995: 2).

In 1990, Peter Senge published a book that heralded the third organisational paradigm in organisational evolution, namely the learning organisation, as mentioned earlier. This book, entitled *The Fifth Discipline: the art and practice of the learning organization*, provided a systems view of the learning organisation, by suggesting a fifth discipline called systems thinking.  In his book, Senge (1990a: 10) used the idea of a discipline to describe *"a body of theory and technique"*, which has to be studied and mastered before it can be put into practice, and is *"a developmental path for acquiring certain skills or competencies"*. When all of an organisation's employees study and master these disciplines, an organisation becomes a learning organisation.

In the discussion on the background to the learning organisation concept, the researcher touched on the three organisational paradigm shifts organisations went through. As most organisations find themselves today in the third organisational paradigm, the researcher felt compelled to include a discussion of the five disciplines of Senge (1990a). These disciplines give a good idea of what it is that members of a learning organisation have to learn. A discussion on these disciplines follows in the next section.

### 3.3.3  DISCIPLINES AND LEARNING ORGANISATIONS

As mentioned in the section on the background to the learning organisation (see Section 3.3.2), Peter Senge (1990a: 10) promoted the idea of a discipline to describe the main components of the learning environment, where a discipline is *"a body of theory and technique"* that has to be *"studied and mastered before it can be put into practice"*. According to Senge (1990a: 11), practising a discipline requires one to be a *"lifelong learner"*, in other words you never reach the goal, but *"spend your lifetime mastering disciplines"*. These disciplines can be differentiated from normal management disciplines by their personal character. *"Each deals with what we think, what we really want, and how we interact and learn from one another"*. A discipline thus has to be practised and not only learned. As you practice, you learn what you don't know; you grow and strive to master it (Senge 1990a: 11).

Senge (1990a) identified five disciplines:

### 3.3.3.1 Personal mastery

*"Personal mastery is the discipline of continually clarifying and deepening our personal vision, of focussing our energies, of developing patience, and of seeing reality objectively"*. Personal mastery is seen as the organisation's *"essential cornerstone"* and its *"spiritual foundation"* (Senge 1990a: 7). The main principle of personal mastery is the principle of creative tension (Senge 1990a: 151, 154). In personal mastery, the individual develops his or her learning through a creative tension of future vision and current reality (Senge 1990a: 150).

Senge (1990a: 151) further stresses that a distinction should be drawn between emotional tension and creative tension, otherwise we predispose ourselves to lowering our vision. In other words, if we feel deeply discouraged about a vision that is not happening, we may have a strong urge to lighten the load, thereby lowering our vision. *"The price we then pay is abandoning what we truly want, our vision"* (Senge 1990a: 152). When holding a vision that differs from current reality, a gap arises (creative tension), which can only be resolved in the following ways: *the fundamental solution: "bringing reality into line with the vision"*, which takes time and can lead to frustration and emotional tension; or *the symptomatic solution: "lowering the vision to bring it in line with current reality"* (Senge 1990a: 152). After reducing the vision, though, new pressures will arise to further lower the already lowered vision. This leads to a subtle spiral of failure to meet goals and frustration, which in turn leads to a further reduction of the vision (Senge 1990a: 152). Understanding creative tension, and allowing it to operate, enables it to become an active force (Senge 1990a: 153). This is where the discipline of personal mastery comes into play. *"Mastery of creative tension transforms the way one views failure. Through mastery, failure is seen as simply a shortfall, or evidence of the gap between vision and current reality"*, and an opportunity to learn (Senge 1990a: 154).

Mastery also encompasses the concept of deutero-learning (see Section 3.2.2.3). This is the process of *"learning to learn"*, and becoming more skilled at problem solving.

Hosley et al. (1994: 7) regards *"the outputs of the learning process as the acquisition of knowledge, skills and a change of attitudes of the individual learner"*, which also links up with personal mastery.

Without vision, personal mastery cannot be attained. Therefore Senge (1990a) identified *building shared visions* as another discipline that has to be present in a learning organisation.

### 3.3.3.2      Building shared visions

This is the discipline where people in an organisation hold a shared picture of the future they seek to create. **"*The practice of shared vision*"** according to Senge (1990a: 9) *"involves the skill of unearthing shared pictures of the future that foster genuine commitment and enrolment rather than compliance"*. When a group of people come together *"to share a vision for an organisation, each person sees an individual picture of the organisation"* (Senge 1990b: 13). Each represents the image from a different point of view. When people come to share their individual pictures of the organisation with one another, the vision becomes more real in the sense of a mental reality that people can truly imagine achieving. Now they have partners or co-creators, in other words the vision no longer rests on individuals alone (Senge 1990b: 13). *"Shared vision"*, according to Senge (1990a: 206), is *"vital for the learning organisation, because it provides the focus and energy for learning".*

*"Many shared visions are extrinsic in character, in other words they focus on achieving something in relation to an outsider"*, for example Pepsi's vision is to beat Coca-Cola (Senge 1990a: 207). The problem with these types of visions is that they are transitory. A shared vision that is intrinsic, though, uplifts people's aspirations. Work becomes part of pursuing a greater aim, embodied in the organisation's services and products (Senge 1990a: 208).

Shared visions can be exhilarating and can help to lift organisations out of the mundane. Shared visions also change people's relationship with the organisation and create a common identity (Senge 1990a: 208). Shared visions furthermore provide necessary mechanisms to keep the learning process on track; they promote risk taking and experimentation, and foster long-term commitment (Senge 1990a: 209).

But how does one build shared visions? Senge (1990b: 13-14) lists the following ways: encouraging personal visions, communicating personal visions and asking for support, blending extrinsic and intrinsic visions, and distinguishing between positive and negative visions. Hosley et al. (1994: 7) however criticizes Senge's idea of a shared vision. Shared visions, according to them, might be unachievable in large organisations. It might also be an insufficient response to a continually changing environment, and will therefore not provide the necessary competitive edge.

The researcher agrees with Hosley et al. (1994) that it might be difficult to attain shared visions in a large organisation, but Communities of Practice could be the ideal mechanism to overcome these shortcomings. Communities of Practice offer safe and trusting environments in which shared visions can be built.

**3.3.3.3        Mental models**

This discipline looks inwardly, and is where one learns to highlight and to examine the internal pictures one has of the world. These are deeply rooted assumptions, generalisations, or even images/pictures that influence the way we see the world and the way we act (Senge 1990a: 8). It influences our language, what we believe, our ideas of what is right or wrong, and what is possible or not possible.  The discipline of working with mental models starts by learning to unearth our internal pictures of the world, to bring them to surface and to hold them meticulously to scrutiny. Through learningful conversations, balanced between inquiry and advocacy, individuals reveal their own thinking effectively and expose their thinking to the influence of others (Senge 1990a: 9).

Very often the best ideas in organisations never get put into practice because they are in conflict with established mental models. Leaders then have the task to challenge assumptions without invoking defensiveness, which requires leaders to be able to reflect, inquire, see leaps of abstraction, balance inquiry and advocacy, and recognise and defuse defensive routines (Senge 1990b: 14-15).

Nonaka (1991: 99) on the other hand regards the use of figurative language, symbolism and metaphors (mental models) as a powerful management tool to help managers articulate their intuitions and insights and convert tacit to explicit knowledge.

### 3.3.3.4        Team learning

*"Team learning is the process of aligning and developing the capacity of a team to create the results its members truly desire"* (Senge 1990a: 236). It builds on the discipline of developing shared vision and also on personal mastery, because teams are made up of individuals (Senge 1990a: 236). According to Phipps (1993: 23-24), team learning differs from teamwork in that it focuses really on the team and not on individual contributions. It consists of real thinking together, dialogue, joint insights, and the ability of its members to suspend assumptions (Senge 1990a: 10). In other words, shared growth becomes the aim. When teams are really learning, it leads to extraordinary results and their members grow more rapidly than would have been possible otherwise (Senge 1990a: 10).

According to Senge (1990a: 237) "*the discipline of team learning also involves mastering the practices of dialogue and discussion*. *In discussion, different views are presented and defended and there is a search for the best view to support decisions that must be made at the time*. *In dialogue*", on the other hand, "*there is the free and creative exploration of complex and subtle issues, a deep '**listening**' to one another and suspending of one's own views*" (Senge 1990a: 237). *Dialogue* and *discussion* are seen as complimentary, but most teams fail to discern and move consciously between them.

As Hosley et al. (1994: 9) rightly points out, Senge's idea of team learning is based on man's capacity for conversation. In *discussion*, different views are presented and defended, but in *dialogue*, different views are presented as a means towards discovering a new view. *Discussions* are seen as useful in decision-making situations, whereas *dialogues* allow complex issues to be explored.

Nonaka (1991: 99-100) takes this notion of conversation further by focusing on the use of slogans and metaphors to express the inexpressible and articulating the team's tacit knowledge based on hunches and intuitions. This links up with the idea of sharing and capturing tacit knowledge by means of Communities of Practice.

Team learning also involves learning how to handle the forces opposing productive dialogue and discussion in teams, of which *defensive routines* as identified by Argyris (1990), is foremost (Senge 1990a: 237). Team learning, according to Senge (1990a: 10), is vital because teams form the fundamental learning units in modern organisations. When teams learn, the organisation also learns.

### 3.3.3.5 Systems thinking

Systems thinking is the fifth discipline that Senge identifies, and is the discipline that integrates the other disciplines and fuse them together into a cohesive body of theory and practice (Senge 1990a: 12). Without systems thinking, there is no motivation to investigate how the disciplines interrelate. Systems thinking however also builds on the disciplines of building shared visions, mental models, team learning and personal mastery to realize its potential (Senge 1990a: 12). Systems thinking constitute the core of the learning organisation, and is the process whereby one looks at the world as a whole and not just as a series of happenings, and this is done by using intuition as well as logic in order to solve problems (Phipps 1993: 22). It focuses on the identification of spheres of influence, and not cause-result-linear-progression (Phipps 1993: 22). This type of thinking sees organisations as giant networks of interconnected nodes. Changes intended to improve performance in one part of the organisation can have an impact on other parts of the organisation (Stata 1989: 65).

This discussion on disciplines provided a good overview of what it is that has to be learned (studied and mastered) in a learning organisation, but what makes an organisation a learning organisation? In other words, what are the characteristics of a learning organisation? To gain a better understanding of this, a discussion on each of these characteristics follows in the next section.

### 3.3.4  CHARACTERISTICS OF A LEARNING ORGANISATION

In the discussion on the characteristics of learning organisations, the elements of learning as identified by Marquardt (2002: 15-16) are used as a framework. Learning organisations were found to have the following characteristics in common:

**3.3.4.1        Learning dynamics**

- A learning organisation has *"different levels of learning, types of learning and learning skills"* (Marquardt 2002: 15);

- *"They provide continuous learning opportunities"* (Rowden 2001: 12);

- A learning organisation practises action learning, in other words it *"takes action, reflects, and adjusts course as it goes, seeking to enhance the speed and effectiveness by which it learns how to change"* (Rowden 2001: 16);

- *"They use learning to reach their goals"* (Rowden 2001: 12);

- They learn from past experience, in other words they take time to reflect on and evaluate their experiences and successes (Osland, Kolb and Rubin 2001: 64);

- They learn from other organisations, in other words they benchmark excellent organisations and learn from best practices of other organisations (Osland, Kolb, and Rubin 2001: 49).

**3.3.4.2        Organisation transformation**

- Learning organisations *"are continuously aware of, and interact with their environment"*, in other words practice *"environmental scanning"* which produces the *"input for changes that are needed within the organisation"* (Buhler 2002: 20; Rowden 2001: 12);

- A learning organisation exists in a constant state of readiness to handle change (Rowden 2001: 15);

- A learning organisation is in a state of continuous planning (Rowden 2001: 16);

- In a learning organisation, management uses a learning map (plan) to help them plot a course of action (Hitt 1995: 21). Planning gives the members of the management team the opportunity to come together to share their individual mental models and to arrive at a collective mental model (De Geus 1988: 70-74). In other words, planning is seen as a learning opportunity (De Geus 1988: 70);

- A learning organisation encourages experimentation, improvises change, rewards small wins, and institutionalises success throughout the organisation (Rowden 2001: 16);

- A learning organisation *"embraces creative tension as a source of energy and renewal"* (Rowden 2001: 12);

- A learning organisation strives for excellence, in other words the highest standards in everything it does (Hitt 1995: 20);

- A learning organisation focuses on *"self-renewal"*, in other words *"creating a framework within which continuous innovation and rebirth can occur"* (Hitt 1995: 20);

- A learning organisation has a clear-cut vertical structure for stability, but also dynamic networks for flexibility. These networks *"reshape how, and by whom decisions get made; it integrates decisions horizontally at the lowest managerial levels, at the highest speed"*; it identifies the "small organisation inside the large organisation" and empowers it to make appropriate decisions; it enables the right people in the organisation to converge faster and in a more focused way than the competition (Charan 1991: 105);

- A learning organisation uses measurement systems to measure performance (Hitt 1995: 19, 23).

### 3.3.4.3 People empowerment

- Leaders in learning organisations develop a shared vision, and provide the resources needed for achieving the vision (Hitt 1995: 20);

- Leaders in learning organisations also delegate authority and celebrate successes (Hitt 1995: 20);

- *"Managers and leaders as learners carry out coaching, mentoring and modelling roles to generate and enhance learning opportunities for people around them"* (Marquardt 2002: 15);

- Learning organisations *"foster inquiry and dialog, making it safe for people to share openly and take risks"* (Rowden 2001: 12);

- Learning organisations encourage their employees to experiment with continuous improvements to ongoing programmes, or to test innovative ideas. The results of these experiments then guide decision-making (Osland, Kolb and Rubin 2001; 49);

- Learning organisations *"link individual performance with organisational performance"* (Rowden 2001: 12);

- A learning organisation fosters team learning and collaboration  (Confessore 1997: 5-6);

- According to Hitt (1995: 20) it is essential that learning organisations have synergistic teams. These teams are high-performance learning teams (Hitt 1995: 20). Members of these teams *"achieve a level of intelligence greater than the sum of the intelligence of the individual members"* (Hitt 1995: 21). These teams have the ability to engage in dialogue. Members of these teams also have respect for one another, they share mental models, they have an open mind to opposing views, they hold a shared vision, and they are engaged in a quest for mutual understanding (Hitt 1995: 21). People empowerment links up with Senge's disciplines of personal mastery and team learning, which were discussed in Section 3.3.3.

### 3.3.4.4        Knowledge management

- A learning organisation is involved in *"the management of acquired and generated knowledge (tacit and explicit), which includes the acquisition, creation, storage, transfer, and use of knowledge"* (Marquardt 2002: 16);
- Learning organisations have the mechanisms to quickly share knowledge among their members (Osland, Kolb and Rubin 2001: 49);
- In a learning organisation, learning that has occurred in one division can be effectively shared with other divisions through knowledge management (Buhler 2002: 22);
- The Internet enables organisations today to learn from what other organisations are doing, and to use knowledge gained to benchmark best practices (Buhler 2002: 22);
- A learning organisation *"can rapidly leverage its new knowledge into new products, new marketing strategies, and new ways of doing business"* (Marquardt 2002: 16);
- A learning organisation practices competitive intelligence, which is not just the process of checking out the closest competition, but involves also the scanning of the environment for any knowledge that could be important to the organisation (Buhler 2002: 20);
- *"By developing learning organisations that use the knowledge they acquire, can organisations continue to adapt and respond to their changing environment"* (Buhler 2002: 22).

**3.3.4.5        Technology enhancement**

- A learning organisation has *"the necessary supporting integrated technological networks and information tools that allows access to and exchange of information and learning"*. This includes *"technical processes, systems, and structure for collaboration, coaching, coordination, and other knowledge skills"*, as well as *"electronic tools and advanced methods for learning"* (Marquardt 2002: 16);

- Woiceshyn (2000: Online) approach the topic from the point of view of technology adoption. According to her, the success of technology adoption depends on the organisation's ability to learn. In other words, a learning organisation has a better chance of adopting a new technology than an organisation that is not a learning organisation;

- Dodgson (1993: 384) on the other hand suggests that environmental uncertainty can create a need for learning. The adoption of a new technology might thus trigger an uncertainty and be a motivation for learning. In other words, the adoption of a new technology can help an organisation to become a learning organisation.

Having discussed the characteristics of the learning organisation, the question one can ask is how one develops an organisation that learns? The next section touches on this.

**3.4     DEVELOPING A LEARNING ORGANISATION**

Traditional organisations develop into learning organisations through different processes and it is important that people take note of these.

**3.4.1  PROCESSES THAT RESULT IN A LEARNING ORGANISATION**

Learning in organisations, according to Schulz (2001: 663), takes place through a number of processes, which in turn create new knowledge or modify existing knowledge. These processes lead to the development of a learning organisation and could be described as follows:

**3.4.1.1    Acquisition of knowledge and insight**

Huber (1991: 90) describes this as *"the process by which knowledge is obtained"*. Formal organisational activities to acquire knowledge can include, for example, customer surveys, analysis of competitor's products, performance reviews, research and development activities, etc. Informal activities can include, for example, reading a newspaper, or listening to coffee break "news" (Huber 1991: 90). Acquisition of knowledge and insight links up with Schulz's (2001: 663) idea of exploration. According to him, *exploration* is about search, discovery, experimentation, play, variation, risk taking, flexibility and innovation, which generate new unsettled knowledge, with potentially high but uncertain returns.

According to Schein (1993: 86), *insight* brings a new level of understanding and also new direction. This occurs when an answer comes to one suddenly, after struggling for hours to find it. As soon as one has the answer, one can make the necessary cognitive changes. Insight is often very difficult to reach, and when the problem is not solved one becomes frustrated and fearful. Schein (1993: 86) calls this Anxiety 1, namely the inability to learn something new, because it looks difficult. If one wants to avoid Anxiety 1, one either have to ignore the problem or simplify it, even if this means that one has to distort the problem, or project it onto somebody else (Schein 1993: 86). *Insight*, though, does not change behaviour automatically, and until one's behaviour has not changed so that new results are seen, one does not know whether that which was learned cognitively is of value (Schein 1993: 86).

**3.4.1.2          Information distribution**

Information distribution is described by Huber (1991: 90) as the *"process by which information from different sources are shared"*, leading to new information and understanding. Units or sections in an organisation often develop new information by piecing together pieces of information they have obtained from other organisational units.

The problem is that many organisations do not know what they know and they often tend to have weak systems for retrieving a certain piece of information that is known to the organisation. However, by distributing information widely through an organisation,

more varied sources for it will be created, and efforts to retrieve it will be more successful. This in turn will lead to learning by individuals and units of organisation (Huber 1991: 100-101). Information distribution according to Huber (1991: 101) leads to a more broadly based organisational learning and not to a new organisational learning as put forward by other authors.

Eberhagen (2000: Online) brings another dimension to the fore. He makes a distinction between knowledge distribution and information distribution. According to him, the purpose with knowledge distribution is to promote learning and the purpose with information distribution is to reduce uncertainty and resolve ambiguity. Eberhagen (2000: Online) further identifies a number of methods to distribute knowledge, namely:

- FAQ (frequently asked questions) as a way to distribute knowledge to a community of knowledge workers within a specific area/field;
- How-to stories, which give good examples of how to go about doing something;
- Reviews: statements by an alleged expert on a topic within a specific knowledge field;
- Subscriptions: registering your needs at the source of the information/knowledge distribution, e.g. mailing lists;
- Bulletin boards: a public location where a person can post something that he/she wants others to take notice of, or a place where one can browse through what others have posted there;
- Discussion groups: Dialog plays an important role in these groups and forms a communication model for knowledge exchange.

Eberhagen (2000: Online) concludes that knowledge/information distribution cannot be studied as an isolated phenomenon, but should be studied in the context of other related concepts such as acquisition of knowledge and insight, knowledge/information interpretation and development of organisational memory. The researcher agrees with Eberhagen (2000: Online). None of these processes that lead to a learning organisation can be studied in isolation, as they are closely related and intertwined.

### 3.4.1.3        Information interpretation

Daft and Weick (1984: 286, 294), define information interpretation as "*the process through which information is given meaning*", and also as the "*process of translating events and developing shared understandings and conceptual schemes*". Huber (1991: 90) describes it as the "*process by which information is given one or more interpretations",* in other words *"information is given meaning, events are translated, and a shared understanding is developed"* (Eberhagen 2000: Online). More varied interpretations changes the range of potential behaviours in the organisation and enhances organisational learning (Huber 1991: 102).

Schulz's (2001: 663) idea of "encoding" can be linked with this process of information interpretation. Organisations learn by encoding deductions from experiences into organisational routines that guide behaviour (Levitt and March 1988: 319). Sharing of knowledge among each other is thus made possible by codifying knowledge into certain formats (Schulz 2001: 663).

### 3.4.1.4        Development of organisational memory

Huber (1991: 90) describes this as the process "*by which knowledge is stored for future use"*. Organisational memory is normally created by individuals, but the human components of organisational memories according to Huber (1991: 105) are often unsatisfactory and unreliable. When people move from one organisation to another, it causes great loss for the human components of an organisation's memory. Also, if people in organisations do not anticipate future needs for certain information, it can cause great amounts of information not to be stored, or to be stored in such a way that it cannot be easily retrieved. *"Another problem is that organisational members with information needs frequently do not know of the existence or whereabouts of information possessed or stored by other members"* (Huber 1991: 105).

The question is, how does one ensure that organisational memory is created and developed? Huber (1991: 105) suggests the processes of storing and retrieving. A great amount of organisational knowledge on how things operate or are done is stored in the form of standard operating procedures, routines and scripts (Feldman 1989: 121-123; Gioia and Poole 1984: 449; Nelson and Winter 1982: 99-107). Decision-making,

however, is not only determined by these standard operating procedures, routines and scripts, but "soft" (non-routine) information, which are routinely acquired and mentally stored  (Mintzberg 1975: 51).

According to Huber (1991: 106), much of what an organisation learns is stored in the minds of its members. This links up with the idea of Communities of Practice, which is the focus of this study. That which is shared by the members of a Community of Practice can be resident in an electronic mail system, on an electronic blackboard, or bulletin board or artificial intelligence systems. Many organisations, however, grow their own experts, and use the knowledge of these experts to create computer-based expert systems or knowledge repositories, which are useful components of organisational memory (Huber 1991: 106).

Having these processes in place will result in the formation of a learning organisation. Learning organisations however develop through a process of different stages. These will be discussed in the next section.

### 3.4.2          STAGES IN THE DEVELOPMENT OF A LEARNING ORGANISATION

Mohr and Dichter (2001: 744-747) identify six stages in the development of a learning organisation and Kline and Saunders (1993: 24-218) suggest 10 steps to develop a learning organisation. For the purpose of this study, these steps have been integrated into six stages:

### 3.4.2.1          Stage 1 -  Honeymoon Stage

The Honeymoon Stage is the stage where the community comes together, where they clarify the method for making decisions, where they reach consensus early, and where they brainstorm possibilities. This stage can develop through the following steps: determining the learning culture, encouraging that which is positive, and making the workplace safe for thinking (Kline and Saunders 1993: 24-69).

a) __Determining the learning culture__

The learning culture of an organisation can be determined by finding out what everyone thinks (institutional determination), by finding out if individuals' opinions are respected, and by individuals taking responsibility for their thoughts or actions (individual determination) (Kline and Saunders 1993: 24). This method is rather generalised and abstract, but it could be made more concrete and specific by doing a formal Learning Organisation Assessment (Kline and Saunders 1993: 37). Each employee in the organisation could be given a set of statements about the organisation, which they must read and make a judgment about (they must grade them from 1-5 where 5 = to a very great extend and 1 = not at all) (Kline and Saunders 1993: 37-38). The results of the assessment are then plotted on a matrix to provide an overview and to stimulate discussion about many of the major issues that must be addressed (Kline and Saunders 1993: 40). Another method is to compile an assessment inventory of the organisation's present strengths and weaknesses, with respect to it being a learning organisation (Hitt 1995: 24).

b) __Encouraging that which is positive__

The purpose of this step is to change the attitude of people in the organisation, so that they can learn to think positive. Their behaviour towards one another and towards the world outside should be more positive and supportive (Kline and Saunders 1993: 46).

Kline and Saunders (1993: 48) further suggest reframing as a method to change attitude. Reframing is a way that allows you to see things in a new light, to sort out facts and ideas so the positive ones will come into clarity, while the negatives, though not forgotten, are placed on the back burner (Kline and Saunders 1993: 48). The assessment done in step 1 brings into focus those areas that need to change, and then the negatives found in the assessment can be reframed (not solved, but seeing in them the possibilities for advancement) (Kline and Saunders 1993: 48). This requires positive thinking that looks at the current reality and the positive outcome that can be developed from it (Kline and Saunders 1993: 48).

**c)  Making the working place safe for thinking**

There are lots of stories of innovative thinkers that were ignored or laid off by their employers, who started their own successful businesses and industries. A climate will have to be created where everyone will look at better ways of doing their work, and where employees are not penalised for new ideas. The thinking ability of all in the organisation is absolutely essential (Kline and Saunders 1993: 69).

**3.4.2.2        Stage 2 - The Conflict Stage**

During this stage, reality settles in and conflict arises. This conflict however results in good solutions being worked out, and is essential for the development of a healthy learning group (Mohr and Dichter 2001: 745). The leader's role in this stage is that of mediator and teacher of mediation and negotiation. The leader should also encourage shared decision-making (Mohr and Dichter 2001: 745). During this stage, the following step as identified by Kline and Saunders (1993: 89-107) can be taken:

**Reward risk taking**

In the current environment, organisations find themselves in permanent white water, and taking risks is becoming a prerequisite for survival. To ignore risks will not cause dangers to disappear, and if one does not take moderate intelligent risks, success stays a far-off dream (Kline and Saunders 1993: 89). Organisations should adopt practices, which encourage boldness and enterprise. Each new risk presents an opportunity to learn about how to be more successful, and also about how to take intelligent risks (Kline and Saunders 1993: 93). These bold initiatives stand a greater chance of succeeding in an environment that is hostile to them (Kline and Saunders 1993: 93). For this reason, it is important that a culture that supports risk-taking is built in the organisation. This culture must allow the organisation's members to make mistakes. To ensure that this culture takes hold in the organisation, it is important that it be modelled throughout the organisation, especially by management (Kline and Saunders 1993: 95). Through risk taking, members of the organisation also discover how important the others members of the team are, and how important each one's contribution can be (Kline and Saunders 1993: 107).

**3.4.2.3        Stage 3 - The Confusion Stage**

During this stage, the responsibilities of the members of the group are sorted out. According to Mohr and Dichter (2001: 746), the leader's responsibility in this stage is to prioritise and re-prioritise, to help the group keep focussed on what is important and also to:

**a)  Assist people to become resources to one another**

Each individual has different talents, qualities and skills that he or she can contribute, that can be used by others in the context of the team. People are thus resources to one another. By sharing these resources in a synergistic manner, people can move easily from task to task in a project (Kline and Saunders 1993: 108-109).

**b)  Exert learning strength**

In this stage, everyone in the organisation from top to bottom are encouraged to learn for the improvement of the organisation, not just in formal ways, but anywhere at any time, without specific demands from managers or instructors (Kline and Saunders 1993: 130).

**3.4.2.4        Stage 4 - The Messy Stage**

During this stage things are even less clear, and people feel disillusioned and without direction. The role of the leader of the group in this stage is to help the group to be comfortable with messiness, to point out that it is a part of real life, and to help them feel safe enough to indulge in risk-taking (Mohr and Dichter 2001: 746). Mistakes are welcomed, examined and understood as natural phenomena, and a necessary part of learning. The leader should further strive to develop those systems and communications that will eventually bring order out of the chaos (Mohr and Dichter 2001: 746). To enable the group to get direction, Kline and Saunders (1993: 153) suggest the following steps: mapping out the vision and giving life to it.

a) **Mapping out the vision**

To have a comprehensive vision of an organisation's resources and how they can ensure success, teamwork is essential (Kline and Saunders 1993: 159). The vision must belong to everyone, in other words it should be synergistically shared (Kline and Saunders 1993: 160). The tool that Kline and Saunders suggests to map out the vision is Group Mind Mapping, which helps to create synergy because they are a graphic reflection of connections made and relationships understood (Kline and Saunders 1993: 166, 167).

b) **Giving life to the vision**

During this stage, the vision is translated into action. Kline and Saunders (1993: 181) suggest that we utilise the kinaesthetic intelligence (thinking with your body) of the people in the organisation. This could be done by acting out the process or system so that people can see how things could work. This is called kinaesthetic modelling (Kline and Saunders 1993: 186). Kinaesthetic modelling can be used as a tool for team building, as it can illuminate relationships (Kline and Saunders 1993: 189).

### 3.4.2.5       Stage 5 - The Scary Stage

During this stage, members of the group realises that somebody has to take responsibility for their actions. Participation in making decisions does not in any way ensure that the group automatically takes on real responsibility for what happens (Mohr and Dichter 2001: 747). At this stage it is important that the group build an accountability system based on information sharing and self-evaluation, so as to ensure that decisions are grounded in substantive information and data and not solely on the opinions and preferences of the group members (Mohr and Dichter 2001: 747). This stage is also the stage where the group begins to see itself as a professional learning community rather than merely a decision-making group (Mohr and Dichter 2001: 247). The group is moving into shared leadership and understands that what makes a community truly professional is a systematic approach to collective rather than individual accounting (Mohr and Dichter 2001: 247). Two ways to assist a group to determine authority and accountability is to connect the systems in the organisation to one another, and to synthesize everything and make it work (Kline and Saunders 1993: 203, 217).

### a)  Connecting the systems to one another

As discussed earlier in this chapter (see Section 3.3.3.5), Peter Senge (1990a: 12) identifies systems thinking as the fifth discipline of organisational learning, and a fundamental principle of a successful learning organisation. Kline and Saunders (1993: 203) see this too as vital to the success of an organisation. According to them, the learning organisation exemplifies systems thinking in two remarkable ways: first the human element as an essential component of any system within an organisation is emphasized, and secondly the learning organisation as an effective system (a system that learns) is emphasized (Kline and Saunders 1993: 204). The question is, what constitutes a system? According to Kline and Saunders (1993: 204), you have a system whenever a group of elements are so interconnected that a change in one part produces a change in the whole structure. To start connecting the systems, it is important to identify the different systems in the organisation, then according to Kline and Saunders (1993: 212), the organisation should build its own systems theory. This is done by ensuring that the systems keep track of themselves, by defining the purpose of each system, by articulating the rules according to which a system operates, by continuously revising the rules, by feedback, and by remembering that human behaviour is part of the system (Kline and Saunders 1993: 214).

### b)  Synthesize everything and make it work

The goal of this step is to internalise everything that have been learned, and to express it through the particular forms of action that have been chosen (Kline and Saunders 1993: 217). In this step, Kline and Saunders (1993: 218) propose that the organisation use drama as a guiding metaphor to focus and energize its internal activities and its approach to the world at large.

### 3.4.2.6    Stage 6 - The Mature Group Stage

During this stage, the group acts proactively and inclusively, and make their own agendas, rather than reacting to those of others. In other words, a learning community is born. Decisions are rarely made before enough knowledge is acquired, and better decisions are made because the viewpoints of others are included. The meetings of the

group are used as opportunities for professional development rather than a contention over details. All members of the group now take responsibility for what happens (Mohr and Dichter 2001: 747).

Having discussed the concept of a learning organisation, the researcher decided to include a discussion on academic libraries as learning organisations in the next section, because of the focus of this study on an academic library.

## 3.5    ACADEMIC LIBRARIES AS LEARNING ORGANISATIONS

Academic libraries, just as other organisations, are increasingly competing for services, facing new technologies, experiencing changing customer expectations, changing values in the workplace, and facing challenges of higher education (Fowler 1998: 223). These challenges could not be addressed by traditional libraries though, because: these libraries were inclined to be more reactive than proactive to changing circumstances; management forced down control and direction from above; librarians in these libraries saw themselves as unable to add something unique to the education process; management were slow to see the potential of new technologies; and the staff's contributions to the vision of the library were not taken into consideration (Phipps 1993: 24-25).

To face the challenges of a changing environment, academic libraries had to undergo radical transformations. In order to do this, these libraries were compelled to become learning organisations. The academic library as learning organisation differs greatly from a traditional library, and these differences as identified by Tautkevičience (2002: 107) can be illustrated in the following table in terms of their main functions, orientation, organisational structure, and understanding of a document, main principles, values, and approach to the users:

| FEATURES | TRADITIONAL LIBRARY | LIBRARY AS LEARNING ORGANISATION |
|---|---|---|
| 1. Main function | Acquisition, storage, classification, presenting for the user. | Acquisition, storage, classification, user education, creating learning environments, acceleration of information/knowledge. |
| 2. Orientation | To shelves. | To creation of a learning environment. |
| 3. Organisational structure | Hierarchy, bureaucracy. | Net (Matrix). |
| 4. Understanding of a document | Narrow (printed documents). | Wide (printed, audio-, video- and electronic documents, virtual spaces). |
| 5. Main principle | Everything for everybody. | Lifelong learning. |
| 6. Values | Obedience, carefulness, knowledge of the shelves and literature. | Activity, cooperation skills of the self-dependent learning, information literacy, permanent learning. |
| 7. Approach to user | Neutral. | Partnership. |

**Table 3.1    Difference between the traditional library and library as learning organisation**

In chapter 2, the concept of knowledge management was discussed, but is there a link between knowledge management and learning organisations? This question is addressed in the next section.

**3.6    THE RELATIONSHIP BETWEEN KNOWLEDGE MANAGEMENT AND LEARNING ORGANISATIONS**

A link between knowledge and learning has always existed, as illustrated by a myriad of examples in literature. Some examples are: Marcum's (1998: Online) description of learning as the process by which we move beyond information (explicit knowledge) to knowledge (tacit knowledge); and the researcher's own definition of learning (see Section 3.2.1) as *the process whereby a person processes information, and by doing so obtain new knowledge, insight, experience and skills.*

Knowledge gained through the process of learning were shown to be either in tacit or in explicit form, as confirmed by the discussion on Nonaka and Takeuchi's SECI model in Section 2.6.1, as well as the researcher's definition of a learning organisation in Section 3.3.1 as *an organisation that can identify, develop and utilize its <u>tacit and explicit knowledge</u> capabilities, enabling the organisation to expand its capacity to grow, and to modify its behaviour to reflect new <u>knowledge</u> and insights, and in doing so to improve its performance and success.*

Nonaka and Takeuchi's (1995) SECI-model (see Section 2.6.1) also makes a connection between *knowledge* and *learning*. As a person moves through the four processes of socialization, externalisation, internalisation and combination, *learning* takes place. During the process of *socialisation* (See Section 2.6.1.1), one individual shares his/her tacit knowledge directly with another, and in doing so, the other person *learns* his/her tacit skills through observation, imitation and practice. In the process of *externalisation* (see Section 2.6.1.2), tacit knowledge is converted into explicit knowledge so that it can be shared and *learned* by others (Nonaka 1991: 11). In the process of *internalisation* (see Section 2.6.1.4), explicit knowledge is converted to tacit knowledge, it is shared throughout the organisation, and other employees internalize it;  that is, they use it to broaden, extend and reframe their own tacit knowledge (in other words, they *learn*) (Nonaka 1991: 11). During the process of *combination* (see Section 2.6.1.3), discreet pieces of explicit knowledge are combined into a new whole, for example a report (Nonaka 1991: 11). This means existing knowledge are re-used, but the existing knowledge base of the organisation according to Nonaka (1991: 11) are not really extended. The researcher differs on this point from Nonaka, and is of the opinion that the knowledge base is extended by new insights formed through the combination of existing knowledge. These new insights are formed through a process of learning.

The link between learning and knowledge also comes out clearly in the discussion on the different perspectives on knowledge in Section 2.2.1. The "representationalistic view" on knowledge relates to Senge's (1990a: 8) discipline of "mental models", which he identified as one of the main components of the *learning* environment. According to this perspective, reality resides outside a person, and *knowledge* is a mirror of that reality. Information from the outside is processed by the mind, and then used to build mental representations (knowledge) that can be stored in the mind (Aadne, Von Krogh and Roos 1996: 11). These internal pictures (mental representations) influence the way

82

we see the world and the way we act, but they can sometimes be major stumbling blocks in the learning process (Senge 1990a: 9). The discipline of working with 'mental models' operates further by *learning* to unearth these internal pictures and hold them up for scrutiny by learningful discussions with others. When new experiences are assimilated, resulting in the improvement of the representations (mental images), *learning* occurs (Aadne, Von Krogh, and Roos 1996: 11).

The question that arises though is whether indiscriminate knowledge creation or sharing will lead to the development of a learning organisation. According to Rowley (2000: 8), this is not necessarily the case, as knowledge is not a neutral tool in the learning process. According to her, 'to learn' is to acquire knowledge of a subject, or skill as a result of study, experience or teaching. She describes the relationship between information (explicit knowledge), knowledge (tacit knowledge) and learning in an organisation as follows: information flows "into an organisation from a range of different sources", and "the organisation then conceptualises that information in a way that is consistent with its norms, cognitive frameworks, context and cultures" (Rowley 2000: 9). She describes this conceptualisation process as *learning*, and this corresponds with single-loop learning (see Section 3.2.2.1), where errors that are detected, are sent via a single feedback loop, and then corrected within the set norms of the organisation. The learning that takes place then leads to knowledge, which may either be tacit (embedded in minds or activities) or explicit (stated in verbal communication or documents). This knowledge is then used to support and inform decisions, behaviour and actions, and feedback from those actions may in turn generate further knowledge (Rowley 2000: 9). When this knowledge leads to a change in the norms, cognitive frameworks and culture of the organisation, double-loop learning has occurred (see Section 3.2.2.2).

Having established that a link between knowledge and learning exists, the question remains whether the concepts of knowledge management and learning organisations are related. The answer to this question became clear when a comparison was drawn between the developmental stages of both the knowledge management and learning organisation concepts. It was found that the idea of a learning organisation (see Section 3.3.2) gained momentum at approximately the same time as knowledge management entered its second stage of development (see Section 2.7.3.2). During the first stage of knowledge management (see Section 2.7.3.1), many organisations went through a process of computerisation and process re-engineering, the focus being on efficiency

rather than effectiveness. Leanness and delayering was the order of the day, which meant the laying-off of people, resulting in valuable expertise being lost. This left organisations with little capacity to investigate potential business developments, it made them unable to deal with periodically occurring problems, and unable to deal with the ever growing amount of knowledge. Organisations thus became aware that to retain their competitive edge, they would have to focus on continuous improvement, which implied a process of continuous learning. This is where the idea of a learning organisation came to the fore. Learning organisations provided a means whereby individuals working together could increase the knowledge and skills of all their members, especially during times of rapid change, and in chaotic, often highly competitive environments (Confessore 1997: 5).   Learning organisations are thus characterised by the management of knowledge (see Section 3.3.4.) which can include the acquisition, creation, usage, storage and transfer of knowledge, and the rapid leveraging of new knowledge into new products, marketing strategies and services, new ways of doing business, and the utilising of new knowledge to benchmark best practices.

## 3.7    SUMMARY

The first part of this chapter touched on the concept of learning as introduction to the learning organisation concept. During the discussion, the different definitions of learning pertinent to this study as found in literature were investigated, and from these definitions the researcher then formulated his own definition of learning. Because learning can take many forms, the researcher then identified only those types of learning pertinent to this study and discussed each of them. The types discussed included single-loop learning, double-loop learning and deutero-learning. This was followed by a discussion of Wenger's social learning perspective at the hand of seven principles, namely learning being inherent in human nature, learning being fundamentally social, learning changing who we are, learning being a matter of engagement in practice, learning reflecting our participation in Communities of Practice, learning meaning dealing with boundaries, and learning being an interplay between the local and the global. Having dealt with the concept of learning, the researcher approached the concept of the learning organisation. Firstly, definitions of the concept pertinent to this study were listed, followed by the researcher's own definition of the concept as deducted from these. Next, the researcher investigated the background to the development of the

learning organisation concept, and followed this up by a discussion of the different disciplines that contributed to the idea of a learning organisation, namely personal mastery, building shared visions, mental models, team learning, and systems thinking. A discussion of the characteristics of learning organisations followed next at the hand of certain elements of learning, namely learning dynamics, organisation transformation, people empowerment, knowledge management, and technology enhancement. Having determined what a learning organisation is, the researcher felt it necessary to include a discussion on how to develop a learning organisation. This discussion first looked at processes that result in a learning organisation, namely acquisition of knowledge and insight, information distribution, information interpretation, and development of organisational memory. This was followed by a discussion of the different stages of development of a learning organisation, namely the honeymoon stage, the conflict stage, the confusion stage, the messy stage, the scary stage and the mature group stage. Lastly, an attempt was made to determine whether a relationship exist between knowledge management and learning organisations. It was found that the concepts of learning organisations and knowledge management developed around the same time period, and that learning organisations are characterised by the management of knowledge. Having addressed the concepts of knowledge management and learning organisations and their relationship to one another, it is important to find out what their relationship is towards Communities of Practice. To address this, a discussion on the concept of Communities as Practice has been included in the next chapter, which in turn includes a discussion on the relationships between knowledge management, learning organisations and Communities of Practice.

**CHAPTER 4**

**COMMUNITIES OF PRACTICE**

**4.1    INTRODUCTION**

The idea of an informal network of people sharing a common practice is not a totally new concept, but has been in existence since the first civilisations appeared. The concept of a Community of Practice (CoP) however was only formulated in recent years. The purpose of this chapter is to investigate and discuss this concept in order to gain a better understanding of it.

As a starting point, the origin of the concept of a Community of Practice and how it developed into the concept as we know it today, is investigated. Next, the meaning of the concept is explored at the hand of definitions and characteristics as found in literature. As a third point of discussion, an overview of the relationships between teams, Communities of Practice and Communities of Interest are provided. This is followed by an investigation on why Communities of Practice are important to organisations by looking at the values they have for the organisation, the Community and the individual members of these Communities. Next follows a description of techniques that inspire participation in Communities of Practice and a discussion of the development stages of a Community of Practice. After this, a short description of the possible interactions taking place in an operational Community of Practice is given. This is followed by a discussion on the critical factors that contribute to the success of Communities of Practice. Next, the techniques for sharing/transfer of knowledge is discussed, followed by a discussion of those factors that enhance or hinder knowledge transfer in Communities of Practice. Thereafter, the idea of managing knowledge through Communities of Practice in learning organisations is addressed at the hand of discussions on the relationship of Communities of Practice and learning organisations, the management of knowledge through Communities of Practice, management of knowledge through Communities of Practice in academic libraries, as well as the role of the information professional in Communities of Practice.

## 4.2    THE ORIGIN OF COMMUNITIES OF PRACTICE

Man is in essence a social creature, and from the beginning of time, man has been organizing himself in social groups. In Ancient Greece, male *drinking clubs* played an important role in society (Black 1984: 3). The Roman *Collegia*, from which we inherited the word college, included social clubs, burial societies and cultic groups (Duff 1938: 113). During the Middle Ages, the *guild* came to the fore. A guild was a group bound together by ties of rite and friendship, offering mutual support to its members upon payment of their entry (Black 1984: 3). The early social guild formed the basis for the later craft-guild, groups originally general and identical in function, that gradually assumed specialized and differentiated roles in particular branches of economic life. Another example is that of the *caste system* in India, which functioned partly as a craft group (Black 1984: 3). All of these groups were artificial "families" that differentiated themselves from the outside world through their own special ethos.

In the modern world, groups like *regiments*, *schools*, *old-boy-networks*, *peer-groups* and even *gangs* bind people together as select groups with common interests, practices and ethos (Black 1984: 4).

In the academic world, the idea of collaboration in research is nothing new. The scientific paper developed in the 17th Century with the express purpose of finding out *"what was being done, and by whom, rather than a scholarly one of publishing new knowledge"* (Price 1963: 63). This however changed over time, as more and more scientists published their research findings in these papers. The original purpose of the scientific paper was thus a *"social device rather than a technique for cumulating"* data or information (Price 1963: 65). The motive was the establishment and maintenance of intellectual property, in other words researchers used papers *"to lay claim to newly won knowledge as their own"* (Price 1963: 65).

Scientific papers were published in scientific journals, but as time progressed, the number of journals multiplied to thousands. It became difficult to keep track of everything published. Scientists then formed groups like the Royal Society and the American Philosophical Society. As the needs of researchers grew, these groups were split into specialist societies that focus on specific disciplines/fields (Price 1963: 74). But there is a limit to the useful size of the membership of these groups. Societies that

87

were too big resulted in the formation of unofficial subgroups of really knowledgeable researchers. These groups are described by Price (1963: 85) as "invisible colleges".

It was found that meeting together once a year at conferences were not enough. There was a need for a more continuous means of close contact to others in the same field (Price 1963: 84). These groups devise mechanisms for day-to-day communication. They send out reprints of publications, preprints and pre-preprints of work in progress and results about to be achieved. Members of these groups are invited from time to time to *"centres where they can work along with several members of the group for a short time"* (Price 1963: 85). When they've done this, they *"move onto the next centre and other members"*, and then they return to their home base. What is interesting to note is that *"their allegiance is to the group rather than to the institution which supports them"* (Price 1963: 85). For each group there exists a type of *"commuting circuit"* of research centres, and summer schools and institutions that gives them an opportunity to meet, so that over an interval of a few years everyone *"working in the same field has worked with everyone"* (Price 1963: 85).

In the early 1980's, **Xerox** was looking for ways to boost the productivity of its field service staff. They sent out a work practices team to travel with a group of technical reps to observe how they actually performed their jobs; not how they described what they did, or what management assumed they did. Included in the work practices team was an anthropologist from the Xerox Palo Alto Research Centre (PARC). What they saw brought about a total revolution in the company. It was found that technical reps often made a point to spend time with each other in common areas like the local parts warehouse or hang around the coffee pot and exchange stories from the field (Brown and Gray 1995: 78). As it turned out, these gatherings were not just social activities, but a **community of professionals (technical reps**) coming together with the purpose of sharing and co-producing insights about how to repair machines better. In other words, it was through these informal conversations that knowledge transfer took place. So, rather than eliminating these informal conversations in pursuit of corporate efficiency, the company decided to expand them as part of their learning and innovation process (Brown and Gray 1995: 78).

The idea of a community of professionals sharing insights and practices was further taken up by Jean Lave and Etienne Wenger in a book they wrote in 1991, entitled

*Situated learning: legitimate peripheral participation.* In this book, they coined the term "Communities of Practice", which took the business community by storm.

In 2002, James van der Westhuizen introduced a new viewpoint on the concept of Communities of Practice. According to him, organisations in the new knowledge-focused-era have moved from structure to process. This, together with business process re-engineering, implementation of Enterprise Resource Planning (ERP) systems, Customer Relationship Management (CRM) systems, electronic (e) -procurement systems, etc. led to organisations characterised by horizontal hierarchy (Van der Westhuizen 2002: 93). According to Van der Westhuizen (2002: 93), most organisations have "*horizontalised everything, except governance, and that represents the single most significant challenge to the implementation of true knowledge management*". Because the building of horizontal governance is no easy task, Van der Westhuizen (2002: 93) proposes starting with a role change for strategic technical experts, and the use of Communities of Practice to create horizontal performance contexts for them. He sees Communities of Practice as *"knowledge management's one true deliverable"*, which not only integrates people, processes and technology, but also as the beginning of a *"framework for the measurement of success of a knowledge management initiative*" (Van der Westhuizen 2002: 93-94).

The forerunners of Communities of Practice each had very important aspects that were incorporated in the concept. Some might say that these Communities are nothing else but "invisible colleges", and looking at the academic world they may be partly correct, but the concept has a wider meaning to it. The idea of a guild or apprenticeship has also been incorporated in the concept, as members belonging to it learn from one another, and share and acquire the necessary skills and knowledge needed to make a success of their practice. Other aspects that are included are the idea of a social grouping, peer groups and belonging. Communities of Practice can also be used as mechanisms to measure the success of knowledge management in an organisation and can help to ensure a horizontal hierarchy. Communities of Practice can be formed across organisational boundaries or boundaries of different organisational units (called **External Communities of Practice** for the sake of this study) and can thus include professionals sharing the same domain, but working in different organisations or organisational units. An example of this could be researchers at different institutions working on the same field like HIV/Aids, water, etc. Communities of Practice can also exist internally between

colleagues in an organisation, focussing on the internal work processes and practices of the organisation, and normally operate in organisational units in the same organisation (for the sake of this study called **Internal Communities of Practice**).

Internal and external Communities can both be virtual[1] and face-to-face[2], but in order to give people a sense of being part of a Community, it is essential that people meet face-to-face in an infrequent manner.

Having discussed the development of the idea of a Community of Practice, it is important to have a look at what exactly is meant by this concept. In the next section, the researcher addressed this by looking at definitions and characteristics found in literature.

## 4.3    DEFINITIONS AND CHARACTERISTICS OF COMMUNITIES OF PRACTICE

A wide variety of definitions of Communities of Practice can be found in literature, but only those that are relevant to this study have been included. These definitions serve as helpful indicators of the characteristics of Communities of Practice.

### 4.3.1  DEFINITIONS OF COMMUNITIES OF PRACTICE

When defining the concept Communities of Practice, it is imperative to understand what is meant by *practice* and what is meant by *community*.

According to Lesser and Prusak (2000: 252), the term *practice* implies *"knowledge in action". Practice* also refers to the *"dynamic process through which individuals learn how to do their jobs by actually performing tasks and interacting with others performing similar tasks"* (Lesser and Prusak 2000: 252). The term *community* emphasizes *"the personal basis on which relationships are formed"* (Lesser and Prusak 2000: 252).

---

1.    These are meetings between people who are not present at the same physical geographical location at the same time, and are held via electronic media, i.e. telephone, interactive television, Internet virtual workspaces e.g. Yahoo Groups, etc.
2.    These are meetings where attendees are all present in the same physical geographical location at the same time.

**The concept of Communities of Practice is defined in literature as:**

- *"informal and semi-informal networks of internal employees and external individuals held together by common purpose, by shared concerns and interests, that rely on expertise contained within the group to accomplish their work"* (Malhotra 2000: 13; Marcum 1998: Online);

- *"a set of relations among persons, activity, and the world, over time and in relation with other tangential and overlapping CoPs"* (Lave and Wenger 1991: 98);

- *"peers in the execution of real work, held together by a common sense of purpose and a real need to know what each other knows"* (Brown and Gray 1995: 81);

- *"informal groups of employees who share knowledge and work together to solve problems"* (Lesser and Prusak 2000: 251);

- *"groups of people who share similar goals and interests, and in pursuit of these goals and interests, they employ common practices, work with the same tools and express themselves in a common language. Through such common activity, they come to hold similar beliefs and value systems"* (Co Vis Project: Online);

- *"a group of professionals, informally bound to one another through exposure to a common class of problems, common pursuit of solutions and thereby themselves embodying a store of knowledge"* (Johnson-Lenz and Johnson-Lenz 1999: Online);

- *"groups that learn and emerge of their own accord. Members find themselves socially and professionally drawn to one another. They collaborate directly, use one another as sounding boards and teach each other"* (Stewart 1996: 173);

- *"a diverse group of people engaged in real work over a significant period of time during which they build things, solve problems, learn and invent… in short, they evolve a practice that I highly skilled and highly creative"* (Bauer 1999: Online);

- "*networks that identify issues, share approaches, and make the results available to others*" ( Burk 2000: 18);

- *"groups of people informally bound together by shared expertise and passion"* (Wenger and Snyder 2000: 139);

For the purpose of this study, the following definition can be pieced together from the abovementioned definitions: **a Community of Practice is a network of people emerging spontaneously, and held together by informal relationships and common purpose, that share common knowledge or a specific domain, expertise and tools, and learn from one another.**

From these definitions and from the literature, one can compile the following list of characteristics of Communities of Practice:

### 4.3.2  CHARACTERISTICS OF COMMUNITIES OF PRACTICE

- People belonging to it have a sense of connection (Malhotra 2000: 13; Marcum 1998: Online);
- Members have a common purpose, a shared concern and a shared interest, which can include practical aspects of everyday activities, new developments, new tools, etc. (McDermott 1999a: Online);
- Communities of Practice can function within organizational units, can be cross-divisional, can span geographical boundaries or even span several different companies or organisations (Burk 2000: 19);
- They are driven by the value they provide to the members (McDermott 1999a: Online);
- Communities of Practice can consist of a handful of people, but it can also consist of larger numbers. The larger the group, however, the more difficult it becomes to share knowledge (Burk 2000: 19);
- The energy needed to hold a Community together is provided by the dedication and passion of a core group of participants (Burk 2000: 19);
- They provide a space where people can share their know-how and experience with their peers, in other words they are valuable knowledge-sharing mechanisms

(Burk 2000: 18-19);

- Members are held together by a real need to know what the others know (Brown as cited by Allee 2000: Online);

- Members rely on expertise contained within the group to accomplish their work (Malhotra 2000: 13; Marcum 1998: Online);

- Members share common knowledge, expertise and tools, and learn from one another (Co Vis Project: Online; Lesser and Prusak 2000: 251);

- Communities of Practice are effective mechanisms whereby organisations can continuously learn (Burk 2000: 19).

- *"They form and share knowledge on the basis of pull by individual members, not a centralized push of information"* (Manville and Foote 1996: 80);

- According to Wenger (1998) a typical Community of Practice can be characterized as having 3 dimensions, namely a domain, a community and a practice. He describes these dimensions as follows:

  - **Domain:**

    People organize themselves around a domain of knowledge that gives members a sense of joint enterprise and brings them together. This joint undertaking emerges from a shared understanding of their situation (Wenger 1998: 73, 77).

  - **Community:**

    People function as a community through relationships of mutual engagement that bind members together into a social entity (Wenger 1998: 73). They interact regularly and engage in joint activities that build relationship and trust.

  - **Practice:**

    A community builds capability into its practice by developing a shared repertoire, and resources such as tools, documents, routines, stories, vocabulary, symbols, artefacts etc. that embody the accumulated knowledge of the community. This shared repertoire serves as a foundation for future learning (Wenger 1998: 47-50, 72-73).

Another characteristic of Communities of Practice that Lave and Wenger (1991) identified is legitimate peripheral participation. As this has implications for this study, it was deemed important to elaborate a bit more on this topic.

- **Communities of Practice and legitimate peripheral participation**

Lave and Wenger (1991: 29) regarded Communities of Practice as a place where newcomers learn from old-timers by being allowed to take part in certain jobs relating to the practice of the community. Then, after a period of time, newcomers move from peripheral to full participation in the community. Learning in these communities is seen as *"legitimate peripheral participation"*; *not merely learning "situated in practice"*, but learning as an *"integral aspect of practice"* (Lave and Wenger 1991: 31, 34-35). They state that each of these aspects, i.e. legitimation, peripherality and participation, are indivisible, and cannot be considered in isolation (Lave and Wenger 1991: 35). For analytical reasons, though, Hildreth, Kimble and Wright (2000: 28-29) make a distinction between the three, and describe them as follows:

- **Legitimation**

    This is the dimension of Communities of Practice that is *"concerned with power and authority relations in the group. It can be formal or informal"*.

- **Peripherality**

    *"The terms peripheral and full participation are used to denote the degree of engagement with, and participation in the community"*.

- **Participation**

    *"Communities of Practice imply participation in an activity about which all participants have a common understanding on what it is and what it means for their lives and community"*.

Having discussed the definitions and characteristics of the concept of Communities of Practice, the researcher felt it necessary to indicate the relationships between Communities of Practice, teams and Communities of Interest.

**4.3.3 THE RELATIONSHIP BETWEEN TEAMS, COMMUNITIES OF INTEREST AND COMMUNITIES OF PRACTICE**

The following table compiled from Allee (2000: Online); Burk (2000: 18); Lesser and Prusak (2000a: 253); Smith and McKeen (2003: 6) and Ward (2000: 4-6) illustrates some of the differences between teams, Communities of Interest and Communities of Practice:

| | TEAMS | COMMUNITIES OF INTEREST | CoPS |
|---|---|---|---|
| *Membership* | Have formal requirements for membership. Members selected on the basis of their ability to contribute to the team's goals; ideally full-time. | Membership is fairly loose and transitory (people come and go). | Have an informal, self-selecting membership that is often fluid in nature. They include part-time and marginal members. |
| *Assignment of membership* | Membership is usually assigned or selected by the leader. | Membership is open to any one who shares the interest. | Membership is completely self-selecting and voluntary. People participate because they personally identify with the topic and the enterprise of the community. |
| *Objective* | Have a task orientation and are often launched for a specific purpose. | Are defined by shared area of interest. | Are defined by knowledge/ expertise rather than task. |
| *Determination of goals and nature of joint enterprise* | Major goals and the basic nature of the joint enterprise are generally predetermined by management. | Major goals and the basic nature of the joint enterprise is determined by the area of interest and negotiated between members. | Major goals and the basic nature of the enterprise are negotiated between members. |
| *Legitimation* | Legitimation derived from the formal hierarchy. | Legitimation is more informal and comes about by members earning their status in the community. | Legitimation is more informal and comes about by members earning their status in the community. |
| *Lifespan* | Lifespan is determined by purpose, project or task. | Lifespan lasts as long as the interest lasts. | Usually have longer life spans than teams and can last as long as it has value for its members, or can evolve. |

| Deadlines | Have deadlines to meet. | Have no deadlines to meet. | Have no deadlines to meet. |
|---|---|---|---|
| Accountability | Are responsible to management. | Are responsible mostly to themselves. | Are responsible mostly to themselves. |

**Table 4.1:     Characteristics of teams, Communities of Interest and Communities of Practice**

From literature, it seems Communities of Interest and Communities of Practice are very closely related. According to Ward (n.d.: Online), Communities of Interest exist in the first stage (Potential stage/Connecting stage) of the life cycle of a Community of Practice (see Section 4.5.2). He regards the second stage (Formation stage/Context stage) as the stage during which Communities of Practice are actually formed. Communities of Interest thus have the potential to develop into Communities of Practice, but not necessarily so. When Communities of Practice become institutionalised and formalised, it can develop into a full-blown team, but then looses some of its vitality. The sharing of tacit knowledge then becomes difficult.

Teams according to McDermott (1999b: Online) are the building blocks of an organisation. They consist of a number of people with a common goal and joint accountability for results; they are tightly integrated units that are driven by deliverables, defined by managerial tasks, and bound together by their members' collective commitment to results. Teams however can become silos where information is hoarded and not shared with other teams. In such a case, they can get isolated and can develop a team myopia where ideas from the outside are rejected, resulting in them losing the ability to generate new ideas. Teams can also easily neglect long-term capacity building.

Communities of Practice on the other hand are driven by the value they have for their members, are defined by knowledge sharing, their members learn together, they create common practices, and they are bound by identity (McDermott 1999b: Online). Communities of Practice compensate for the limitations of teams by linking experts from different teams together, thereby overcoming the isolation of teams. They also provide information on tools, analyses and approaches current in the discipline, and can also be of great help in finding knowledgeable individuals who can help solve specific problems.

96

According to Smith and McKeen (2003: 8), Communities of Practice are not regarded as a replacement for more traditional work structures such as teams. On the contrary, they are seen as complementing traditional work structures by adding new dimensions to work and learning, for example they can help teams to disseminate their learnings across the organisation. They describe the traditional organisation as taking *"a vertical view of work"*, (e.g. lines of business, regions, or projects), and a Community of Practice as having a *"horizontal view, which integrates learning and action across vertical boundaries"* (e.g. practices, insights or learning) (Smith and McKeen 2003: 8). Organisations that successfully integrate these two different kinds of structures are described by McDermott (1999b: Online) as  "double-knit" organisations. In other words, teams are woven together through Communities of Practice. *"Teams focus on outputs, products, processes or market segments"*, while *"Communities of Practice focus on learning within functions or disciplines, by sharing information and insight, collaborating on common problems, and stimulating new ideas"* (McDermott 1999b: Online).

This discussion on the relationships between Communities of Practice, Communities of Interest and teams touches on aspects that could indicate their value for organisations, but this is very limited, and does not only focus on Communities of Practice. It was thus deemed necessary to include a discussion of the value of Communities of Practice to organisations in the next section.

## 4.4    THE VALUE OF COMMUNITIES OF PRACTICE

In the past, the value of Communities of Practice has been regarded as being primarily relevant to the individual members of a community, but increasingly, organisations are recognizing Communities as valuable organisational assets (Lesser & Storck 2001: 832).

According to Lesser and Storck (2001: 832), Communities of Practice help organisations to *"overcome the inherent problems of a slow-moving traditional hierarchy in a fast-moving virtual economy"*. They are also effective mechanisms whereby unstructured problems can be dealt with. Communities of Practice can also be used to share knowledge outside of the traditional structured boundaries of the organisation. Furthermore, they are seen as mechanisms for the development and maintenance of long-term organisational memory; they can be used to enrich individual members'

learning; and can inspire members to apply what they have learned (Lesser and Storck 2001: 832). For Brown and Gray (1995: 81), the value in Communities of Practice lies in the fact that they can be used to build core competencies, that they can energise and mobilise employees, and that they can shape and enact strategy. According to Burk (2000: 19), new staff and staff in new roles can become productive more quickly through Communities. Members of Communities can also raise each other's competencies through sharing. Burk (2000: 19) further regards a Community of Practice as a mechanism for communicating.

Allee (2000: Online) distinguishes between the value a Community of Practice has for the organisation, the Community and the individual:

- **For the organisation:**
  *"They help drive strategy; they support faster problem solving both locally and organisation wide; they aid in the development, recruitment and retainment of talent; they build core capabilities and knowledge competencies; they rapidly diffuse practices for operational excellence; they cross-fertilize ideas and increase opportunities for innovation"* (Allee 2000: Online).

- **For the Community:**
  *"They help build common language; they embed knowledge and expertise in a larger population; they aid in the retention of knowledge when employees leave the organisation, they increase access to expertise across the organisation; they provide a means to share power and influence with the formal parts of the organisation"* (Allee 2000: Online).

- **For the Individual:**
  *"They help people to do their jobs; they provide a stable sense of community with other internal colleagues and with the organisation; they foster a learning-focused sense of identity; they help develop individual skills and competencies; they help a knowledge worker stay current; they provide challenges and opportunities to contribute"* (Allee 2000: Online).

In other words, by participating in Communities of Practice, individuals can obtain the necessary expertise to do their work effectively, and in so doing increase the

organisations' intellectual capital. This is what gives an organisation the necessary competitive edge in an increasing competitive environment.

If these Communities are so valuable then to people and organizations, it is imperative that organisations develop them, but how? This question is answered in the next section by discussing techniques to develop them, as well as stages of development these Communities go through.

## 4.5 DEVELOPING A COMMUNITY OF PRACTICE

Different authors identify different phases in the development of a Community of Practice, and participation in these phases can be promoted by using various techniques.

### 4.5.1 TECHNIQUES TO INSPIRE PARTICIPATION IN COMMUNITIES OF PRACTICE

When developing a Community of Practice, it is important to convince people that participation will be of benefit to them. Hanley and Dawson (2000: 326-328) suggests the following techniques to persuade people to participate in Communities of Practice:

- **Identify/Recognize individual achievement** by inviting suitable candidates to join;
- **Build group identity** through the setting up of a homepage or a workspace on a portal;
- **Motivate and reward participation** by writing participation in Communities of Practice into formal performance objectives/skills development for the year, and linking this to incentives;
- **Celebrate achievements and successes** of members for example by giving out rewards at conferences, by publishing online links to members' papers and by publishing stories on individuals or communities in newsletters or other corporate-wide publications.

### 4.5.2 LIFE CYCLE OF A COMMUNITY OF PRACTICE

A Community of Practice as a human phenomenon develops in different stages. It has a starting stage and a final stage. According to Richard McDermott, Etienne Wenger and

Bill Snyder in Allee (2000: Online), a Community of Practice develops through the following stages: a potential stage where a network of people with similar issues and needs exist that have the potential to come together and discover common ground, and prepare for a community; a coalescing (formation) stage where people come together and launch a Community of Practice; a maturing (commitment) stage where the Community grows and takes full ownership of its practice; an active stage where the Community is established and goes through cycles of activities; and a final stage where the group dies and its members disperse. In Gongla and Rizzuto (2001: Online), the final stage of a Community of Practice is seen as the adaptive phase where the Community adapts to changes in the environment and keeps on functioning, but in a different way. In other words, the Community of Practice does not die out in the final stage but adapt to the changes and continues to operate. They substitute adaptation for disengagement. According to them, Communities of Practice can die out in the earlier stages of the development process, but dying out in the final stage is not mentioned. The researcher differs from this view and is of the opinion that Communities of Practice can only die out in the final stage. Combining these different viewpoints, it seems that in the final phase of the development process, Communities of Practice can either die (disengage) or can adapt to changes in the environment.

By integrating all these different viewpoints, a life cycle of a Community of Practice can be constructed, which corresponds with the stages that were identified by McDermott, Wenger and Snyder. This life cycle consists of the following stages: Potential, Formation (which corresponds with Coalescing stage), Commitment (which corresponds with the maturing stage), Active, and Adaptive or Disengaging stages (See Figure 4.1). Each of these stages is described in the form of tables consisting of its definition, fundamental function, and the behaviour of its members and where applicable, the behaviour of the organisation, the supporting processes, as well as enabling technology.

Stage 1
Potential

Stage 2
Formation

Stage 3 Commitment

Stage 4
Active

Stage 5

Adaptive scenario

Disengaging
scenario
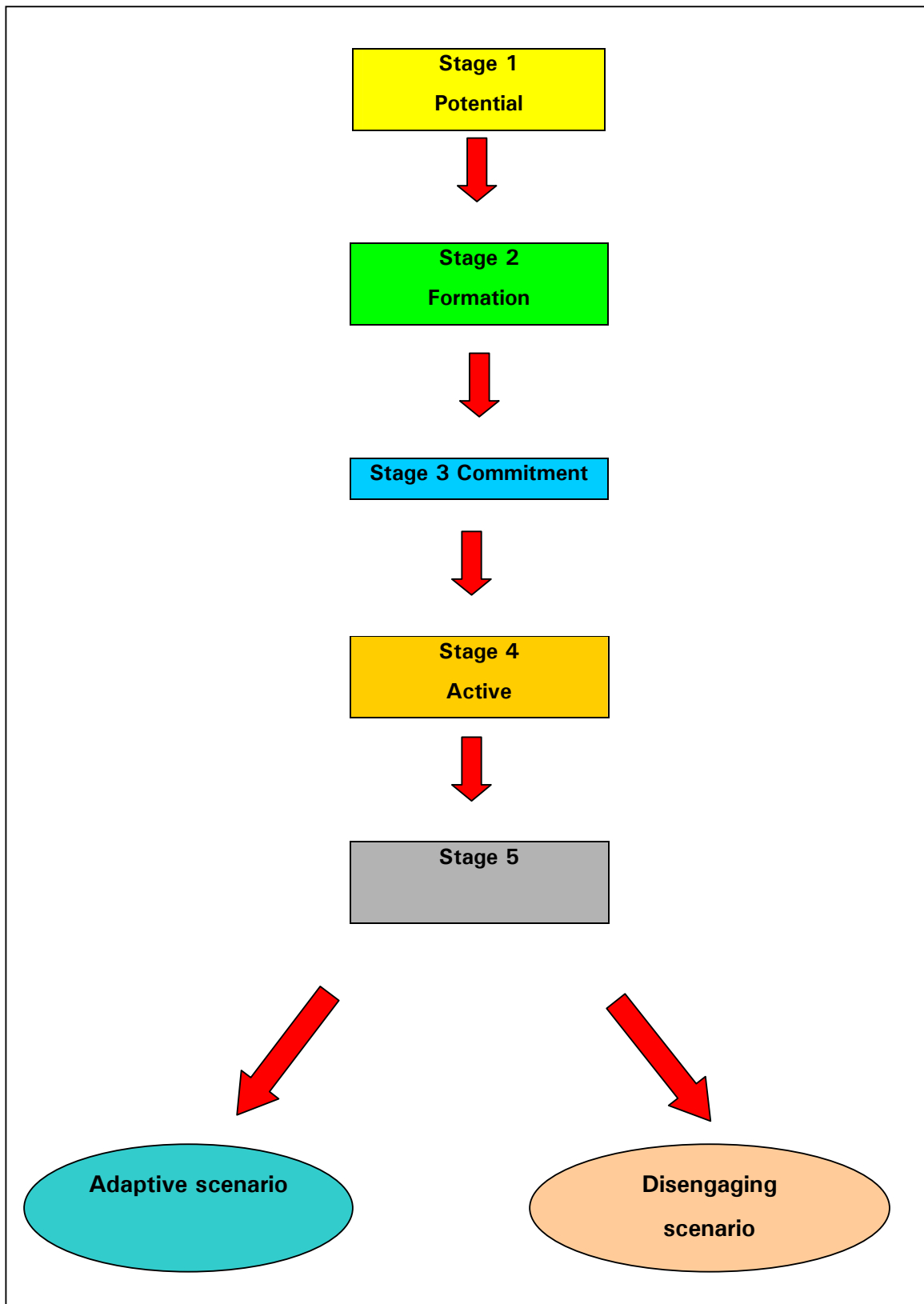
**Figure 4.1:** **Life cycle of a Community of Practice.** (Based on Allee 2000: Online; Gongla and Rizzuto 2001: Online; Hanley and Dawson 2000: 326-328)

| STAGE 1 | POTENTIAL |
|---|---|
| Definition | The possibility for the formation of a community exists. |
| Fundamental function | Connection. |
| Behaviour of members | Find one another; Find common ground; Link up; Prepare for a community. |
| Supporting processes | Identify what type of community to build; Identify and locate potential members; Stage awareness campaigns; Facilitate bringing individuals together; Identify the type of knowledge to be shared. |
| Enabling technology | E-mail, chatrooms, listservs, phonecalls, tele-conferencing; Online forums, Online directories, skill and résumé[3] databases. |

**Table 4.2:     Stage 1, Potential**

| STAGE 2 | FORMATION |
|---|---|
| Definition | The members come together, form a community and set out its operating principles. |
| Fundamental function | Capturing memory, context creation and structuring. |
| Behaviour of members and organisation | Core Members <ul><li>Learn about each other;</li><li>Share experiences and knowledge;</li><li>Build common vocabulary;</li><li>Create roles and norms;</li><li>Form a group identity;</li><li>Begin a formal history and record it;</li><li>Start a repertoire of stories;</li></ul> Organization: <ul><li>Recognize the CoP.</li></ul> |
| Supporting processes | Classify and store knowledge; Develop ways to support the knowledge life cycle; Plan for community operation; Begin deployment. |

---

3.     Short summary of a Curriculum Vitae.

| Enabling technology | Common repository; Initial classification and taxonomy; Document and library management systems; Collaborative work environment/Virtual workspaces. |
|---|---|

**Table 4.3:     Stage 2, Formation**

| STAGE 3 | COMMITMENT |
|---|---|
| Definition | The community executes and improves its processes. |
| Fundamental function | Access and learning. |
| Behaviour of members and organisation | Members:<br>▪  Develop trust and loyalty;<br>▪  Commit to the community;<br>▪  Outreach to new members;<br>▪  Model knowledge sharing behaviour;<br>▪  Define a learning agenda;<br>▪  Search and contribute material for knowledge base;<br>▪  Promote and participate in knowledge sharing;<br>▪  Develop roles;<br>▪  Create frameworks and set up standards, guidelines and measures for development;<br>▪  Recruit and socialize new members.<br>Organisation:<br>▪  Interacts with CoP and learns of its capabilities. |
| Supporting processes | Manage workflow;<br>Identify knowledge gaps and fill them;<br>Support tacit knowledge exchange;<br>Develop and disseminate communications;<br>Gather and manage feedback;<br>Re-examining definition and scope;<br>Ensuring self-governance and self-regulation. |
| Enabling technology | Portals;<br>Expert yellow pages;<br>Language translation capabilities. |

**Table 4.4:     Stage 3, Commitment**

| STAGE 4 | ACTIVE |
|---|---|
| Definition | The community understands and demonstrates benefits from knowledge sharing and the collective work of the community. |
| Fundamental function | Collaboration. |
| Behaviour of members and organisation | Members:<br>▪ Goes through cycles of activities;<br>▪ Engage members to solve problems;<br>▪ Create focussed workgroups;<br>▪ Educate novices;<br>▪ Interact with other communities.<br>Organisation:<br>▪ Begins to rely on community's knowledge;<br>▪ Support and measures community work. |
| Supporting processes | Problem solving;<br>Decision-making;<br>Sensing and assessing the organizational environment;<br>Enhancing learning and feedback processes;<br>Interaction with other communities and processes, projects, research, etc. |
| Enabling technology | Electronic meetings;<br>Collaboration tools such as virtual workspaces or chat rooms. |

**Table 4.5:     Stage 4, Active**

| STAGE 5 | SCENARIO 1 – ADAPTIVE |
|---|---|
| Definition | The community adapts to changes in the environment. |
| Fundamental function | Innovation and generation. |
| Behaviour of members | ▪ Influences environment (new products, markets, business);<br>▪ Sponsors new communities;<br>▪ Focus on innovation |
| Supporting processes | Adapt responsively to external environment;<br>Mentor new communities. |
| Enabling technology | Pilot uses of technology, e.g. an on-line electronic trading room, industry association bulletin board to communicate and collaborate with the outside world. |

**Table 4.6:     Stage 5, Scenario 1 – adaptive**

| STAGE 5 | SCENARIO 2 - DISENGAGE AND DISPERSE |
|---|---|
| Definition | The usefulness of the community for its members and supporting organization has been outlived, and its members move on. |
| Fundamental function | Disengagement. |
| Behaviour of members | Members:<br>   ▪   Members disengage with one another;<br>   ▪   Members become involved in other communities;<br>   ▪   Reunions are held. |
| Supporting processes | Directories are maintained;<br>Artefacts, memorabilia and history are maintained. |
| Enabling technology | Electronic or paper archives. |

**Table 4.7:     Stage 5, Scenario 2 – Disengage and disperse**

The members of a Community of Practice have different roles to play in the different stages of the life cycle of a Community of Practice. The supporting processes and enabling technology also differs in each stage. The above tables were thus an attempt to bring these together in a more visual way. Having tabled the life cycle of a Community of Practice, the possible interactions in an operational Community of Practice are described in the next section.

## 4.6     INTERACTIONS WITHIN A COMMUNITY OF PRACTICE

Interactions in an operational Community of Practice can, according to Keill and Snyder (2003: EE), be orchestrated according to various rhythms, e.g. listserv announcements can come on a weekly basis, teleconferences can be held on a monthly basis, a virtual space for conversations can be set up, projects can be set up, a website can be developed, visits to members onsite can be done, face-to face meetings can be held once or twice a year or on a more regular basis, and e-mails and phone calls can be sent regularly, etc. Instrumentally, these interactions advance the creation and sharing of knowledge, as well as increase the community's presence in the members' lives, which then reinforces a sense of belonging and identity - a prerequisite for collective learning and collaboration (Keill and Snyder 2003: EE).

This ecology of interactions is illustrated by Keill and Snyder (2003: EE) in the following diagram:
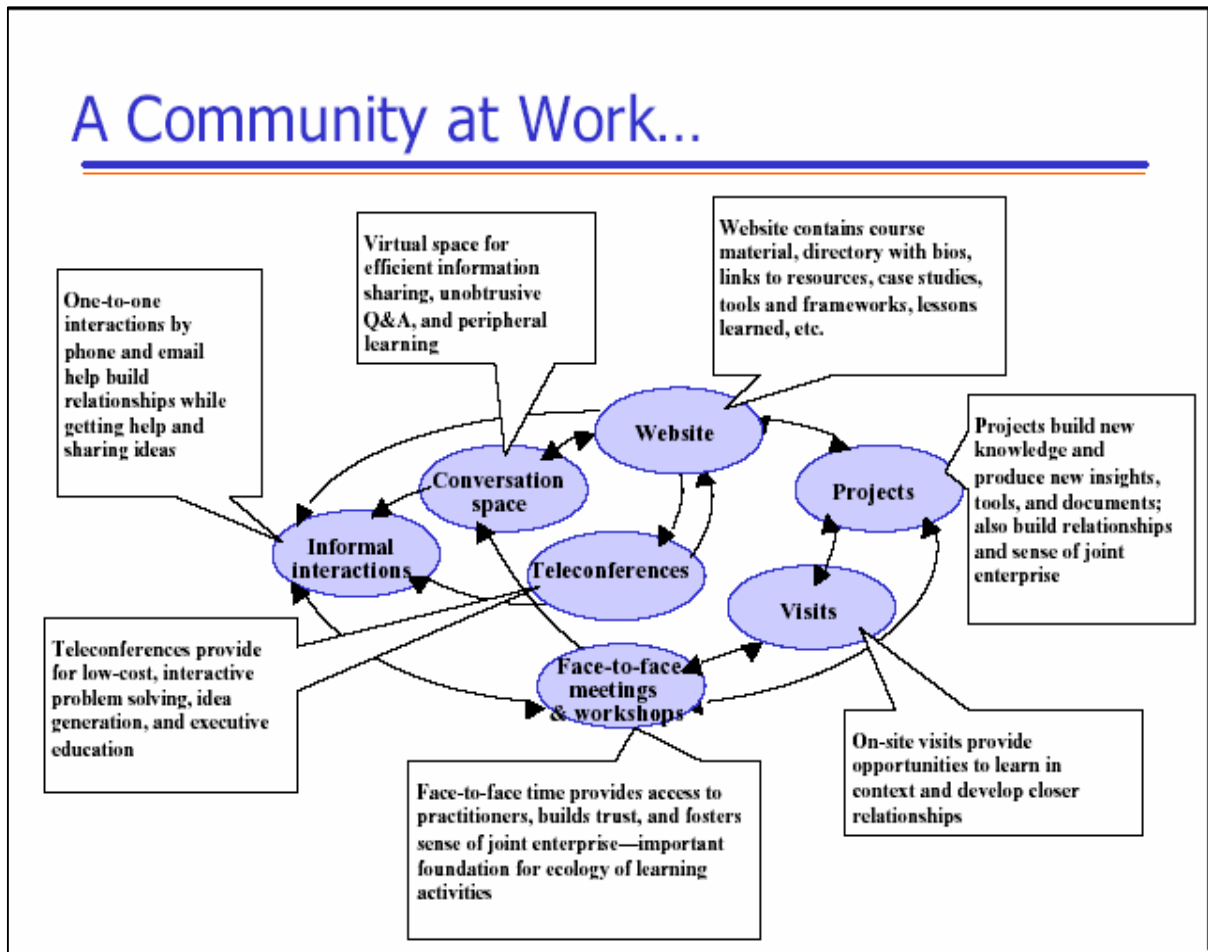


**Figure 4.2:    Ecology of interactions in a Community of Practice**

Having tabled the life cycle of a Community of Practice and looked at the interactions within a Community of Practice, one could ask what ensures the successful development of a Community of Practice? This question is addressed in the next section.

## 4.7    CRITICAL SUCCESS FACTORS

Boynton and Zmud (1984: 17) defines critical success factors as those few things that must go well to ensure success for a manager or an organisation, and therefore they represent those managerial or enterprise areas that must be given special attention, in order to bring about high performance. Critical success factors include issues that are

vital to an organisation's current operating activities and to its future success (Boynton and Zmud 1984: 17). Some of these factors can be applied to Communities of Practice.

McDermott (1999a: Online) identifies 4 key challenges in creating and supporting Communities of Practice. They are:

- Management challenges: to communicate that the organization truly values sharing knowledge;
- Community challenges: to create real value for community members and ensure that the community shares cutting edge thinking, rather than sophisticated copying;
- Technical challenges: to design human and information systems that not only make information available but help community members think together;
- Personal challenges: to be open to the ideas of others and maintain a thirst for developing the community's practice.

According to McDermott (1999a: Online), these challenges can be further dealt with through ten factors that are critical to the success of Communities of Practice.

### 4.7.1      MANAGEMENT CHALLENGES

#### 4.7.1.1      Focus on knowledge important to both the business and the community members

Communities must be formed around topics at the heart of the business, where leveraging knowledge will have a significant financial or competitive impact, but it is also important that people feel personally passionate about it.

#### 4.7.1.2      Find a well-respected community member to coordinate the community

*"These members are usually senior practitioners, but not usually the world leading experts"* (McDermott 1999a: Online). Their main purpose is to connect with community members and link them together. This should at least form part of the coordinator's job. Their role definitely does not just consist of giving answers.

**4.7.1.3        Make sure people have time and encouragement to participate**

The time people have to participate is one of the great limiting factors of a community's effectiveness at sharing knowledge. *"Sharing ideas and insights is usually less pressing than team and individual responsibilities",* with the result that community participation, even though valuable, can easily be superseded by more urgent matters. Management should support staff by giving them time to attend community meetings, to create community bulletins, to develop a directory of employee skills, and by funding community events (McDermott 1999a: Online). The time invested in the community should also appear in the staff members' performance appraisals.

**4.7.1.4        Build on the core values of the organization**

According to McDermott (1999a: Online), in order to ensure that sharing knowledge is acceptable and routine, it should match the core cultural values of the organisation instead of trying to change them. Organizational culture is difficult to transform and it rarely yields to efforts to change it. Organisations that are successful at sharing knowledge did not try to change their culture to fit their knowledge management approach, but rather built their knowledge management approach to fit their culture (McDermott 1999a: Online).

**4.7.2        COMMUNITY CHALLENGES**

**4.7.2.1        Get the key thought leaders involved**

A way to build energy into the community is to get respected thought leaders involved as soon as possible (McDermott 1999a: Online). When one builds a community, you usually start by finding, nurturing and developing the networks that already exist. In these networks, there are usually key players who either have an important specialized knowledge or are well-connected and influential members of that network. Involving these people in the community legitimises the community, and in so doing draws other members.

**4.7.2.2    Create forums for thinking**

Opportunities have to be created for the community as a group to share ideas. It is not sufficient just to share ideas through individual meetings and web connections. This can be done by creating events where the members of the community get together in face-to face contact sessions. These events help to build a sense of community and community history, and help the community to keep track of its progress (McDermott 1999a: Online).

**4.7.2.3    Maintain personal contact among community members**

The coordinators have to build and maintain personal connections in the community, in other words they must *"build the one-on-one relationships among community members strong"* (McDermott 1999a: Online). *"Contact and the social connection and obligation that comes with it are seen as key to ongoing community success"* (McDermott 1999a: Online).

**4.7.2.4    Develop an active, passionate core group**

Active core group members contribute and help the community to develop, by inviting people they know to participate. These core group members are not necessarily leading experts on the topic, but their caring about the topic and community makes them most valuable. These core groups can be developed by involving them for instance in meeting planning, asking them to lead some meetings, to host subgroups, or organise aspects of the website. It is also important to give them visibility in the community without asking more time of them (McDermott 1999a: Online).

**4.7.3   TECHNICAL CHALLENGE**

Computer software should make it easy for members of a community to connect with one another. They should also contribute to and use information from the community's knowledge base. In other words, it should be easy to use and it should be integrated with members' daily work, thus familiar to them. This *"reduces friction in connecting the community and its space"* (McDermott 1999a: Online).

**4.7.4  PERSONAL CHALLENGE**

Relationships are not formed in reports on best practices, but in real dialogue about cutting edge issues. In the beginning stages of community development, community meetings can be orchestrated by having a well-respected community member to ask for assistance. Of course, the request has to be real and the discussion genuine. This will inspire other members to offer some insights and encourage others to start asking for assistance (McDermott 1999a: Online).

By giving attention to these factors, the development and sustainability of a Community of Practice can be ensured. The question one can ask is: how is knowledge shared and captured in a Community of Practice, and what factors can promote or hinder these two processes? Knowledge sharing and capturing is addressed in the next section.

**4.8     SHARING/TRANSFERRING KNOWLEDGE IN COMMUNITIES OF PRACTICE**

Communities of Practice are described by Burk (2000: 18-19) as valuable knowledge-sharing mechanisms. From the definitions as discussed earlier in this chapter, the sharing of knowledge (know-how, skills etc.) is regarded as one of its primary characteristics. Knowledge, though, can be transferred through various techniques, but can also be hindered and advanced through various factors. The researcher thus felt it essential to include a discussion of some of these techniques and factors in this study.

**4.8.1  TECHNIQUES USED WITHIN COMMUNITIES OF PRACTICE FOR SHARING OR CAPTURING OF KNOWLEDGE**

People might say that it's all very well to speak about Communities of Practice, but how do we capture the knowledge shared in the Community (i.e. tacit knowledge), and how do we embed it into the memory framework of the organization? There are many techniques mentioned in literature. These can include mentoring, games, role-play/ simulations, knowledge mapping, and storytelling, etc. For the sake of this study, the focus is on role-play/simulations, knowledge mapping and storytelling.

**4.8.1.1        Role-play/Simulations**

Role-play is a natural, spontaneous method used by people as part of their learning process, and can be described as a technique where people act out new roles in front of each other or simulate/model real-life problem situations (Education in the 80s, 1981: 158; Swink 1993: 91). Through role-play, individuals are given the opportunity to interact with various roles in the organisation to enable them to become more aware of the context in which decisions are made within the organisation (Bell 2001: 252-253). Simulations provide the framework whereby new behaviours and skills can be tested and whereby people can learn the information, knowledge or skills that are needed in a real-life situation (McQuillen and Ivy 1986: 72). Swink (1993: 91) found that people in a work environment (which could include Communities of Practice), might know theories and guidelines, but when confronted with real life issues like angry clients or resolving of disputes, they are unable to deal with these. He proposes role-plays to enable people to practice new skills in order to transfer learning to the real workplace. Role-play with its multisensory approach help integrate new knowledge with on-the-job behaviours (Swink 1993: 91). Role-play is also described by Bell (2001: 251) as a recognized teaching method for developing skills, knowledge and attitudes.

Swink (1993: 91) proposes that facilitators use a format that follows three phases, namely warm-up, action and closure. The warm-up phase prepares the group for the action phase. During the warm-up phase, the facilitator establishes rapport with the group (Community of Practice) and creates an environment in which members of the group interact with one another and the facilitator. Information is rather given to the group in a discussion format than in a lecture format. In the action phase, the first step is to choose a protagonist from the group, who refines old roles or are learning new roles as the main character in the role-play (Swink 1993: 92). The protagonist takes the role of him-/herself in a *simulated* work situation, played out before the group, and acts as the group's learning vehicle. It is thus essential that the protagonist be excellent in communication skills. The next step is to choose an auxiliary from the members of the group who plays the role of the person whom the protagonist is learning to interact with more effectively (Swink 1993: 92). Once the protagonist and auxiliary have been chosen, the facilitator guides the group in establishing the setting in which the interaction takes place. The group should feel that they are in a real situation (Swink 1993: 93). Once the scene is set, the interaction begins. At timely moments, also called

optimal learning points, the facilitator can freeze the action and ask the protagonist to critique his/her action, and suggest other possible strategies. The rest of the group is given opportunity to provide input. After the group has given input, the facilitator can give feedback on what was said. Protagonists can also be rotated by asking another member of the group to step into the scene (Swink 1993: 93-95). In the closure phase. learning that took place during the action phase is reinforced and members of the group are focused on how it will be integrated into workplace situations. This is done by a quick review of what the protagonist, auxiliary and group have learned. Then the group discuss how the *simulated* experience is similar to situations they face every day at work, and how they can apply what they have learned (Swink 1993: 97).

Through these role-play/simulations, members of a Community of Practice can learn from one another and knowledge can thus be embedded or internalised in the group.

**4.8.1.2        Knowledge mapping**

In knowledge mapping, perceived regularities in events or objects are defined as concepts and then labelled. Relationships between them are represented by maps that describe the nature of the relationships (Gross, Hanes and Ayres 2003: Online). Through knowledge mapping, one can determine who knows what, what are the relationships between stocks of knowledge, and how and where the information is stored, etc. (Fahey et al. 2001: 891). *"Knowledge maps can include descriptions of the nature and qualities of the relationships (know-what) between internal units of an organisation who are involved in executing adjacent tasks"* (Fahey et al. 2001: 900). They can *"also describe the history (know-what), nature (know-how), and rationales (know-why) for the interactions between"* organisational subunits and clients and other entities (Fahey et al. 2001: 900). Knowledge mapping can also be used to develop a high-level description or overview of an expert's valuable knowledge (Gross, Hanes and Ayres 2003: Online). Knowledge maps can furthermore help Communities of Practice to determine the nature of relationships between pieces of knowledge in the group; it can be used to determine the expertise available to members in the group and can help to capture this tacit knowledge in a visual form.

**4.8.1.3    Storytelling**

Stories, according to Gill (2001: Online), are narrative frameworks humans create to make sense of the world, to share our experiences, to convey meaning and to pass on what we know. Denning (2001: xiv) views storytelling as the method that "*enables the individuals in an organization to see themselves and the organization in a different light, and accordingly take decisions and change their behaviour in accordance with these new perceptions, insights, and identities.*" Storytelling is also used to help people understand relationships between complex issues and things. It furthermore helps people understand the interrelatedness of things in the world and assists them in connecting these things in new ways (Denning 2001: xvi-xvii).

Stories can be found in all organisations and form an integral part in defining an organisation (Gill 2001: Online). Stories can be powerful and valuable tools to use in organisations. The advantages they have for organisations as derived from Gill (2001: Online) and from Denning (2001: xv, xviii) can be listed as follows:

- They are natural, easy, entertaining and energizing;
- They help people understand complexity;
- They are easy to remember and thus help to capture knowledge;
- They can enhance or change perceptions;
- They are inherently non-adversarial and non-hierarchical;
- They bypass normal defence mechanisms and engage people's feelings;
- They pass on values and principles from one generation to another;
- They disseminate information very quickly;
- They can convey meaning at a high level of understanding because they are told in context;
- They show how previous generations dealt with difficult situations;
- They bring people with common perspective together;
- They stretch everyone's capacity to emphasize with others and to share experience;
- Stories can be proliferated, in other words multiplied throughout the organisation;
- They can foster change in the organisation.

Many types of organisational stories can be found in literature, for example anecdotes, myths, fables and metaphors.

Storytelling can be of great value in Communities of Practice, in that they can be launched and nurtured through storytelling (Denning n.d.: Online). Storytelling can build the necessary trust and mutual understanding in which Communities of Practice can operate. Storytelling also generates curiosity, feelings, interest, anger and amusement; in other words, passion. Wenger and Snyder (2000: 139) describe Communities of Practice as *"groups of people informally bound together by shared expertise and passion"* (See 4.3.1). Communities of Practice thus flourish when their members are *passionately* committed to a common purpose. Storytelling helps to unlock the necessary passion to nurture these Communities of Practice. Storytelling is also *"inherently collaborative, with the storyteller and listener collaborating to create the story"* (Denning n.d.: Online). Storytelling can thus convey knowledge in a non-hierarchical fashion, which is typical of a Community of Practice.

Role-play/simulations, knowledge mapping and storytelling can thus all be used with great success in Communities of Practice to capture the tacit knowledge that flows between members. The successful transference of knowledge and sometimes the failure thereof are influenced by a number of factors.

## 4.8.2 FACTORS INFLUENCING KNOWLEDGE TRANSFER IN COMMUNITIES OF PRACTICE

In Section 2.2.5.2, it was indicated that knowledge can flow or be transferred through four processes, namely socialisation, externalisation, combination and internalisation. The previous section touched on the methods, which can be used to share/capture knowledge, but transference of knowledge, however, is highly dependent on the existence of the necessary trust, space, timeliness, the right people and organisational culture. These factors must be taken into consideration and understood when sharing knowledge. A discussion of each of these factors has been of great value.

114

**4.8.2.1      Trust**

People tend to share their knowledge and experience only with those they trust. In a Community of Practice, trust forms the cement that binds the members of a community together. Without trust, the members will hoard their knowledge and experience, and will not go through the process of sharing and learning from others (Nichani and Hung 2002: 51).

The type of organisational trust that exists further determines the amount of trust within Communities of Practice. This view is held by Cohen and Prusak (2001: 36-37) and is further expanded upon when they distinguish between higher trust organisations and lower trust organisations. Higher trust organisations are characterised by a smoother flow of knowledge through their networks or communities, resulting in the development of a learning organisation. Lower trust organisations are characterised by the cutting off of knowledge flow, resulting in independent islands of knowledge, and fragmented knowledge networks in the organisation. Trust is something that does not happen overnight, but it needs room and time to grow and develop.

**4.8.2.2    Space and Time to Connect**

Gladwell (2000b: Online) found that the provision by organizations of social spaces for their employees to connect, increased social capital and led to greater innovation. Brown and Duguid (2000: 72) found that when people have a static personal place, they build relationships with other people over a period of time in that space. This in turn broadens the environment and encourages incidental learning. People also need to have a social space where they can come together to discuss and share stories (Nichani and Hung 2002: 52). Social space on the other hand is not sufficient on its own, but has to be complemented by social time. People need sufficient social time for relationships to grow in these social spaces  (Nichani and Hung 2002: 52).

**4.8.2.3    People who make the Communities of Practice work**

Gladwell (2000a) differentiates between the following types of people who make Communities of Practice work:

**a) Connectors**

Connectors know many other people, and are able to make friends and acquaintances. They move in several social circles and have the ability to span several worlds. They are thus of great advantage to Communities of Practice (Gladwell 2000a: 49; Nichani and Hung 2002: 53).

**b) Mavens**

Mavens connect others with information. In other words, they play the role of information specialists or information stewards. They are obsessed with collecting information and with the idea to help others, which enables them to get people's attention. Mavens are essential in Communities of Practice to connect people to the knowledge that flows in such a Community (Gladwell 2000a: 67; Nichani and Hung 2002: 53).

**c) Salesmen**

Salesmen are good at persuading others to make decisions, to accept change, or to try something new. Because they are good at expressing emotions and feelings, their enthusiasm is emotionally contagious. These characteristics are essential in a Community of Practice to enthuse others in the Community to participate and to share (Gladwell 2000a: 85; Nichani and Hung 2002: 53).

Connectors, mavens and salesmen play a strategic role in Communities of Practice. In order for an idea, concept, process, etc. to disperse through a network, these people are the ones that can make it happen. Without these people in the Community, it is *"hard to get the kind of reach and commitment that is necessary for the Community to grow and thrive"*  (Nichani and Hung 2002: 53).

**d) Organisational Culture**

As discussed in Section 2.2.4, every organisation has its own organisational and cultural knowledge that is developed over a period of time and is held in processes of social interaction. When new employees start in an organisation, it is often difficult for

them to internalise the cultural knowledge of the organisation, as these are *"sets of commonly held cognitions that are held with some emotional investment and integrated into a logical system or cognitive maps"* (Sackman 1991: 34). Organisational culture can thus have an effect on the transfer or flow of knowledge in Communities of Practice.

This section included an overview of role-play/simulations, knowledge mapping and storytelling as knowledge sharing techniques, as well a discussion of factors that influence knowledge sharing, namely trust, people who make the Communities work, space and time to connect, and organisational culture. However, no indication was given of how knowledge is managed through Communities of Practice in learning organisations. This will be addressed in the next section.

## 4.9 COMMUNITIES OF PRACTICE AND THE MANAGEMENT OF KNOWLEDGE IN LEARNING ORGANISATIONS

### 4.9.1 THE RELATIONSHIP BETWEEN COMMUNITIES OF PRACTICE AND LEARNING ORGANISATIONS

Learning plays a very important role in Communities of Practice. This was made clear by the researcher's own definition of the concept in Section 4.3.1, namely *a network of people emerging spontaneously, and held together by informal relationships, that share common knowledge, expertise and tools, and **learn** from one another.*

In Section 4.3.2, Communities of Practice were characterised as mechanisms whereby people can share their know-how, experience, expertise, and tools, and *learn* from one another by interacting with others. It was also shown that "Practice" implies knowledge in action, in other words a process through which individuals *learn* from others on how to do their jobs. *Learning* has also been described by Wenger (1997: 39) as the engine of "practice", and "practice" as the history of that *learning*. *Learning* is also the process through which newcomers in these Communities moves from peripheral participation to full participation (see Section 4.3.2).  *Learning* thus forms an integral part of "practice".

The five disciplines that were discussed in terms of the learning organisation in Section 3.3.3 as main components of the learning environment, can also be applied with great

117

success in Communities of Practice. In a Community of Practice, individual members can build a shared vision (see Section 3.3.3.2) of the future through interaction. Individual members of a Community's mental models (see Section 3.3.3.3) can be brought to the fore and changed through meaningful conversations and reflection between members. Communities of Practice practice team learning (see Section 3.3.3.4) in that their members think together, enter into discussion and dialogue with one another, reach joint insights, and by doing so create the results each of the members truly desire. Because reality is much more complex than the traditional view of an organisation, Communities of Practice are ideal mechanisms to connect the different nodes or systems in an organisation. They help their members to practice systems thinking, in other words to see the world as a whole (interconnected) and not just as a series of happenings. These disciplines, which are the main components in the learning environment of a learning organisation, can thus be applied successfully in Communities of Practice. One can therefore assume that Communities of Practice can function successfully in learning organisations.

Some of the stages in the development of a learning organisation (see Section 3.4.2) also correspond with the stages in the development of a Community of Practice (see Section 4.5.2). In Section 4.5.2, the first stage in a Community of Practice was shown to be the potential stage where the potential for the formation of a Community of Practice exists. One could assume that the potential for a Learning Organisation exists in the same manner, though Mohr and Dichter (2001: 744-747) did not mention a potential stage. The Honeymoon Stage of a Learning Organisation (see Section 3.4.2.1) corresponds with the Formation stage of a Community of Practice (see Section 4.5.2), while the Confusion, Messy and Scary Stages of a Learning Organisation (see Sections 3.4.2.3 – 3.4.2.5) collectively correspond with the Commitment stage of the Community of Practice (see Section 4.5.2). The development stages of a learning organisation are ended with the Mature Group Stage (see Section 3.4.2.6), which corresponds to the Active stage of a Community of Practice (see Section 4.5.2). No further development stages are mentioned as in the case of Communities of Practice. The mature group stage is supposed to lead to the birth of an active learning community, which is expected to continue indefinitely. Learning that takes place in the community/organisation could however lead to adjustments in the organisation, which means that the learning organisation then moves into an adaptive stage that corresponds with the final stage of development of a Community of Practice (see

Section 4.5.2). The corresponding stages can be illustrated in the following table:

| COMMUNITY OF PRACTICE | LEARNING ORGANISATION |
|---|---|
| Potential stage | Potential exist |
| Formation stage | Honeymoon stage |
| Commitment stage | Confusion stage<br>Messy stage<br>Scary stage |
| Active stage | Mature Group stage |
| Adaptive or Disengagement stage | Possible Adaptive stage |

**Table 4.8   Development stages**

These corresponding stages of development therefore suggest a relationship between Learning Organisations and Communities of Practice.

The definition of Communities of Practice, their characteristics, the organisational disciplines, and the corresponding stages in the development of learning organisations and Communities of Practice all indicate that Communities of Practice will be present in learning organisations, but also that Communities of Practice can lead to the development of learning organisations. A clear relationship between learning organisations and Communities of Practice therefore exists.

In Section 3.6, the relationship between learning organisations and knowledge management were pointed out. The next section will investigate how knowledge can be managed in learning organisations by utilising Communities of Practice.

**4.9.2  MANAGING KNOWLEDGE THROUGH COMMUNITIES OF PRACTICE**

Knowledge, and especially tacit knowledge, is very difficult to manage as it is embedded in the minds of those that possess it. Communities of Practice however provide a means whereby tacit knowledge can be managed in a sense. This is clearly illustrated by some of the definitions of Communities of Practice as found in literature (see Section 4.3.1). Lesser and Prusak (2000: 251) regard Communities of Practice as informal groups of employees who share *knowledge* and work together to solve problems. Johnson-Lenz

and Johnson-Lenz (1999: Online) view them as groups of professionals that embody stores of *knowledge*.

The characteristics of Communities of Practice (see Section 4.3.2) also clearly indicate the relationship between knowledge management and Communities of Practice. They are regarded as mechanisms for communicating *knowledge* (Burk 2000: 252). Members of these Communities share common *knowledge*, expertise and tools, and learn from one another. Even the term "practice", according to Lesser and Prusak (2000: 252), implies *knowledge in action.*

One of the results of ubiquitous computing and increased technological capabilities (see Drivers of Knowledge Management in Section 2.7.2) was the rise in value of *knowledge* that cannot be digitised, codified or distributed, in other words tacit *knowledge* (Prusak 2001: 1002). In order to reveal and transfer this *knowledge*, however, a closer relationship is needed with the one possessing it (see Perspectives on knowledge, Section 2.7.1). This is possible within Communities of Practice. Communities of Practice can also provide the mechanisms for sharing organizational and cultural *knowledge* (see Types of knowledge, Section 2.2.4). In Section 4.8.1, the researcher also indicated that various techniques can be used in Communities of Practice to share or capture (manage) knowledge, and discussed some of the techniques which can be used, namely role-play/simulations, knowledge mapping and storytelling.

The discussion in Section 3.6 showed that a definite link exists between learning organisations and knowledge management, and that learning organisations are characterised by the management of knowledge. The discussion in Section 4.9.1 also revealed that Communities of Practice are found in learning organisations, and can lead to the development of learning organisations. Knowledge managed through Communities of Practice can thus help in the development of learning organisations.

The idea that academic libraries can be learning organisations was addressed in Section 3.5 of this study, and the differences between traditional libraries and libraries as learning organisations were also tabled. As stated in Section 3.5, academic libraries, just like other organisations, face challenges of a fast changing environment, and are compelled to adapt on a continuous basis to these changes. This necessitates them to become learning organisations, and seeing that Communities of Practice are found in

learning organisations, or can lead to the development of learning organisations, academic libraries that are learning organisations will most definitely have Communities of Practice. The next section will focus on the management of knowledge through Communities of Practice in academic libraries.

## 4.9.3 MANAGING KNOWLEDGE THROUGH COMMUNITIES OF PRACTICE IN ACADEMIC LIBRARIES AS LEARNING ORGANISATIONS

The core business of academic libraries is information and knowledge management. Libraries as organisations are also heavily reliant on knowledge work, which makes knowledge management essential for their effective functioning. Davenport, Jarvenpaa, and Beers (1996: 54) regard knowledge work as the acquisition, creation, packaging, application or re-use of knowledge (see Section 2.2.3). Traditionally, librarians were involved in the acquisition (retrieval), provision, packaging and organising of explicit (recorded) knowledge. The changing organisational environment with its focus on tacit knowledge however brought about a significant change in the profession. Librarians find themselves increasingly involved in the management of tacit knowledge, utilising their skills obtained over the years.

Tacit knowledge is *"knowledge that is in people's minds"*, for example experience and expertise (Choo 2000: 397). People with experience, know-how or expertise (tacit knowledge) are academic organisations like universities' or colleges' most valuable knowledge resources. Academic libraries can play an important role by providing access to, or information about knowledgeable experts in the organisation, just as they provide access to published resources (Choo 2000: 397). One way to do this is to compile an expertise directory (e.g. an electronic yellow pages), with some form of thesaurus to help with alternative descriptions. Information professionals (librarians) themselves possess tacit knowledge (expertise) that are critical to the library or university for whom they work, and they should render their expertise more visible by proactively contributing their expertise where needed (Choo 2000: 397). Valuable skills that librarians possess are: articulating and analysing knowledge needs, evaluating the quality of knowledge, extracting and summarising valuable knowledge, and relating and packaging knowledge found for a specific project or problem. These skills can be utilised effectively in project teams or in Communities of Practice to help with the facilitation or management of knowledge. Librarians can also work together with technology experts

to design and develop workgroup application suites, which can operate as effective platforms for knowledge management (Kim 1999: Online).

But, what are the roles that information professionals can play in Communities of Practice to help manage knowledge in them? This question is answered from literature in the next section, by discussing the role of the information professional in codifying and representing organisational knowledge, the role of the information professional in the life cycle of a Community of Practice, and the role of the information professional in internal and external Communities of Practice.

## 4.9.4 ROLE OF THE INFORMATION PROFESSIONAL IN A COMMUNITY OF PRACTICE

### 4.9.4.1 The information professional and organisational knowledge

Choo (2000: 398) identified specific actions that the information specialist can perform in order to codify and represent (transform tacit into explicit knowledge) organisational knowledge for access and re-use. Though he did not identify these in terms of Communities of Practice, these actions could also be applied in Communities of Practice in academic libraries. Table 4.9 gives an overview of these actions.

| ACTION OF INFORMATION SPECIALIST | DESCRIPTION |
|---|---|
| Identifying, acquiring and extracting knowledge. | From documents, discussions or interviews. |
| Refining, writing-up, and editing "raw knowledge" and turning it into "processed knowledge". | Raw knowledge = project files, presentations, e-mail messages. Processed knowledge = lessons learned, best practices, etc. |
| Organising processed knowledge and making it accessible. | Add index terms, subject headings, cross-reference links and metadata. |
| Packaging, publishing and disseminating knowledge. | Utilize Intranet Web Pages, CD ROMS, subject orientated pathfinders, knowledge portals that are focussed on particular organisational needs and issues. |
| Designing and managing overall information architecture. | Consist of a set of well-defined standards and schemes for organising, classifying, publishing and navigating the Community of Practice's know-how. |

**Table 4.9:** **Actions of information specialist to represent and codify organisational knowledge**

As indicated in Section 4.5.2, Communities of Practice go through a life cycle of stages of development, and members in these groups play different roles in each stage. The next section examines what role, if any, information professionals can play in each of these stages.

**4.9.4.2** **The role of the information professional in the different stages of the life cycle of a Community of Practice**

The stages in the life cycle of a Community of Practice were presented in Tables 4.2 to 4.7. To indicate the role of the information specialist in each of these stages, it was decided to table these stages again with the definition and fundamental function repeated, but this time highlighting the role of the information specialist/librarian in each stage as deduced from Allee (2000: Online) and Gongla and Rizzuto (2001: Online). Though these authors did not specifically mention information specialists by name, information specialists, because of their training and expertise, should be able to fulfil these roles.

| STAGE 1 | POTENTIAL |
|---|---|
| Definition | The possibility for the formation of a community exists. |
| Fundamental function | Connection. |
| Possible role of information specialist/librarian | Identify suitable candidates to join; Market CoP to potential members; Identify existing communities; Sell CoP to management for support; Conduct interviews and facilitate group dialogue; Act as Community Champion or coach a Community champion. |

**Table 4.10:    Stage 1, Potential**

| STAGE 2 | FORMATION |
|---|---|
| Definition | The members come together, form a community and set out its operating principles. |
| Fundamental function | Capturing memory, context creation and structuring. |
| Possible role of information specialist/librarian | Act as facilitator; Set up, facilitate and document informal meetings; Map knowledge flows and knowledge relationships; Build group identity by setting up a homepage or designing a virtual workspace. |

**Table 4.11:    Stage 2, Formation**

| STAGE 3 | COMMITMENT |
|---|---|
| Definition | The community executes and improves its processes. |
| Fundamental function | Access and learning. |
| Possible role of information specialist/librarian | Design knowledge capture and documentation systems; Design, convene and facilitate seminars and conferences; Develop support strategies for the group learning agenda. |

**Table 4.12:    Stage 3, Commitment**

| STAGE 4 | ACTIVE |
|---|---|
| Definition | The community understands and demonstrates benefits from knowledge management and the collective work of the community. |
| Fundamental function | Collaboration. |
| Possible role of information specialist/librarian | Encourage members to stay committed; Make online links to members' papers; Publish stories on individuals or communities in newsletters or other corporate-wide publications; Address organizational issues that are either helping or hindering activity; Help negotiate the role of the CoP in organizational decision-making; Forge linkages with other groups and communities. |

**Table 4.13:    Stage 4, Active**

| STAGE 5 | SCENARIO 1 -  ADAPTIVE |
|---|---|
| Definition | The community adapts to changes in the environment. |
| Fundamental function | Innovation and generation. |
| Possible role of information specialist/librarian | Mentor/teacher; Facilitator; Innovator. |

**Table 4.14:    Stage 5, Scenario 1 - Adaptive**

| STAGE 5 | SCENARIO 2 -  DISENGAGE AND DISPERSE |
|---|---|
| Definition | The usefulness of the community for its members and supporting organization has been outlived, and its members move on. |
| Fundamental function | Disengagement. |
| Possible role of information specialist/librarian | Facilitate; Convene reunions; Maintain directory. |

**Table 4.15:    Stage 5, Scenario 2 – Disengage and Disperse**

Having indicated the possible role of information specialists in Communities of Practice, it is also important to determine what the role of the information specialists are in internal and external Communities of Practice. This is addressed in the next section.

125

**4.9.4.3    The role of information professional in internal and external Communities of Practice in academic libraries**

In Section 4.2 of this study, two types of Communities of Practice were identified as occurring in organisations, namely internal and external Communities of Practice.

**a) <u>Internal Communities of Practice</u>**

According to the description given in Section 4.2, these Communities are formed internally between colleagues in an organisation (which could also be a library), and have as its focus the internal work processes and practices of the organisation. These Communities of Practice normally operate in organisational units in the same organisation. Information professionals working in academic libraries possess tacit knowledge that is critical for the success of their organisations (Choo 2000: 397). They are skilled in identifying, selecting, searching, and organising information sources. Furthermore, they have the ability to articulate and analyse information needs, to evaluate the quality of the information, to extract and summarise important information and to re-package the information found for a specific project or problem (Choo 2000: 397).

This is not only true for subject librarians or information specialists, but Sauperl's (2004: 59) study of 12 cataloguers from American academic libraries performing subject cataloguing showed that cataloguers can also rely on Communities of Practice in their area of expertise. That study showed that *"members of the same cataloguing department tend to know"* one another very well and *"rely on each other's expertise for solving various cases of cataloguing problems as well as learning the new subjects"* (Sauperl 2004: 59). The cataloguers in the study also utilised subject headings from existing catalogue records and associated subject headings, which were created by different cataloguers - some of them from different libraries. Then by observing each other's work they built professional common ground, and shared knowledge for understanding (Sauperl 2004: 61). Utilizing the skills of information professionals in internal Communities of Practice can thus help academic libraries to harvest the valuable knowledge of its staff for the benefit/competitive advantage of the whole organisation.

**b) External (cross-organisational) Communities of Practice**

Subject information specialists (reference librarians) liaise daily with academic staff of their respective subjects, and many of them enjoy strong intellectual relationships with local scholars. Researchers in different fields often do research on similar topics, without being aware of what their counterparts in other fields are doing. Thus, by *"synthesizing and connecting"* the *"related lines of inquiry among them*, *dynamic interchange, innovative insights, and new programmatic initiatives for the curriculum can be stimulated"* (Marcum 1998: Online). Information specialists could help in this area by creating external (multi-disciplinary) Communities of Practice (see Section 4.2), or by identifying existing Communities of Practice among academics in different fields. This is made possible through their strong relationships with academics.

As said in Section 4.2, these Communities stretch across the organisational boundary of an organisation (also an academic library) and could include, besides information professionals/library staff, members of faculty and even people from other universities or organisations. In these types of Communities, the information specialist could possibly play a valuable role in the setting-up, coordination and facilitation of such a Community of Practice.

The discussions on the relationship between Communities of Practice and learning organisations, the management of knowledge through Communities of Practice in learning organisations (also academic libraries), as well as the role of information professionals in them, showed that Communities of Practice can be used as mechanisms to help manage knowledge in academic libraries that are learning organisations.

The next section will give an overview of all the aspects regarding Communities of Practice that were discussed in this chapter.

**4.10   SUMMARY**

In this chapter, the concept of a Community of Practice were studied and discussed from a variety of viewpoints. The study showed that a Community of Practice is not a totally new idea, but had its origin in the earliest social groups that man formed. The

concept however was only formulated in 1991. Because a wide variety of definitions of Communities of Practice exist in literature, only some of the most relevant definitions were included in the study, and from these definitions a list of characteristics of Communities of Practice were derived, which included the idea of legitimate peripheral participation in a Community of Practice. Next followed an exposition of the relationships between teams, Communities of Interest and Communities of Practice, followed by a discussion on the value of Communities of Practice in terms of individuals, the community and the organisation. This was followed by an exposition of how Communities of Practice develop, which included techniques that inspire participation in these Communities and the different stages through which Communities of Practice develop. A short description on the possible interactions in a Community of Practice followed.

Factors critical to the success of Communities of Practice were discussed next, and included focussing on knowledge important to both the business and the community members, finding a well-respected community member to coordinate the community, ensuring that people have the time and encouragement to participate, building on the core values of the organisation, getting the key thought leaders involved, creating forums for thinking, maintaining personal contact among community members, developing an active, passionate core group, making it easy to connect to, contribute to and access the community's knowledge and practices, and creating real dialogue about cutting edge issues. This was followed by a description of the techniques relevant to this study that can be used within Communities of Practice to share and capture knowledge, namely role-play/simulations, knowledge mapping and storytelling. A discussion of those factors that influence knowledge transfer in Communities of Practice then followed. These factors included trust, space and time to connect, people who make the Communities work, and organisational culture. After this, the researcher examined how knowledge could be managed through Communities of Practice in learning organisations. This was done by investigating the relationship between Communities of Practice and learning organisations, how knowledge is managed through Communities of Practice, and how knowledge is managed through Communities of Practice in academic libraries that are learning organisations. In focussing on academic libraries, the researcher included sections on the role of the information specialist in the different stages of development of Communities of Practice, as well as his/her role in internal and external Communities of Practice in academic libraries.

The literature study on the idea of managing knowledge through Communities of Practice in a learning organisation showed that it is possible in theory. These ideas however still had to be tested in practice, therefore the researcher included a case study in the next chapter.

**CHAPTER 5**


**CASE STUDY: COMMUNITIES OF PRACTICE AS A TECHNIQUE FOR THE MANAGEMENT OF KNOWLEDGE IN THE ACADEMIC INFORMATION SERVICE OF THE UNIVERSITY OF PRETORIA**


## 5.1 INTRODUCTION

The literature study in Chapters 2-4 focused on aspects of knowledge management, the learning organisation and Communities of Practice and their relationship towards one another. In Chapter 4, the management of knowledge through Communities of Practice in academic libraries was discussed, as well as the role of the information professional in Communities of Practice. The aim of Chapter 5 is to investigate whether the results found in the literature study could be applied in practice by focusing on one specific academic library. For this purpose, the Academic Information Service (from this point forward abbreviated as AIS) at the University of Pretoria (UP) was chosen as a case study to investigate whether Communities of Practice played a role in the knowledge management practices of an academic library. First of all, a brief summary of the research methodology followed during the study is provided, followed by an overview of the questions that were dealt with. Next follows an overview of the AIS of the University of Pretoria, South Africa, as well as the profiles of the respondents from the AIS. Finally, the findings themselves are discussed.

## 5.2 RESEARCH METHODOLOGY USED TO ACQUIRE FINDINGS

In Chapter 1, a more detailed overview was provided on the research methodology followed in this study. The research method to acquire the findings in the case study was empirical (based on individual interviews, and a focus group interview), and qualitative (evaluating the performance of Communities of Practice in their natural settings).

The empirical study consisted of interviews - the results of which can be found in this chapter. Interviews by means of a semi-structured questionnaire were conducted with individuals from the AIS of the University of Pretoria that were involved in Communities of Practice in some or other way. Five individuals were identified through a process of purposive sampling. Results from the interviews included thoughts, opinions and

experiences of respondents as described in their own words. The researcher used the same predetermined questions during each of the semi-structured interviews, which proved helpful when comparisons were drawn between responses received from the different respondents. After the interviews, answers received were verified with respondents by sending them through to the respondents via e-mail. Changes suggested by respondents were then implemented. The responses received in the semi-structured interviews were then further validated by a focus group interview held with four of the individuals originally interviewed. The same set of questions was then presented to the focus group together with the responses received, and changes suggested by the group were then implemented.

The next section provides an overview of the questions dealt with during the interviews.

## 5.3    AN OVERVIEW OF QUESTIONS DEALT WITH DURING THE INTERVIEWS

- What would you describe as knowledge management?
- Would you say the AIS practices knowledge management?
- Would you describe the AIS as a learning organisation? If so, why?
- Do you belong to a Community of Practice and which of the Communities you belong to are cross-organisational?
- How did these Communities of Practice start and develop?
- How many members do each of the Communities of Practice mentioned by the respondents have?
- Who leads these Communities of Practice?
- How long have these Communities of Practice been in existence?
- How many times does the Communities of Practice meet?
- In which stages of development would you say these Communities of Practice find themselves?
- What would you say is the purpose/value of the Communities of Practice to which you belong and what role does it play, if any, in the management of knowledge in the AIS?
- What types of knowledge are shared in these Communities of Practice?
- What techniques and tools (technology) are utilised by the Communities of Practice for the capturing, organisation and sharing/transfer of knowledge created in them?
- How is ongoing participation in these Communities of Practice ensured?

- How long would you say these Communities of Practice are still going to last?
- Are you rewarded for belonging to Communities of Practice? If yes, how?
- Does top management support Communities of Practice?
- How do you as information/knowledge professional win the trust of the other members of Communities of Practice?
- What do you do when a newcomer joins the Community of Practice?
- What do you regard as critical/important factors for the success of the Communities of Practice to which you belong?
- What will you do if these Communities of Practice are no longer viable?
- Do you envisage new Communities of Practice that are in the process of emerging?

## 5.4 BACKGROUND INFORMATION ON THE ACADEMIC INFORMATION SERVICE, UNIVERSITY OF PRETORIA

The Academic Information Service (AIS) of the University of Pretoria, South Africa is the collective name for the academic libraries of this university. The AIS is a networked organisation consisting of a number of service units that are each geared towards rendering a one stop service to clients (students, faculty staff and researchers) from specific subject groupings, e.g. Humanities, as well as support units focusing on certain functions in the AIS and delivering a service to the service units. The Service Units of the AIS can be divided into in two groups: those that are on the main campus and those that are on the satellite campuses. The service units of the AIS are:

**On main campus:**
- Economics and Management Sciences;
- General Services (which includes the circulation desk, security desk and reserved section);
- Humanities;
- Law;
- Natural and Agricultural Sciences, Engineering, Built Environment and Information Technology;
- Theology and Social Sciences;

**On satellite campuses**

- Groenkloof (Education);

- Mamelodi;

- Medical;

- Pre-clinical;

- Veterinary Sciences.

The support units are administered from the main campus, but have staff working in the service units on the satellite campuses. The support units in the AIS are:

- Financial and General Administration;

- Human Resources;

- Facilities and Maintenance;

- Information Management Procurement Services (IMPS), which includes the cataloguers, ordering people and people who receive the sources, as well as the Interlibrary Loans Section;

- Information Systems and Technology.

A Strategic Management Team manages both the service units and support units. Two of the members of this team went on retirement during this study. Figure  5.1 gives a good illustration of the structure of the AIS

**Client Groups: Academic Departments**
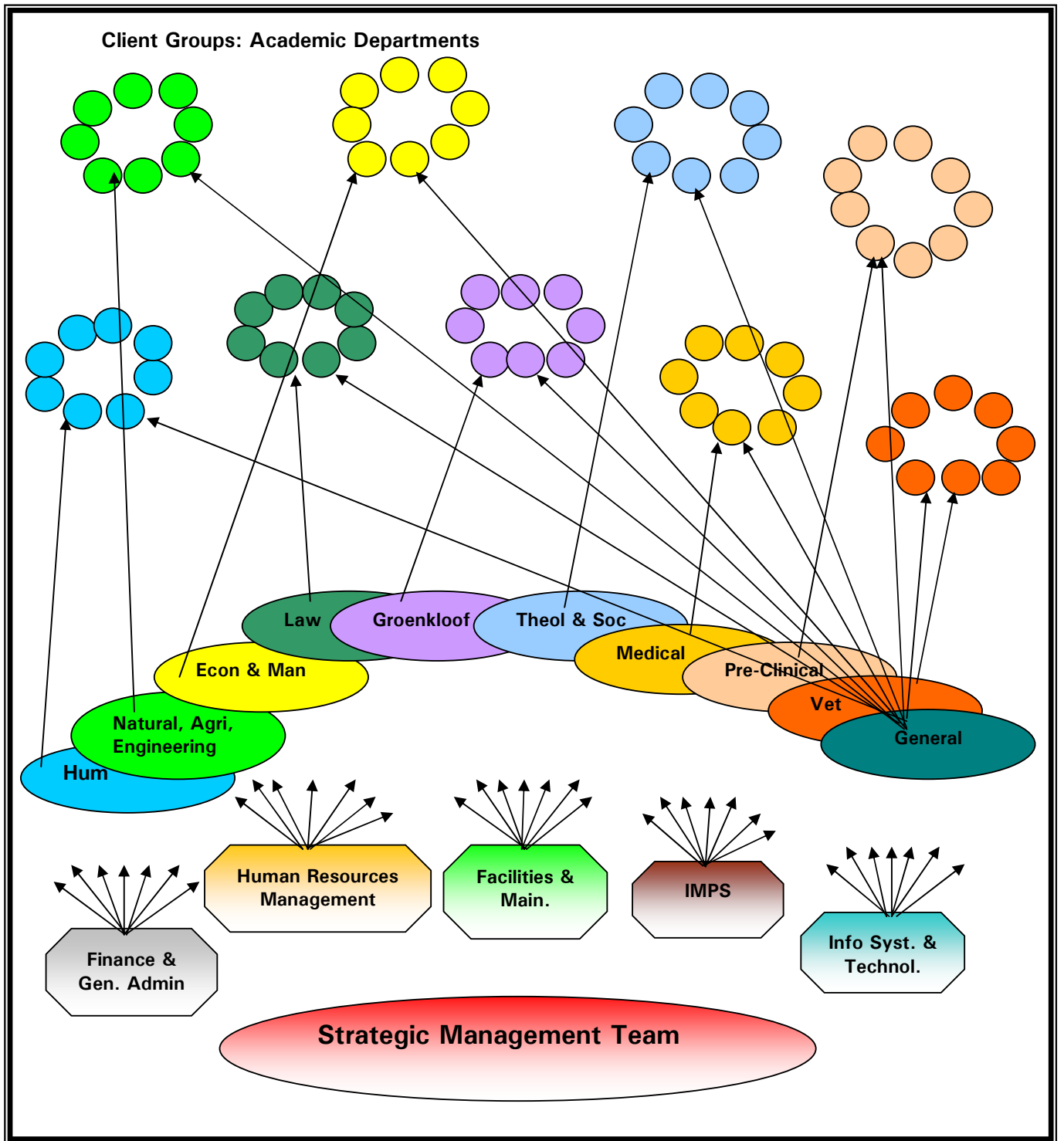


Figure 5.1:    Academic Information Service, University of Pretoria

The AIS developed an Internet portal, called InfoPortal, with the aim of supporting personal knowledge management. Each staff member of the University can customize the portal for his or her needs. It consists of a number of portlets that contains e-mail, access to databases, electronic journals, micro-databases, a calendar function, electronic publishing, a virtual groups function, etc. The virtual groups function has been designed with the purpose of facilitating different types of Communities virtually. The InfoPortal can only be accessed with a valid student/personnel number, which unfortunately exclude people from outside the University from accessing the system. People who are part of a group or a Community of Practice that do not have access to the InfoPortal get the messages sent to the virtual group as an e-mail message. They can therefore still take part in the group, but unfortunately loose much of the functionality of the InfoPortal.

Rapid changes in the environment forced the AIS to rethink its structure in 2004 and with this in mind, the management of the AIS identified 5 focus areas, which are in the process of being implemented. These focus areas might bring about a whole new organisational structure, and could also eventually lead to the formation of new Communities of Practice. The focus areas are:

- Information for Learning (Learning Centre);
- Information for Research;
- More with less focus (Mean and Lean);
- Information for the External Market;
- E-Information strategy.

## 5.5    PROFILES OF RESPONDENTS

**RESPONDENT 1**

This respondent is the Leader of the Service Unit Veterinary Science of the AIS at the Onderstepoort Campus of the University of Pretoria, South Africa. Her first work experience was in the AIS and she started working in the AIS as leader of the Service Unit Veterinary Science 22 years ago. One of the projects that she is currently involved in is the Information for Research focus area.

**RESPONDENT 2**

This respondent is the Coordinator of Cataloguers in the Service Unit Information Management Procurement Services (IMPS) of the AIS. He has been working in this position for 5 years at the time of the interview, but has been working in the AIS a total of 13 years. Previous employment included working at the Reserved Desk, as well as in the Cataloguing and Ordering sections of the AIS, which are now part of IMPS.

**RESPONDENT 3**

This respondent is the Information Specialist for Architecture, Civil- and Biosystems Engineering, Construction Economics, Engineering- and Technology Management, Industrial- and Systems Engineering, Information Science, Town and Regional Planning, and the Institute for Technological Innovation in the Service Unit Natural and Agricultural Sciences, Engineering, Built Environment and Information Technology. She has been in this position for the past 10 years. Before that she was employed at an engineering firm. Projects that she is currently involved in are: the InfoPortal, Engineering Week, and Web Reference Pages

**RESPONDENT 4**

Respondent 4 is the Information Specialist for Archaeology, Anthropology and Political Sciences, and has been working in this position in the Service Unit Humanities for the past 10 years. Before that, she was a librarian at the Library of the Potchefstroom University for Christian Higher Education and an information specialist for the Netherlands Cultural History Collection of the University of Pretoria. Projects that she is involved in are: Webpage design, a project to computerize the Political Science card index on the Micro Database function of the InfoPortal, InfoPortal training, and E-Theses.

**RESPONDENT 5**

This respondent is the Strategic Innovation Manager of the AIS and is part of the top management of the AIS. She has been working in this position for 15 years. Before that, she worked as a lecturer at University of South Africa (UNISA) and before that in

the Information Management division of the South African Defence Force. She is currently involved in the following projects: Electronic (E)-Information Strategy of the AIS and the South African Research Information Service (SARIS).

## 5.6 FINDINGS

Findings have been given in the following format: question first, followed by an explanation of why the question was asked, a table with the answers from the respondents, and a deduction from the answers below the table.

## 5.6.1 WHAT WOULD YOU DESCRIBE AS KNOWLEDGE MANAGEMENT?

This question was asked to determine whether the staff members of the AIS knew what "knowledge management" meant.

| RESPONDENT | DEFINITION |
|---|---|
| Respondent 1 | - Management of recorded information and information / knowledge in people's heads. |
| Respondent 2 | - Vague term. |
| Respondent 3 | Management of knowledge includes information/ knowledge packaging, information/knowledge retrieval, information/knowledge delivery, etc. |
| Respondent 4 | - Knowledge management means that one manages acquired information in such a way that it is accessible; <br> - Knowledge management includes information/ knowledge in people's minds and recorded information; <br> - Knowledge management is the process through which experience and information is acquired, and is the ability to recall that again. |
| Respondent 5 | Respondent sees knowledge management on two levels: <br> - **Corporate knowledge management**: This covers aspects like utilization, leveraging, and structure of knowledge, climate, culture, IT support and how these advance innovation. <br> - **Personal knowledge management:** This focus on the knowledge worker in his/her own environment. The library/information service can make a difference in this type of knowledge management by supporting and improving the knowledge worker's workflow with technology. In other words, this type of knowledge management is a combination of the knowledge worker, his work, information available to him, tools (information technology) to support him, and leveraging of knowledge to produce better products and services. NB: Information Technology is not equal to knowledge management. |

**Table 5.1** **Respondent's answers to question 'what would you describe as knowledge management?**

The answers listed in Table 5.1 showed that all the respondents except Respondent 2 understood the essence of knowledge management, namely the management of tacit and explicit knowledge. None of the respondents regarded knowledge management (or information management) as equal to information technology, but Respondent 5 viewed information technology as something that can support the knowledge worker. In Section 2.7.1 of this study, it was shown that knowledge management could be viewed from two different perspectives. The first perspective shown was the **information technology perspective**, where knowledge management is viewed as the management of content, while information management is viewed as the management of information technology. The second perspective shown was the **integrative perspective**, where knowledge management is regarded as the management of explicit knowledge (information) and tacit knowledge. The answers of the respondents in Table 5.1 indicated that they viewed knowledge management from an integrative perspective, which is the perspective followed in this study.

The answer given by Respondent 5 showed that she had extensive knowledge of the concept and process of knowledge management, which were not surprising considering her role as strategic innovation manager. The fact that knowledge management was a vague term to Respondent 2, could indicate that the cataloguers in the AIS were at the time of the study not included in the knowledge management processes of the organisation and therefore had a lack of understanding of the concept.

**5.6.2      WOULD YOU SAY THE AIS PRACTICES KNOWLEDGE MANAGEMENT?**

With this question, the researcher wanted to determine whether knowledge management was practiced in the AIS.

| RESPONDENT | ANSWER |
|---|---|
| Respondent 1 | - The AIS is still at the beginning stages of knowledge management and a framework for knowledge management in the AIS still needs to be worked out. |
| Respondent 2 | (Researcher explains to respondent what knowledge management is).<br>- Respondent is of the opinion that there has been discussion on the topic within the AIS, but that it is not practiced in the AIS yet. |
| Respondent 3 | - Certain aspects of knowledge management are practiced: knowledge acquired is packaged and stored, but not communicated (transferred) in a constructive way. |
| Respondent 4 | - Knowledge management is practiced to a great extend in the AIS;<br>- Proof of this is the AIS's culture to share knowledge, as well as the compilation of manuals and conducting of training. |
| Respondent 5 | - Not really;<br>- The AIS had a project on knowledge management in 2002 but it was never internalised;<br>- The E-Information projects of the AIS do touch on elements of knowledge management though;<br>- The aim of the InfoPortal was also to support personal knowledge management. |

**Table 5.2:    Respondent's answers to the question 'would you say the AIS practices knowledge management?'**

From the respondents' answers in Table 5.2, one can deduce that knowledge management was only in its beginning stages in the AIS at the time of this study, where only certain aspects of knowledge management were practiced. Respondents 1 and 3 indicated this directly. The answer received from Respondent 4, who felt knowledge management was practiced to a great extend in the AIS, also revealed that the AIS's knowledge management processes have mostly focused on the management of explicit knowledge, but not so much on the management of tacit knowledge. Respondents 2 and 5 also indicated that the only things on knowledge management that have taken place in the AIS were discussions on the topic, the running of a knowledge management project, and the set-up of an information technology infrastructure for knowledge management, indicating therefore that knowledge management was in the beginning stages in the AIS.

The researcher agrees with Respondent 1 that because knowledge management was in the beginning stages in the AIS, a framework for its deployment and development in the organisation would have to be worked out.

**5.6.3   WOULD YOU DESCRIBE THE AIS AS A LEARNING ORGANISATION? IF SO, WHY?**

This question was asked to determine two things: whether the AIS was a learning organisation and reasons for describing the AIS as a learning organisation, or not.

| POSITION | AIS A LEARNING ORGANISATION? | WHY? |
|---|---|---|
| Respondent 1 | Yes | - The AIS is a learning organisation because it is perpetually developing new things that compel staff members to learn continuously. |
| Respondent 2 | Yes | - The AIS is a learning organisation because staff members learn daily on a continuous basis. This learning takes place in an informal manner through conferences and at the workplace. |
| Respondent 3 | Yes | - The AIS is a learning organisation because it focuses on the training of people on how to search for information, process it and handle it. |
| Respondent 4 | Yes | - The AIS is a learning organisation because the AIS find itself in a developing sphere where constant changes are taking place, and where things have to be adapted to clients' needs, compelling staff members to adapt on a continuous basis in order to be able to do their daily work. |
| Respondent 5 | Yes | - The AIS's strong focus on research and development, which can be seen in its system of projects, is an indication that the AIS is a learning organisation.<br>- The learning organisation idea was also given further leverage through the competency-based system, which was started in the AIS a few years back. |

**Table 5.3:    Respondent's answers to question 'would you describe the AIS as a learning organisation, and, if so, why?'**

Table 5.3 shows that all the respondents viewed the AIS as a learning organisation, and most of the reasons given by the respondents confirmed this.

Respondents 1, 2 and 4's reasons focused on the continuous learning of the staff members of the AIS as qualifying the AIS as a learning organisation. This corresponded with one of the characteristics of a learning organisation as found in Section 3.3.4.1, i.e. that a learning organisation provides continuous learning opportunities. Respondent 4's answer that the AIS found itself in a developing sphere where constant changes were taking place, and where things had to be adapted to clients' needs, compelling staff members to adapt on a continuous basis in order to be able to do their daily work, also links to the ideas of single-loop and double-loop learning that were discussed in Section 3.2.2 as types of learning that can occur in a learning organisation. The reference of Respondent 5 to a competency-based system in the AIS as promoting the learning organisation idea in the AIS also corresponded with two of the characteristics of a learning organisation, namely that a learning organisation uses measurement systems to measure performance (see Section 3.3.4.2), and that learning organisations link individual performance with organisational performance (see Section 3.3.4.3). The reason provided by Respondent 3, namely that the AIS was a learning organisation because it focused on the training of people on how to search for information, process it and handle it, showed a possible lack of understanding of what is really meant by the concept.

The results of questions 5.4.1 – 5.4.3 thus showed that the AIS practiced knowledge management to some extent and was considered to be a learning organisation.

**5.6.4      DO YOU BELONG TO A COMMUNITY OF PRACTICE AND WHICH OF THE COMMUNITIES YOU BELONG TO ARE CROSS-ORGANISATIONAL?**

Communities of Practice were described in Section 4.3.1 as a *"network of people emerging spontaneously, and held together by informal relationships and common purpose, that share common knowledge or a specific domain, expertise and tools, and learn from one another"*.

The researcher explained to the respondents what a Community of Practice is, and asked this question to determine if any of the respondents belonged to Communities of Practice. In the rest of the question, the researcher asked the respondents to indicate which of these Communities were cross-organisational (external) Communities of

Practice. The Communities that the respondents belonged to are listed in table 5.4, with the cross-organisational Communities of Practice highlighted in bold letters.

| RESPONDENT | COMMUNITIES OF PRACTICE |
|---|---|
| Respondent 1 | - **Knowledge Management Practitioners Group of Pretoria (KMPG).**<br>- Information Specialists Group. |
| Respondent 2 | - **GCATS (GAELIC Cataloguers)**   (GAELIC = Gauteng and Environs Libraries Consortium). |
| Respondent 3 | - **Virtual Group on Water Research on the InfoPortal;**<br>- **Virtual Group on Architecture;**<br>- Information Specialists Group. |
| Respondent 4 | - **Maritime Archaeology Group** (consisting of lecturer, students of Archaeology department, researchers from Cape Town and information specialist);<br>- **The Virtual Group on Water Research on the InfoPortal;**<br>- Information Specialists Group. |
| Respondent 5 | - Digital Repositories Group;<br>- Informal Network for E-Information Experts. |

**Table 5.4:** **Respondent's answers to question 'do you belong to a Community of Practice and which of the Communities you belong to are cross-organisational?'**

The answers in Table 5.4 showed that while the respondents belonged to one or more Communities of Practice, more respondents belonged to cross-organisational (external) Communities of Practice than to internal Communities of Practice. This could be an indication of the measure to which staff members were involved in professional activities outside the organisational boundaries of the AIS. Worrisome is the small number of internal Communities of Practice that were listed. This could most probably be a result of the absence of two of the top management members in the organisation (see Section 5.6.17), and the fact that knowledge management is only in its beginning stages in the organisation (see Section 5.6.2).

**5.6.5        HOW DID THESE COMMUNITIES OF PRACTICE START AND DEVELOP?**

The origin of the group can give a good indication of whether these groups were Communities of Practice, or just interest groups or teams.

| COMMUNITY OF PRACTICE | ORIGIN |
|---|---|
| Knowledge Management Practitioners Group of Pretoria. | - An employee of the National Electricity Regulator (NER) of South Africa started this group after identifying a need for it in Pretoria. |
| GCATS | - This Community was started as a sub-group of the Gauteng and Environs Libraries Consortium (GAELIC) and later developed into an informal knowledge sharing group, where know-how on cataloguing are shared by staff from the different institutions. |
| Virtual Group on Water Research | - The information specialist working in the Service Unit Natural and Agricultural Sciences, Engineering, Built Environment and Information Technology of the AIS identified different people working with water and realised there are 18 departments on campus working on water research. This particular information specialist then gathered the information specialists of the particular academic departments together, including one of the lecturers who was already involved in the InfoPortal. These groups were then brought together on a Virtual Group on the InfoPortal. |
| Maritime Archaeology Group | - This group developed because of the interest of several parties from different faculties and institutions from Pretoria and Cape Town, viewing the topic from different perspectives. |
| Information Specialists Group | - This group developed to ensure that expertise /knowledge flowed to all information specialists working throughout the organisation, ensuring that all were on the same level. |
| Virtual Group on Architecture | - This group started because of a lecturer's interest. |
| Digital Repositories Group | - This informal group was started around a project to enable staff members to share their expertise and know-how on the topic with one another. |
| Informal Network for E-Information Experts | - This group started around a shared interest. |

**Table 5.5:    Respondent's answers to question 'how did these Communities of Practice start and develop?**

The responses given in Table 5.5 showed that 5 of the groups in which the respondents were involved started because of a shared interest or need that were identified by an individual, or a number of people working in the same area of expertise. In Section 4.9 of this study, it was mentioned that Communities of Practice potentially develop from Communities of Interest, which can be found in the first stage of development of Communities of Practice. The fact that these groups started with an interest is evidence that these groups could be classified as Communities of Practice. The Information Specialists Group was developed to ensure that expertise/knowledge flowed to all information specialists in the organisation, which corresponds with one of the characteristics of a Community of Practice, namely that they are defined by knowledge/expertise rather than task (see Sections 4.3.2 and 4.9). One of the groups started as a formal sub-group of a library consortium (GAELIC), but later developed into an informal group, sharing know-how/expertise, which also corresponds to the characteristic that they are defined by knowledge/expertise rather than task. It seems therefore that formal groups/teams could be transformed into Communities of Practice. The group that developed around a project also focused on the sharing of knowledge/expertise. The origin and development of these groups therefore showed that all these groups could be viewed as Communities of Practice.

### 5.6.6 HOW MANY MEMBERS DO EACH OF THE COMMUNITIES OF PRACTICE MENTIONED BY THE RESPONDENTS HAVE?

One of the characteristics of a Community of Practice is that it normally consists of a small number of people, but that in some cases, it can have a large number of members (see Section 4.3.2). This question was asked to get an idea of the size of some of these groups.

| COMMUNITY OF PRACTICE | NUMBER |
|---|---|
| Knowledge Management Practitioners Group of Pretoria | 20 people |
| Information Specialists Group of the AIS | ± 30 people |
| GCATS | ± 20 people |
| Virtual Group on Architecture | 43 people |
| Virtual Group for Water Research | ± 20 people |
| Virtual Group for Maritime Archaeology | 4-5 people |
| Digital Repository Group | 10-15 people |
| Informal Network for E-Information Experts | 10-15 people |

**Table 5.6:     Respondent's answers to question 'how many members do each of the Communities of Practice mentioned by the respondents have?'**

The Community with the biggest number of members is shown in Table 5.6 as having about 43 members (Group on Architecture), and the smallest group as having 4-5 members (Virtual Group on Maritime Archaeology), with the rest averaging between 10-20 people. In Section 4.3.2 it was stated that the larger the group becomes, the more difficult it becomes to share knowledge, which means that knowledge sharing in the Virtual Group on Architecture might be more difficult than in the smaller Communities. Table 5.6 seems to indicate that the ideal size for these Communities of Practice is 10-20 people.

**5.6.7     WHO LEADS THESE COMMUNITIES OF PRACTICE?**

This question was asked to determine who would take the lead in these groups, and whether this role can be fulfilled by information professionals, especially in cross-organisational Communities of Practice.

| CROSS-ORGANISATIONAL COMMUNITIES OF PRACTICE | INTERNAL COMMUNITIES OF PRACTICE | PERSON |
|---|---|---|
| | Information Specialists Group | - Service Unit Leader of Economics and Management Sciences of the AIS. |
| Knowledge Management Practitioners Group of Pretoria | | - Employee of the National Electricity Regulator (NER) of South Africa. |
| GCATS | | - Leader rotates every year. This year it is led by the Coordinator of the Cataloguers at the University of South Africa. |
| | Digital Repository Group | - Respondent 5. |
| | Informal Network for E-Information Experts | - Respondent 5. |
| Virtual Group on Architecture | | - Led by a lecturer from the Architecture Department at the University of Pretoria. |
| Virtual Group for Water Research | | - Respondent 3. |
| Virtual Group for Maritime Archaeology | | - Respondent 4. |

**Table 5.7:** **Respondent's answers to question 'who leads these Communities of Practice?'**

Table 5.7 shows that information professionals have a very active role to play in some of the mentioned Communities of Practice. Three of the cross-organisational Communities of Practice (GCATS, Virtual Group for Water Research, and the Virtual Group for Maritime Archaeology) were led by information professionals. This confirms Section 4.9.4, where it was shown that information specialists could play a valuable role in the coordination and facilitation of Communities of Practice. Though Communities of Practice should not be formalised, in other words structured or forced down by management, it can sometimes be led by a member of management, as in the case of the Information Specialists Group, which was led by a service unit leader. The fact that a member of management led this Community could be a reason why it had

not developed much since it started (see Section 5.6.10). The two Communities led by the Strategic Innovation Manager (Respondent 5), could encounter the same danger, the reason being that people might feel it is forced on them from top management.

### 5.6.8 HOW LONG HAVE THESE COMMUNITIES OF PRACTICE BEEN IN EXISTENCE?

This question was asked to get an indication of the duration of these Communities of Practice.

| COMMUNITY OF PRACTICE | TIME PERIOD |
|---|---|
| Knowledge Management Practitioners Group of Pretoria | 1 Year |
| GCATS | ± 7 Years |
| Information Specialists Group | 4 Years |
| Virtual Group on Water | 2 Years |
| Maritime Archaeology Group | 1 Year |
| Virtual Group on Architecture | 7 Years |
| Digital Repository Group | 3 Years |
| Informal Network for E-Information Experts | 5 Years |

**Table 5.8:    Respondent's answers to question 'how long have these Communities of Practice been in existence?'**

Table 5.8 shows that GCATS had been in existence the longest, followed by the Virtual Group on Architecture as the group that existed the second longest. One could assume that their years of existence indicate that they were in the active stage or final stage of the life cycle of a Community of Practice. The Knowledge Management Practitioners Group of Pretoria and the Maritime Archaeology Group had only been running for a year at the time of the interviews, and one could assume that they were probably in the beginning stages of the development of Communities of Practice. Looking at the years that the Informal Network for E-Information Experts existed, one could assume that it should have been in the active stage of a Community of Practice.

If one looks at the responses received in Section 5.6.10, many of these groups found themselves in the potential or formation stages, even though they have existed for years. It therefore seems that the number of years a Community of Practice exist is not necessarily an indication of the stage of development it has gone through. Communities of Practice as human phenomena develop at different speeds. Some Communities of Practice can develop into an active Community very quickly; others take time to develop into their full active capabilities, depending on a variety of factors.

**5.6.9        HOW MANY TIMES DO THE COMMUNITIES OF PRACTICE MEET?**

This question was asked to determine if the mentioned Communities only existed virtually or if they also got together in face-to-face meetings from time to time.

| COMMUNITY OF PRACTICE | FREQUENCY |
|---|---|
| Knowledge Management Practitioners Group of Pretoria | - They get together every second Tuesday of every month. |
| GCATS | - They get together 3 to 4 times per year. |
| Information Specialists Group of the AIS | - They get together once every 2 months on a Tuesday. |
| Virtual Group on Water Research | - This group never gets together. Only exists virtually. |
| Virtual Group on Architecture | - This group never gets together. Only communicates electronically. |
| Maritime Archaeology Group | - This group never gets together. Only communicates via e-mail. |
| Digital Repository Group | - Once a week. |
| Informal Network for E-Information Specialists | - As necessary. |

**Table 5.9:    Respondent's answers to question 'how many times does the Communities of Practice meet?'**

In Section 4.2 of this study, a distinction was made between face-to-face Communities of Practice and virtual Communities of Practice. It was also stated that in order to give people a sense of being part of a Community, it was essential that people met face-to-face in an infrequent manner. Responses received in Table 5.9 showed that three of the Communities only existed virtually, namely the Virtual Group on Water Research, the

Virtual Group on Architecture, and the Maritime Archaeology Group. Because they never got together face-to-face, they could experience problems in creating a sense of being a part of a Community for their members. The reason that the Maritime Archaeology group never met face-to-face could be because of the distance of some of its members, who stayed far from the ocean.

The groups that got together face-to-face in a more frequent manner, namely the Knowledge Management Practitioners Group of Pretoria, the Information Specialists Group of the AIS, the Digital Repository Group, and the Informal Network for E-Information Specialists, should have experienced a greater sense of being part of a Community than some of the other Communities.

## 5.6.10    IN WHICH STAGES OF DEVELOPMENT WOULD YOU SAY THESE COMMUNITIES OF PRACTICE FIND THEMSELVES?

In Section 4.5.2 of this study, Communities of Practice were shown to develop through different stages, namely a potential stage, a formation stage, a commitment stage, an active stage and an adaptive or disengaging stage, which forms the life cycle of a Community of Practice. The researcher told the respondents what the stages in the development of a Community of Practice were and explained to them what distinguished each stage. By asking this question, the researcher tried to determine in which stages of development each of these Communities found themselves.

| COMMUNITY OF PRACTICE | STAGE IN THE LIFE CYCLE |
|---|---|
| Knowledge Management Practitioners Group of Pretoria | Formation Stage. |
| GCATS | Potential Stage. |
| Information Specialists Group of the AIS | Potential Stage. |
| Virtual Group on Water | Potential Stage. |
| Virtual Group on Architecture | Commitment Stage. |
| Maritime Archaeology Group | Commitment Stage. |
| Digital Repository | Potential Stage/Formation Stage. |
| Informal Network for E-Information Specialists | Potential Stage/Formation Stage |

**Table 5.10:    Respondent's answers to the question 'in which stages of development would you say these Communities of Practice find themselves?'**

The responses received in Table 5.10 showed that most of the Communities of Practice found themselves in the potential or formation stage of development. As indicated in Section 5.6.8, some of these Communities have been in existence for quite a number of years. The fact that these Communities of Practice did not develop much further than the first two stages of the life cycle of a Community of Practice, corresponds with Section 5.6.2, where it was indicated that knowledge management is only in the beginning stages of development in the AIS. The fact that they did not develop much further over a number of years could indicate that there were factors that hindered the further development of these Communities.

**5.6.11      WHAT WOULD YOU SAY IS THE PURPOSE/VALUE OF THE COMMUNITIES OF PRACTICE TO WHICH YOU BELONG?**

In Section 4.4 of this study, it was shown that Communities of Practice provide value for the organisation(s) in which they operate, the Community, and also the individuals that are part of them. The aim of this question was therefore to determine what value/purpose these Communities had for the AIS, the respondents, and the Communities they belonged to.

| RESPONDENT | PURPOSE |
|---|---|
| Respondent 1 | - Members all share the same area/type of work, and learn from each other;<br>- They help with problem solving in the AIS;<br>- They are forums where one meets people (Social value);<br>- These groups create opportunities where staff from the satellite campuses can meet colleagues from the main campus. |
| Respondent 2 | - They are used for standardization, in other words to see to it that everyone do the same things and know the same things;<br>- They prevent their members from duplicating what others have already done. |
| Respondent 3 | - They are valuable communication media;<br>- They are places where information specific to a certain group are shared and discussed;<br>- I use it as a forum to help people with their information needs, and by participating I can anticipate the members' information needs and act proactively;<br>- Communities of Practice help to integrate internal knowledge and can make it easier to find information to share with others;<br>- They help that we don't reinvent the wheel again;<br>- These Communities are spaces where one can get trained and can learn informally. |
| Respondent 4 | - They are used for information exchange and help spreading information/knowledge at a faster pace;<br>- They help with the identification of expertise, and bring one in contact with experts and expertise in the organisation and across the field;<br>- They help others to gain the experience and knowledge that experts have, before these experts leave the organisation;<br>- They enrich my work life by helping me put a better product on the table for my clients. |
| Respondent 5 | - These Communities enables one to communicate with people with similar interests;<br>- They help keep people abreast of new trends and developments;<br>- They assist the AIS to get development work off the ground;<br>- They are used as tools for lobbying and pressure;<br>- They give the necessary support (also emotional support) to their members;<br>- They enable knowledge sharing;<br>- They enable one to feel part of a greater network. One does not feel so isolated. The group functions as a sounding board. |

**Table 5.11: Respondent's answers to the question 'what would you say is the purpose/value of the Communities of Practice to which you belong?'**

The values in Table 5.11 can be grouped in terms of the value it had for the individual, for the Community and for the organisation:

**The values these Communities had for the individual:**

- Social value: members met others sharing the same interests or types of work;
- Created a sense of being part of a network or community;
- They gave the necessary emotional support to their members;
- They helped their members stay abreast of new trends and developments;
- They acted as learning spaces where members could be "trained" informally and could learn;
- They were used by information specialists to help people with their information needs;
- They enriched their members' work life and helped them to put a better product on the table.

The responses showed that Communities of Practice do provide value to their individual members. These values can motivate them to participate, even though they get no incentives or rewards for participation.

**The values these Communities of Practice had for the Community itself:**

- They were used for standardisation, in other words to build common language;
- They helped others to gain the experience and knowledge that experts have, before these experts leave the organisation;
- They provided access to expertise in the organisation and in the field;
- They were used as tools for lobbying and pressure.

These responses showed that Communities are used as a tool for leverage in the organisation and for their members.

**The values these Communities of Practice had for the AIS:**

- Prevented duplication of work;
- Valuable communication media;
- Valuable knowledge sharing/knowledge transfer media and accelerated knowledge sharing and –transfer;
- They ensured that better products were delivered;

- They helped with problem solving in the AIS;

- They helped to integrate internal knowledge in the organisation;

- They assisted the AIS to get development work of the ground.

These values showed why the AIS embraced the idea of Communities of Practice and implemented it as a knowledge management tool.

## 5.6.12  WHAT TYPES OF KNOWLEDGE ARE SHARED IN THESE COMMUNITIES OF PRACTICE?

In Section 2.2.4 of this study, four types of knowledge were identified, i.e. tacit, explicit, organisational and cultural knowledge. This question was asked to determine which of these types of knowledge were shared in these Communities of Practice.

| RESPONDENT | TYPE OF KNOWLEDGE |
|---|---|
| Respondent 1 | - Anything related to their tasks in general, new developments in their fields of work, problems related to the work, solutions found, new appointments/staff changes, relevant information sources, relevant conferences to be held, etc. |
| Respondent 2 | - Know-how, procedures and documents. |
| Respondent 3 | - I would say that members tend to share explicit knowledge more, e.g. a URL or an interesting document, and tacit knowledge to a lesser extend. |
| Respondent 4 | - Practical things;<br>- Something interesting;<br>- Know-how;<br>- Short-cuts/Shorter Processes. |
| Respondent 5 | - Much of the knowledge that is shared is explicit, but when these groups get together in discussions, the knowledge shared is tacit. Projects are strongly driven by tacit knowledge and insights. |

**Table 5.12:  Respondent's answers to the question 'what types of knowledge are shared in these Communities of Practice?'**

The answers received from the respondents in Table 5.12 showed that both tacit (which can include know-how, practical things, short-cuts/shorter processes, and interests), and explicit knowledge (e.g. documents, URLs) were shared in all the Communities of Practice the respondents belonged to, though in some cases, the

sharing of explicit knowledge seemed to be more (see Respondent 3). By looking at some of the remarks made by the respondents, e.g. "anything related to their tasks, new developments in their fields of work, problems related to the work, solutions found, new appointments/staff changes", one can deduce that organisational knowledge was also shared in these Communities of Practice. Though none of the respondents' answers referred to cultural knowledge, it is assumed that cultural knowledge was transferred through values and examples set by individuals in the Community.

**5.6.13      WHAT TECHNIQUES AND TOOLS (TECHNOLOGY) ARE UTILISED BY THE COMMUNITIES OF PRACTICE FOR THE CAPTURING, ORGANISATION AND SHARING/TRANSFER OF KNOWLEDGE CREATED IN THEM?**

In Section 4.8.1 of this study, role-play/simulations, knowledge mapping and storytelling were mentioned as techniques that can be used to share knowledge. Different enabling technologies can also be used to share knowledge in Communities of Practice. This question was therefore asked to determine which of these techniques were utilised, and also to identify possible other techniques that could be used. The question further tried to determine which technologies were utilised in Communities of Practice.

| RESPONDENT | TECHNIQUES | TOOLS |
|---|---|---|
| Respondent 1 | - By sharing news, new developments, and problems at meetings and via e-mail. | - Most of these groups use listservs;<br>- Some use webpages;<br>- The Virtual Group Function on the InfoPortal are not fully utilized yet, because it is restricted to internal clients of the University of Pretoria only and is not open to people from outside the University. |
| Respondent 2 | - Storytelling is the buzzword, but we do it very seldom. A problem lands on the agenda and the group then solves it. | - Make use of webpage;<br>- Make mostly use of a listserv;<br>- Telephone;<br>- E-mail. |
| Respondent 3 | - No specific techniques are really used; information is just sent through, for example a URL. | - Listservs;<br>- Use the Virtual Groups on the InfoPortal;<br>- Use E-mail;<br>- Telephone. |
| Respondent 4 | - Storytelling: in the group for information specialists in the AIS, we use storytelling a lot;<br>- Training: - informally, where we say this has happened and that is how we solved it. – formally, where we get a knowledgeable information specialist to come and share his/her experience with the rest of the group;<br>- Practical simulations: where we get people to sit in front of a computer to experience a situation firsthand;<br>- Demonstrations;<br>- Lectures/formal feedback;<br>- Formal manuals. | - Listservs;<br>- Use Virtual Groups on the InfoPortal, but it is only restricted to internal groups, not groups that span the border of the University, e.g. the Maritime Archaeology Group. This group can only use e-mail, as it has members from Cape Town;<br>- Use E-mail;<br>- Intranet;<br>- Tele-conferencing |
| Respondent 5 | - Storytelling;<br>- Formal feedback. | - E-Mail;<br>- Telephone;<br>- Virtual Groups on the InfoPortal. |

**Table 5.13: Respondents' answers to the question 'what techniques and tools (technology) are utilised by the Communities of Practice for the capturing, organisation and sharing/transfer of knowledge created in them?'**

Storytelling was mentioned by 3 of the respondents in Table 5.13 as a technique that was used in the Communities for the sharing/capturing of knowledge, although Respondent 2 reiterated that it was not used often in the Community he belonged to. Practical simulations/role-play were mentioned by Respondent 4 as a technique, but none of the respondents mentioned knowledge mapping as a technique. The answers received from Respondents 1 and 3 showed a lack of knowledge and a non-awareness of the knowledge capturing and -sharing techniques.

The techniques added by Respondents 4 and 5, namely demonstrations, lectures/formal feedback and formal manuals, are techniques one would expect more in formal groups, for example teams. In overview of all the answers, it seems knowledge capturing and sharing techniques were only applied by some of the respondents, and that there also was a lack of knowledge on techniques that were available. This could be attributed to the fact that most of these Communities of Practice were only in their beginning stages, where a framework for knowledge capturing and -sharing needed to be worked out (see Section 5.6.2).

The tools mentioned by the majority of the respondents were e-mail (Respondents 2-5), listservs (Respondents 1-4), and the Virtual Groups Function on the InfoPortal of the AIS (Respondents 1, 3, 4, 5). The second most used tool was the telephone (Respondents 2, 3, and 5), although this might be efficient for the sharing of knowledge but not the capturing of it. The third most used tool was webpages (Respondents 1 and 2). Only Respondent 4 mentioned the use of an intranet and tele-conferencing.

All the answers by the respondents showed that the information technology infrastructure was being utilised by these groups in the capturing/sharing of knowledge. Though information technology is not equal to knowledge management, it is essential in supporting knowledge capturing and sharing in Communities of Practice. This essential element has thus been taken care of in these Communities. The fact that the virtual Groups Function of the InfoPortal was not open to people from outside the University of Pretoria seemed not to have stopped some of the cross-organisational Communities of Practice from using it, even though it was not the ideal situation (See Respondent 4).

**5.6.14      HOW IS ONGOING PARTICIPATION IN THESE COMMUNITIES OF PRACTICE ENSURED?**

In Section 4.5.1 of this study, different techniques to inspire participation in Communities of Practice were mentioned, namely identification/recognition of individual achievement, building of group identity, motivating and rewarding people to participate, and celebrating achievements and successes. The purpose of this question was therefore to determine if some of these techniques were used to ensure participation, and also to determine if there were other techniques that could be used.

| RESPONDENT | ANSWER |
|---|---|
| Respondent 1 | - Individual achievement was identified and recognized by inviting suitable experts to join the Knowledge Management Practitioners Group;<br>- Group identity in the Knowledge Management Practitioners Group was built through the setting up of a webpage;<br>- People have been motivated to partake by including this in their performance evaluations;<br>- No techniques have been used in the Information Specialists Group. |
| Respondent 2 | - Use no techniques in the GCATS group as each one is sent by their particular university to participate. |
| Respondent 3 | - Have built group identity by designing virtual workspaces on the InfoPortal for the Virtual Group on Water Research and the Virtual Group on Architecture;<br>- Some of the experts on water research in the different departments at the University of Pretoria have been identified, and their achievements recognized by inviting them to join the Virtual Group on Water Research;<br>- No techniques have been used in the Information Specialists Group. |
| Respondent 4 | - Suitable experts were identified and invited to join the Maritime Archaeology Group and in so doing, their individual achievement was recognized. This inspired others to participate;<br>- Virtual workspaces were developed on the Virtual Groups Function of the InfoPortal for both the Maritime Archaeology Group and the Virtual Group on Water Research. |
| Respondent 5 | - Certain staff members of the AIS who had the necessary expertise were identified and invited to become members of the Digital Repositories Group and the Informal Network of E-Information Experts. This gave them the recognition they deserved and inspired them and others to partake;<br>- Contracting people to take part can also ensure ongoing participation. |

**Table 5.14:    Respondent's answers to question 'how is ongoing participation in these Communities of Practice ensured?'**

The responses received in Table 5.14 showed that only three of the techniques mentioned in Section 4.5.1 have been utilised, namely the identification/recognition of individual achievement, the building of group identity and the technique of motivating and rewarding people to participate. Respondent 5 added a technique not mentioned in literature, namely to contract people to take part. The reason that no techniques were used in the Information Specialists Group and in the GCATS Group could be because their members were compelled to be there by their management or by their organisations, which means they did not need techniques to ensure participation. The technique of motivating people to participate was only mentioned by Respondent 1, and not by the others. The reason for this could be that it has not done throughout the AIS. Another reason could be that although participation was built into some of the members' performance evaluations, no rewards or incentives, e.g. promotions or bonuses, have been linked to it, with the result that staff members were not really motivated to participate (see Section 5.6.16). None of the respondents mentioned the technique of celebrating achievements and successes, and the reason for this could be that it was more possible in communities that already executed and improved its processes, and where the community understood and demonstrated benefits from knowledge sharing and the collective work of the community, in other words Communities that have developed into the commitment or active stages of a Community of Practice. This confirms that most of these Communities of Practice were only in the beginning stages of development (see Section 5.6.10).

## 5.6.15     HOW LONG WOULD YOU SAY THESE COMMUNITIES OF PRACTICE ARE STILL GOING TO LAST?

Communities of Practice normally have a life cycle (see Section 4.5.2 of this study) through which they develop. This question was asked to determine how long the groups to which the respondents belonged would keep on functioning, and if these groups were in the final stage of the life cycle, where they either had to disengage or adapt.

| RESPONDENT | ANSWER |
|---|---|
| Respondent 1 | - The Knowledge Management Practitioners of Pretoria Group will last for a long time, because knowledge management is developing all the time.<br>- The Information Specialists Group should last indefinitely because it is a dynamic field and have been formed around the core business of the AIS. |
| Respondent 2 | - GCATS should last indefinitely, because everything keeps on changing. |
| Respondent 3 | - I don't think these Communities will grow further, because of shortcomings experienced in the InfoPortal. This includes the Virtual Group on Water and the Virtual Group on Architecture. These groups should be closed down and new groups should be started from scratch. |
| Respondent 4 | - I feel that the Virtual Group on Architecture in which the Service Unit Humanities of the AIS also takes part will continue, even though it is sometimes inactive and other times active.<br>- The Group for Information Specialists in the AIS should continue indefinitely because it is driven by the necessity to address the immediate information needs of clients. |
| Respondent 5 | - These groups (Digital Repositories Group) and the Informal Network for E-Information Experts) will last as long as the projects lasts or the need for such groups exist. |

**Table 5.15: Respondent's answers to question 'how long would you say these Communities of Practice are still going to last?'**

The responses given in Table 5.15 showed that a Community of Practice's life span is determined by the reason for its existence. When the reason for their existence no longer exists, they disengage or transform to address another issue (in other words their reason for existence change). From Table 5.15, it seems that Communities of Practice that are built around dynamic topics/fields and around the core business of the organisation, tend to last longer or even indefinitely. Communities that form around a project only last as long as the project lasts. Table 5.15 also shows that Communities of Practice rely on information technology to support their processes (See Respondent 3), and if the technology fails them, it can inhibit their development or even lead to the premature death of the Community. The researcher is of the opinion that Communities that find themselves in this position should not let them be limited by one specific technology, but must examine and adopt other technologies that can support them. These Communities can even use different types of technologies at the same time.

An interesting discovery during the focus group interview was that the Virtual Group on Architecture had disengaged in the time span between the individual interviews and the focus group interview. The reason given was that the group had outlived its purpose/reason for existence, and not only because of the failure of the technology as stated by Respondent 3 in Table 5.15. Communities of Practice can therefore die out

because of a combination of reasons, e.g. shortcomings of supporting technology, reason for existence that is no longer valid, completion of the project around which it was formed, the field or topic around which it was built that is no longer dynamic, or the core business of the organisation that has changed.

**5.6.16     ARE YOU REWARDED FOR BELONGING TO COMMUNITIES OF PRACTICE? IF YES, HOW?**

People are inspired to participate in Communities of Practice by a variety of things (see Section 4.5.1 of this study). Incentives in the form of financial compensation, recognition etc. can be strong motivators to participate in Communities of Practice. Thus, by including participation in performance evaluation and linking it to incentives, e.g. a financial bonus or promotion, Communities of Practice can be afforded a more important role in an organisation like the AIS. Staff members will also be motivated to give more attention to the development and nurturing of these Communities in the organisation. The purpose with this question was therefore to establish whether members of these Communities were rewarded with any type of incentives, and if participation was included in their performance evaluation.

| RESPONDENT | ANSWER |
|---|---|
| Respondent 1 | - No, I receive no reward for belonging to Communities of Practice, but it is included in my performance evaluation. |
| Respondent 2 | - No, I receive no reward for belonging to Communities of Practice, but it is included in my performance evaluation. |
| Respondent 3 | - No, I receive no incentives for belonging to Communities of Practice, and it is not included in my performance evaluation, but it would be good if it was included in it, because it will motivate us to spend more time and energy on these Communities. At the moment it is just a nice thing to do on the side. |
| Respondent 4 | - No, I receive no reward for participating in Communities of Practice. Participation is also not included in my performance evaluation. It depends on how you set up your performance contract every year. If this is one of my aims, then I can measure it at the end of the year to see if I have attained that aim. This is just for intrinsic motivation; not for financial gain. |
| Respondent 5 | - No formal incentives are given for participation in these groups. Belonging to these groups does however provide opportunities, e.g. a sponsored trip overseas to do research for one of the groups, and opportunities to go to conferences. Participation in these groups is not formally included in performance evaluation. |

**Table 5.16:   Respondent's answers to question 'are you rewarded for belonging to Communities of Practice, and, if yes, how?'**

From Table 5.16 it is clear that no incentives were given to any of the respondents for participation in Communities of Practice, although participation could present opportunities like an overseas trip, as mentioned by one of the respondents. In two of the respondent's cases, participation was included in their performance evaluations, but this was still not linked to any type of reward, e.g. a bonus or a promotion. Two of the other respondents felt that it should be included in their performance evaluation, because it would then motivate them to participate more in Communities of Practice.

The deduction that can be made from Table 5.16 is that staff members of the AIS are not really motivated or inspired to participate in Communities of Practice, as they do not receive any kind of reward or incentive to participate in these Communities. This could also be a reason why many of these Communities had not really developed beyond the first stages of the life cycle of a Community of Practice. Staff members that were participating in Communities of Practice were most probably motivated to partake

because of the value they got from it, e.g. learning from others in the Community on how to solve problems in their work situation (faster problem solving), the acquisition of know-how, peer-recognition, etc. These motivators are however not enough to ensure that these Communities grow dynamically. The AIS will therefore have to address this issue by including participation in Communities of Practice in all of its members' performance evaluations, and by rewarding their participation with financial incentives, e.g. bonuses, promotions, etc.

## 5.6.17     DOES TOP MANAGEMENT SUPPORT COMMUNITIES OF PRACTICE?

One of the critical success factors of a Community of Practice as mentioned in Section 4.7.1, which were identified as a management challenge, is to ensure that people have the time and is encouraged to participate. In other words, by getting top management involved, people will be allowed to participate in Communities of Practice as part of their work. The purpose of this question was to determine how important Communities of Practice were to the top management, for this would determine how successful they were in the AIS.

| RESPONDENT | ANSWER |
|---|---|
| Respondent 1 | - I think it is very important to the top management of the university and the AIS. |
| Respondent 2 | - I think it is very important to them. |
| Respondent 3 | - I don't think it is important to the top management of the AIS. |
| Respondent 4 | - I get the idea that it is important to the top management of the AIS. |
| Respondent 5 | - Though Communities of Practice play a strong invisible role in the AIS, I don't think it is important to the top management of the AIS or the University, mostly because of a lack of knowledge about the role and importance of Communities of Practice. |

**Table 5.17:    Respondent's answers to question 'are Communities of Practice supported by Top Management?'**

In Table 5.17, Respondents 3 and 5 felt that Communities of Practice were not really important to the top management of the AIS, while the majority of respondents (Respondents 1, 2 and 4) felt that it was important to them. The reason for this difference of opinion could be that the top management of the AIS did not articulate

their support of Communities of Practice clear enough. The fact that participation in Communities of Practice was only included in some of the staff members' performance evaluations (see Section 5.6.16), seems to show that top management's support was not felt throughout the organisation. Hence the perception by some of the staff that top management did not think Communities of Practice were important. In order to change this perception, the top management of the AIS will have to make sure that they articulate the importance of Communities of Practice more clearly throughout the organisation, and see to it that staff members' participation are rewarded in the form of financial incentives.

Another reason why some of the respondents had a perception that Communities of Practice were not important to top management, could have resulted from the retirement of two of the top management members of the AIS who were very supportive of Communities of Practice, resulting in Communities of Practice not receiving the same amount of attention than in the past.

**5.6.18    HOW DO YOU AS INFORMATION/KNOWLEDGE PROFESSIONAL WIN THE TRUST OF THE OTHER MEMBERS OF COMMUNITIES OF PRACTICE?**

Trust is a very important element in a Community of Practice, as people are more willing to share knowledge with those they trust (see Section 4.8.2.1). Very often members of cross-organisational Communities of Practice can be more knowledgeable about the domain of knowledge of the Community of Practice than the information/knowledge professional. The information/knowledge professional then have to win the trust of these members by showing them that he/she can contribute valuable expertise to the Community. This question was therefore aimed at determining how information/knowledge professionals could win the trust of the other members of Communities of Practice.

| RESPONDENT | ANSWER |
|---|---|
| Respondent 1 | - It takes time to win the trust of other members; they need to know you well and need to know that they can rely on you, and that you know what the Community is about. |
| Respondent 2 | - You cannot win trust. Trust is something that has to be present in a group otherwise the group can be terminated. |
| Respondent 3 | - I think that it is important that you already have a trusting relationship with the people before you start such a group. |
| Respondent 4 | - The expectations of the other members of the group are that you will also apply your particular expertise in the group. Your expertise is that you will identify resources and that you will give information through. By doing this, you win their trust. Another way to win their trust is to send them relevant information on a regular basis in advance and in a timely manner. |
| Respondent 5 | - The way to do this is to show that you are the expert in your area of work, and that you are there to support them in their areas of work. This means that you cannot be prescriptive. |

**Table 5.18:** **Respondent's answers to question 'how do you as information/knowledge professional win the trust of the other members of Communities of Practice?'**

Only two of the respondents (Respondents 4 and 5) in Table 5.18 really answered the question. Their answers showed that an information professional could win the trust of other members of a Community by showing that he/she is an expert in his/her work by providing them with the necessary information resources, as well as relevant and timely information in their areas of work. Respondents 1-3's answers can indicate three things: they either did not fully understand the question, or maybe did not really know much about trust, or alternatively did not know how information professionals can win the trust of other members. The researcher is of the opinion that trust is something that is earned, meaning that if these respondents do not know how to earn the trust of the other members in a Community Practice, their participation will have no effect on the Community at all. They might even find that they are excluded from its activities. Moreover, if they were the persons who started these Communities, they might have difficulty in convincing other members to join. If this is the case, the AIS will have to focus on improving the self-marketing skills of its information professionals.

**5.6.19      WHAT DO YOU DO WHEN A NEWCOMER JOINS THE COMMUNITY OF PRACTICE?**

In Section 4.3.2 of this study, the researcher indicated that Communities of Practice could be a place where newcomers learn from old-timers by being allowed to take part in certain jobs relating to the practice of the community. This question was therefore asked to determine how newcomers were accommodated in the Communities under discussion and whether they were able to move from peripheral participation (see Section 4.3.2) to full participation in these Communities.

| RESPONDENT | ANSWER |
|---|---|
| Respondent 1 | - A newcomer is welcomed and introduced at a face-to-face meeting, or on the listserv. The person is also encouraged to introduce him-/herself and to say what his/her fields of interest are. |
| Respondent 2 | - Newcomers are handled differently in the different groups, for example in GCATS people just fall in. There are no formal procedures to ensure that they come on the same level as others. |
| Respondent 3 | - When a newcomer joins he/she is welcomed and introduced to the group. Then it is important to explain to him/her how things work, and if necessary give him/her training. |
| Respondent 4 | - We have not done much formally for such people. A newcomer has to catch up as things go along. |
| Respondent 5 | - I think this is an area where most of these groups lack. These groups tend to be very closed and this makes it difficult for a newcomer to join. People are not excluded on a personal basis, but because of a lack of expertise. |

**Table 5.19:   Respondent's answers to question 'what do you do when a newcomer joins the Community of Practice?'**

From the responses received in Table 5.19, it seems that not much was being done at that stage to help newcomers move from peripheral participation to full participation. Though newcomers were welcomed in most of these Communities, they were left very much on their own.

One of the characteristics of a Community of Practice is that newcomers learn from members that have been active in the Community for some time. The fact that this was lacking in the Communities the respondents belonged to, could contribute to the

majority of the Communities of Practice in the AIS not developing further than the beginning stages of the life cycle of a Community of Practice.

**5.6.20      WHAT DO YOU REGARD AS CRITICAL/IMPORTANT FACTORS FOR THE SUCCESS OF THE COMMUNITIES OF PRACTICE TO WHICH YOU BELONG?**

In Section 4.7 of this study, factors critical to the success of Communities of Practice were listed and discussed. By asking this question, the researcher thus aimed to determine if these factors were really so important and if there were other factors that were not mentioned in the discussion.

| RESPONDENT | ANSWER |
|---|---|
| Respondent 1 | - The discussions in the Communities should be on cutting edge issues, e.g. the Knowledge Management Practitioners of the Pretoria Group, that discusses issues on knowledge management;<br>- There should be forums where people with similar interests can meet and exchange ideas;<br>- Getting experts involved;<br>- Setting time apart for information specialists to get involved because it can take up a lot of their time. |
| Respondent 2 | - They should be forums where ideas can be exchanged. |
| Respondent 3 | - Technical infrastructure is very critical. The reason that the groups I belong to are not working is because the infrastructure of the InfoPortal has not been sorted out;<br>- Time must be managed thoroughly. Questions must be sent through at a specific time, otherwise people will not react on it. |
| Respondent 4 | - Getting experts in the field involved in the Community;<br>- By discussing interesting things, e.g. an interesting article, that touches on aspects of the members' work. |
| Respondent 5 | - Maintaining personal contact among Community members so that people don't feel isolated;<br>- That the group functions as a sounding board (forum) and gives support and confirmation for what you want to do;<br>- It is the passion that keeps these Communities together. |

**Table 5.20:   Respondent's answers to the question 'what do you regard as critical/important factors for the success of the Communities of Practice to which you belong?'**

The answers given in Table 5.20 showed that most of the factors listed in Section 4.7 were also mentioned by the respondents as being critical for the success of the Communities they belonged to. Factors that were not mentioned included: the focus on knowledge important to the business; finding a well-respected community member to coordinate the community; building on the core values of the organisation; and developing an active, passionate core group. Respondent 5 added passion as a critical factor that keeps the Community together.

The respondents' answers thus showed that they had an understanding of the factors that would make their Communities a success. This could be of great help in the nurturing of these Communities so that they can develop to their full potential.

### 5.6.21 WHAT WILL YOU DO IF THESE COMMUNITIES OF PRACTICE ARE NO LONGER VIABLE?

In the fifth stage of the life cycle of a Community of Practice, two scenarios are painted, namely disengagement (see Table 4.5) or adaptation (see Table 4.6). With this question, the researcher aimed to determine what library staff/information professionals would do if these Communities were in the fifth stage.

| RESPONDENT | ANSWER |
|---|---|
| Respondent 1 | - If it is no longer serving a purpose one just ends it. |
| Respondent 2 | - Then you end it. If you cannot end it, you transform it. |
| Respondent 3 | - One should act radically and end it, and start these groups afresh by finding out if there really is a need for such a group. The group is then started afresh on the condition that everyone understands how the technology used (e.g. InfoPortal) works, and with the undertaking that everyone will partake. |
| Respondent 4 | - One should let them die out naturally. Many of these groups just fade out, and there are no formal terminations of them. There are a few of these groups that just plod along. In that case, the members of the group should decide if the group should maybe operate in a different way. Sometimes it happens that the people who started the group originally are no longer interested in the group and start a new group. The old group then dies out naturally. |
| Respondent 5 | - These groups will naturally fade away or will go into a hibernation period. |

**Table 5.21: Respondent's answers to question 'what will you do if these Communities of Practice are no longer viable?'**

From the responses in Table 5.21, it seems that Communities of Practice normally die out naturally if they become obsolete. In other words, when the members realize it serves no purpose anymore, they disband/end it. This confirms the scenario of disengagement as stated in Section 4.5 of this study. Another action suggested by the respondents was that of transformation. If the Community has outlived its purpose, its members can transform the Community to operate in a different way so that it can again serve a purpose. This confirms the scenario of adaptation as stated in Section 4.6 of this study. A third possibility was also mentioned by Respondent 5, namely that the Community can go into a period of hibernation and be revived again when needed. The respondents were very vague however on how these disengagement or adaptation scenarios can be played out. This could indicate that none of them has experienced the disengagement or transformation of a Community of Practice.

**5.6.22      DO YOU ENVISAGE NEW COMMUNITIES OF PRACTICE THAT ARE IN THE PROCESS OF EMERGING?**

This question was asked to help identify possible new Communities of Practice that should be developed and nurtured.

| RESPONDENT | ANSWER |
|---|---|
| Respondent 1 | - I am busy organising a conference for all the Veterinary librarians of the world. Something could develop out of that, especially for the Veterinary librarians of Africa. |
| Respondent 2 | - No. |
| Respondent 3 | - I have noticed that the concept have been taken up by the rest of the university, and many people are busy with such groups, but the AIS is lagging behind and are not even aware of these groups. The AIS will have to become aware of these groups, especially the information specialists through their relationships with their academic departments. |
| Respondent 4 | - Yes, I think around the new focus areas of the AIS new groups will emerge. |
| Respondent 5 | - There could develop a Community of Practice around the Lean and Mean Focus. |

**Table 5.22:    Respondent's answers to question 'do you envisage new Communities of Practice that are in the process of emerging?'**

The list of possible Communities of Practice as given by the respondents was very limited. This could indicate an inability among information professionals in the AIS to identify potential Communities of Practice. Information professionals will therefore have to be sensitised to the characteristics of Communities of Practice, and on how to recognise the signs of Communities that are in the process of developing.

## 5.7    SUMMARY

At the start of this chapter, a short overview was given of the research methodology followed in this study. The research method to acquire the findings in the case study was shown to be empirical (based on individual interviews, and a focus group interview) and qualitative (evaluating the performance of Communities of Practice in their natural settings).

The above was followed by an overview of the questions asked in the interviews. Next followed an overview of the AIS and the five respondents that were interviewed. The empirical study then followed, which showed that the respondents viewed knowledge management from an integrative perspective, and that knowledge management was only in the beginning stages of development in the AIS. It seems that the AIS had focused more on the management of explicit knowledge in the past than on tacit knowledge. A suggestion was then made that a framework for its deployment and development in the organisation be worked out.

The respondents described the AIS as a learning organisation in answer to the following question, and this was followed by a list of all the Communities of Practice the respondents belonged to. The fact that staff members belonged to more cross-organisational Communities of Practice was shown to be a possible indication of their involvement in professional activities outside the organisational boundaries of the AIS. The absence of top management in the organisation, and the fact that knowledge management was only in its beginning stages in the organisation, were given as possible reasons for the small number of internal Communities in the AIS. The origin of these groups further confirmed that they could be classified as Communities of Practice.

Next, the researcher asked the respondents to give an idea of the number of members that belonged to these Communities of Practice. Their answers showed that the average

size of their Communities was between 15-20 members, which is an ideal size for a Community of Practice, because it is not too large. After this, the researcher determined who led these Communities of Practice and found that information specialists took the lead in three of the Communities. It was also discovered that the Information Specialists Group, the Digital Repository Group and the Informal Network for E-Information Experts were led by management, which could be a contributing factor for most of these Communities not developing beyond the first stages of the life cycle of a Community of Practice. One would expect that the number of years a Community of Practice exists could be an indication of its stage of development, but is was shown that some Communities of Practice can develop into an active Community very quickly, and that others take time to develop into their full active capabilities, depending on a variety of factors.

The results of the next question showed that four of the Communities that the respondents belonged to met face-to-face in a regular manner and that three of the groups only met virtually. It was indicated that these virtual groups might have experienced problems to create a sense of community for their members. Next, the researcher asked the respondents to indicate in which stage of the life cycle of a Community of Practice each of these Communities found themselves. The responses showed that most of the Communities found themselves in the potential or formation stage of development - some of them being in these stages for a number of years, which could indicate that there were factors that hindered development of these Communities.

The next question focused on the values that the Communities of Practice had for the individual, the Community and the AIS. The values were shown to be the motivation behind individuals' participation in Communities of Practice, while it also showed that Communities could be used as tools for leverage in the organisation. It furthermore showed why the AIS embraced the idea of Communities of Practice as knowledge management tools.

Following the above, the researcher asked the respondents to identify the types of knowledge that were shared in the Communities of Practice they were involved in. Their answers indicated that tacit, explicit and organisational knowledge were shared. Though cultural knowledge was not mentioned, it was assumed that cultural knowledge was

transferred though values and examples set by individuals in the organisation. The next question focused on the techniques and tools (technology) that were utilised by the Communities of Practice for the capturing, organisation and sharing/transfer of knowledge created in them. The results showed that storytelling and role-play/simulations were used by some, but knowledge mapping by no-one. The answers received further showed that knowledge capturing and sharing techniques were only applied by some of the respondents, and that there was a lack of knowledge on techniques that were available. It was attributed to the fact that most of these Communities of Practice were only in their beginning stages, where a framework for knowledge capturing and sharing needed to be worked out. It was also shown that various types of information technology infrastructure were being utilised by these groups for the capturing and sharing of knowledge.

Next, the respondents indicated that the Communities used identification/recognition of individual achievement, the building of group identity and motivation of people to participate as techniques to ensure participation of their members. None of the respondents mentioned the technique of celebrating achievements and successes, and the researcher indicated that it could be another reason why many of the Communities were only in the beginning stages of development. The following question tried to determine how long these Communities would last. The deductions were that Communities of Practice that are built around dynamic topics/fields, and around the core business of the organisation, tend to last longer or even indefinitely, and that Communities that form around a project only lasts as long as the project. Shortcomings in information technology were shown to be an inhibitor of development. This was followed by a question on whether staff members received incentives/rewards for participation in Communities of Practice. The answers showed that they received none; the lack of which might demotivate members to participate in Communities of Practice in future. The researcher felt that this could be a factor why many of the Communities did not develop further than the first stages of development of a Community of Practice.

In the next question, the researcher tried to determine if Communities of Practice were supported by top management. The responses received showed a difference of opinion amongst the respondents. The researcher felt that this could be an indication that management were not articulating their support of Communities of Practice clear enough throughout the AIS.

The next question addressed the issue of how an information/knowledge professional could win the trust of the other members of a cross-organisational Community of Practice. Their responses showed that the majority of the respondents did not really understand the question, did not really know much about trust or alternatively did not know how information professionals can win the trust of other members. This showed a lack of self-marketing skills. The issue of how to handle newcomers in Communities of Practice were dealt with next and it was found that not much was done for newcomers.

A question on the factors critical for the success of these Communities of Practice then followed, with answers indicating that the respondents had an understanding of what the factors were that would make their Communities a success. The next question tried to determine what the respondents would do if these Communities were no longer viable. Answers received included the disengagement or transformation of Communities, as well as the possibility of Communities going into hibernation. Lastly, the researcher tried to establish if the respondents knew of possible new Communities of Practice that were in the process of emerging. The limited list of possible Communities that were provided indicated a possible inability among information professionals to identify potential Communities of Practice.

Having completed the empirical study, the researcher could compare the findings in the empirical and literature study with each other and indicate correlations as well as differences between the two studies in the next chapter. The next chapter also includes recommendations, limitations of the study, and concluding remarks.

**CHAPTER 6**

**CONCLUSIONS AND RECOMMENDATIONS**

**6.1    INTRODUCTION**

In Section 1.2, certain questions were formulated in order to address the central research problem. The aim of this chapter (Chapter 6) is to address these questions from the findings in the empirical study, corroborated by the literature study, and to draw conclusions from these. This is followed by a number of recommendations flowing from the study, as well as a list of possible themes for further research. The research questions (see Section 1.2) were:

- What is meant with the concepts knowledge management, learning organisation and Communities of Practice?
- What interrelationship exists between the knowledge management, learning organisation and Communities of Practice concepts?
- What role does Communities of Practice play in the management of knowledge in a learning organisation?
- What are the development stages in the implementation of Communities of Practice to support knowledge management?
- What are the critical factors for the success of Communities of Practice in the management of knowledge in a learning organisation?

**6.2    WHAT IS MEANT WITH THE CONCEPTS KNOWLEDGE MANAGEMENT, LEARNING ORGANISATION AND COMMUNITIES OF PRACTICE?**

**6.2.1  THE CONCEPT OF KNOWLEDGE MANAGEMENT**

Two perspectives regarding knowledge management were identified during the literature study, namely the integrative perspective where knowledge management is seen as the management of tacit and explicit knowledge in an integrative manner (an example of this is the interaction between tacit and explicit knowledge in the SECI model in Section 2.6.1), while the information technology perspective views knowledge management as

the management of content and information management as the management of information technology (see Section 2.7.1). The empirical study showed that knowledge management in the AIS was viewed from an integrative perspective, because most of the respondents viewed knowledge management as the management of tacit and explicit knowledge in an integrative manner. The four types of knowledge identified in the literature study (see Section 2.2.4), namely tacit, explicit, organisational and cultural knowledge, were also shared in the Communities of Practice in the AIS (see Section 5.6.12). In correlation with the literature study (see Sections 2.6.2.5, 4.5.2 and 4.6), information technology was furthermore regarded as an enabler of knowledge management in Communities of Practice in the AIS (see Section 5.6.1). Various stages of knowledge management were identified in literature (see Section 2.7.3), namely the 'Information for decision support stage', the 'SECI model stage' and the 'Complicated-complex and chaotic stage'.

Considering the above stages, knowledge management can be regarded as in the 'Information for decision support stage' and moving into the 'SECI model' stage. This can be substantiated by the AIS's knowledge management processes having mostly focused on the management of explicit knowledge, but not so much on the management of tacit knowledge (see Section 5.6.2). The fact that discussions on the topic were held in the AIS, that a knowledge management project was run, and that an information technology infrastructure for knowledge management was set up, was an indication that the organisation realized the importance of the management of both explicit and tacit knowledge and was moving into the 'SECI model stage'.

### 6.2.2  THE CONCEPT OF THE LEARNING ORGANISATION

During the discussion of the concept of the learning organisation in the literature study, three types of learning that occurs in organisations were identified, namely *single-loop learning*, *double-loop learning* and *deutero-learning*. Single loop learning, according to the literature (see Section 3.2.2.1), takes place when members of an organisation become aware of changes in the internal and external environment through engagement with each other, then detect errors in the services and products of the organisation they belong to, and correct these. When the errors detected lead to the modification of the organisation's underlying norms, policies, strategies, objectives and assumptions associated with the norms, double-loop learning (see Section 3.2.2.2) takes place.

Deutero-learning (see Section 3.3.2.3) occurs when members of an organisation learn from each other "how to learn". The empirical study (see Section 5.6.3) showed that two types of learning, namely single-loop and double-loop learning, occured in the Communities of Practice in the AIS. Deutero-learning should occur as a matter of course, as members of these Communities learn from one another by interacting. In correlation with the literature study (see Section 3.3.2), the empirical study (see Section 5.6.3) showed that the AIS developed into a learning organisation to address the rapid changes taking place in the environment in which it operated. The AIS was further shown to have the following attributes of a learning organisation as mentioned in the literature study (see Sections 3.3.4.2, 3.3.4.3, and 3.5): providing continuous learning opportunities (environments); user education on how to search for information; the use of measurement systems to measure performance; the linking of individual performance with organisational performance; and the organisational structure of the AIS being in the form of a net (matrix) (see Section 5.4).

### 6.2.3  THE CONCEPT OF COMMUNITIES OF PRACTICE

Communities of Practice in the AIS were found to exist internally and externally (across the organisation's boundaries), which correlated with the literature study's finding that Communities of Practice in an organisation can exist internally between colleagues in an organisation (see Section 4.2), focusing on the internal work processes and practices of the organisation, and operating normally in organisational units in the same organisation. Communities of Practice in the AIS were also found to exist externally (see Section 4.2) across organisational boundaries or boundaries of different organisational units, including professionals sharing the same domain, but working in different organisations or organisational units. The small number of internal Communities of Practice in the AIS was linked to the absence of top management after two of the top management staff members went on retirement, as well as the fact that knowledge management was only in its beginning stages in the AIS.

During the empirical study, it was further found that Communities of Practice could be in virtual and face-to-face format, which correlates with the literature study. Both the literature study (see Section 4.2) and the empirical study (see Section 5.6.9) indicated that Communities of Practice in the face-to-face format provided people with a sense of being part of a community, while Communities that only met virtually could be

experiencing problems in creating a sense of being part of a community. The empirical study also confirmed the finding in the literature study that Communities of Interest have the potential to develop into Communities of Practice (see Section 4.3.3). Formal groups/teams were also shown in the empirical study to have the potential to develop into Communities of Practice (see Section 5.6.5). Communities of Practice were furthermore found to be places where newcomers can learn from old timers by being allowed to partake in certain tasks relating to the practice of the Community (see Section 4.3.2). After a certain time, the newcomers then move from peripheral participation to full participation in the Community. The empirical study confirmed the importance of helping newcomers in Communities of Practice move from peripheral to full participation, and also pointed out the lack of processes in the AIS to assist newcomers in these Communities.

## 6.3   WHAT INTERRELATIONSHIP EXISTS BETWEEN THE KNOWLEDGE MANAGEMENT, LEARNING ORGANISATION AND COMMUNITIES OF PRACTICE CONCEPTS?

The findings from the literature and empirical study showed that a definite relationship exists between knowledge management, learning organisations and Communities of Practice. The idea that Communities of Practice in the AIS developed to ensure and accelerate the sharing/flow of knowledge/expertise (see Section 5.6.5), correlates with some of the characteristics of a learning organisation mentioned in the literature study, namely the acquisition, creation, usage, storage and transfer of knowledge, and the rapid leveraging of new knowledge (see 3.3.4.4). This showed the relationship that existed between knowledge management, Communities of Practice and the AIS as learning organisation (see Section 5.6.11).

The idea of Communities of Practice in the AIS acting as *learning spaces* where staff members can get informal training and can learn, concurs with one of the characteristics of a Community of Practice as mentioned in the literature study, namely that Communities of Practice provide a space where people can share their know-how and experience with their peers (see Section 4.3.2), again demonstrating the interrelationship between the concepts. The literature study (see Section 4.9.2) showed that Communities of Practice provided the necessary platforms whereby tacit, explicit, cultural and organisational knowledge could be shared/managed, which was confirmed

by the empirical study in Section 5.6.12. The statements from the empirical study that Communities of Practice helped with the integration of internal knowledge in the AIS (see Section 5.6.11), and that they helped others to gain the experience and knowledge that experts have, confirmed the findings from the literature study that they aid in the retention of knowledge when employees leave the organisation, and that they increase access to expertise across the organisation (see Section 4.4), showing again the interrelationship between the concepts.

From these findings, one can therefore conclude that if Communities of Practice can be found in learning organisations, and learning organisations are characterised by knowledge management, then knowledge managed through Communities of Practice can help in the development of learning organisations.

## 6.4    WHAT ROLE DOES COMMUNITIES OF PRACTICE PLAY IN THE MANAGEMENT OF KNOWLEDGE IN A LEARNING ORGANISATION?

It was found in the literature study that by participating in Communities of Practice, individuals could experience a sense of community, enrich their learning, and can share and obtain the necessary knowledge (expertise, experience and tools) to do their work effectively (see Section 4.4). The empirical study confirmed this by stating that Communities of Practice helped their members do their work better, to put a better product on the table, to share/transfer knowledge, to accelerate knowledge sharing/transfer, and to create a stable sense of being part of a network or community (see Section 5.6.11). Communities of Practice can also be used to embed knowledge and expertise in a larger population, as confirmed by both the literature (see Section 4.4) and empirical studies (see Section 5.6.11). The empirical study (see Section 5.6.11), described this in different words, namely to "integrate internal knowledge in the organisation" and to accelerate knowledge sharing/transfer.

The use of Communities of Practice to retain or embed knowledge and experience of employees (experts) when they leave the organisation also builds on the idea of embedding/integrating internal knowledge and was mentioned in both the empirical (see Section 5.6.11) and literature studies (see Section 4.4). The sharing of knowledge outside the traditional structured boundaries of the organisation (see Section 4.4) linked up with the idea put forward in the empirical (see Section 5.6.11) and literature studies

177

(see Section 4.4) of utilising Communities of Practice to cross-fertilize ideas. Communities of Practice furthermore helped to ensure standardisation, i.e. building of a common language between people in the organisation (see Section 4.4). This was confirmed by the empirical study (see Section 5.6.11). Communities of Practice also increased opportunities for innovation and increased access to expertise, as could be deducted from both the literature study (see Section 4.4) and the empirical study (see Section 5.6.11).

## 6.5    WHAT ARE THE DEVELOPMENT STAGES IN THE IMPLEMENTATION OF COMMUNITIES OF PRACTICE TO SUPPORT KNOWLEDGE MANAGEMENT?

The literature study (see Section 4.5.2) showed that Communities of Practice develop through certain stages forming a life cycle. The first stage was shown to be the potential stage, where the possibility for the formation of a community from a network of people with similar issues and needs exists. A formation stage where people come together and launch a Community of Practice follows next. This is in turn followed by a commitment stage where the Community grows and takes full ownership of its practice. An active stage where the Community is established and goes through cycles of activities develops next, and in the final stage the Community can disengage or adapt to changes in the environment. In each of the stages, the behaviour of its members, the role of the information professional, the behaviour of the organisation where applicable, the supporting processes, as well as the enabling technology were shown to differ.

The empirical study (see Section 5.6.10) revealed that most of the Communities of Practice in the AIS found themselves either in the potential stage, because the members still needed to find one another, find common ground and prepare for a community, or in the formation stage, because their members came together, formed a community, set out its operating principles, were learning about each other, started to share experiences and knowledge, started to build a common vocabulary, were creating roles and norms, formed a group identity, and were starting a formal history. The reason these groups didn't develop further than these two stages could be because knowledge management in the AIS was only in its beginning stages (see Section 5.6.2) at the time of the study. Another reason could be the absence of and lack of support from the top management of the AIS (see Section 5.6.17). Flowing from this was a lack of incentives or rewards for staff members to participate in Communities of Practice (see Section 5.6.16) as

hindering development. The lack of knowledge on knowledge capturing techniques (see Section 5.6.13) as well as the fact that the virtual workspace of the InfoPortal was not open to people outside the University of Pretoria, could also have been hindering factors.

**6.6    WHAT ARE THE CRITICAL FACTORS FOR THE SUCCESS OF COMMUNITIES OF PRACTICE IN THE MANAGEMENT OF KNOWLEDGE IN A LEARNING ORGANISATION?**

Most of the critical factors mentioned in the literature study were also named in the empirical study. Passion as a critical factor that keeps the Community together was added in the empirical study (see Section 5.6.20), but not mentioned in the literature study, though it does link up with the idea of developing an active passionate core group as mentioned in Section 4.7. The finding in the literature study that Communities of Practice normally consisted of a handful of people was confirmed by the empirical study, when the ideal size for a Community were shown to be 10-20 people (see Section 5.6.6).

Storytelling and role-play/simulations as knowledge capturing and sharing techniques are critical for the success of Communities of Practice and were mentioned in both the literature and empirical studies.

Both the literature study (see Section 4.8.2.1) and the empirical study (see Section 5.6.18) showed that trust between members of a Community of Practice is essential to ensure the successful transfer/capture of knowledge in a Community of Practice. People tend to share knowledge only with those they can trust.

The information technology/tools used in a Community of Practice can either contribute to the success or failure of a Community of Practice. It is thus essential that the right information technologies/tools be used. The literature study (see Sections 4.5.2 and 4.6) listed the following tools/technologies that were used in the Communities of Practice in the AIS at the time of the study (see Section 5.6.13): e-mail, listservs, telephone calls, teleconferencing, webpages, virtual workspaces, and portals. In correlation with the literature study (see Section 4.5.1), the empirical study (see Section 5.6.14) found that participation in Communities of Practice can be inspired through

identification/recognition of individual achievement by inviting suitable experts to join, building of group identity by designing a virtual workspace for the Community, and motivating and rewarding participation by including participation in the members' performance evaluations. Contracting people to take part was added in the empirical study (see Section 5.6.14) as another possible technique that can be utilized.

The empirical study (see Section 5.6.7) showed that information professionals can easily fulfill the coordination or facilitation role in Communities of Practice and thereby confirmed what was found in literature (see Section 4.9.4). Information professionals, because of their training and experience, can act as Community Champion, facilitate group dialogue, set-up, facilitate and document informal meetings, map knowledge flows and knowledge relationships, encourage members to stay committed, act as mentors or teachers, and help negotiate the role of the Community in organisational decision-making.

The importance of management's role in ensuring the success of Communities of Practice came out clearly in both the empirical (see Sections 5.6.16 and 5.6.17) and literature studies (see Section 4.7), by stating that they can reward and encourage participation in Communities of Practice, and can see to it that participation is included in their personnel's performance evaluations. The importance of management's role was also demonstrated by the negative impact the retirement of two of the top management members of the AIS, together with the uncertainty it left, had on the development of the Communities of Practice in the AIS.

Flowing from these findings and conclusions, certain recommendations can be made.

## 6.7    RECOMMENDATIONS

Knowledge management and Communities of Practice are essential if the AIS wants to fulfil its role as one of the top academic libraries in Africa and if it wants to compete internationally with other information providers. Therefore, the researcher recommends that a framework for knowledge management be worked out in the AIS, and that deutero learning be given more attention in the Communities of Practice in the AIS, which will provide opportunities for reflection on what facilitate or inhibit learning so that new strategies for learning can be invented. Procedures should be put in place in

Communities of Practice to help newcomers move from peripheral participation to full participation, e.g. by identifying people in these Communities that can act as mentors for the newcomers. Furthermore, the uncertainty concerning the replacement of the top management in the AIS that went on retirement should be addressed as a matter of urgency. Participation in Communities of Practice by library staff (information professionals) should be included in their performance evaluations and staff members should be awarded incentives for participating. Cataloguers in the AIS should also be given the chance to get involved in the knowledge management processes of the AIS. The limitations of the virtual workspace on the InfoPortal of the University should also be addressed and the workspace opened up to people from outside the University.

## 6.8    SUGGESTIONS FOR FURTHER RESEARCH

During this study, certain areas were identified that can provide opportunities for further research:

- The effectiveness of Communities of Practice in other academic libraries where they have top management support;
- Communities of Practice in other types of libraries;
- Communities of Practice in other types of learning organisations;
- The most effective technique to capture knowledge in Communities of Practice;
- The investigation of the facilitation and leadership roles in Communities of Practice;
- The role of the information specialist in Communities of Practice;
- The role of disciplines in transforming an academic library into a learning organisation;
- The most effective information technology/tool to support Communities of Practice.

## 6.9    CONCLUDING REMARKS

This study has shown that Communities of Practice normally occurs in learning organisations. Communities of Practice can also help an organisation to transform into a learning organisation. Learning organisations were furthermore shown to be characterised by knowledge management, and Communities of Practice were shown to

be the ideal instruments to facilitate the management of knowledge and learning in a learning organisation. Academic libraries, just like any other organisation, were shown to be facing a continuous changing environment with changing customer expectations, continuous developments in technology, etc., which compels them to become learning organisations.

The AIS of the University of Pretoria as academic library and learning organisation have used Communities of Practice the past few years to help in the management of its knowledge. The study showed that the success of these Communities of Practice was very much dependent on the support of top management, the information technology infrastructure, enthusiasm of their members, trust between members, time and rewards and incentives to participate. The Communities of Practice in the AIS started with a lot of enthusiasm a few years ago and started off well, but never developed further than the first stages of the life cycle a Community of Practice. Reasons for this were shown to be the retirement of two of the top management members of the AIS, coupled with the uncertainty about who will take their place, perceived lack of support for the concept by staff from the remaining top management, problems with the virtual workspace of the InfoPortal of the University of Pretoria to accommodate people from outside the university, the lack of attention to newcomers in the Communities of Practice, and lack of time, rewards and incentives to participate in Communities of Practice. These Communities of Practice were shown to have a definite and valuable role in the management of knowledge (tacit and explicit) in the AIS as learning organisation, and they will develop further if attention is given to the abovementioned problems.

Communities of Practice, though valuable knowledge management instruments, seem to be very vulnerable human institutions and as such should be well nurtured by organisations, because they might mean the difference between an organisation being successful or not.

# BIBLIOGRAPHY

AADNE, J.H., VON KROGH, G. & ROOS, J. 1996. Representationism: the traditional approach to cooperative strategies. In *Managing knowledge: perspectives on cooperation and competition.* Edited by Georg von Krogh and Johan Roos. London: Sage, p. 9-31.

ALLEE, V. 2000. Knowledge networks and Communities of Practice. *OD Practitioner*, vol.32, no.4 [Online], Available at: http://www.odnetwork.org/ odponline/vol32n4/knowledgenets.html (Consulted 7 Nov. 2003).'

ARGYRIS, C. 1990. *Overcoming organizational defenses.* New York: Prentice-Hall.

ARGYRIS, C. & SCHÖN, D.A. 1978. *Organizational learning: a theory of action perspective.* Reading, Mass: Addison-Wesley.

BABBIE, E. et al. 2001. *The practice of social research*. Oxford, UK: Oxford University Press.

BATESON, G. 1972. *Steps to an ecology of mind*. London: Intertext Books.

BAUER, R. 1999. Customer inspired innovation. In *Communities of Practice*. Sl.: Community Intelligence Labs, 1999 [Online], Available at: http://www.co-l-l. com/coil/knowledge-garden/cop/definitions.shtml (Consulted 14 March 2001).

BECHER, T. 1989. *Academic tribes and territories: intellectual enquiry and the cultures of disciplines.* Milton Keynes, UK: The Society for Research into Higher Education and Open University Press.

BELL, D. 1973. *The coming of Post-Industrial society: a venture in social forecasting.* New York: Basic Books.

BELL, M. 2001. Online role-play: anonymity, engagement and risk. *Education Media International*, December, vol.38, issue 4, p.251-260.

*The benefits of knowledge management: KiKM: what are the benefits?* [Online], Available at: http://www.kikm.org/KM_Benefits.htm (Consulted 9 October 2004).

BERGERON, P. 1996. Information Resources Management. *Annual Review of Information Science and Technology*, vol. 31, p.263-300.

BLACK, A. 1984. *Guilds and civil society in European political thought from the Twelth Century to the present.* London: Methuen & Co.

BLAU, P.M. 1964. *Exchange and power in social life.* New York: Wiley.

BOHM, D. 1994. *Thought as a system*. London: Routledge.

BOLAND, R.J. & TENKASI, R.V. 1995. Perspective making and perspective taking in communities of knowing. *Organization Science*, vol.6, no.4, p.350-372.

BOTHMA, C.H. 2000. *E-commerce for South African managers*. Irene: Interactive Reality.

BOYNTON, A.C. & ZMUD, R.W. 1984. An assessment of critical success factors. *Sloan Management Review*, Summer, vol. 25, issue 4, p.17-27.

BROADBENT, M. 1998. The phenomenon of knowledge management: what does it mean for the information profession? *Information Outlook*, May, p.23-36.

BROWN, J.S. & DUGUID, P. 1991. Organizational learning and Communities of Practice: toward a unified view of working, learning, and innovation. *Organization Science*, February, vol.2, no.1, p.40-57.

BROWN, J.S. & DUGUID, P. 2000. *The social life of information*. Cambridge, MA: Harvard Business School.

BROWN, J.S. & GRAY, E.S. 1995. The people are the company: how to build your company around your people. *Fastcompany Magazine,* November, issue 1, p.78-82.

BUHLER, P.M. 2002. Managing in the new millennium: building the learning organization for the 21$^{st}$ century: a necessary challenge. *Supervision*, Dec, vol.63, issue 12, p.20-22.

BURGOYNE, J. 1995. Feeding minds to grow the business. *People Management*, 21 September, vol. 1, issue 19. Retrieved from Business Source Premier, p.1-7.

BURK, M. 2000. Communities of Practice. *Public Roads*, May-June, vol. 63, issue 6, p.18-21.

BURNS, T. & STALKER, G.M. 1962. *The management of innovation.* London: Tavistock Publications

BURRELL, G. & MORGAN, G. 1979. *Sociological paradigms and organisational analysis: elements of the sociology of corporate life.* London: Heineman.

CADAS, C. 2003. Frontline knowledge: trainees get expert insight through "knowledge acquisition" at Rolls-Royce. *KM Review*, March-April, vol.6, issue 1, p.3.

CHARAN, R. 1991. How networks reshape organizations for results. *Harvard Business Review*, September-October, vol. 69, p.105-115.

CHOO, C.W. 2000. Working with knowledge: how information professionals help organisations manage what they know. *Library Management*, vol.21, no.8, p.395-403.

COHEN, D. & PRUSAK, L. 2001. *In good company: how social capital makes organizations work.*  Boston, MA: Harvard Business School Press.

COLLISON, C. & PARCELL, G.  2001*. Learning to fly: practical lessons from one of the worlds leading knowledge companies*. Milford, CT: Capstone.

CONFESSORE, S.J. 1997. Building a learning organisation: Communities of Practice, self-directed learning, and continuing medical education. *Journal of Continuing Education in the Health Professions*, vol.17, p.5-11.

CONSTANT, D., KIESLER, S. & SPROULL, L.  1994. What's mine is ours, or is it: a study of attitudes about information sharing. *Information Systems Research*, vol.5, no.4, p.400-422.

*Co Vis Project (Learning through collaborative visualization): Communities of Practice* [Online], Available at:  http://www.covis.nwu.edu/info/philosophy/communities-of-practice.html (Consulted 18 April 2001).

DAFT, R.L. & MARCIC, D. 1998.  *Understanding management*. Fort Worth, TX: The Dryden Press.

DAFT, R.L. & WEICK, K.E. 1984. Toward a model of organizations as interpretation systems. *Academy of Management Review*, vol.9, p.284-295.

DARR, E.D., ARGOTE, L. AND EPPLE, D. 1995. The acquisition, transfer, and depreciation of knowledge in service organizations: productivity in franchises. *Management Science*, November, vol. 41, no. 11, p.1750-1762.


DAVENPORT, T.H., JARVENPAA, S.J. & BEERS, M.C. 1996. Improving knowledge work processes. *Sloan Management Review,* Summer, vol.37, issue 4, p.53-65.


DAVENPORT, T.H. & PRUSAK, L. 1998. *Working knowledge*. Boston: Harvard Business School Press.


DE GEUS, A.P. 1988. Planning as learning. *Harvard Business Review*, March-April, vol.66, no.2, p.70-74.


DENNING, S. 2001. *The springboard: how storytelling ignites action in knowledge-era organizations*. Boston, MA: Butterworth-Heinemann.


DENNING, S.  *Launching and nurturing communities through storytelling*. [Online], Available at: http://www.stevedenning.com/storytelling_communities.html (Consulted 7 October 2004).


DODGSON, M. 1993. Organizational learning: a review of some literatures. *Organization Studies*, vol.14, no.3, p.375-394.


DRUCKER, P.F. 1988. *Management: tasks, responsibilities, practices*. Oxford: Butterworth-Heinemann.


DUFF, P.W. 1938. *Personality in Roman private law*. London: Cambridge University Press.


EBERHAGEN, N. 2000. *Emerging knowledge distribution means and their characterization.* [Online] Available at: http://si.vse.cz/archiv/clanky/_2000/eberhage.pdf (Consulted 21 Dec. 2004).


*Education in the 80s: speech communication*. Edited by G.W. Friedrich. Washington, D.C.: National Educational Association, 1981.


FAHEY, L. et al. 2001. Linking e-business and operating processes: the role of knowledge management. *IBM Systems Journal*, vol.40, no.4, p.889-907.

FELDMAN, M. 1989.  *Order without design: information production and policy making.* Stanford, CA: Stanford University Press.

FOWLER, R.K. 1998. The university library as learning organization for innnovation: an exploratory study. *College and Research Libraries*, May, vol. 59, no.3, p.220-231.


GALBRAITH, J. 1973. *Designing complex organizations*. Reading, MA: Addison-Wesley.


GARVIN, D.A. 1993. Building a learning organization. *Harvard Business Review*, July-August, vol. 71, p.78-91.


GICK, M.L. & HOLYOAK, K.J. 1987. The cognitive basis of knowledge transfer. In *Transfer of learning: contemporary research and applications*. Edited by Cormier, S.M. and Hagman, J.D. San Diego, CA: Academic Press. p.9-46.


GILL, P.J. 2001. Once upon an enterprise: the ancient art of storytelling emerges as a tool for knowledge management. *Knowledge Management*, 19 April [Online],  Available at:  http://www.destinationkm.com/print/default.asp?ArticleID=231   (Consulted on 7 October 2004).


GIOIA, D.A. & POOLE, P.P. 1984. Scripts in organizational behavior. *Academy of Management Review*, vol.9, p.449-459.


GLADWELL, M. 2000a. *The tipping point: how little things can make a big difference*. Boston, MA: Little, Brown and Company.


GLADWELL, M. 2000b. Designs for working: why your bosses want to turn your new office into Greenwich Village. *Gladwell.com*, 11 December [Online], Available at: http://www.gladwell.com/2000_12_11_a_working.htm (Consulted 19 December 2002).


GONGLA, P. & RIZZUTO, C.R. 2001. Evolving communities of practice: IBM Global Services experience. *Knowledge Management*, vol. 40, no.4 [Online], Available at: http://www.research.ibm.com/journal/sj/404/gongla.html   (Consulted   14   February 2002).


GRANT, R.M. 1996. Toward a knowledge-based theory of the firm. *Strategic Management Journal*, Winter Special Issue, vol.17, p.109-122.


GROSS,  M.,   HANES,  L.  &  AYRES,  T.  2003. *Capturing and implementing undocumented knowledge: EPRI takes on the problems presented by the loss of experienced workers, January 14, 2003* [Online], Available at: http://www.controlmagazine.com/Web_First/ct.nsf/ArticleID/PSTR-5FTQU5?Open Document&Click= (Consulted 7 October 2004).

GUPTA, A.K. & GOVINDARAJAN, V. 1994. Organizing for knowledge flows within MNCs. *International Business Review*, vol.3, issue 4, p.443-457.

HANES, L.F. & GROSS, M.M. 2002. *Capturing valuable undocumented knowledge: lessons learned at electric utility sites.* Paper presented at the 2002 IEEE Seventh Conference on Human Factors and Power Plants, Scottsdale, Arizona, 15-19 September.

HANLEY, S. &  DAWSON, C. 2000. Creating knowledge-based Communities of Practice: lessons learned from AMS's knowledge management initiatives. In *Knowledge management and virtual organizations.* Edited by Yogesh Malhotra. Hershey: Idea Group Publishing. p.321-332.

HANSEN, M.T. 1999. The search-transfer problem: the role of weak ties in sharing knowledge across organizational subunits. *Administrative Science Quarterly*, March, vol.44, issue 1, p.82-111.

HARROD, L.M. 1990. *Harrod's librarians' glossary of terms used in librarianship, documentation and the book crafts; and reference book*. 7th ed. Compiled by Ray Prytherch. Aldershot: Gower.

HILDRETH, P., KIMBLE, C. & WRIGHT, P. 2000. Communities of Practice in the distributed international environment. *Journal of Knowledge Management*, vol. 4, issue 1, p.27-37.

HITT, W.D. 1995. The learning organization: some reflections on organizational renewal. *Leadership and Organization Development Journal*, vol. 16, no. 8, p.17-25.

HOSLEY, S. et al. 1994. The quest for the competitive learning organization. *Management Decision*, vol.32, no.6, p.5-15.

HUBER, G.P. 1991. Organizational learning: the contributing processes and the literatures. *Organization Science*, February, vol.2, no.1, p.88-115.

*The IEBM dictionary of business and management*. Edited by Morgen Witzel. London: International Thompson Press, 1999.

Intellectual capital. *SearchCRM.com Definitions* [Online], Available at: http://search.techtarget.com/sDefinition/0,,sid11_gci511656,00.html (Consulted 10 September 2004).

*International Encyclopedia of Information and Library Science*. Edited by John Feather and Paul Sturges. London: Routledge, 1997.


JANTZ, R.  2001.  Knowledge management in academic libraries: special tools and processes to support information professionals. *Reference Services Review*, vol. 29, no.1, p.33-39.


JARVENPAA, S.L. & STAPLES, D.S. 2000. The use of collaborative electronic media for information sharing: an exploratory study of determinants. *Journal of Strategic Information Systems*, vol.9, p.129-154.


JOHNSON-LENZ, P. & JOHNSON-LENZ, T. 1999. Awakening technology. In *Communities of Practice*. Sl.: Community Intelligence Labs [Online], Available at: http://www.co-l-l-.com/coil/knowledge-garden/cop/definitions.shtml    (Consulted    14 March 2001).


JUARRERO, A. 1999. *Dynamics in action: intentional behaviour as a complex system*. Cambridge, Mass: MIT Press.


KEESING, R. & STRATHERN, A. 1998. *Cultural Anthropology: a contemporary perspective.* 3rd ed. Orlando, FL: Harcourt Brace & Co.


KEILL, A.E. & SNYDER, W.M. 2003. *Communities of Practice: promoting sustainability in organizations and society*. Slide notes to the 2003 OD Network Conference. p.1-24.


KIM, S. 1999. *The roles of knowledge professionals for knowledge management*. Paper delivered at the 65th IFLA Council and General Conference, Bangkok, Thailand, August 20 - August 28, 1999 [Online], Available at: http://www.infla.org/IV/ifla65/papers/042-115e.htm (Consulted 22 September 2000).


KING, A.R. & BROWNELL, J.A. 1966. *The curriculum and the disciplines of knowledge: a theory of curriculum practice.* New York: John Wiley.


KING, W.R. 2001. Strategies for creating a learning organization. *Information Systems Management*, Winter, vol.18, no. 1, p.12-20.


KLINE, P. & SAUNDERS, B. 1993. *Ten steps to a learning organization*. Arlington, Virginia: Great Ocean Publishers.

Knowledge management. *SearchDomino.com Definitions* [Online], Available at: http://searchdomino.techtarget.com/sDefinition/0,,sid4_gci212449,00.html (Consulted 10 September 2004).


*Knowledge management and organizational design*. Edited by Paul S. Myers. Boston, Mass: Butterworth-Heinemann, 1996.


*Knowledge management*. *GartnerGroup*, 29 August 1996 [Online], Available at: http://www.gartner.com (Consulted 10 September 2004).


*Knowledge management handbook.* Edited by Jay Liebowitz. 1999. Boca Raton, Fla: CRC Press.


KOLB, D.A., RUBIN, I.M. & OSLAND, J.S. 1995. *Organizational behaviour: an experiential approach.* 6th ed. Englewood Cliffs, N.J.: Prentice-Hall.


KURZ, C.F. & SNOWDEN, D.J. 2003. The new dynamics of strategy: sense-making in a complex and complicated world. *IBM Systems Journal*, vol.42, no.3, p. 462-483.


KVALE, S. 1996. *Interviews: an introduction to qualitative research interviewing.* Thousand Oaks, CA: Sage.


LAVE, J. 1988. *Cognition in practice*. Cambridge, UK: Cambridge University Press.


LAVE, J. & WENGER, E. 1991. *Situated learning: legitimate peripheral participation.* Cambridge: Cambridge University Press.


*The learning organization: managing knowledge of business success.* The Economist Intelligence Unit and IBM Consulting Group, Executive Summary, 1995, p.17.


LESSER, E. & PRUSAK, L. 2000. Communities of Practice, social capital, and organizational knowledge. In *The knowledge management yearbook 2000-2001*. Edited by James W. Cortada and John A. Woods. Oxford: Butterworth-Heinemann. p.251-258.


LESSER, E.L. & STORCK, J. 2001. Communities of Practice and organizational performance. *IBM Systems Journal*, vol.40, no.4, p.831-841.


LEVITT, B. & MARCH, J.G. 1988. Organizational learning. *Annual Review of Sociology*, vol. 14, p.319-340.

*LIS 2004: Introduction to Internet Research: glossary of terminology* [Online],  available at   http://faculty.valencia.cc.fl.us/jdelisle/lis2004/glossary.htm   (Consulted   17   May 2005).


MACHLUP, F. 1980. *Knowledge: its creation, distribution, and economic significance*. *Volume 1: Knowledge and knowledge production*. Princeton, NJ: Princeton University Press.


MALHOTRA, Y. 2000. Knowledge management for e-business performance: advancing information strategy to "Internet time". *Information Strategy*, Summer, vol. 16, no.4, p.5-16.


MANVILLE, B. & FOOTE, N. 1996. Harvest your workers' knowledge. *Datamation,* July, vol. 42, no. 13, p.78-81.


MARCUM, J.W. 1998. *Excursions beyond information: learning and knowledge as a new purpose for academic libraries* [Online], Available at: http://www.library.csi.cuny.edu/chief/excursions.html (Consulted 22 September 2000).


MARQUARDT, M.J. 2002. Five elements of learning. *Executive Excellence*, September, vol. 19, issue 9, p.15-16.


MCDERMOTT, R. 1999a. *Knowing community: 10 critical success factors in building Communities of Practice*. Community Intelligence Labs [Online], Available at: http://www.co-l-l.com/coil/knowledge-garden/cop/knowing.shtml (Consulted 14 March 2001).


MCDERMOTT, R. 1999b. *Learning across teams: the role of Communities of Practice in team organizations* [Online], Available at: http://www.co-i-l.com/coil/knowledge-garden/cop/learning.shtml (Consulted 14 March 2001).


MCQUILLEN, J.S. & IVY, D.K. 1986. Simulations: addressing competence and performance. *Education*, Fall, vol.107, issue 1, p.71-75.


MINTZBERG, H. 1975. The manager's job: folklore and fact. *Harvard Business Review*, vol.53, p.49-61.


MOHR, N. & DICHTER, A. 2001. Building a learning organisation. *Phi Delta Kappan,* June, vol.82, issue10, p.744-747.

MOUTON, J. 2001. *How to succeed in your master's and doctoral studies: a South African guide and resource book.* Pretoria: Van Schaik.

NANDA, A. 1996. Resources, capabilities and competencies. In *Organizational learning and competitive advantage*. Edited by B. Moingeon and A. Edmondson, Thousand Oaks, CA: Sage, p.93-120.

NELSON, R. & WINTER, S. 1982. *An evolutionary theory of economic change*. Cambridge, MA: the Bellhop Press of Harvard University Press.

NICHANI, M. & HUNG, D. 2002. Can a Community of Practice exist online? *Educational Technology*, July-August, vol. 42, no. 4, p.49-54.

NONAKA, I. 1991. The knowledge-creating company. *Harvard Business Review*, November-December, vol. 69, issue 6, p. 96-104.

NONAKA, I. 1994. A dynamic theory of organizational knowledge creation. *Organization Science*, February, vol.5, no.1, p.14-34.

NONAKA, I. 1998. The knowledge creating company. In *Harvard Business Review on knowledge management*. Boston, MA:  Harvard Business School Publishing,  p.21-45.

NONAKA, I. & KONNO, N. 1998. The concept of "ba": building a foundation for knowledge creation. *California Management Review*, Spring, vol.40, no.3, p.40-54.

NONAKA, I., REINMOELLER, P. & SENOO, D. 1998. Management focus: the art of knowledge systems to capitalize on market knowledge. *European Management Journal*, vol.16, no.6, p.673-684.

NONAKA, I. & TAKEUCHI, H. 1995. *The knowledge-creating company*. Oxford: Oxford University Press.

OSLAND, J.S., KOLB, D.A. & RUBIN, I.M. 2001. *Organizational behavior: an experiential approach.* 7th Edition. Upper Saddle River, N.J.: Prentice Hall.

PAGE-SHIPP, R. 2001. *Knowledge management for information specialists*. CSIRIS and UP Joint Session. Workshop held at the CSIR in Pretoria, South Africa on 31 July 2001. (Unpublished)

PEREZ, E. 1999. Knowledge management in the library: no. *Database*, April-May, vol.22, no.2, p.75-78.

PHIPPS, S.E. 1993. Transforming libraries into learning organizations: the challenge for leadership. *Journal of Library Administration*, vol. 18, no.3/4, p.19-38.

POLANYI, M. 1962. *Personal knowledge: towards a Post-Critical philosophy*. London: Routledge and Kegan Paul.

PONELIS, S. & FAIRER-WESSELS, F.A. 1998. Knowledge management: a literature overview. *South African Journal of Library and Information Science*, March, vol. 66, no.1, p.1-9.

PRICE, D.J. DE SOLLA. 1963. *Little science, big science*. New York: Columbia University Press.

PRUSAK, L. 2001. Where did knowledge management come from? *IBM Systems Journal*, vol. 40, no.4,  p. 1002-1007.

*Qualitative research for social workers: phases, steps, and tasks*. Edited by L. Tutty, M. Rothery and R. Grinnell. 1996. Boston: Allyn and Bacon.

REVANS, R.W. 1983. Action learning: kindling the touch paper. *Management Decision*, vol. 21, no.6, p.3-10.

ROWDEN, R.W. 2001. The learning organization and strategic change. *S.A.M. Advanced Management Journal*, Summer, vol. 66, no. 3, p.11-16, 24.

ROWLEY, J. 2000. From learning organisation to knowledge entrepreneur. *Journal of Knowledge Management*, vol.4, no.1, p.7-15.

SACKMAN, S.A. 1991. *Cultural knowledge in organizations: exploring the collective mind.* Newbury Park, CA: Sage Publications.

SAUPERL, A. 2004. Cataloguers' common ground and shared knowledge. *Journal of the American Society for Information Science and Technology*, vol.55, no.1, p.55-63.

SCHEIN, E.H. 1993. SMR Forum: how can organizations learn faster? The challenge of entering the green room. *Sloan Management Review*, Winter, vol.34, no.2, p.85-92.

SCHULZ, M. 2001. The uncertain relevance of newness: organizational learning and knowledge flows. *Academy of Management Journal*, 2001, vol.44, no.4, p.661-681.


SCHULZE, U. 1999. Investigating the contradictions in knowledge management. In *Information systems: current issues and future changes*. Edited by I.J. Larsen and J.I. deGross, Laxenberg: IFIP, p.155-174.


SCHURINK, E.M. 1998. The methodology of unstructured face-to-face interviewing. In *Research at grass roots : a primer for the caring professions.* Edited by A.S. de Vos et al., Pretoria: Van Schaik, p.297-300.


SENGE, P. 1990a. *The fifth discipline: the art and practice of the learning organization*. New York: Doubleday.


SENGE, P. 1990b. The leader's new work: building learning organisations. *Sloan Management Review*, Fall, vol. 32, no.1, p.7-23.


SHIN, M., HOLDEN, T. & SCHMIDT, R.A. 2001. From knowledge theory to management practice: towards an integrated approach. *Information Processing and Management*, vol.37, p.335-355


SIMON, H.A. 1991. Bounded rationality and organizational learning. *Organization Science*, February, vol.2, no.1, p.125-134.


SKYRME, D.J. 2003. Knowledge management: making sense of an oxymoron. *Insights*, no.22 [Online], Available at: http://www.skyrme.com/insights/22km.htm (Consulted  3 January 2005).


SMITH, H.A. & MCKEEN, J.D. 2003. *Creating and facilitating Communities of Practice*. Kingston,      Ontario:      Queen's      University      [Online],      Available      at: http://business.queensu.ca/knowledge/workingpapers/working/working 03-09.pdf (Consulted 3 May 2005).


SNOWDEN D.J. 1998. A framework for creating a sustainable programme. In: *Knowledge management: a real business guide*. Edited by Stuart Rock, London: Caspian, p.6-18.


SNOWDEN, D.J. 2000. *Cynefin: a sense of time and space, the social ecology of knowledge management* [Online], Available at: http://www.knowledgeboard.com/ library/cynefin.pdf  (Consulted 9 October 2004).

SNOWDEN, D.J. 2002. Complex acts of knowing: paradox and descriptive self-awareness. *Special Edition Journal of Knowledge Management*, May, vol.6, no.2, p.1-28.

SNYMAN, R.M.M. 2001. Do employers really know what they want: an analysis of job advertisements for information and knowledge managers. *Aslib Proceedings*, July-August, vol.53, no.7, p.273-281.

SPENDER, J. 1996. Making knowledge the basis of a dynamic theory of the firm. *Strategic Management Journal*, Winter, vol.17, p.45-62.

STACY, R.D. 2001. *Complex responsive processes in organizations: learning and knowledge creation.* London: Routledge.

STATA, R. 1989. Organizational learning: the key to management innovation. *Sloan Management Review*, Spring, vol. 30, issue 3, p.63-74.

STEWART, T.A. 1996. The invisible key to success. *Fortune*, 5 August, vol.134, issue 3, p.173-175.

SVEIBY, K.E. 1997. *The new organizational wealth: managing and measuring knowledge-based assets.* San Francisco, CA: Berrett-Koehler.

SWINK, D.F. 1993.  Role-play your way to learning. *Teaching and Development*, May, vol.47, issue 5, p.91-97.

SZULANSKI, G. 1996. Exploring internal stickiness: impediments to the transfer of best practice within the firm. *Strategic Management Journal*, Winter Special Issue, vol.17 p.27-43.

TAUTKEVIČIENE, G. 2002. Changes in the role of the university library in the context of transformation in educational paradigm. In *Towards the learning society: educational issues*. Edited by Palmira Jucevičiene, Gediminas Merkys and Gerd-Bodo Reinert. Frankfurt am Main: Peter Lang.

TAYLOR, R.M. 1996. *Knowledge management* [Online], Available at: http://ourworld. compuserve.com/homepages/roberttaylor/km.htm (Consulted 10 September 2004).

Taylorism. *Brittanica Concise Encyclopedia* [Online], Available at: http://concise. brittanica.com/ebc/article?eu=405654 (Consulted 6 October 2003).

TOULMIN, S. 1972. *Human understanding, Volume 1: General introduction and Part 1.* Oxford: Clarendon Press.

TURBAN, E. &  FRENZEL, L.E. 1992. *Expert systems and applied artificial intelligence*. New York: MacMillan.

*Upstream CIO* [Online], Available at:  http://www.upstreamcio.com/glossary.asp (Consulted 10 September 2004).

VAN DE VEN, A.H., DELBECQ, A.L. & KOENIG, R. 1976. Determinants of coordination modes within organizations. *American Sociological Review*, April, vol.41, p.322-338.

VAN DER SPEK, R. & SPIJKERVET, A. 1997. Knowledge management: dealing intelligently with knowledge. In: *Knowledge management and its integrative elements*. Edited by Jay Liebowitz & Lyle C. Wilcox, Boca Raton, FA: CRC Press, p.31-59.

VAN DER WESTHUIZEN, J. 2002. Building horizontal companies: the job KM has come to finish.  *Convergence*, vol.3, no.3, p.92-95.

WARD, A. *What is a community?* [Online], Available at: http://www.workfrontiers.com/ what_is_community.htm (Consulted 6 Oct 2003).

WARD, A. 2000. Getting strategic value from constellations of communities. *Strategy and leadership*, vol.28, issue 2, p.4-9.

WASKO, M.M. AND FARAJ, S. 2000. "It is what one does": why people participate and help others in electronic communities of practice. *Journal of Strategic Information Systems*, September, vol.9, no.2-3, p.155-173.

*Webster's New World dictionary of the American Language*. Edited by H. Woolf and C. Merriam. Cleveland, OH: World, 1964.

WENGER, E. 1996. Communities of Practice: the social fabric of a learning organization. *Health Forum Journal*, July/August, vol.39, no.4, p.20-25.

WENGER, E. 1997. Practice, learning, meaning, identity. *Training*, vol.34, no.2, p.38-39.

WENGER, E. 1998. *Communities of Practice.* Cambridge, UK: Cambridge University Press.

WENGER, E. & SNYDER, W. 2000. Communities of Practice: the organizational frontier. *Harvard Business Review*, vol. 78, no.1, p.139-145.

WHITLEY, R. 1976. Umbrella and polytheistic scientific disciplines and their elites. *Social Studies of Science*, vol.6, p.471-497.

WHITLEY, R. 1984. *The intellectual and social organization of the sciences*. Oxford: Clarendon Press.

WIIG, K.M. 2000. Knowledge management: an emerging discipline rooted in a long history. In *Knowledge horizons: the present and the promise of knowledge management.* Edited by Charles Despres and Daniele Chauvel. Boston: Butterworth-Heinemann, p.3-26.

WILLARD, N. 1999. Knowledge management: foundations for a secure structure. *Managing Information*, vol.6, no.5, p.45-49.

WOICESHYN, J. 2000. Technology adoption: organizational learning in oil firms. *Looksmart*, November [Online] Available at: http://www.findarticles.com/p/articles/mi_m4339/is_6_21/ai_71969770/print (Consulted 22 October 2004).